Immunify

Enhancing Immune Health with Speculative Technologies

Interactive Technologies Project (INFO30008)
Assignment A2 Group Report

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Contents

1. Main Design Concept

The field of Health Technologies (HealthTech) is large, diverse and ever-changing. It essentially includes any digital, consumer-facing product that helps people with their health, e.g., digital health platforms, solutions, apps, wearables, preventative technologies, etc.

To access medical data, HealthTech typically relies on Medical Technologies (MedTech), a distinct and equally broad field which includes the physical devices, diagnostics and clinical tools used in healthcare settings, e.g.:

- Physical apparatus/aids (bandages, syringes, pacemakers, prosthetics),
- In-vitro diagnostics (blood glucose monitors, pregnancy tests), and
- Imaging equipment (MRI machines, X-Rays, ultrasounds).

Although growth has always been steady, the HealthTech field has exploded in recent years with advancements and breakthroughs in MedTech like smart wearables and AI. Never before have people been able to so readily track and engage with their own health data without the need for a doctor. Several HealthTech apps/services utilise this data combined with manual user input, algorithms and AI to provide an historically unmatched level of insight across various aspects of people's health. Notable examples include:

- Fitness tracking (Fitbit, Apple Fitness, Under Armour)
- Period tracking (Flo)
- Diet management (WeightWatchers)
- Stress, behaviour and mood tracking (Apple Journal)
- Holistic health tracking (Apple Health, Samsung Health)

An important aspect of one's health that is largely not trackable using current MedTech, however, is immune health. A broad and complex area still under active research, immune health refers to the processes inside one's body that regulate health and prevent sickness. As the primary mechanism by which the human body fights disease, immune health is critical for both sick and healthy people, especially in a post-COVID-19 world. As per a 2025 study from Nagoya University, 47% of seemingly healthy individuals are actually at-risk of developing serious infection based on their immune health alone (Park et al., 2025).

Beyond basic hygiene and basic medical terminology, public knowledge on immunity is severely lacking and its significance is often under-recognised. In our own testing, we found 3 in 5 participants knew very little about immune health, despite valuing it very highly. This is partly due to the immune system's complexity and active state of research, but also because current MedTech renders the tracking of most immune processes difficult, invasive and superficial, if not entirely unfeasible. The only real interactions most people have had with immune health testing are blood tests and COVID-19 tests, but even these are highly invasive, inconvenient and informationally limited beyond simple cell/virus counts. Compared to fitness tracking, where hundreds of detailed biometrics can be gathered just by wearing a watch, it is clear how unfortunately inaccessible such an important part of our health is. The hypothetical ability to gather and monitor immune data as easily as fitness metrics would have huge ramifications for people's health and wellbeing, enabling them to glean deeper knowledge into their health and prevent sickness in a way that is simply not possible today.

We, therefore, seek to answer the question:

> If we lived in a speculative world which had immunity-focused MedTech that was considerably more reliable, insightful and accessible than what's possible today and which was available to everyday people through their wearable devices, how could a HealthTech solution make it easy for people to understand and stay on top of their immune health?

2. Ideation Process

Building on the insights and themes identified in the initial interviews from Assignment 1, our team began by exploring a wide range of potential directions for our app, Immunify. In this divergent phase, five distinct concepts were generated, each addressing a different aspect of immune health. Corresponding low-fidelity prototypes were created to visualise how each concept could function in practice.

Through user testing, we evaluated each idea against criteria such as feasibility, innovation, and alignment with user needs. Through this convergent process, we identified the strongest features of three prototypes—*Immunify*, *Remative*, and *MediTrack*—and merged the strongest features from each into a cohesive concept. *Immunify* became the foundation, designed as a holistic health platform that integrates physical, cognitive, and immune data drawn from wearable devices.

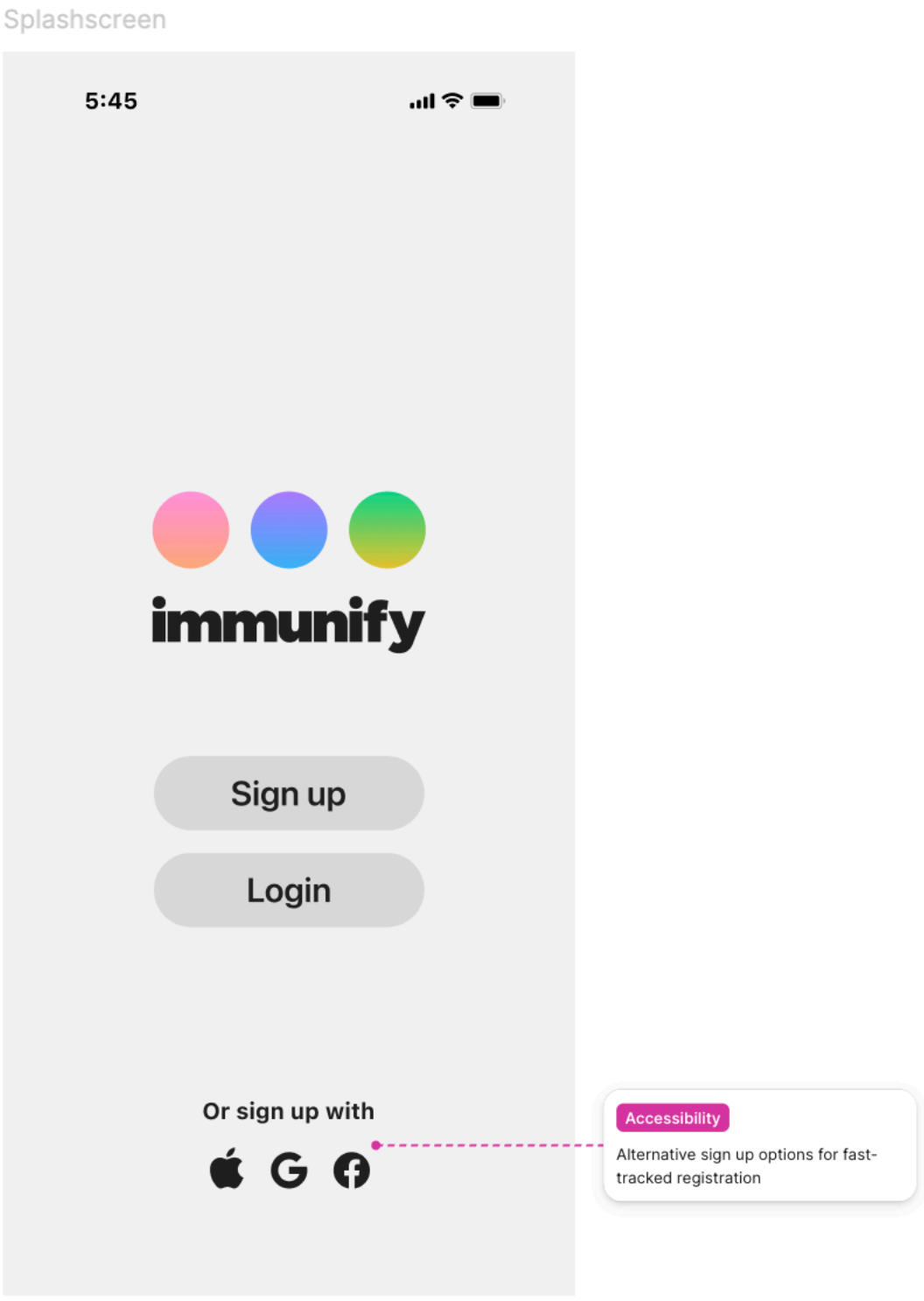
In order to ground our concept in real-world contexts, we developed personas and task scenarios based on the stakeholder groups identified in our rich picture. This exercise clarified user goals, motivations, and pain points, guiding the app's functionality and tone. Each team member then selected exisiting products to use as design precedents to inform the production of our individual wireframes, applying Nielsen's 10 usability heuristics to ensure a user-centred design. Key principles included visibility of system status, match between the system and real-world metaphors, error recovery, and flexibility for experienced users.

From there, we created a detailed app flow, mapping user journeys across main features such as health tracking, sickness forecasting, and personalised recovery guidance. In early iterations, the design included a "sick mode," comprehensive recovery plans, and risk predictions. However, feedback from peer discussions and our lecturer revealed that the scope was overly ambitious and diluted the focus on immune health.

Through iterative refinement, we narrowed our concept to concentrate exclusively on health tracking. The visual design was updated in Figma with a cohesive colour palette, design library, and font selection aligned to our three health domains. We simplified the interface, reducing jargon, refining the visual hierarchy, and enhancing clarity through whitespace and iconography. The tips page was redesigned to prioritise actionable, easy-to-understand information.

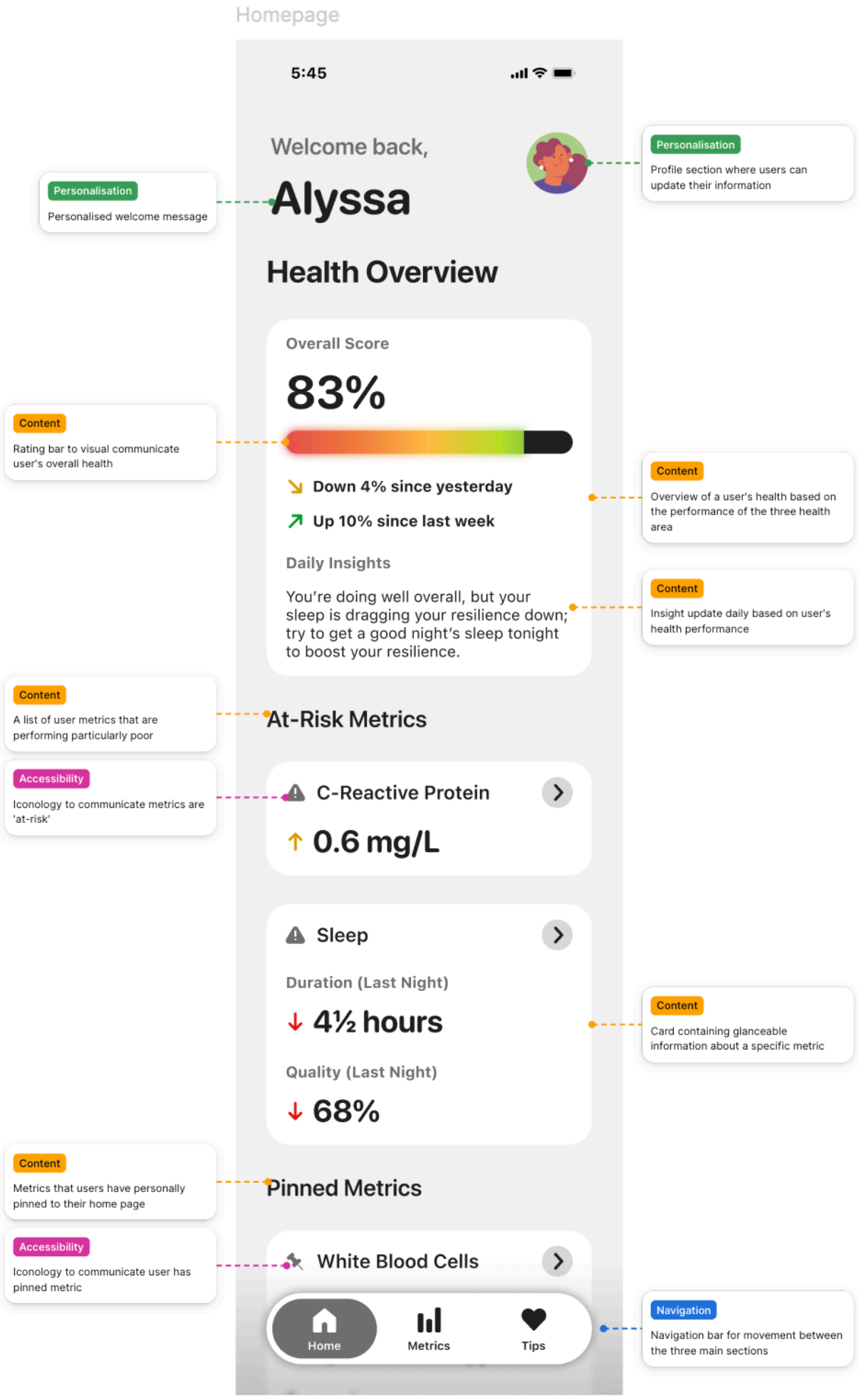
3. Detailed Prototype

3.1 Splashscreen

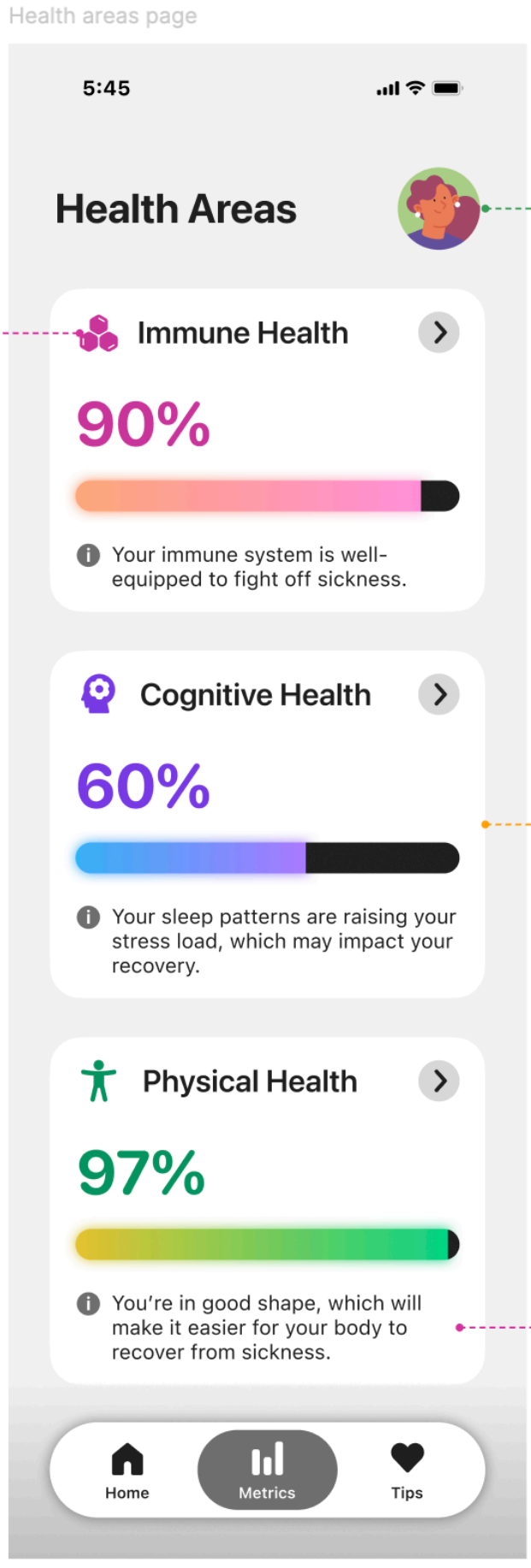


https://www.figma.com/design/X4FwtymyjgI6WMCl8cwiwF/Detailed-Prototype?node-id=984-1990&t=1rtVENTkSyCO8pOh-1

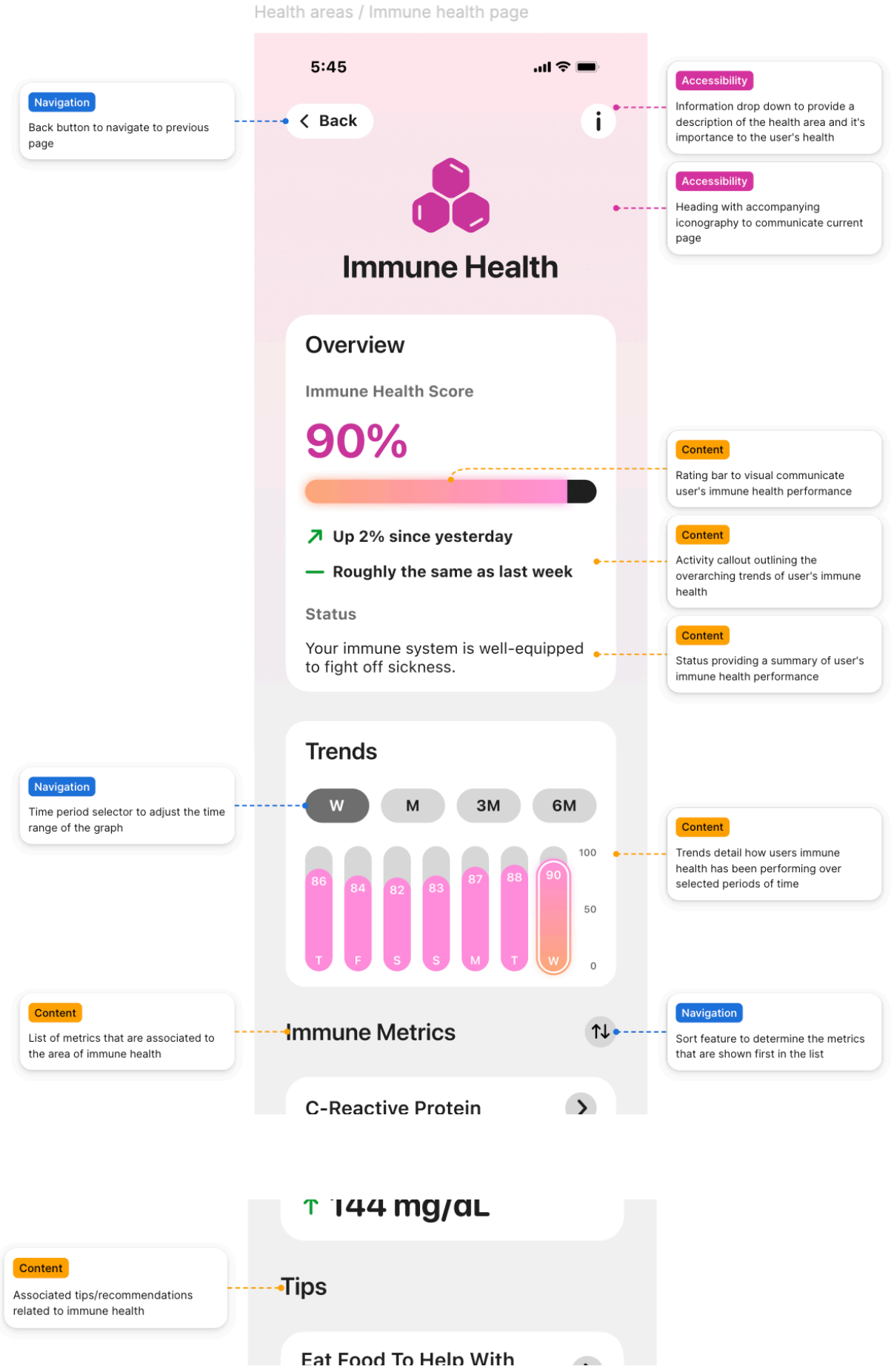
3.2 Homepage


Homepage
5:45
Welcome back,
Alyssa
Health Overview
Overall Score
83%
Down 4% since yesterday
Up 10% since last week
Daily Insights
You're doing well overall, but your sleep is dragging your resilience down; try to get a good night's sleep tonight to boost your resilience.
At-Risk Metrics
C-Reactive Protein
0.6 mg/L
Sleep
Duration (Last Night)
4½ hours
Quality (Last Night)
68%
Pinned Metrics
White Blood Cells
Home
Metrics
Tips
Personalisation
Personalised welcome message
Personalisation
Profile section where users can update their information
Content
Rating bar to visual communicate user's overall health
Content
Overview of a user's health based on the performance of the three health area
Content
Insight update daily based on user's health performance
Content
A list of user metrics that are performing particularly poor
Accessibility
Iconology to communicate metrics are 'at-risk'
Content
Card containing glanceable information about a specific metric
Content
Metrics that users have personally pinned to their home page
Accessibility
Iconology to communicate user has pinned metric
Navigation
Navigation bar for movement between the three main sections

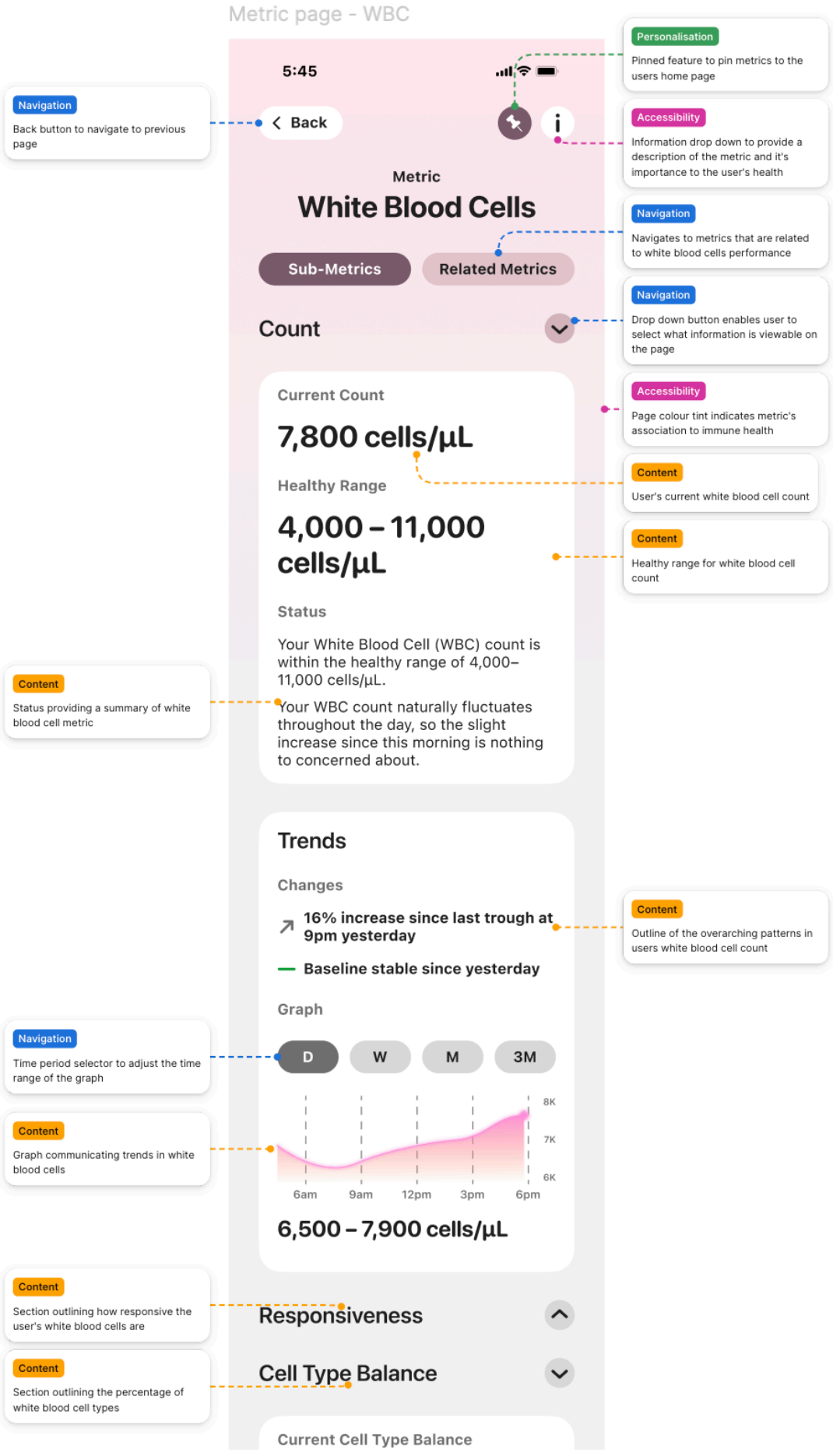
3.3 Health Areas Page



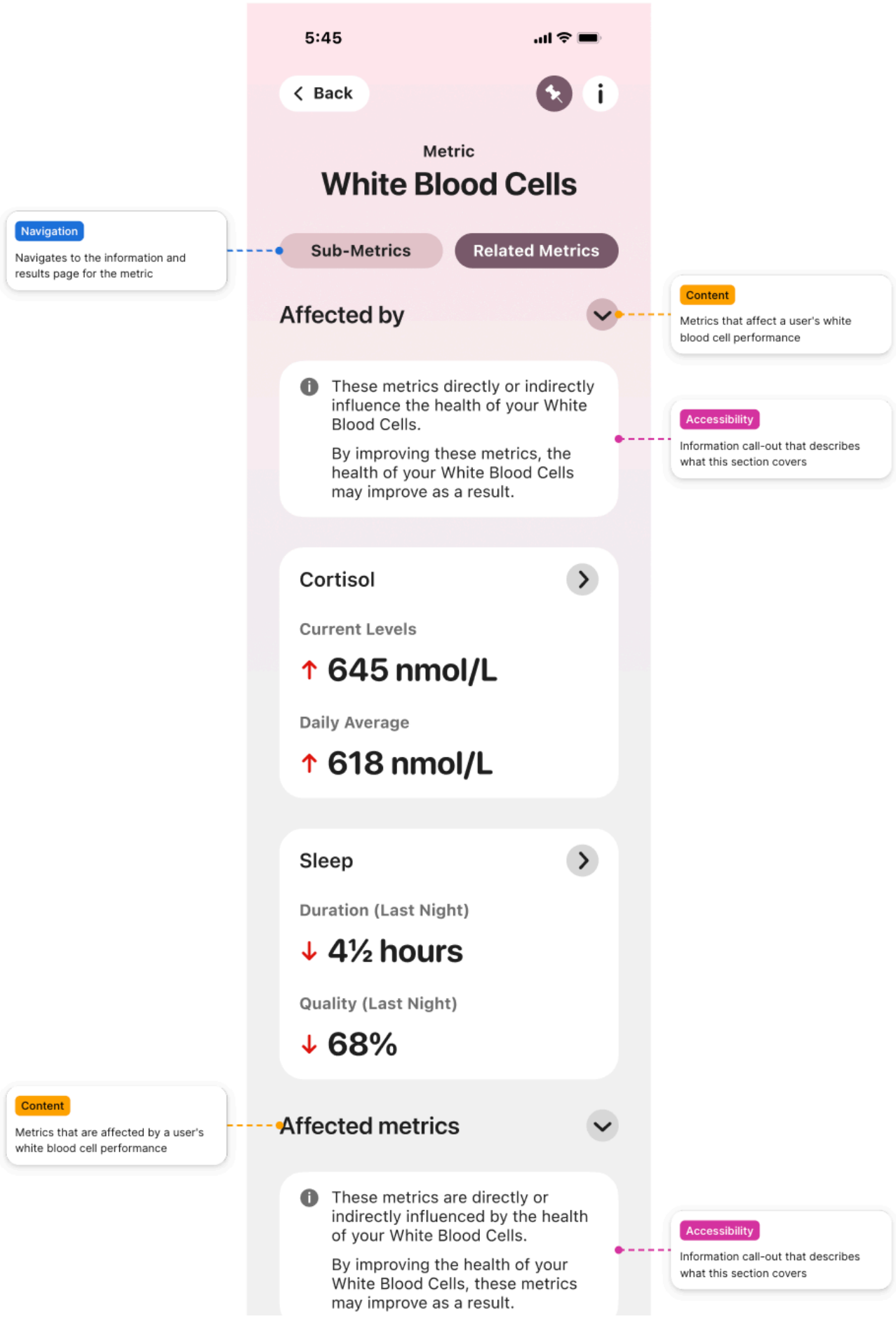
3.4 Individual Health Area Page



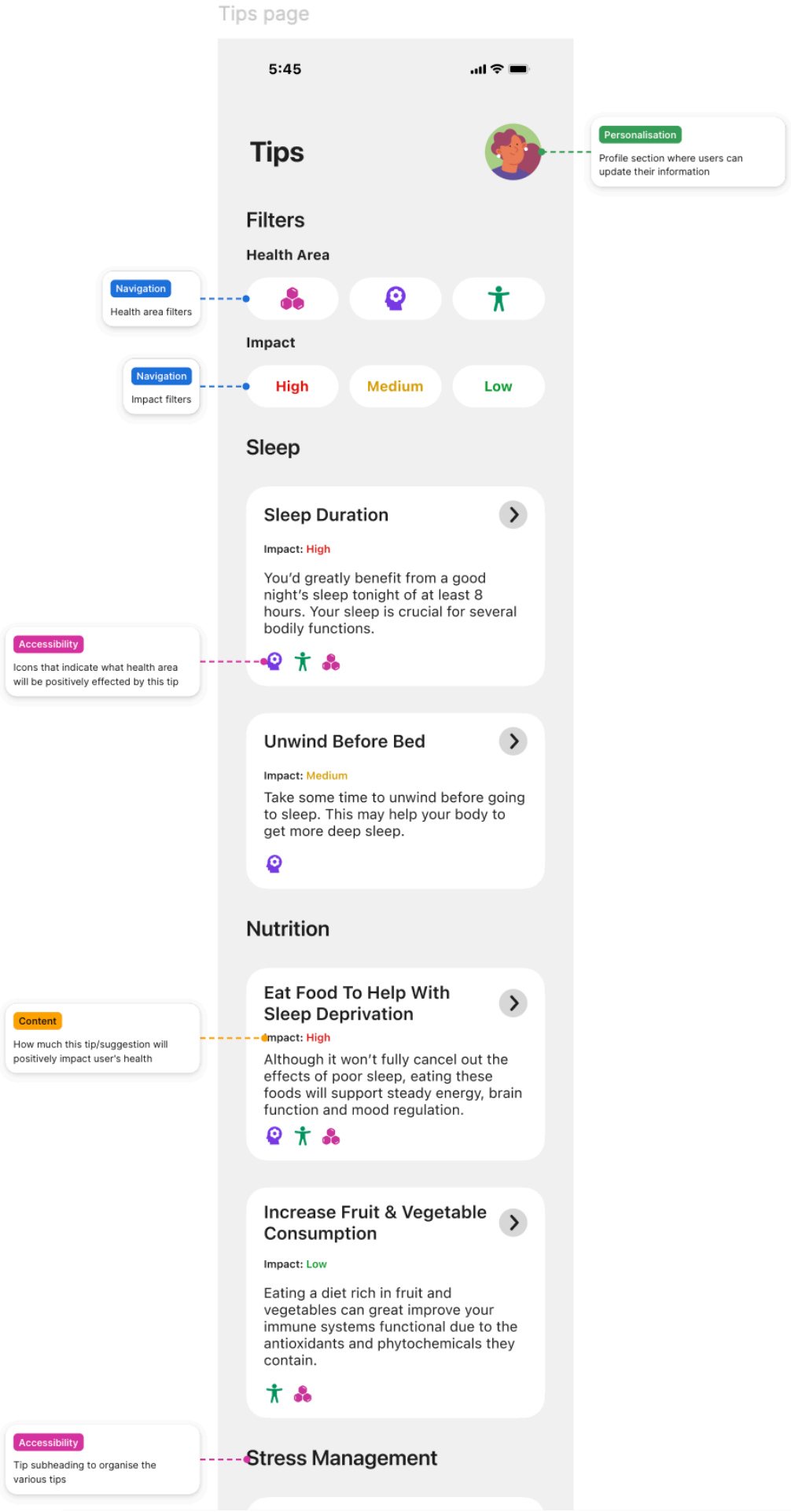
3.5 Metric Page



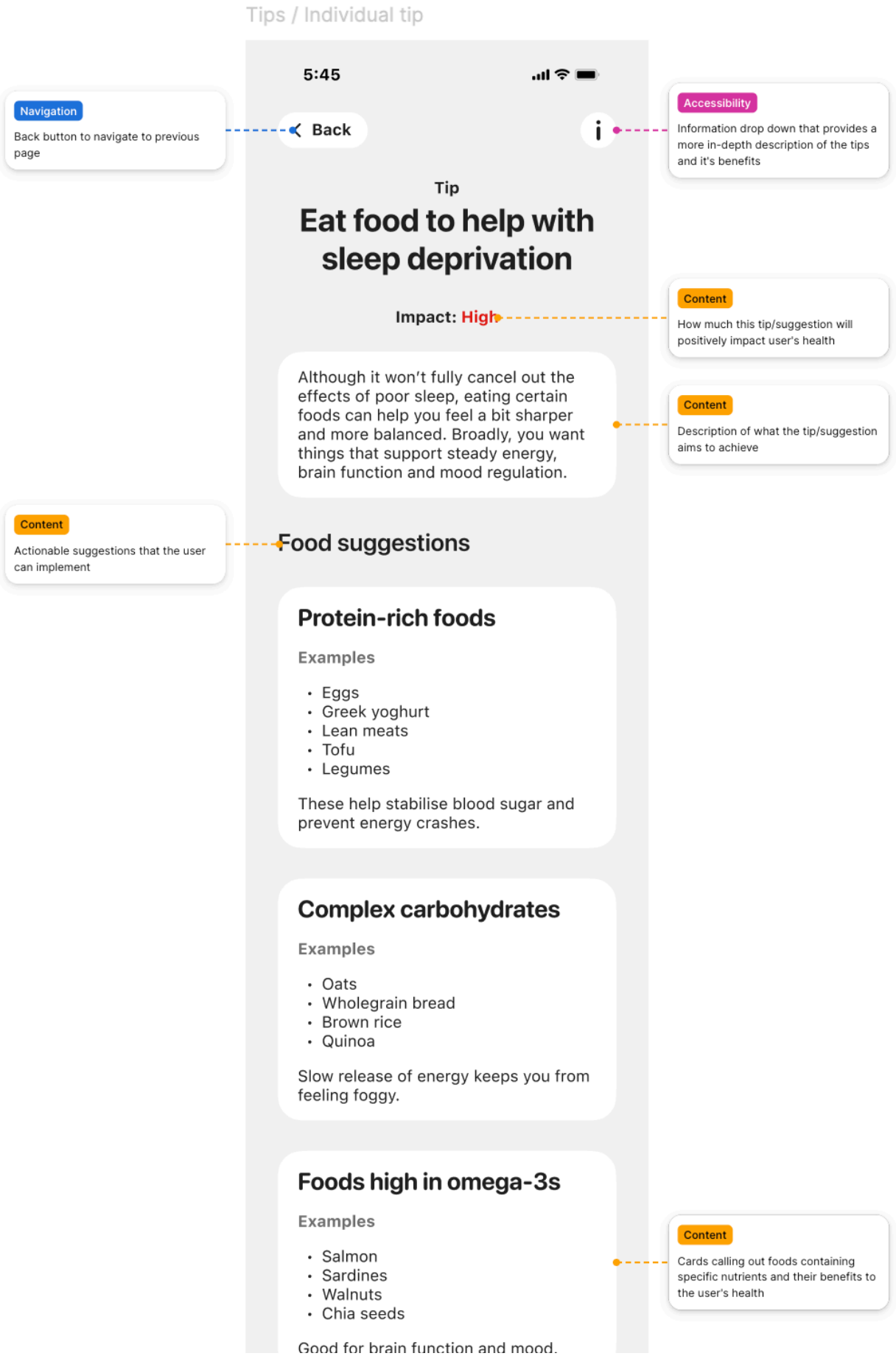
Metric page - WBC



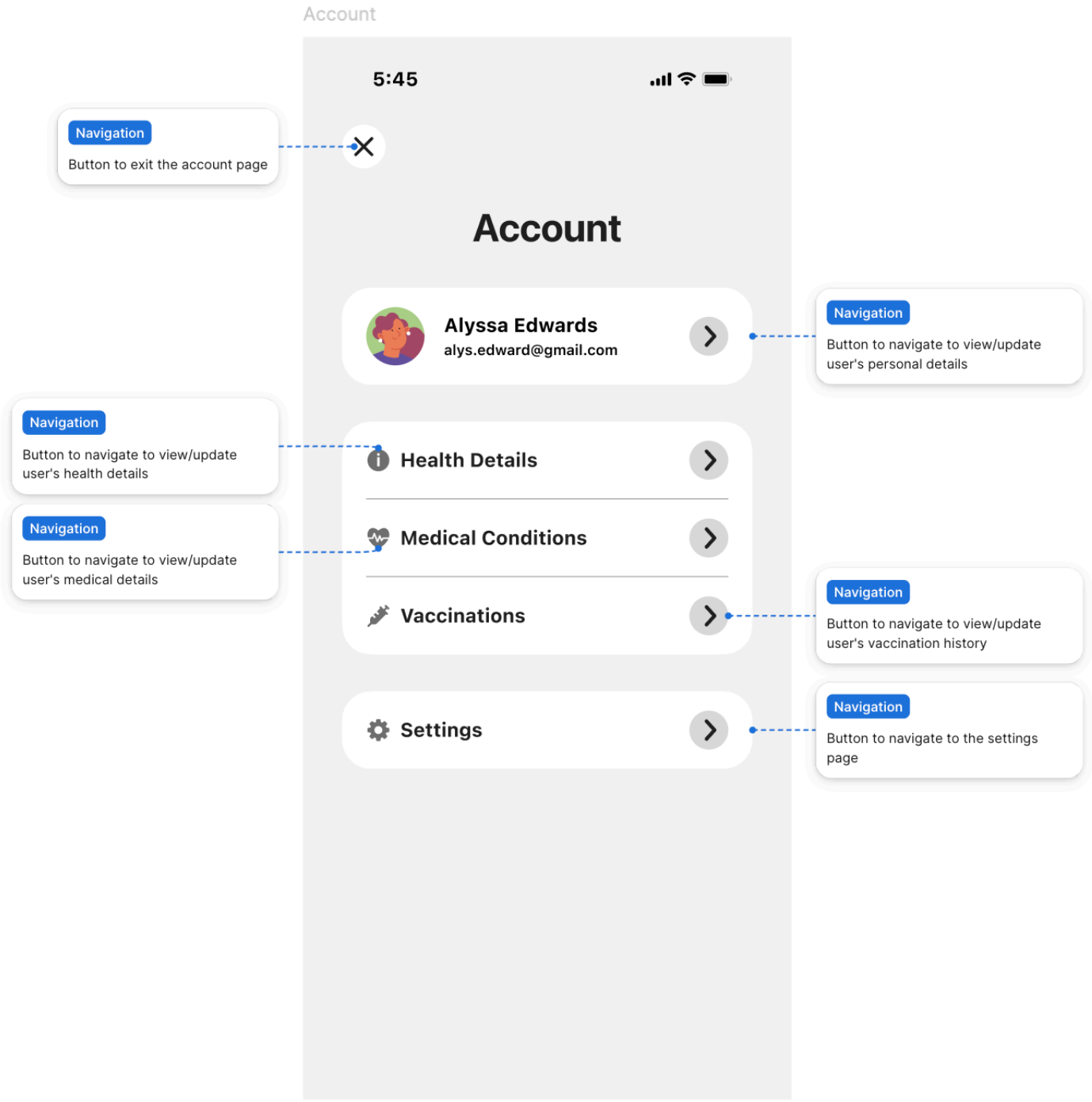
3.6 Tips Page

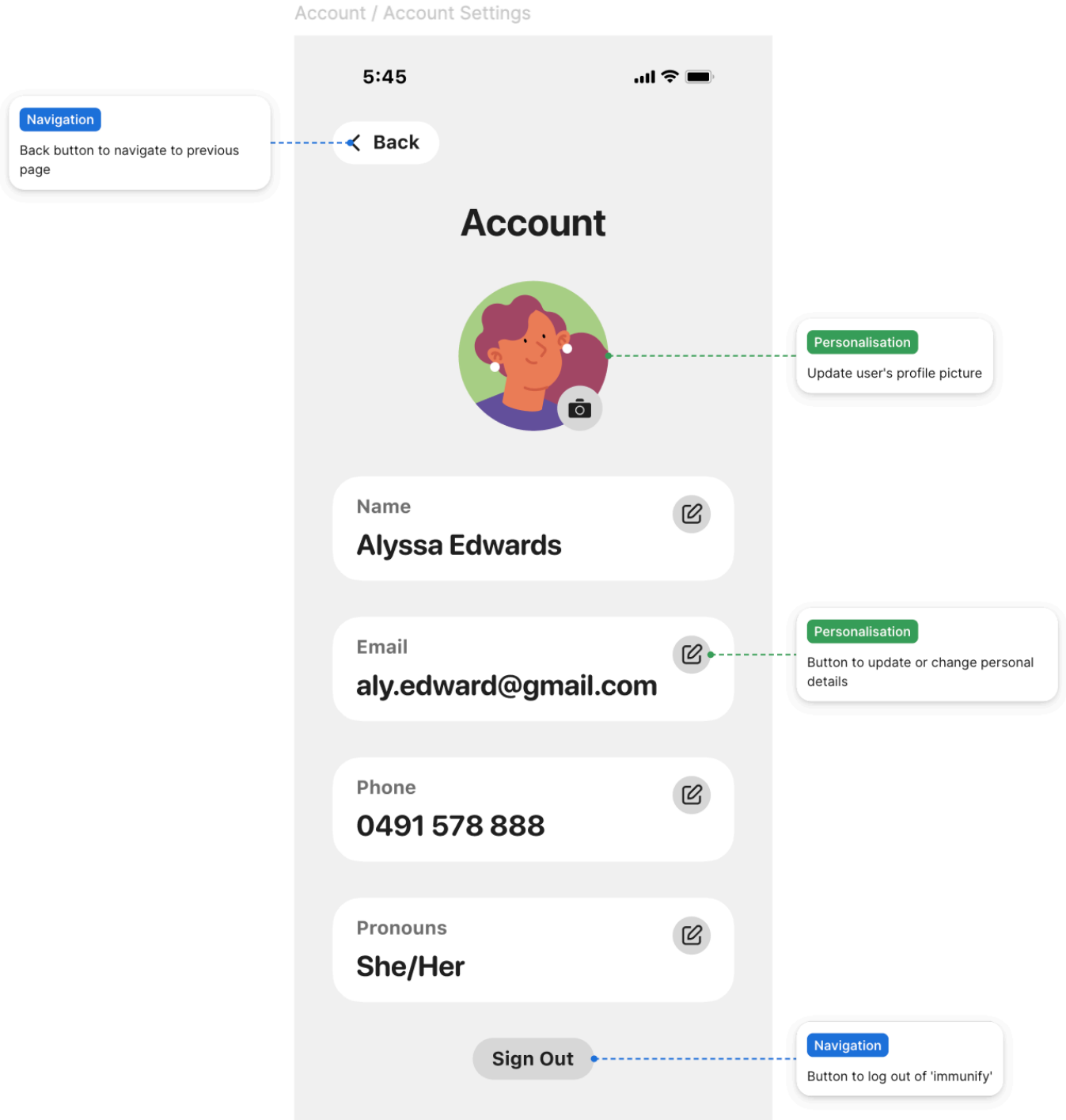

Tips page
5:45
Tips
Personalisation
Profile section where users can update their information
Filters
Health Area
Navigation
Health area filters
Impact
Navigation
Impact filters
High
Medium
Low
Sleep
Sleep Duration
Impact: High
You'd greatly benefit from a good night's sleep tonight of at least 8 hours. Your sleep is crucial for several bodily functions.
Accessibility
Icons that indicate what health area will be positively effected by this tip
Unwind Before Bed
Impact: Medium
Take some time to unwind before going to sleep. This may help your body to get more deep sleep.
Nutrition
Eat Food To Help With Sleep Deprivation
Content
How much this tip/suggestion will positively impact user's health
Impact: High
Although it won't fully cancel out the effects of poor sleep, eating these foods will support steady energy, brain function and mood regulation.
Increase Fruit & Vegetable Consumption
Impact: Low
Eating a diet rich in fruit and vegetables can great improve your immune systems functional due to the antioxidants and phytochemicals they contain.
Accessibility
Tip subheading to organise the various tips
Stress Management

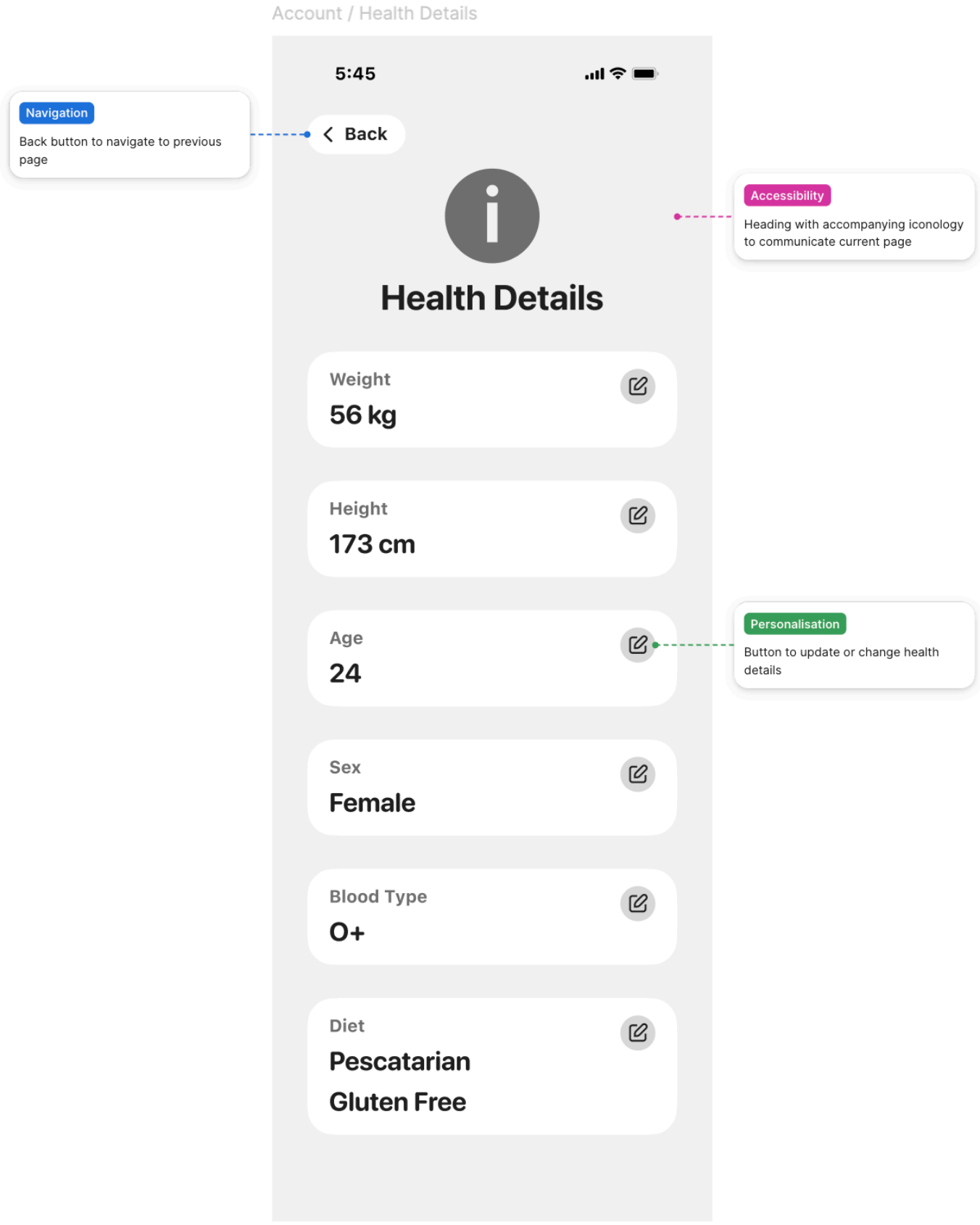
3.7 Individual Tip Page

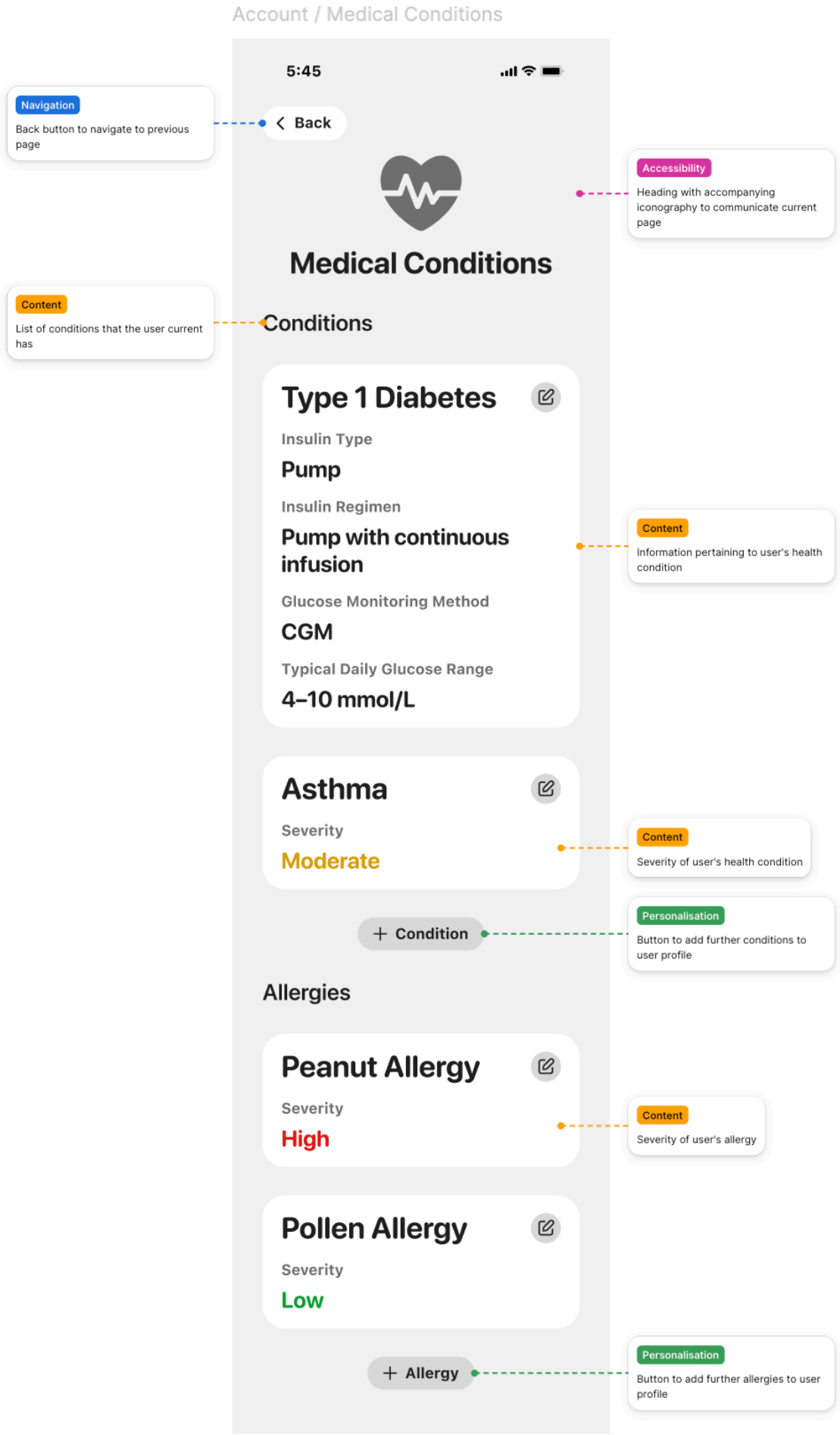


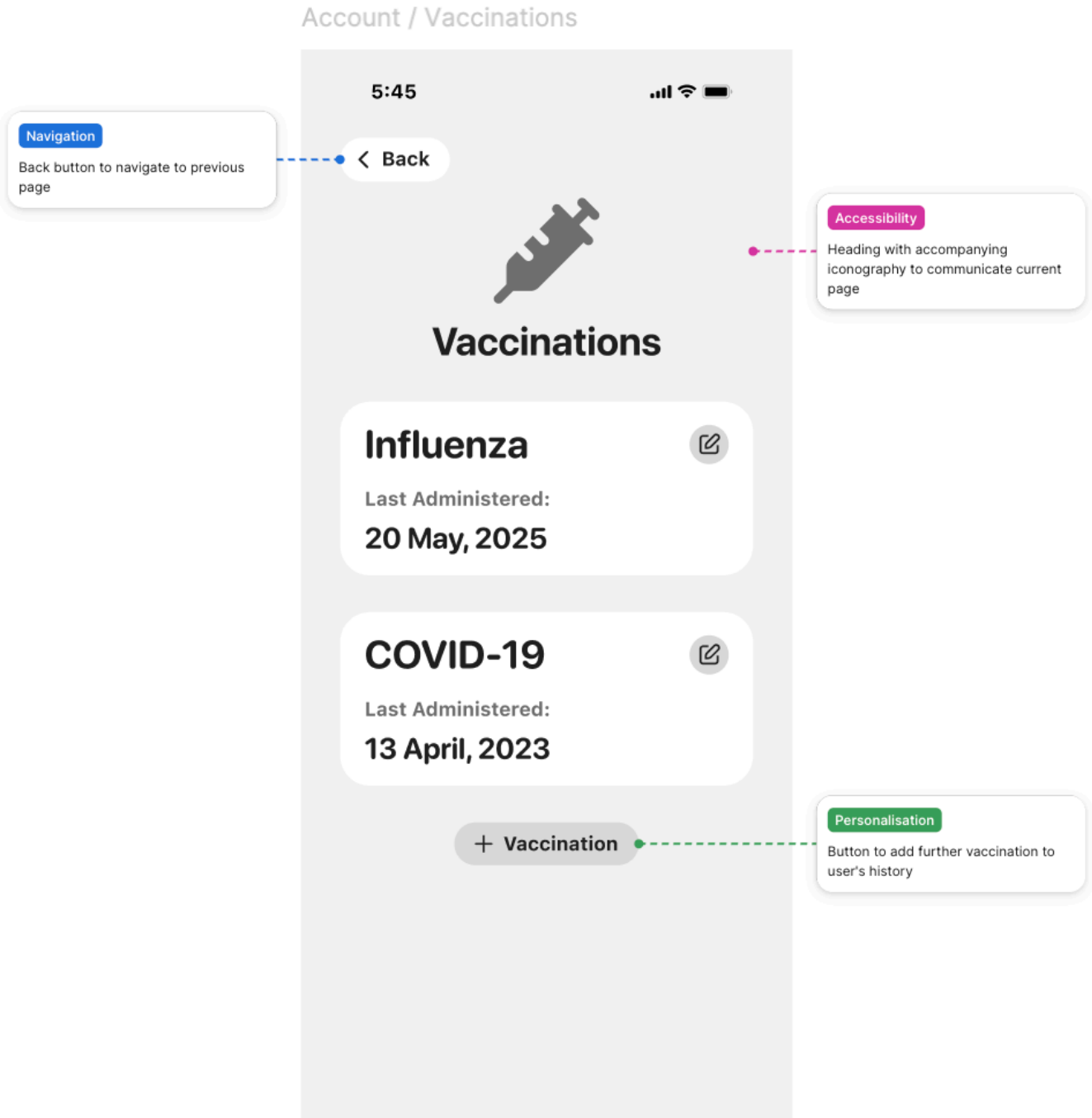
3.8 Profile Pages / Settings

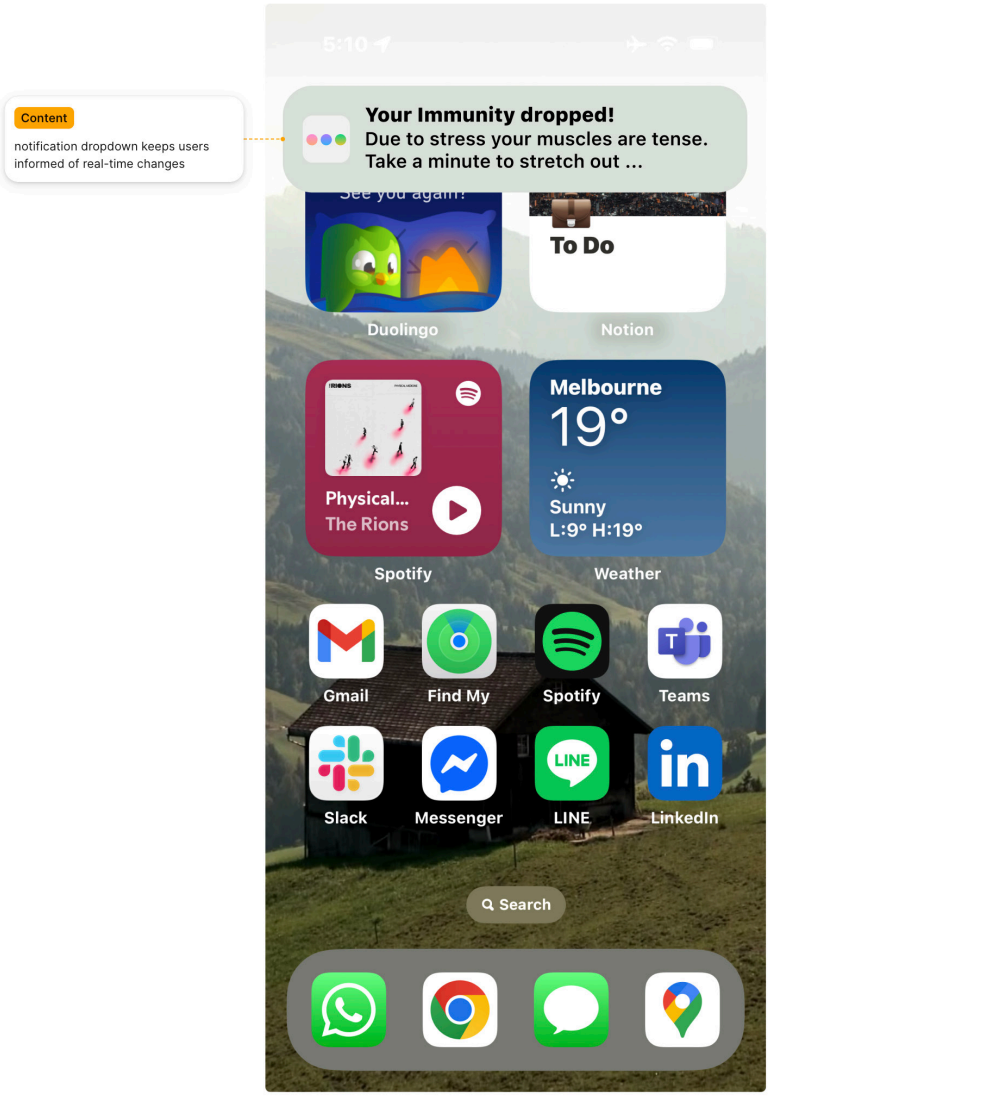


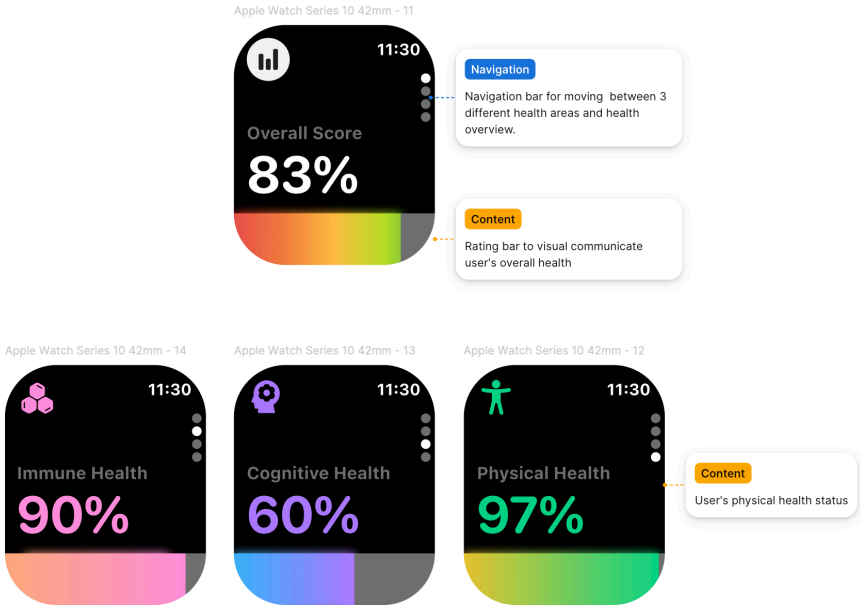

Account / Account Settings
5:45
Navigation
Back button to navigate to previous page
Back
Account
Personalisation
Update user's profile picture
Name
Alyssa Edwards
Email
aly.edward@gmail.com
Personalisation
Button to update or change personal details
Phone
0491 578 888
Pronouns
She/Her
Sign Out
Navigation
Button to log out of 'immunify'


Account / Health Details
5:45
Navigation
Back button to navigate to previous page
Back
Accessibility
Heading with accompanying iconology to communicate current page
Health Details
Weight
56 kg
Height
173 cm
Age
24
Personalisation
Button to update or change health details
Sex
Female
Blood Type
O+
Diet
Pescatarian
Gluten Free


Account / Medical Conditions
5:45
Navigation
Back button to navigate to previous page
Back
Accessibility
Heading with accompanying iconography to communicate current page
Medical Conditions
Content
List of conditions that the user current has
Conditions
Type 1 Diabetes
Insulin Type
Pump
Insulin Regimen
Pump with continuous infusion
Glucose Monitoring Method
CGM
Typical Daily Glucose Range
4–10 mmol/L
Content
Information pertaining to user's health condition
Asthma
Severity
Moderate
Content
Severity of user's health condition
+ Condition
Personalisation
Button to add further conditions to user profile
Allergies
Peanut Allergy
Severity
High
Content
Severity of user's allergy
Pollen Allergy
Severity
Low
+ Allergy
Personalisation
Button to add further allergies to user profile


Account / Vaccinations
5:45
Navigation
Back button to navigate to previous page
Back
Accessibility
Heading with accompanying iconography to communicate current page
Vaccinations
Influenza
Last Administered:
20 May, 2025
COVID-19
Last Administered:
13 April, 2023
Vaccination
Personalisation
Button to add further vaccination to user's history


Content
notification dropdown keeps users informed of real-time changes
Your Immunity dropped!
Due to stress your muscles are tense.
Take a minute to stretch out ...
Duolingo
To Do
Notion
Physical...
The Rions
Spotify
Melbourne
19°
Sunny
L:9° H:19°
Weather
Gmail
Find My
Spotify
Teams
Slack
Messenger
LINE
LinkedIn
Search


Apple Watch Series 10 42mm - 11
11:30
Overall Score
83%
Navigation
Navigation bar for moving between 3 different health areas and health overview.
Content
Rating bar to visual communicate user's overall health
Apple Watch Series 10 42mm - 14
11:30
Immune Health
90%
Apple Watch Series 10 42mm - 13
11:30
Cognitive Health
60%
Apple Watch Series 10 42mm - 12
11:30
Physical Health
97%
Content
User's physical health status

4. User-based Evaluation Plan

To evaluate the effectiveness of our design, we aimed to assess various aspects of Immunify across both mobile phones and smartwatches, focusing on its usefulness and usability. We adopted a guided-use methodology, allowing participants to interact with our prototype either on their own devices or those provided by us.

Each evaluation session was structured around a realistic scenario, where participants took on the role of a university student, which is one of the key stakeholders identified in our Rich Picture. Within this scenario, participants completed four individual tasks, each designed to guide them through the main functionalities of Immunify in a sequential manner.

Task Breakdown

Task 1: Check immunity status on smartwatch
Participants were asked to quickly check their current immunity status using the smartwatch prototype. This task evaluated the accessibility and efficiency of information retrieval on wearable devices.

Task 2: Specific metric analysis
Participants were instructed to identify possible causes for one of their underperforming health metrics. This task involved interacting with the mobile prototype, particularly the Homepage and Metric pages, to assess the clarity of data presentation and ease of navigation.

Task 3: Look for recovery tips
Participants were asked to explore tips and suggestions aimed at improving their health condition. This required interaction with the Tips pages and allowed us to evaluate the usefulness and discoverability of health advice within the app.

Task 4: Modify personal details
Participants were tasked with updating their personal health details to customise the app's recommendations. This task assessed the flexibility and intuitiveness of the Profile page.

Data Collection

We collected both quantitative and qualitative data to capture a comprehensive understanding of user experience.

For quantitative evaluation, the following measures were used:

- Task completion time: Recorded for each task to assess efficiency.
- Perceived task difficulty: Rated by participants on a 5-point Likert scale, where 1 indicates "very easy" and 5 indicates "very difficult."
- System Usability Scale (SUS): Administered after all tasks to measure overall usability. The SUS scores were interpreted using the guide by Tomboc (2025):

Score Range	Rating
84.1 - 100	Exceptional
80.3 - 84	Excellent
74 - 80.2	Good
68 - 73.9	Average
51 - 67.9	Poor
0 - 50.9	Awful

The average task completion time, difficulty ratings, and SUS scores were analysed collectively to assess the consistency of usability across tasks and platforms.

For qualitative evaluation, we gathered insights through open-ended questions and direct observation. After each task, participants were asked:

1. What did you like most about this experience?
2. What did you find frustrating or confusing?
3. Was there anything you expected but didn't see?

Additionally, three post-task questions were included to gather overall impressions:

1. Do you feel this product would meet your needs?
2. If you could change any element of this application, what would it be?
3. Are you aware of any similar products? If so, how would you compare them to Immunify?

Throughout each session, participants' emotional reactions and interaction paths were carefully observed to identify potential usability pain points and opportunities for refinement.

5. User Journey

Stephan (he/him)

Stephan is a University of Melbourne student studying Arts. He greatly values his health but constantly struggles with maintaining a healthy lifestyle amidst his busy study and work schedule.

Personality

- Ambitious: has big career goals and may sacrifice social life, personal life or even health to get ahead.
- Introverted: needs time by himself to recharge.
- Busy-body: Thrives in busy, urban environments, although this can conflict with his health.
- Exercise: Recognises exercise is non-optional so tries to exercise a few times per week but dislikes it.

Motivations

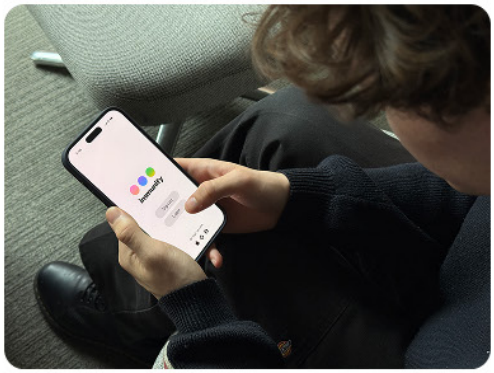
- Maximising his time; avoiding unplanned delays or interruptions to his schedule
- Achieving well academically
- Maintaining a well balanced healthy lifestyle
- Trying to maintain good mental health

Steps	Thoughts	Photo	Interface	Outcomes
Problem Has several tasks to complete	Stephan I need to finish this essay tonight.			The user has multiple tasks that they need to get done resulting in them not taking proper care of themselves.
Gets run down	Stephan Why am I feeling so miserable all the time!			The unhealthy habit that they have developed and accompanying stress has resulted in them becoming run down.
Struggles to maintain health	Stephan It's such a struggle to stay on top of my work and my health, the second I fall sick, everything starts falling apart. Jason I get that it sucks. I used to be the exact same.			Sick of being sick, the user turns to a trusted friend for comfort and advice.
Discovers Immunify by a friend's suggestion	Jason Have you heard of Immunify? It's helped me out loads! Stephan Hey that looks pretty cool, maybe I'll try it out.			In this discussion the user discovers immunify through word-of-mouth. The user proceeds to download immunify.

Account setup

Signs up to immunify

Stephan
Oh nice, I can easily login with my google account.



Upon downloading the app the user is greeted with several options to sign up.

The user can either enter their details manually or sign in using one of three third-party authentication options.

In this instance the user signs up through google.

One week later

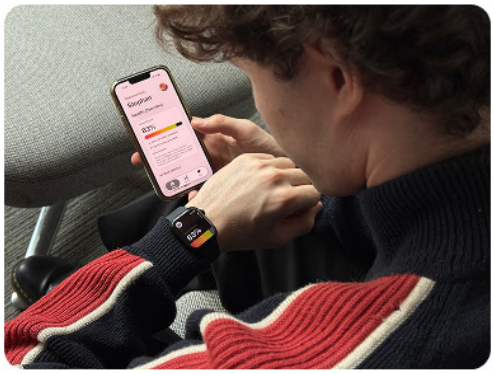
Insight Discovery

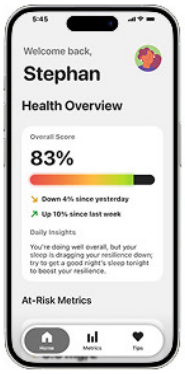
Scans the health overview page

Stephan
I'm still feeling miserable, I should probably check how my immune health is going.

Stephan
Thats interesting my overall health doesn't look that bad.

Maybe I should check the metrics section.





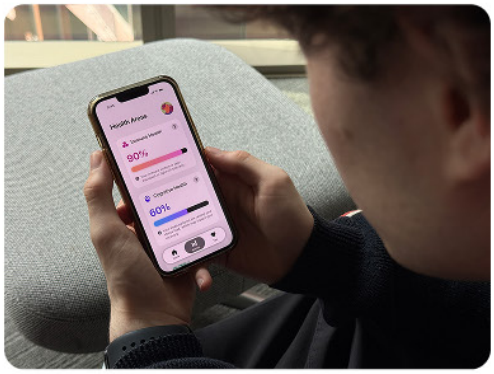
Immunify has collected the user's data over the week they have had it downloaded.

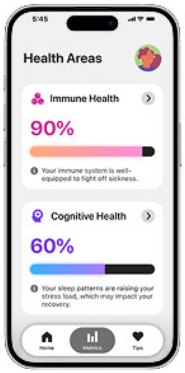
Through the collected data immunify can provide a overall score detailing how their immune system is performing.

Inspects the metrics page

Stephan
Mmm, my cognitive health doesn't look too good, maybe that might be the cause.

I should find out a bit more.





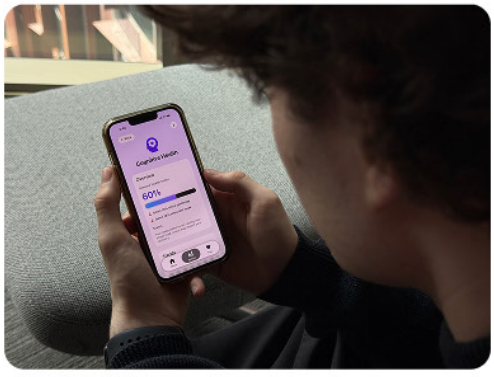
In the metrics page a users immune health is separated into three main areas.

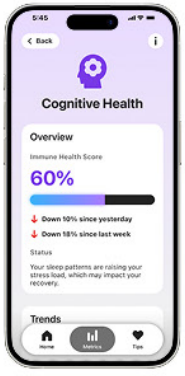
This users cognitive health is performing particularly poorly compared to the other areas.

Investigates their cognitive health

Stephan
It tells me my cognitive health has been dropping since last week because of my sleep quality.

Stephan
Wow, I didn't know there are so many health metrics impacting my health.





The user further inspects the cognitive health page to figure out the cause of their subpar health in this area.

Through this the user discovers that their poor sleep quality is a contributing factor.

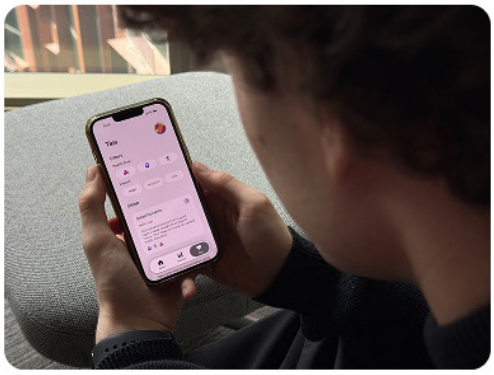
Seeking health advice

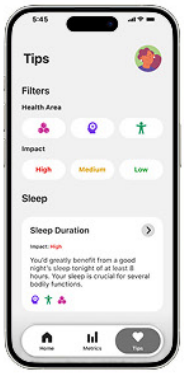
Searches for relevant tips

Stephan
I need to find some way to improve my sleep quality.

I should check out the tips page.

Stephan
There are so many tips with different impact level. I should focus on those marked with 'High' impact first.





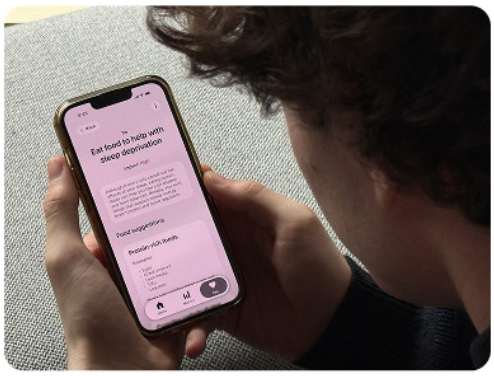
The user navigates to the tips to find relate suggestions to help improve their sleep.

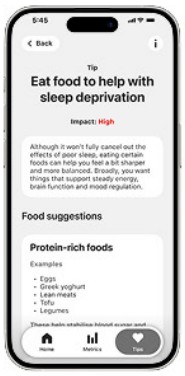
The filters can be used to narrow the results so the user can find tips relate to cognitive health or more specifically their sleep.

Delves into a suggestion

Stephan
The tips are detailed and easy to follow.

I'll definitely have to try this one out.





In their exploration the user is able to find a tip related to their sleep.

In this page the user can get an overview of the tips as well as suggestions and instructions on how to implemented it into their life.

A few days later

Implementing advice

Incorporates the tip into their daily life

Stephan
I'm starting to feel better only after couple days.

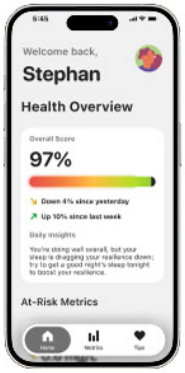
I think the tips maybe working!

The user implements the tips into their daily life and routine to help improve their sleep and thus their cognitive health.

Checks up on their immune health

Stephan
I should check out how my immune health is going.

Stephan
Wow, my immune health has improved so much!



Through the implementation of the tips from immunify the user has been able to drastically improve their immune health and no longer feels run down.

6. References and AI Declaration

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6.2 Declaration of AI Usage

We do not acknowledge the usage of AI in this report.

7. Individual Component: Gunjan Ahluwalia

7.1 Persona

Bio

Michael (24) is a young professional who is a software engineer at MYOB, Melbourne. He lives a busy lifestyle and is extremely conscious of his health and fitness.

Values & Interests

- **Career-driven:** Michael is highly ambitious and passionate about his work. After consistently strong performance reviews, he's aiming for a promotion to Senior Software Engineer this year.
- **Environment conscious:** He cares deeply about sustainability and bikes to work daily. He carries a reusable keep cup for his morning coffee and avoids unnecessary waste wherever possible.
- **Fitness-focused:** Despite his busy schedule, Michael maintains a disciplined training routine that combines strength, pilates and plyometric workouts alongside his daily bike commute.
- **Fashion diva:** Michael takes pride in his appearance and often receives compliments on his outfits. He prefers ethical, high-quality Australian fashion brands that reflect his values.
- **Vegan lifestyle:** His environmental beliefs extend to his diet, he's been vegan for over five years and enjoys discovering creative plant-based restaurants.
- **Efficiency-oriented:** He values tools and systems that save time, offering clear summaries and actionable insights without unnecessary complexity.

Behaviours & Habits

- Plans his day the night before, including meals, workouts and outfits.
- Trains at least five times a week.
- Prioritises rest and aims for eight hours of sleep every night.
- Enjoys eating out at vegan cafés and restaurants 2-3 times a week.
- Avoids alcohol and late-night socialising to stay productive and energised.

Goals & Needs

- Maintain peak physical fitness and overall wellbeing.
- Eat clean, balanced and plant-based meals.
- Stay organised and efficient in daily routines.
- Access quick, easy-to-understand health summaries that fit into his schedule.

Technology Use

- A dedicated Apple user with a MacBook Pro, iPhone 16 Pro Max, Apple Watch Ultra, AirPods Pro, and iPad Pro.
- Grew up using Apple products and values their seamless integration across devices.
- Uses his Apple Watch and iPhone daily to track workouts, manage notifications, and monitor health metrics.

Frustrations

- Apps that overwhelm him with excessive or unclear health data.
- Having to interpret technical health metrics or metrics that require too much manual input.

7.2 Task Scenario

It's a Monday morning and Michael's alarm goes off at 6:00 AM. Before getting out of bed, he glances at his Apple Watch and opens Immunify, a health app he recently downloaded to help him stay on top of his wellbeing. The clean dashboard instantly shows his overnight recovery score and key health domains - physical, cognitive and immune health.

He notices a small dip in his cognitive health score, by 10% since yesterday. Curious, he picks up his phone and opens the detailed Immunify dashboard. The interface presents a clear breakdown - his sleep duration was only 4.5 hours and his quality of sleep was lower than usual. His iPhone screen time notification highlights a possible cause - late night screen time.

Instead of leaving him to interpret the data himself, the app gives him detailed tips and a recovery plan on the tips page. Here' Immunify suggests actionable ways to recover like aim for 8 hours of sleep tonight and include certain foods that are protein and magnesium-rich to help with sleep deprivation. To get further advice, catered to him, Michael changes his diet preferences in the profile section of the app to get vegan food suggestions. The advice feels personal, not generic, because it draws on his tracked sleep patterns, heart rate variability and cortisol level data.

Later in the day, during a short coffee break at the office, Michael checks the app again. A progress indicates that his movement levels are below target. With one tap, he sets a reminder to stand up every hour. The app syncs with his Apple Watch to deliver subtle nudges through haptic alerts, perfectly fitting his preference for non-disruptive feedback.

By the evening, Michael feels more aware of how his behaviours influence his immune and cognitive health. As he sets his phone on charge, he feels reassured that the app has helped him understand and act on his body's signals without requiring tedious analysis or breaking his routine.

Through its seamless design and holistic insights, Immunify has become an integral part of Michael's day, supporting his health goals while matching his pace, values and love for efficiency.

7.3 Design Precedent

Vaccination cards have long served as simple yet essential records of immunisation history, ensuring individuals and healthcare providers can easily track protection against preventable diseases. Traditionally presented as paper booklets or cards, they provide a chronological overview of completed and upcoming vaccines. Their strength lies in their clarity and efficiency, condensing critical medical information into an easy-to-access, portable and easily interpretable format. This long-standing system not only aids healthcare professionals in decision-making but also empowers individuals to take ownership of their health by maintaining awareness of their immunisation status.

In recent years, these physical records have largely been transformed into digital vaccination certificates and accounts on government health websites, especially during and after the COVID-19 pandemic. While these systems modernised immunisation tracking, they also introduced new usability barriers. Such platforms are clunky and often requiring repeated logins, multi-step verification and navigation through complex menus simply to view basic vaccination information. This transition highlights a critical tension in digital health design: while digitisation promises convenience and accessibility, it can also create friction when usability and information design are neglected.

This principle of clarity and accessibility directly inspired the design of our app. Just as vaccination cards function as tangible summaries of one's immune history, our app reimagines this concept as an integrated digital experience. Instead of requiring users to sift through medical paperwork or log repeatedly into government systems, it provides a centralised, always-accessible hub where vaccination data and immune indicators are displayed in a cohesive, user-friendly format. By merging traditional record keeping with contemporary digital interfaces, the app delivers a modern solution to the enduring need for transparency and control over one's immune health.

However, the app goes beyond simply replicating a vaccination card. It enhances the experience through personalisation, interactivity and automation. Users receive reminders for upcoming vaccinations, boosters, or check-ups, reducing the likelihood of missed appointments. By mirroring the practicality of vaccination cards while enriching it with adaptive reminders and intuitive design, the app empowers users to stay proactive about their immune wellbeing.

Gupta and Kiwanuka (2024) highlight how digital health tools are transforming immunisation services by improving coverage, efficiency and equity. Their research reinforces the value of our app's centralised dashboard and reminder system in improving readiness and tracking. At the same time, Kowalewski et al. (2021) caution that while digital vaccination records are widely accepted, many users still prefer paper formats due to privacy concerns. As users remain cautious about how their health data is stored and shared, privacy must therefore be treated as a core design principle, not an afterthought, in our app.

7.4 Usability Rationale

While the primary focus of our design is to make the app as intuitive and self-explanatory as possible by aligning it with users' mental models, it is equally important to provide accessible support and documentation. Clear guidance can especially help first-time users or users in general when complex data visualisations and health metrics are involved. Ensuring that help resources are easy to find, understand and navigate is an essential part of creating a user-friendly experience.

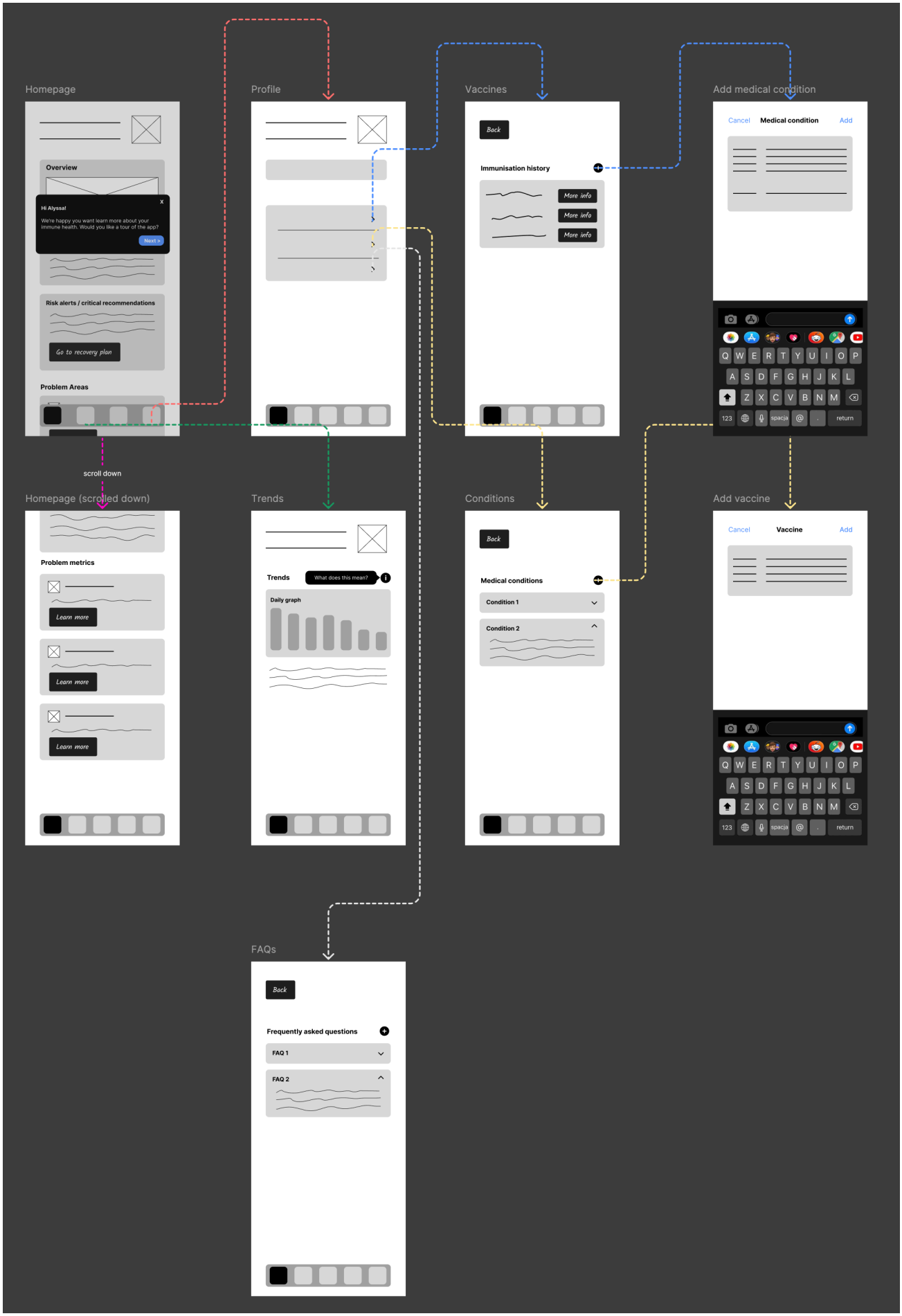
My wireframes were guided by Nielsen's "Help and Documentation" heuristic, which recommends offering well-organised assistance when users need it. On the first screen of the app, I introduced a welcome pop-up that greets new users and asks whether they would like to take a guided tour of the interface. This design choice gives users control, allowing them to opt into assistance if needed, or skip it if they prefer to explore independently. The guided tour would introduce the app's three core domains - physical, cognitive and immune health and familiarises users with the app navigation.

Additionally, the Home page features pinned problem metrics, highlighting areas of health that fall outside normal ranges or show sudden changes. Each of these metrics includes a "Learn More" button, which would open a short, accessible explanation of the issue - what it means, why it matters and actionable steps to improve the score. Together, these features ensure that users not only understand their data but also know how to act on it effectively.

To reinforce this heuristic beyond onboarding, I incorporated information ("i") icons in the interface. These icons appear near complex components such as health trends, allowing users to tap for brief explanations. For example, when viewing a trend line over time, users can learn how the app calculates these trends, what factors influence them and why they might fluctuate. This feature empowers users with context and builds confidence in how their data is interpreted.

Finally, I designed a comprehensive FAQ page accessible through the Profile section of the app. Unlike the contextual help provided within specific screens, this page addresses broader "how-to" questions, such as changing dietary preferences, updating personal information, or syncing Immunify with an Apple watch. This ensures users have a consistent point of reference for troubleshooting.

7.5 Wireframes



7.6 Interview Transcript & Themes: P2

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall score → Immune health → Cognitive health → Physical health → Overall score

Task Completion time:

25s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Finds it easy to view and distinguish because of separate colours for each health area

Looks pretty

What did you find frustrating or confusing?

The bar is confusing as, with round edges as its hard to tell a 97% Would prefer a vertical bar perhaps like it fills up the watch like water

Was there anything you expected but didn't see?

Clicking on the metric should give a detailed view about the metric as they would like to know why that metric is low

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Home page → Cognitive health → Cortisol page → Cognitive health → Sleep page

Task Completion time:

1m 18s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

UI is clean and intuitive, straightforward

Looks like iOS so its easy to follow

Likes that it is simple and has tips in the bottom navigation bar

What did you find frustrating or confusing?

Don't know the meaning of the terms as it is their first time using the app, but believe they will understand over time

A lot of data on the pages looks overwhelming

Was there anything you expected but didn't see?

No, other than meanings of some of the terms that were used

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Cognitive health → Tips page

Task Completion time:

48s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

Easy to find

What did you find frustrating or confusing?

Were lost as to where to find the tips, would prefer if tips were organised under each metric as that is the most intuitive way they would look for tips

Was there anything you expected but didn't see?

No

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Home page → Account → Health details

Task Completion time:

1m 10s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

Self-explanatory, easy to use

What did you find frustrating or confusing?

Would like to see an edit button or a pencil icon next to the profile photo so that it is clear that its not just a photo but a button

Was there anything you expected but didn't see?

Edit button to clearly indicate that the profile icon was clickable

Post-task Questions

Do you feel this product would meet your needs?

Yes

If you could change elements of this application, what would it be?

Nothing stuck out, there were small bits here and there that could be improved like the suggestion about moving tips and would like to see more colour in the app

If there is any similar product that you used or know of? How would you compare with current competitor?

Not really, maybe the Apple Health app

SUS Questionnaire — SUS Score = 77.5

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."				x	
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."				x	
"I found the various functions in this system were well integrated."					x
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."				x	
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."				x	
"I needed to learn a lot of things before I could get going with this system."				x	

7.7 Interview Transcript & Themes: P7

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall score → Immune health → Cognitive health → Physical health

Task Completion time:

37s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Like the scrollable view, glance all 3 metrics easily

Easy to understand

What did you find frustrating or confusing?

Would prefer if the bottom bar was not stretched to the edges, maybe a ring format would be easier as it is difficult to comprehend the exact percentage

Was there anything you expected but didn't see?

No

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Login → Home page → Metrics page → Cognitive health → Cortisol page → Cognitive health

Task Completion time:

50s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Also easy to navigate, knew where to find the metric easily

Likes the 3 navigation tabs as they make the navigation clear

Likes the different colours for different health areas, easy to follow

What did you find frustrating or confusing?

Not exactly sure what some of the terms actually mean

But was happy other than that

Was there anything you expected but didn't see?

If cortisol is high, would like to see how to fix it within that metric page

Had to go back and find relevant tips for improvement which was frustrating and unnecessary

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Home page → Cognitive health → Cortisol page → Cognitive health → Tips

Task Completion time:

55s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

Good information architecture, specific colours for each health area make it easy to understand and follow that colour

What did you find frustrating or confusing?

Same as before, would like to see tips within the same health metric page instead of the main health page which is frustrating

Was there anything you expected but didn't see?

Tips within each metric page

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Home page → Account page → Health details

Task Completion time:

25s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Easy to find the profile page as it's on the home page and it has a profile icon which follows their mental model

Categories within are also clearly defined, found the relevant page within one try

What did you find frustrating or confusing?

Nothing

Was there anything you expected but didn't see?

No

Post-task Questions

Do you feel this product would meet your needs?

Yes

If you could change elements of this application, what would it be?

Make it easier to read, some pages had a lot of text which was overwhelming and difficult to understand

Have tips on individual health metric pages

If there is any similar product that you used or know of? How would you compare with current competitor?

Has not used similar immunity tracking apps

Looks like the Apple Health app which they like

SUS Questionnaire — SUS Score = 95

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."					x
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."				x	
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."				x	
"I needed to learn a lot of things before I could get going with this system."	x				

7.8 References & Statement of AI Use

References

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Statement of AI Use

I do not acknowledge the use of AI in this report.

8. Individual Component: Mia Casey

8.1 Persona

Bio

Samantha is a 42-year-old full-time surgeon who takes pride in her work and carries a strong sense of responsibility for her patients. Her demanding career has shaped her into someone who values precision, discipline, and consistency, not only in the operating theatre but also in her personal health and lifestyle choices. She is married with two children and makes time for her family despite a demanding schedule.

Values & Interests

- **Career progression:** Samantha is committed to continuous professional development, regularly attends surgical conferences and workshops to stay current on best practices and new techniques.
- **Academic excellence:** She enjoys teaching residents and contributing to medical research publications, viewing mentorship as part of her professional duty.
- **Culinary exploration:** Prefers nutritious, balanced meals; enjoys experimenting with recipes that align with a health-conscious lifestyle such as Mediterranean or plant-based dishes.
- **Wellbeing:** Values physical fitness such as Pilates and running, mindfulness, and preventive health measures to minimise risk of illness for herself and her patients.
- **Intellectual curiosity:** Loves starting her mornings with a newspaper and a crossword puzzle, along with scanning the latest medical research journals to stay informed.
- **Health Consciousness:** Enjoys engaging with peer-reviewed articles, social media posts from fitness gurus and doctors, and reading novels regarding newfound advances in health. With these discoveries, she likes to incorporate mini experiments in her life to enhance her overall health and wellbeing.
- **Community impact:** Finds purpose in volunteering for health outreach programs or medical missions when her schedule allows.

Behaviours & Habits

- Maintains a strict daily routine to optimise performance.
- Regularly tracks health indicators such as sleep quality, diet, and exercise.
- Reads medical research journals weekly and enjoys newspaper crosswords every morning as part of her ritual.
- Practices meticulous hygiene such as frequent handwashing and mask-wearing when ill to avoid passing infections to patients.
- Allocates short bursts of time for family activities and personal hobbies to maintain a semblance of work-life balance.

Goals & Needs

- Remain at peak health to minimise downtime and ensure surgical readiness.
- Looking to advance to a senior leadership or teaching role within the next few years.
- Improve work-life integration to spend more quality time with her family without compromising patient care.
- Access reliable, evidence-based information quickly to support clinical decisions.
- Reduce administrative burden and streamline workflows to focus more on surgery and mentorship.

Technology Use

- Uses a smartwatch that acts as a fitness tracker for health monitoring.
- Relies on medical journal subscriptions, digital surgical simulators, and case-tracking apps.
- Uses telehealth tools for quick patient follow-ups and interdisciplinary collaboration.
- Active in closed professional networks such as LinkedIn groups and surgical forums for peer exchange.

- Comfortable using productivity and scheduling apps to manage on-call shifts and surgeries.
- Engages modestly with social media.

Frustrations

- Limited time for personal health, reading, or family because of demanding schedules and unpredictable emergencies.
- Administrative paperwork detracts from time spent in surgery or patient care.
- Fear of spreading illness to immunocompromised patients even with preventive measures.
- Information overload from multiple sources makes it hard to find concise, trusted updates quickly.
- Burnout risk due to long hours and high stakes of surgical work and lack of quality time with family.

8.2 Task Scenario

Dr. Samantha Lee is a 42-year-old surgeon who takes her work seriously, maybe too seriously sometimes. Her days are packed with early starts, long surgeries, and unexpected emergencies. She's proud of the care she gives her patients, but the demanding schedule leaves her constantly running on fumes. She worries about getting sick, not just for herself but because she could pass it on to vulnerable patients.

One morning over coffee, she admits to a colleague that she feels exhausted and keeps catching colds. They recommend an immune health app they've been using, so she decides to give it a try. Setting it up takes just a few minutes. She adds her hospital roster, her health goals, and the fact that mornings are usually her quiet time. The app builds a simple plan with small things she can actually do, like hydration prompts between surgeries, stress check-ins, and reminders to eat a balanced meal instead of skipping lunch.

The next day, Samantha wakes at 5:30 a.m. and does her usual routine with coffee and the crossword before heading out. When she checks the app, it gives her real-time updates of her condition and tells her she's a bit run-down after a late night of research reading. It suggests she make a smoothie with berries and spinach for breakfast and take a few deep breaths before heading to the hospital. She does both and feels slightly more energised.

Between surgeries, her smartwatch buzzes with a reminder: "Stretch for two minutes." She laughs a little but follows along and realises she actually feels less tense. Later, just as she's about to power through without drinking water, the app nudges her to hydrate. She fills up her bottle and notices her energy holds steady through her last case of the day.

That evening, she gets a little summary. Her stress level dropped after her break, she met her hydration goal, and she's on track to sleep better if she gets to bed by 10 p.m. She shows it to her husband, who helps keep the house quiet so she can rest.

After a few weeks, Samantha notices she's not getting sick as often and has more consistent energy. The reminders and little nudges don't feel intrusive; they feel like someone quietly looking out for her. She's able to focus more fully on her patients, enjoy dinner with her family without being completely drained, and head into work feeling just a bit more in control.

8.3 Design Precedent

Continuous heart rate monitoring was once an inconvenient and often uncomfortable process. Willem Einthoven, considered the father of modern electrocardiography, developed the first practical electrocardiogram in 1903 using his string galvanometer. This massive apparatus, requiring multiple operators and filling two rooms, marked a major breakthrough in capturing heart function data, though it was far from wearable or user-friendly (Einthoven, 1903/1924; Salam et al., 2019). In early attempts to create wearable devices, people had to rely on bulky chest straps or manually check their pulse, which only gave brief snapshots of their heart's activity. These methods were mostly used by athletes or patients in clinical settings and lacked practicality for everyday use. The chest straps common in the 1980s, despite their effectiveness, were cumbersome and often uncomfortable for continuous wear.

The key technical breakthrough that later facilitated wearable heart rate monitors was the invention of photoplethysmography. This optical method uses light to measure blood volume changes beneath the skin and was miniaturized so it could fit into wristbands and rings. This was not just a technical achievement but also part of a shift toward making heart rate monitoring accessible beyond clinical and athletic settings to the general public. The goal became enabling passive, continuous tracking that could be integrated easily into everyday life, reducing the effort required by users (Castaneda et al., 2018; Charlton et al., 2023).

By the 2010s, these advances enabled the launch of smartwatches and rings equipped with photoplethysmographic sensors. These devices combined optical heart rate measurement with motion detectors and cloud-based data processing, allowing real-time continuous monitoring throughout the day. Whether during exercise, rest, or sleep, users could collect comprehensive heart rate data without disruption. This evolution coincided with growing public interest in proactive health management, empowering individuals to better understand and take charge of their wellbeing (Guk et al., 2019).

This journey offers important design lessons for immune status monitoring. Moving from occasional manual checks to continuous and passive tracking reduces uncertainty and allows users to make more informed decisions. Minimizing the need for active input, while providing clear and timely feedback, supports early recognition of health changes and appropriate responses. The challenge is delivering and synthesizing the data in an accessible and actionable way that encourages proactive health behaviors. Just as continuous heart rate monitoring transformed cardiovascular health management, immune status tracking holds similar potential to provide valuable insights and empower individuals with greater control over their health (Park et al., 2022).

For our project, real-time updates and continuous data collection are key to enabling deeper personalization. Just as modern wearable heart rate monitors provide a constant stream of data that allows health insights and recommendations to adjust dynamically with changes in activity and physiology, continuous immune status updates can adapt personalized feedback in real time. This ongoing flow of data empowers users to make timely, informed decisions that reflect their current health state rather than relying on isolated or delayed readings. By mirroring the heart rate monitor's approach to seamless integration and actionable feedback, our design can offer tailored reminders, alerts, and guidance that respond immediately to shifts in immune function, helping users fine-tune their self-care routines with greater confidence and precision.

8.4 Usability Rationale

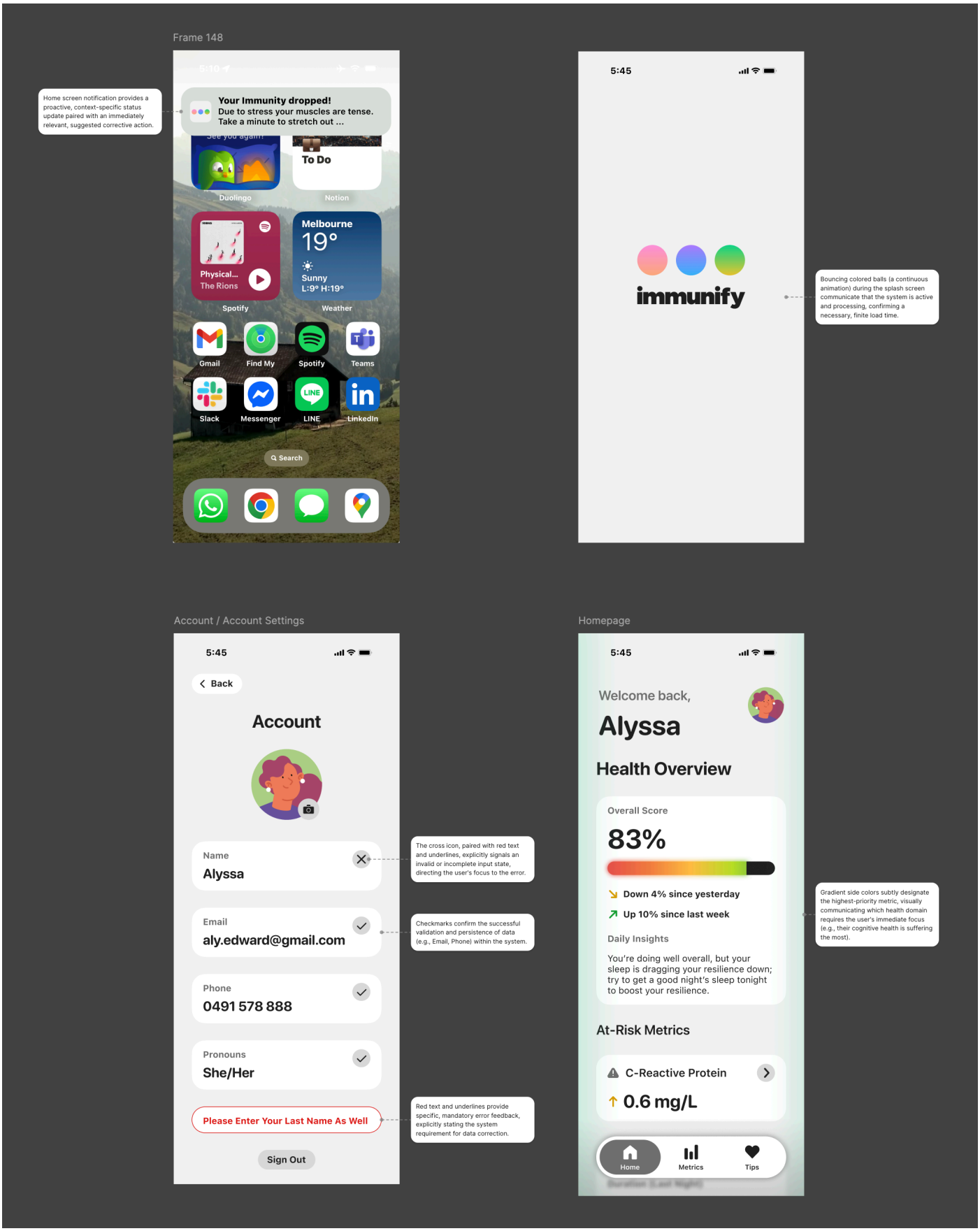
The usability principle that guided my wireframe design was visibility of system status. This principle emphasises that users should always be aware of what the system is doing and how their actions are being processed. By maintaining transparency through timely, context-appropriate feedback, the interface can foster user confidence and a stronger sense of control. When users understand that the system is responsive and communicative, they are less likely to feel uncertain or frustrated, particularly in contexts related to personal health and wellbeing.

I applied this principle by ensuring that every key interaction within the system provides visible, intuitive feedback. For example, a splash screen animation featuring the logo's bouncing motion was introduced to communicate that the app is loading rather than frozen, reinforcing reliability during system transitions. Similarly, skeleton loaders were used to display placeholder shapes that mimic final content. This not only reduces perceived wait times but also signals continuity and progress, helping users anticipate what's coming next.

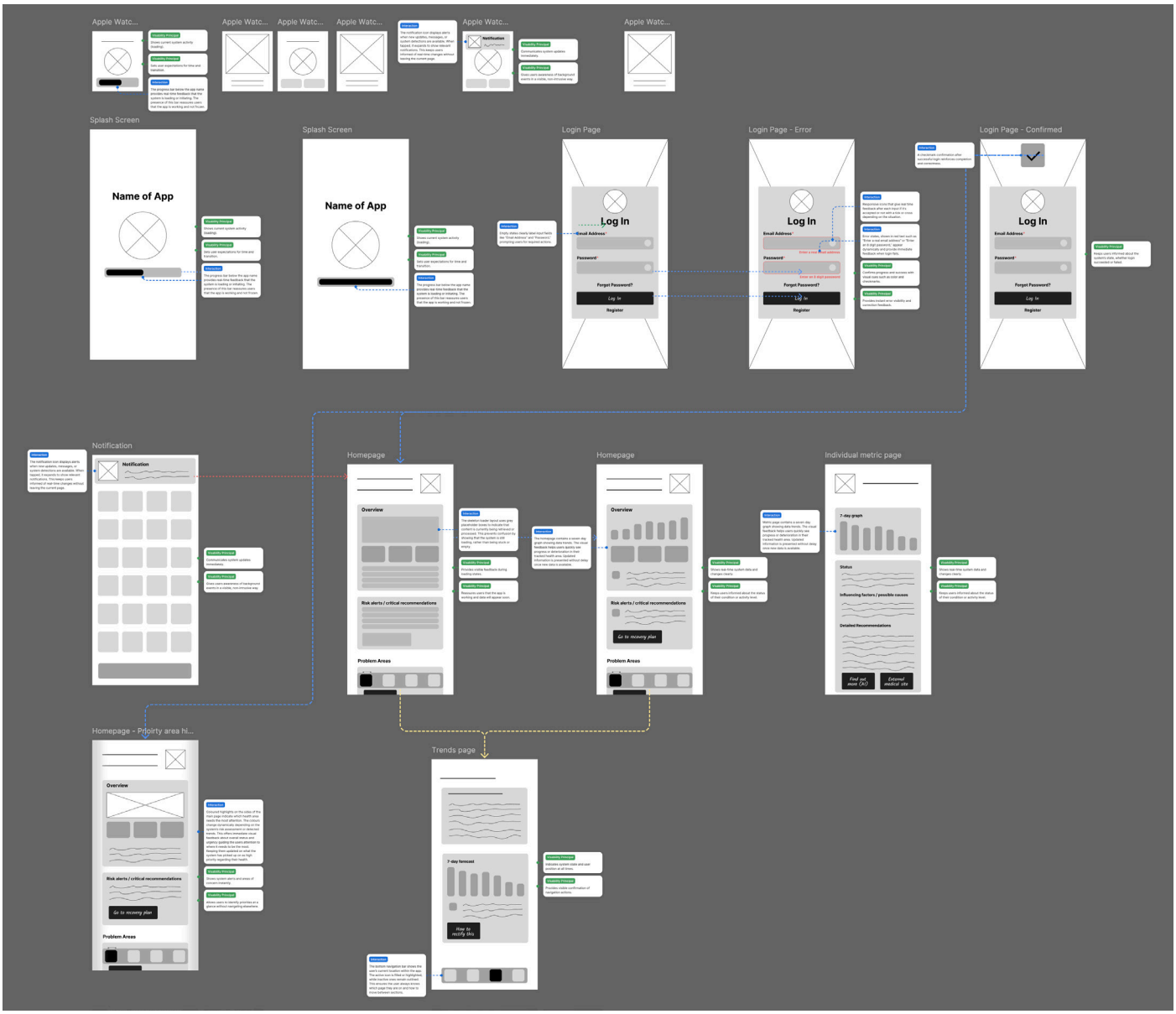
The home page also integrates visibility cues through its dynamic edge lighting; the accent colour of one of the three key health areas subtly illuminates depending on which area needs attention. This visual prompt immediately directs users to where their engagement will have the most impact. Progress bars and colour-coded health metrics allow users to interpret their wellbeing at a glance, while arrows and tick icons provide instant clarity about whether changes in their data represent positive or negative trends.

In addition, the design includes clear confirmation and error messages. When users input data incorrectly, ticks and crosses validate successful entries, while error messages guide them toward the correct action. Real-time notifications further support visibility by alerting users when their immune health changes or when preventive actions are recommended. Across all screens, universal icons and familiar visual metaphors were employed to align with users' mental models, reinforcing predictability and ease of comprehension.

Overall, by centring my design around visibility of system status, I aimed to create an interface that not only informs but reassures, bridging the gap between system processes and user understanding. This principle shaped the layout, feedback mechanisms, and overall rhythm of interaction, ensuring that users feel supported, informed, and in control throughout their experience. This can be seen in the below in the wireframes and the detailed prototype.


Frame 148
Home screen notification provides a proactive, context-specific status update paired with an immediately relevant, suggested corrective action.
Your Immunity dropped!
Due to stress your muscles are tense.
Take a minute to stretch out ...
Duolingo
To Do
Notion
Physical...
The Rions
Spotify
Melbourne
19°
Sunny
L:9° H:19°
Weather
Gmail
Find My
Spotify
Teams
Slack
Messenger
LINE
LinkedIn
Search
5:45
immunify
Bouncing colored balls (a continuous animation) during the splash screen communicate that the system is active and processing, confirming a necessary, finite load time.
Account / Account Settings
5:45
Back
Account
Name
Alyssa
Email
aly.edward@gmail.com
Phone
0491 578 888
Pronouns
She/Her
Please Enter Your Last Name As Well
Sign Out
The cross icon, paired with red text and underlines, explicitly signals an invalid or incomplete input state, directing the user's focus to the error.
Checkmarks confirm the successful validation and persistence of data (e.g., Email, Phone) within the system.
Red text and underlines provide specific, mandatory error feedback, explicitly stating the system requirement for data correction.
Homepage
5:45
Welcome back,
Alyssa
Health Overview
Overall Score
83%
Down 4% since yesterday
Up 10% since last week
Daily Insights
You're doing well overall, but your sleep is dragging your resilience down; try to get a good night's sleep tonight to boost your resilience.
At-Risk Metrics
C-Reactive Protein
0.6 mg/L
Home
Metrics
Tips
Gradient side colors subtly designate the highest-priority metric, visually communicating which health domain requires the user's immediate focus (e.g., their cognitive health is suffering the most).

8.5 Wireframes



https://www.figma.com/design/CoVwBqjLzCLUAbfUA70R4X/ITP-Wireframes?node-id=61-1418&t=VAIDWFIy9ppiGVgg-1

8.6 Interview Transcript & Themes: P9

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Immune Health → Cognitive Health → Physical Health → Overall Score

Task Completion time:

16s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experiencel?

really do like how you use colours to separate categories , and I think the colours in here is quite intuitive. Because, you know, the green one, probably by represents, like, you're healthier. And the right, the red color, it probably shows that you're in a poor condition. So I think, um, using a gradient of colors to show your health status is a very smart choice. And I think overall, the color scheme and the color design is quite pleasant, in my opinion.

What did you find frustrating or confusing?

Um, I don't think there's any part that's really frustrating to me. I think overall the navigation is quite effective.

Was there anything you expected but didn't see?

Uh, not really, in my opinion. Yeah, I think everything's pretty well constructed.

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Sign In Page → Homepage(scrolled until at risk metrics) → Metric Page (via nav bar)→ Immune Health Metric Page (scrolled and stopped to read each metric) → Cognitive Health Metric (scrolled and stopped to read each metric)

Task Completion time:

25s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Well, I think overall, the layout is pretty clean. So, first of all, the first was immune health, which is, categorized in pink , whereas the cognitive health is covered in blue and purple. So I can distinguish between, different areas and sections. And I think the overall interface is very clean. It shows me essential information without giving me too much extra content. That would make me feel confused, cognitive load. So, I think overall, I really do like the way it's being navigated, and how you guys designed the layout and structure of the interface.

What did you find frustrating or confusing?

Uh, I don't think there's any progress. Specifically, especially confusing. I think overall just very straightforward.

Was there anything you expected but didn't see?

Well, not really. I think it anticipated all the important information that I need.

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Metric Page (Scrolled down to view tips on the same page) → Individual tip page

Task Completion time:

21s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

First of all, it shows me how impactful this thing is. It tells me the impact is very high and the text is in red, which really grabs my attention. It triggers me to click into the section because it says it's high, especially with the red text.

What did you find frustrating or confusing?

I don't think there's any specific thing that makes me feel confused, but I think the font can be a little bit too small. I have to struggle to read it.

Was there anything you expected but didn't see?

Not really. I think it's very informative. It tells me what to do and also tells me what kind of food to eat. I don't expect anything more.

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Individual tip page → Metric Page (via nav bar) → Homepage → Profile → Personal Details → Profile → Health Details (Scrolled down to the diet section)

Task Completion time:

24s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

I think first of all, it's pretty self-explanatory. I immediately knew where to click when I heard the instruction. The navigation is pretty straightforward. It's just Settings, then change your diet preference, and save. Very easy to use.

What did you find frustrating or confusing?

I don't think there's any frustrating element. I think it's pretty easy to use. No confusion at all.

Was there anything you expected but didn't see?

No, not really. Everything is constructed well.

Post-task Questions

Do you feel this product would meet your needs?

Yes, I would say it will meet my needs. I think it's very useful because I care about my health a lot.

If you could change elements of this application, what would it be?

I think maybe add a sport-related section. A lot of people who care about health also care about sports. Those two things always go together. I think you should develop a section where a user can check their health index after doing a sport.

If there is any similar product that you used or know of? How would you compare with current competitor?

I haven't used other apps, but I do use Garmin (G-A-R-M-I-N), a sports watch. It's quite similar because it also tells you your sleep score and how healthy you are. But I think Immunify focuses more on immunity. That's the only difference, I suppose.

SUS Questionnaire

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."				v	
"I found the system unnecessarily complex"	v				
"I thought the system was easy to use."					v
"I think that I would need the support of a technical person to be able to use this system."		v			
"I found the various functions in this system were well integrated."				v	
"I thought there was too much inconsistency in this system."		v			
"I would imagine that most people would learn to use this system very quickly."				v	
"I found the system very cumbersome to use."		v			
"I felt very confident using the system."				v	
"I needed to learn a lot of things before I could get going with this system."	v				

Post UBE Notes

The user demonstrated an overwhelmingly positive experience with Immunify, consistently achieving quick task completion times (average of 21.5 seconds) and assigning the easiest rating (1) to three of the four tasks. The resulting System Usability Scale (SUS) score of 82.5 confirms the app's superior usability and ease of learning. The core value proposition, health monitoring, resonated directly with the user, who expressed confidence that the app "would meet my needs."

A core strength of the app was the color coding system, which proved to be a huge success. The user immediately understood that green represented health and red signified a poor condition, calling it "intuitive" and a "very smart choice," particularly for the Smart Watch interface (Task 1). This visual language is a critical strength for quick, glanceable data. Furthermore, the overall interface and structure were validated as being clean and efficient. The user noted the design provides "essential information without giving me too much extra content," successfully avoiding confusion and maintaining focus (Task 2). Additionally, the use of a high impact visual alert, specifically red text highlighting a risk metric, proved effective in driving user behavior. The user explicitly stated this cue "trigger[ed] me to click into the section," confirming the design successfully motivates users to seek information and solutions (Task 3). Separately, the information architecture for settings and detail modification was confirmed as logical, with the user stating the process was "straightforward" and they "immediately knew where to click" (Task 4).

We did note a key area for refinement in Accessibility Concern (Font Size). The single point of friction was the small font size in the tips section. The user reported they "had to struggle to read it," indicating a need for immediate review to ensure optimal legibility and accessibility within detailed content screens (Task 3). Finally, a significant Strategic Feature Gap (Sports Integration) was identified. Citing use of a competitor like Garmin, the user requested a "sport related section" to check their "health index after doing a sport." This suggests a strong user need among health conscious individuals to view immunity and recovery metrics through the lens of physical activity, positioning sports integration as a high value next step for the app's roadmap.

8.7 Interview Transcript & Themes: P10

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall Score → Immune Health → Cognitive Health → Physical Health → Overall Score

Task Completion time:

24s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

I think the figures and the colors were indicated , which allows the user to easily visualize their own health conditions.

What did you find frustrating or confusing?

None

Was there anything you expected but didn't see?

No, I can say no

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Sign In Page → Homepage(scrolled and stopped to read each metric until bottom of the page) → Metric Page (via nav bar)→ Tips Page (Scrolled and stopped to read each metric until the bottom of the page) → Metric Page (via nav bar) → Cognitive Health Metric (scrolled and stopped to read each metric)

Task Completion time:

1m 59s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

The reason why I liked it is because it lists out many daily routines that I did, and they record the advantage and disadvantages. For example, it seems like I am lacking sleep. It actually reminds me, and it also contains quite specific information about our body functions, such as the amount of proteins and a kind of cells, etc. It's pretty specific, and this is why I liked this experience.

What did you find frustrating or confusing?

I don't think there's any confusing part in this app so far.

Was there anything you expected but didn't see?

No.

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Metric Page (Scrolled down to view tips on the same page) → Individual tip page

Task Completion time:

2m 5s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

First of all, the app does the comparison of my current status to the past few days, which I think is great. It also listed out tips for my health condition , and actually provided a way how I can improve it. For example, they actually list out some food that I should consume in order to improve my sleep deprivation. I think it's very useful as a user.

What did you find frustrating or confusing?

So far, Nothing.

Was there anything you expected but didn't see?

I do expect maybe a statistical status for, like, as a whole instead of individual. In order to do a comparison, like a benchmark , against the average for your demographic and age group.

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Individual tip page → Metric Page (via nav bar) → Homepage → Profile → Health Details (Scrolled down to the diet section)

Task Completion time:

54s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

It's just easy to identify where to change my information.

What did you find frustrating or confusing?

Nothing seemed to make me confused or frustrated.

Was there anything you expected but didn't see?

Nothing so far.

Post-task Questions

Do you feel this product would meet your needs?

Yes. I think it is useful, especially for people who don't have money to go see a doctor. It is useful for them because they just need to use this app to actually get a general status about their own health condition.

If you could change elements of this application, what would it be?

I don't see an issue. I couldn't think of any element that should be changed in this application.

If there is any similar product that you used or know of? How would you compare with current competitor?

I never used a similar product before in my life.

SUS Questionnaire

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."				x	
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."		x			
"I found the various functions in this system were well integrated."					x
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."					x
"I needed to learn a lot of things before I could get going with this system."					x

Post UBE Notes

Our key overall observation is the exceptional ease of use and the profound clarity of the interface across both the smartwatch and mobile application, which led to high ratings and low frustration. This was immediately evident in Task 1 (Check Immunity on Smart Watch), which the participant rated a 1/5. They articulated exactly why the experience was so positive, stating, "I think the figures and the colors were indicated, which allows the user to easily visualize their own health conditions." This highlights that our visual design on the small screen is highly effective for rapid comprehension.

A second crucial theme is the high perceived value of specific, actionable health intelligence provided by the mobile app. In Task 2 (Specific Metric Analysis), the user was deeply engaged with the detailed information, noting: "The reason why I liked it is because it lists out many daily routines that I did, and they record the advantage and disadvantages." This shows the power of connecting abstract health metrics to tangible, everyday behaviors. This actionability was reinforced in Task 3 (Look for tips), where the participant praised the solutions provided, stating, "they actually list out some food that I should consume in order to improve my sleep deprivation. I think it's very useful as a user." This concrete guidance seems to significantly positively impact the user experience.

Despite the near-perfect usability ratings (three 1s and one 2), the participant did introduce a valuable opportunity for future feature development: comparative context. While they found the app excellent, the one thing they expected but didn't see in Task 3 was a way to benchmark their data. In their words: "I do expect... a benchmark, against the average for your demographic and age group." This suggests that while personal data is helpful, placing it within a peer group context would significantly elevate the insights provided.

During the post-task discussion we solidified the overall positive usability of the app, where the participant provided a strong, unsolicited endorsement of the app's social value: "I think it is useful, especially for people who don't have money to go see a doctor. It is useful for them because they just need to use this app to actually get a general status about their own health condition." positioning Immunify as a vital, accessible health resource.

8.8 References & Statement of AI Use

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Statement of AI Use

I acknowledge the use of AI (Gemini) in this report:

- https://gemini.google.com/share/770c62e8457e

9. Individual Component: Shan Ye Liew

9.1 Persona

Bio

Caleb Brown is a 32-year-old male who works as a fly-in-fly-out construction worker at a remote site in Western Australia. He lives in a rented town house in Perth with his wife, Sandy.

Health Background

Caleb was diagnosed with Type 2 diabetes 1 year ago. He is required to take regular insulin injection and follow a diabetic-friendly diet, but sticking to it can be challenging when working away from home. Caleb has limited knowledge about health and immune health, so he relies on GPs or doctors for medical information or advice.

Lifestyle & Values

Caleb spends half of his time working at the construction site and the other half at home. His work demands long shifts, often taking 12 hours. It is physically demanding and requires high energy levels. While on shift, Caleb has minimal time for personal activities and self-care like exercise, rest and meal planning. His schedule is sometimes irregular, making it harder to maintain a consistent routine around work, meals and rest.

Caleb always prioritises his family, especially his wife. While he is not on shift, he spends time at home with his family. He has a more flexible schedule for personal wellness activities although he finds it tricky to maintain the balance between that with time with his family.

Goals

Caleb's main goal is to stay fit and energised to keep up with his work. He also wants to manage his diabetes without it interfering with his job and not burdening his family. He aims to build healthy habits and strengthen his immunity despite limited time, irregular routines and lack of knowledge.

Technology Use

Caleb owns a Samsung smartphone and a Samsung Watch. He always has his smartphone and smartwatch with him while he is working. He has been relying on them for everyday tasks like payment, communication and entertainment. Due to his health conditions, he also utilises them for health tracking and reminders.

9.2 Task Scenario

As a fly-in-fly-out construction worker, Caleb often struggles to maintain a healthy routine, especially when managing his diabetes amidst busy and irregular shift schedules. Since he is the family's breadwinner, staying healthy and keeping his immunity strong is crucial, but he lacks knowledge about how to do so effectively. On his GP's recommendation, he downloads a new mobile app designed to support immune health. During setup, the app guides him through a tutorial where he creates two personalised health plans, one for work weeks and another for home weeks. Each plan includes customised actionable items such as exercise, diet reminders, and insulin management, helping Caleb stick to routines that balance his demanding lifestyle.

It is the day before Caleb's next fly-in. At 6:30 a.m., he receives a sleep summary notification on his smartwatch. When he checks the app, it not only displays his sleep quality but also shows his current immunity status. Based on the data, the app suggests a small change: "Take a nap at 2 p.m." Caleb accepts, impressed that the app adapts dynamically to his needs. Soon after, another pop-up appears: "Time to run." Caleb heads outside for a short jog.

When he returns, the app automatically logs the run and updates his immunity status. While preparing breakfast, his watch buzzes again: "Avoid carbs today." He taps "Ok" and chooses a low-carb breakfast, marking the task as complete. That night, the app reminds him: "It's work day tomorrow." Caleb reviews his daily immunity summary, then switches his plan from Home to Work, preparing mentally for the week ahead.

The following morning, the app provides a packing checklist before he heads out, ensuring he does not forget essentials like medication. On the bus ride, Caleb browses the day's short immune health tips, rating each as "Useful" or "Not useful." One of the cards titled "10-Minute Workout," catches his attention. He saves it for later.

At lunchtime, Caleb opens the app again for meal suggestions. "You need more vitamin C today," it advises. He asks the canteen staff for extra fruit to go with his meal. With half an hour of break remaining, he tries the saved workout routine. The exercises are short and practical which is something he can actually maintain at site.

During the afternoon, his watch vibrates with a "Don't overwork" reminder, prompting him to pause for five minutes. Later that evening, he twists his ankle on the way back to his room. Caleb checks his condition using the app's quick self-assessment. The app diagnoses a minor sprain that is not affecting his mobility but recommending rest from heavy lifting. Caleb shows the result to his manager, who reassigns him lighter tasks for the next day.

Back in his room, the app reminds him to take his insulin injection. Before bed, Caleb reads his daily immunity report, which highlights his achievements and suggests small adjustments for tomorrow. By following the advice step by step, Caleb feels supported in managing his health, keeping his energy steady, and maintaining his role both as a reliable worker and as the family provider.

9.3 Design Precedent

A pill organiser, or pillbox, is a multi-compartment aid designed to make self-medication easier and more reliable. The concept can be traced back to the early 1960s (Wendt and Warner). David Wagner, an engineer from Illinois, first conceived of the idea after observing the difficulties his wife, Doris, faced when trying to remember her daily doses. Motivated by her struggles, he created a compact-style prototype dispenser in 1962. It was commercialized as the Ortho "DialPak" in 1963, becoming the iconic round contraceptive pack still familiar today. This innovation highlighted the need for simplified packaging and organisational aids to support consistent medication use and reduce unintentional non-adherence.

Pill organisers today have various designs serving a wide variety of purposes and user groups. Beyond the basic forms feature daily or weekly labelled compartments, findings form Menta et al,(2021) showed that there are specialised variations such as travel organisers, emergency pillboxes, and arthritis-friendly organisers with push-button lids to accommodate reduced dexterity. Pharmacies often employ medication trays that dispense pre-packaged doses at scheduled times, complete with reminders, adherence tracking, and caregiver alerts if doses are missed. More advanced designs like robotic pill dispensers, which automatically sort and release medications at the appropriate times, and allow remote adjustment of dosage regimens.

Evidence regarding their effectiveness is mixed. Studies by Schwartz (2016) suggest that many individuals with chronic conditions rely on pill organisers, and users often demonstrate better adherence than non-users. However, a large randomised trial by Choudhry et al. (2017) involving over 53,000 participants compared low-cost reminder devices, including standard pillboxes, and found no significant improvement in adherence compared with control groups. These findings suggest that while pill organisers can be valuable in certain contexts, they are not a universal solution for medication non-adherence.

For our project, several design concepts drawn from the pill organiser are particularly relevant. The role of reminders and feedback loops in supporting prospective memory and adherence directly informs our approach, where actionable self-care reminders is one of the core features. Likewise, the concept of clear compartmentalisation and labelling highlighted the importance of reducing cognitive load when organising, remembering, and executing tasks. These insights suggest a design where users can define preferred self-care actions, customise the frequency and timing of reminders, and track their progress by marking completed activities. Just as pill organisers group medications by day or week, our design can structure actionable items into meaningful clusters, helping users sustain habits and routines over time.

9.4 Usability Rationale

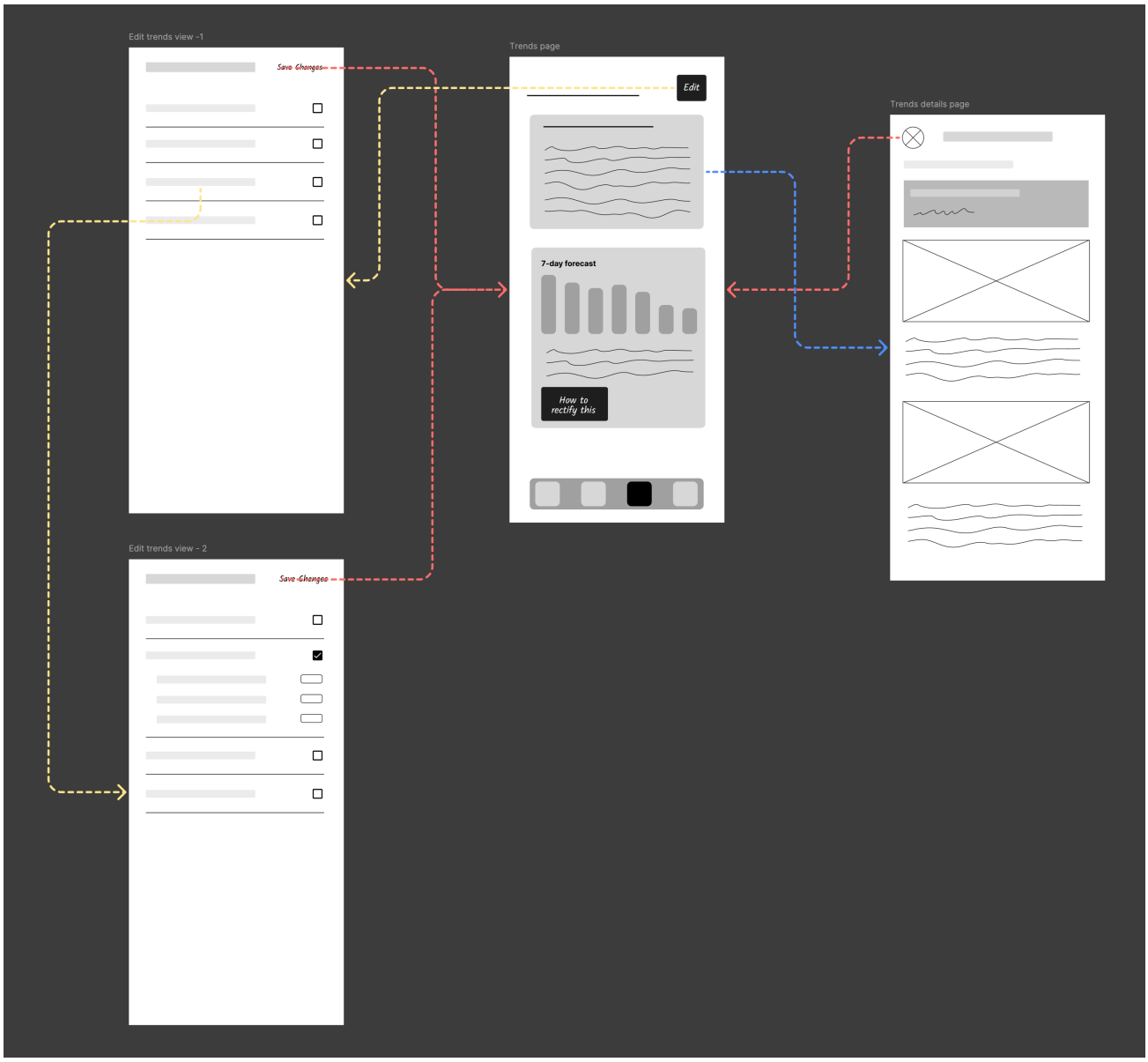
The usability principle that I applied in my design of the app functionality is Flexibility and Efficiency of Use from Jakob Nielsen's Ten Heuristics. This principle highlights the importance of accommodating both novice and experienced users to ensure an accessible and effective design. Our app design must support first-time users who are unfamiliar with the technology while also offering advanced functionality for those with more expertise. In relation to our main design concept, the app's functionality and presentation of information should not overwhelm new users but instead guide them through onboarding and help them familiarise themselves with the technology. For experienced users or those with advanced knowledge of immune health, the design provides alternative pathways to access information, ensuring customisation, flexibility, and efficiency.

The design principle particularly informs how health trends and forecasts are displayed. By default, users encounter a simple and intuitive page highlighting overarching health metrics such as immune health, mental health, and bodily health. Each trend is accompanied by a short, plain-language description, ensuring accessibility and readability for all users. When users navigate into a specific Trends page, AI-generated summaries are provided, along with tips to help monitor or maintain their health status. These elements are particularly valuable for novice users, as they simplify complex information and ease the adoption process, while still providing meaningful insights into their health. At this early stage of usage, such design choices reduce friction and demonstrate the value the app offers.

For experienced users, additional features support greater personalisation and control. They can customise the Health Trends dashboard by selecting specific metrics from a wide range of categories and adjusting the level of detail they wish to see. They are also given options to determine the duration of forecasts and whether they want descriptions that are brief, detailed, jargon-free, or technical. Furthermore, recognising that some users expressed skepticism towards AI during interviews, the design incorporates an option to toggle AI features on or off. This empowers users to decide the role AI should play in their experience, ensuring trust and confidence in the app's flexibility.

In conclusion, applying Flexibility and Efficiency of Use ensures the design balances simplicity with depth. By supporting both novice and experienced users, the app enhances inclusivity, builds trust, and improves overall usability. Ultimately, this approach allows the technology to adapt to the user rather than forcing the user to adapt to the technology.

9.5 Wireframes



9.6 Interview Transcript & Themes: P3

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall Score (swiping the interface without using the dot navigation) → Immune Health (typo spotted) → Cognitive Health → Physical Health → Overall Score

Task Completion time:

1m 4s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

"I like the visual, like you use different gradient colour for different things, very nice. And it is pretty simple and straight-forward. Yea I think that's it, everything is very clear"

What did you find frustrating or confusing?

"Like the small square at the side, at first I didn't notice it. It is too small to click."

Was there anything you expected but didn't see?

"Not really. Only one thing, I am not sure if it's just an error but I expect it can be scrolled. Because I think it's natural that you can scroll on your watch, it's a normal thing. I think it would be more convenient for me if I can scroll."

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Homepage (scroll and stop to read each metric) → Metric Page → Cognitive Health Metric (scroll and stop to read each metric) → Sleep Tips → Back to Cognitive Health Metric (scroll up and down)

Task Completion time:

1m 48s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

"I like the design of the interface, like it's quite like easy to find everything and everything is like straightforward. I like the colour scheme, because the font size is big enough, thing s are quite obvious"

What did you find frustrating or confusing?

"Not really."

Was there anything you expected but didn't see?

"Not really. I just somehow expect I can find the cognitive health information at the home page, but I have to click on Metrics"

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Metric Page → Cognitive Health Metric (scroll up and down, does not notice navigation tips) → (Upon reminders of the task) → Sleep Tips (scroll up and down)

Task Completion time:

50s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

"I think the layout is really good. It's very efficient and easy for me to find out information related to cognitive matrix, and I can see like what is underperforming, what is going on, because I can see like the red arrow they somehow represent something is going worse. I like how you use different colors to represent different level."

" And tips page, I found it quite good because I can see the impact level. I can see the full list of suggestions and you have made the titles bold so it's pretty easy to follow and I can see when I click on it. Oh, you also have a tips page (on navigation bar), so I know like uh in the future I can just like click on the tips page, so follow the tips."

What did you find frustrating or confusing?

"I'm like a little bit confused about the yellow sign, maybe it was like it's some moderate?"

Was there anything you expected but didn't see?

"Not really"

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Homepage → Clicked on Profile Photo → Health Details → Clicks diet edit button

Task Completion time:

20s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

"I think it's quite intuitive to find the page where you can edit your details, because normally for other apps like when you click on your profile photo, it's just gonna direct you to the settings page, or account page, and your app just doing the same thing, so I feel like it's quite easy for me to follow, because I haven't used your app before, so I was just like taking a guess, but it's a success. Yeah, I feel like it's very easy to use and also for Health details, uh, and you can find the diet here straightforward, so everything's quite easy to find."

What did you find frustrating or confusing?

"Not really"

Was there anything you expected but didn't see?

"Not really"

Post-task Questions

Do you feel this product would meet your needs?

"Yea, I think so. I can find other useful metrics and then it can also give me relative suggestions, not only just displaying the data, and then somehow show me the potential, or reasons, behind the underperforming metrics and also somehow suggest me the consequences if my matrix still under-performing."

If you could change elements of this application, what would it be?

"I feel like when I try to change the settings stuff from the profile, I feel like the only way to change is like click on the profile photo to change it. I feel like you can have like another tab on the navigation bar, it's like a more straightforward, clearer way to show them like where you can change the settings of your profile. It's easier for me to find it"

If there is any similar product that you used or know of? How would you compare with current competitor?

"I think the only similar app I'm using now is actually the Apple default one, but I feel like your interface much better than this. I really like the tips page because it's really useful. From Apple's, they just have separate article stuff for tips and as a user I just don't wanna read it so I don't really care about it, but for yours it's like, you know, like bullet point thing so like it's like easier to follow, yeah. And I'm more willing to read it, like for for the Apple's one, I just don't care about anymore."

SUS Questionnaire — SUS Score = 97.5

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."					x
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."				x	
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."					x
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."					x
"I needed to learn a lot of things before I could get going with this system."	x				

9.7 Interview Transcript & Themes: P4

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall Score (swiping the interface without using the dot navigation) → (upon reminders) → Immune Health → Cognitive Health → Physical Health → Overall Score

Task Completion time:

35s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

"It looks pretty easy, pretty straightforward. Yeah, it's really clear for the information."

What did you find frustrating or confusing?

"I think because I'm using the prototype or something. I want to scroll the screen because it is really natural way when using a watch. But I also saw the small dots at the side."

Was there anything you expected but didn't see?

"I want some description for each page, like I want to get more information about how the score is calculated or what the score means. Maybe it can have a small 'question mark' (icon) there."

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Homepage(scroll and stop to read each metric) → Metric Page → Tips page→ Homepage → Sleep Metric → (Upon reminding the task) → Metric Page → Cognitive Health Metric (scroll and stop to read each metric) → Tips Page → Metric Page → Cognitive Health Metric

Task Completion time:

1m 59s

Task Rating (1-5, 5 being very difficult):

3 (don't understand the task)

What did you like most about the experience?

"It's interesting. This is a really new concept for me. You can show, like demonstrate all the score, all the metrics, and yeah, I think the reason is pretty clear. Why do you have really low sleep quality, I think that is one reason of why your cognitive health drop down."

What did you find frustrating or confusing?

"For me it's too much information. I don't know what to focus first. This part ('At-Risks' metric) is pretty clear, but when I go into the Metrics Page, like the Cognitive Health page, and the subpages, there are a lot of information. I feel that it's a little bit overwhelming."

"There are a lot of different red, small arrow icons. It's kind of scary to me, like it's telling me it's a really bad situation. "

Was there anything you expected but didn't see?

"I want to know what is the standard or normal range of values (of the metrics) looks like."

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Home Page → Sleep Metrics → Home Page → Sleep Metrics → Metric Page → Cognitive Health Metric → Sleep Metric (scroll up and down) → Related Metrics (scroll up and down)→ Sub-metrics page → Home Page → Metric Page → Cognitive Health Metric → Sleep Tips (scroll up and read)

Task Completion time:

56s

Task Rating (1-5, 5 being very difficult):

4

What did you like most about the experience?

"I like the impact level, it shows which tips is more important. Yes it 's really good to have high density of information here. I prefer to have more information for the tips. I will follow some steps when I know what I should do next. If the steps is more detailed, that would be easier to follow."

What did you find frustrating or confusing?

"Not much."

Was there anything you expected but didn't see?

"I don't know why the tips is under the big metric page (Cognitive Health Page). It's not in the sub-metrics page. I think if I want to like change something better, like I want to get a better sleep, I think it, it's natural ways to find out the tip under the Sleep page, but they don't. It's good to have tips under all abnormal metrics."

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Homepage → Clicked on Profile Photo → Health Details → Clicks diet edit button

Task Completion time:

14s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

"It's really straightforward, easy."

What did you find frustrating or confusing?

"No."

Was there anything you expected but didn't see?

"I think this is my natural behaviour. I think if we have a button for manage account or something like personal profile, that will be... I think more clearer. Otherwise I have assumption that if I click the profile image that will lead me to the user profile."

Post-task Questions

Do you feel this product would meet your needs?

"Not really. Because I use some same kind of app before. I realized, for me, like my sleep quality, I can feel it in the 2nd day, whether I'm sleepy or not. But I think those detailed and numeric data would be helpful in long term. For me, I don't care much about... for instance, like my today's blood pressure or how much sugar in my body or something, but I'm more worried about the trend for one month. Like it reminds me if I'm doing some habits, like how bad my body will be. That would be really helpful."

If you could change elements of this application, what would it be?

"Maybe add more colour. This looks really professional, but i feel a bit pressured when I use it, like the grey colour."

If there is any similar product that you used or know of? How would you compare with current competitor?

"I think the biggest difference is this app can measure more information compared to the recent apps. I have some apps for tracking your sleep quality, tracking your movement or gym record or something like that. They cannot measure your white blood cells, something inside body and stuff. And the tips, I think other tracking apps don't have this."

SUS Questionnaire — SUS Score = 80.0

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."	X				
"I found the system unnecessarily complex"			X		
"I thought the system was easy to use."					X
"I think that I would need the support of a technical person to be able to use this system."	X				
"I found the various functions in this system were well integrated."				X	
"I thought there was too much inconsistency in this system."	X				
"I would imagine that most people would learn to use this system very quickly."					X
"I found the system very cumbersome to use."		X			
"I felt very confident using the system."					X
"I needed to learn a lot of things before I could get going with this system."	X				

9.8 References & Statement of AI Use

References

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Statement of AI Use

I do not acknowledge the use of AI in this report.

10. Individual Component: Aidan Lowe

10.1 Persona

Bio

Ayla Bouras (21) is a student at UNSW, studying a Bachelor of Actuarial Studies. Living in the heart of the Sydney's eastern suburbs Ayla is no stranger to the hustle and bustle of city life, taking pride in her ability to aways be on the go. Balancing her studies, internship and social commitments Ayla doesn't have time for unexpected occurrences like colds interrupting her schedule.

Values & Interests

- Career progression: with a strong drive to be successful, Ayla places a high value on progressing her career.
- Academic excellence: Ayla is dedicated to achieving a high level of academic success to help further her career goals.
- Culinary exploration: coming from an European background Ayla loves European food culture.
- Frequent flyer: with her extended family located in Greece Ayla frequently travels back to spend time her Greek family. During these trips she often goes and explores the rest of Europe.
- Fashion-savvy: Ayla loves to keep up with the various fashion trends as it helps her feel confident.
- Fit & active: Ayla really values the opportunities to exercise; playing tennis with friends, running on her study break or going to her morning Pilates class.

Behaviours & Habits

- Schedule and plans out her weeks
- Aims to exercises at least 3 times a week
- Eats out 6-8 times a week, mostly for lunch or dinner
- Averages around 6 to 7 hours of sleep a night
- Normally drinks (alcohol) 1-3 times a week

Goals & Needs

- Maximise her time; avoiding unplanned delays or interruptions to her schedule
- Maintain a well balanced healthy lifestyle
- Ensuring she stays in a positive mental state, avoiding getting overwhelmed by her busy schedule
- Access to digestibly information that is actionable

Technology Use

- Ayla is an Apple purist ownin an IPhone, Macbook pro & Apple watch.
- Experience to smart wearable technology is limited to her apple watch, which she exclusively uses for it's fitness tracking capabilities.
- Open and comfortable with technology, demonstrating a willingness to integrate it into her everyday life.

Frustrations

- Often falls sick with various illness which limits her from following her schedule
- Has been unable to find an easy way to track her health
- Information around immune health is often complex for her to understand and action
- Finds it hard to manage her stress levels with her busy lifestyle
- Neglects daily tasks and activities that she knows will be good for her

10.2 Task Scenario

Juggling multiple commitments academic, professional and social, Ayla often finds herself fatigued and run down struggling to keep on top of her busy schedule. To attempt to stay healthy Ayla has adopted several habits including more regular exercise and being more conscious about her diet, however, these changes have yet to make a significant impact to her health. Ayla is now becoming increasingly worried that she won't be able to maintain her current lifestyle without a burning out from the constant ever present sickness.

On another day where she is feeling overwhelmed and run down, Ayla is scrolling on her phone when comes across an influencer on her explore page raving about a new sickness prevention app.

Curious, Ayla decides to download the app, setting up her account filling in the profile, health and schedule information. To complete the set up process Ayla connects her apple watch to the app. Reading her biometric and biomarker the app straight away informs Ayla that her immune health is comprised and that she is at risk of getting sick. With this information the app listing out several actionable tasks to quickly recover.

Through the frequently reminders Ayla is able check off the tasks within her recovery plan and over the next few days, with the help of the app is able to shake off the worse of her sickness, prompting her to jump straight back into her busy routine.

Following her recovery, Ayla becomes consumed by her schedule and neglects to the check in on the app and follow her suggested tasks. This all changes one morning when she gets a notification informing her that her immunity is at risk.

This notification made Ayla realise that she had been neglecting her immune health and jumps back into the app. Opening up the homepage the app informs her that her immune health is dropped over the last few days and she is becoming increasingly at risk of getting sick. Receiving this information Ayla proceeds to check her tailored schedule & daily tasks to see what goals she has to hit for the day.

Using the schedule Ayla decides to begin following the immune health recommendations more religiously starting off with a 10 minute mediation in the morning to help de-stress before the day begins.

Over the next couple of days Ayla is able to visually see as her immune health gradually become healthier through the various tracking metrics.

10.3 Design Precedent

Blood counts/tests as a procedure in the modern sense was first accredited to Karl Vierordt, a German physiologist, who published his methodology in 1852 (Green & Wachsmann-Hogiu, 2015). Vierordt method involved "drawing blood into a capillary tube and spreading a known volume onto a slide" to analyse and count the cells (Green & Wachsmann-Hogiu, 2015).

Over the next two of decades incremental changes improved the procedure with the most notable from the French anatomist, Louis-Charles Malassez. Expanding on Vierordt work, Malassez developed his haemocytometer, "a specialized slide" with an etched grid that creates volume chambers for more accurately and reliably count cells (Chemometec, 2022) (figure 11.3.1).

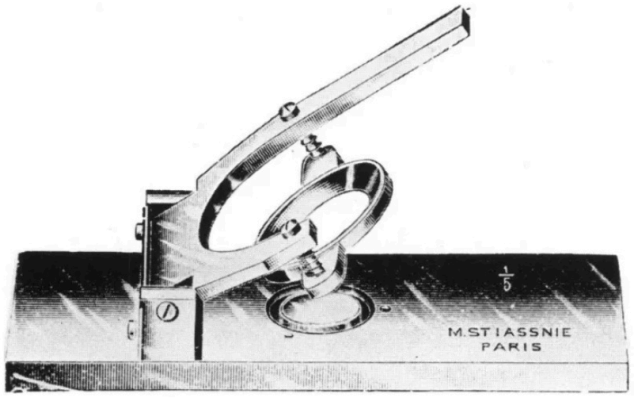


Fig. 11.3.1: Malassez's haemocytomer

Advancements like Malassez's haemocytometer marked a pattern of technological innovations that made the procedure not only more precise but also expanding the health data that could be collected.

The expansion in measurable information from blood tests signified a division from the procedures initial design as a "quantitative study of the blood" reserved for clinical laboratories, to a universal procedure that has become common place in medical practise (Verso, 1964).

The modern blood test involves the extraction of a small sample of blood taken from an individual to be analysed, however, modern variation can measure to plethora of biomarkers including white blood cells count, hemoglobin, vitamin, enzyme and hormone levels.

Test	Result	Reference range
Sodium (mmol/L)	130	135–145
Potassium (mmol/L)	4.7	3.5–5.0
Chloride (mmol/L)	106	95–110
Bicarbonate (mmol/L)	23	22–32
Urea (mmol/L)	4.7	3.0–7.5
Creatinine (μmol/L)	65	60–110
eGFR (mL/min/1.73 m^2)	>90	>90
Corrected calcium (mmol/L)	2.42	2.15–2.55
Phosphate (mmol/L)	1.08	0.75–1.50
Magnesium (mmol/L)	0.73	0.7–1.10
Albumin (g/L)	39	35–50
Haemoglobin (g/L)	135	130–180
White cell count (× 10^9/L)	5.5	3.7–9.5
Platelets (× 10^9/L)	240	150–400
Thyroid stimulating hormone (mIU/L)	0.6	0.5–4.0
Free thyroxine (T_4) (pmol/L)	6.9	10–20
Free triiodothyronine (T_3) (pmol/L)	3.2	3.2–6.3
Follicle stimulating hormone (mIU/mL)	2.6	<9
Luteinising hormone (mIU/mL)	2.4	<9
Total testosterone (nmol/L)	4.1	9.5–28
Blood glucose (random) (mmol/L)	4.1	3.5–5.5

Fig. 11.3.2: Example of the results from a modern blood test

Note. Girgis, Christian & Rodrigo, Natassia & Champion, Bernard. (2016). Acute presentation of pituitary adenoma. Endocrinology Today. 5. 32.

The diverse spectrum of insights that can be gathered has given rise to hundreds of different blood test types assessing specific components of an individuals health. The most common variation, complete blood count measures a multitude of key biomarkers to monitor and provide a general overview of an individual's immune health (Cleveland Clinic, 2024).

The success and application of blood tests can not be understated, with the test becoming one of the most common medical procedure utilised by health care professionals. The widespread implementation of the procedure can be attributed to the accurate and objective information that enables precise detection and monitoring of health conditions (Cleveland Clinic, 2022).

For the purpose of our project several elements from this procedure can be adapted to elevate our final design, however, the main notion we will aim to incorporate is the preventative nature of the test. The patterns that be analysed through blood test result present a way in which medical professionals can anticipate on-coming illnesses and pre-emptively act before they become problematic. This anticipatory nature is a concept that our group hope to emulate in our design with immunify acting as a more accessible way users can be proactive about their immune health.

10.4 Usability Rationale

One of the main usability principle our group decided to implemented into the design of the speculative app 'immunify' is 'Match Between System and the Real World' from Jakob Nielsen's Ten Usability Heuristics. The principle emphasises that systems and interfaces should incorporate language, words, phases, concepts and visuals that are recognisable to the users rather than system-oriented terminology, ensuring that information is presented in a logical and natural manner.

This heuristic is highly applicable to the design of 'immunify' given the app's placement within the health and medical technology domain. Immunify's heavily reliance on medical terminology and units of measurement pose several design challenges as many features within the app need to follow real-world medical convention that are often foreign to those outside the medical industry.

To address this conflict, a two-pronged approach was adopted: first aligning the app with established medical conventions, and then ensuring information remained accessible to users. To accomplish the former, research was conducted into existing medical technologies, uncovering several areas where our early designs failed to align with established conventions, particular around the presentation of data.

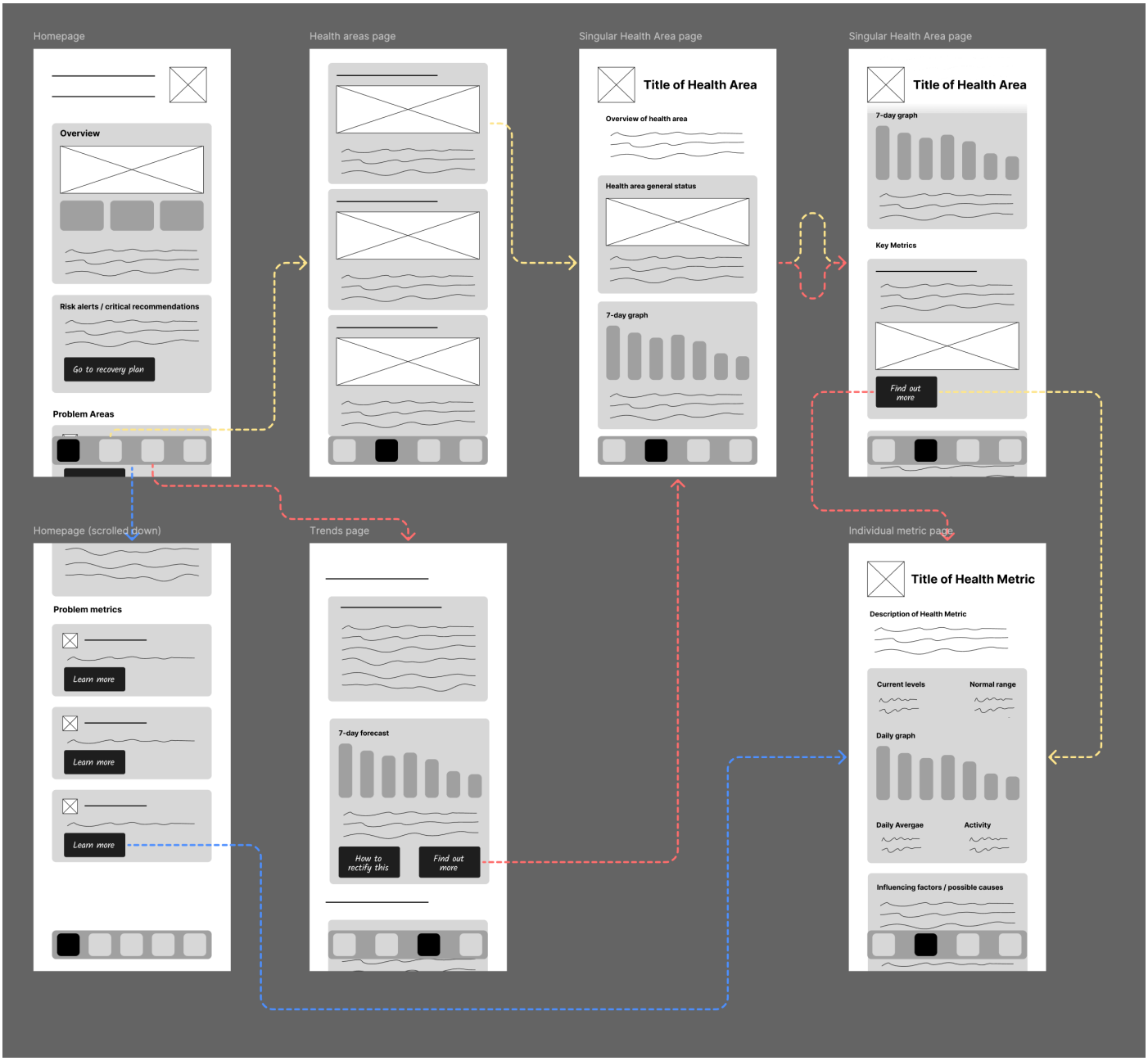
The need for reference ranges became apparent during the research, as precedents in blood and other medical tests results highlight that such ranges are essential communicating to the user whether their results fall within a health spectrum.

The second part of our approach looked at the 'real-world' scenarios where these complex metrics would presented to patients and how this information would be made accessible to them.

Through this exploration the group found that this information was rarely delivered without an medical practitioner present. To replicate this precedence in 'immunify' two features were added into the design, a dedicated information drop-down and a status description. The dedicated information drop-down would be integrated on every metric and health area page, providing users with an actionable means to view explanations of each metric and their role in supporting an individual's immune health. Sitting on the same pages as the information drop-down, the status description acts as a way to break down the results of users metrics, explaining what the different trends, patterns and fluctuations mean for the user's health.

The combination of these two features would operate as a quasi 'medical practitioner' to provide the user with the information and guidance needed to comprehend the significance of these metrics and their performance.

10.5 Wireframes



10.6 Interview Transcript & Themes: P1

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Happy path Overall Score → Immune Health → Cognitive Health → Physical Health

Task Completion time:

22s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

The user liked that design and interface was simple and straightforward to use making it accessible for a wide audience.

What did you find frustrating or confusing?

The user found an error in the design where two the health areas on the watch interface had cognitive health as their title, making it confusing for the user to understand which area was cognitive health.

Was there anything you expected but didn't see?

The user stated that was nothing that they didn't expect but they noted that they liked the bars at the bottom of the interface as it provided an easy way to visually indicate the health area's performance.view about the metric as they would like to know why that metric is low

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Sign In Page → Homepage → Metric Page → Cognitive Health Metric → Sleep metric page

Task Completion time:

1m 11s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

One aspect that the user liked was how detailed the specific metrics were and how you could see the various trends related to the metrics

What did you find frustrating or confusing?

The user found the app straight forward to use and had no complaints as to it's usability

Was there anything you expected but didn't see?

There was nothing the user expected to see but didn't

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Sleep metric page → Tips page → 'Eat food to help with sleep deprivation tip' page

Task Completion time:

1m 4s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

The user appreciated how straightforward it was to locate the tips area and find associated tips to the area they were looking for.Participant found the experience as s due to the section being include in the menu

What did you find frustrating or confusing?

Using the app for the first time can lead to some time need for the user to become oriented with the interface, which they noted could be frustrating for some users.

Was there anything you expected but didn't see?

There was nothing the user expected to see but didn't

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

'Eat food to help with sleep deprivation tip' page → Homepage → Profile → Health Details

Task Completion time:

1m 6s (extra time was taken due to an error in the prototype)

Task Rating (1-5, 5 being very difficult):

3

What did you like most about the experience?

User found the profile section easy to find, particularly with the profile icon being featured on every main page within the app.

What did you find frustrating or confusing?

The user found nothing overtly frustrating or confusing about the app's design

Was there anything you expected but didn't see?

There was nothing the user expected to see but didn't

Post-task Questions

Do you feel this product would meet your needs?

User felt that the app would be able to meet their needs especially in comparison to other offerings. The main areas they noted as being particularly good was the extensive amount of information provided to the user and the general functionality covering all the areas they would like. They also stated that they found the tips function particularly useful as many apps provide you with these metrics but don't inform you on how you can improve them.The participant believe it would stating the functionality was good making it easy to use plus there was more information than what was provided in other health apps e.g. app. Also stated that the tip function was good as some apps supply you with the metrics but not how to improve them

If you could change elements of this application, what would it be?

The user stated that they would make no major changes as they found the app pretty straightforward.

If there is any similar product that you used or know of? How would you compare with current competitor?

The only similar experience the user could think was the health function on apple watch, however, there experience with the product was limited so they felt that they couldn't provide much further insights.

In comparison to our app, the user liked how we were able break down the metrics to make them more digestible as they often found that the way apple presents them it can make them confusing.

Further to this point the user appreciated how our app featured descriptions regarding the metrics as they often find health information hard to understand.

SUS Questionnaire — SUS Score = 90

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."				x	
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."				x	
"I thought there was too much inconsistency in this system."		x			
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."				x	
"I needed to learn a lot of things before I could get going with this system."	x				

10.7 Interview Transcript & Themes: P8

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Overall Score → Immune Health → Cognitive Health → Physical Health

Task Completion time:

16s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

The numbers are very clear on what they are communicating, allowing the user to get glanceable insights. The user also found that the colours were aesthetically pleasing and help to differentiate the various sections.

What did you find frustrating or confusing?

On the laptop, the user found it really hard to click on the circles to navigate the watch interface, however, they conceded that on an apple watch the wand scroll function may resolve this.

Was there anything you expected but didn't see?

The user noted that they didn't understand how these the numbers for the various areas were acquired. As a result they would like to have access to the various metrics through this interface.

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Sign In Page → Homepage → Metrics Page → Cognitive Health page → Sleep metric page

Task Completion time:

42s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

The user found that the colours used throughout the interface were effective at communicating the various health areas, whilst still be very aesthetically appealing.

Additionally they liked status overview metrics as they felt that it provided them with quick digestible insights.

The user also noted that they liked how the each section was further broken down into the metrics as it allows them to easy tell the causes of their good or poor performance in that health area.

What did you find frustrating or confusing?

The user felt that the main page was a bit unintuitive as they couldn't find the cognitive easily from that screen.

Additionally they noted that the at risk metrics are so specific and not contextualised, why they are at risk. The user also questioned why the cognitive health was not under the at-risk metrics if it was performing poorly

Was there anything you expected but didn't see?

The user noted that they would like to see colour coordination on the individual metric cards as they found it hard to figure out what metric was associated to what.

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Sleep metric page → 'Eat food to help with sleep deprivation tip' page

Task Completion time:

13s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

The user found it easy to located the tips from the health area page and liked how they it was easy to find out more information. They also appreciated how the tips were able to be expanded out to provide further details as well as links to check the source information.

What did you find frustrating or confusing?

The user found the tips were a bit randomly organised in the health area page finding it hard to navigate them.

Was there anything you expected but didn't see?

The user noted that they would like to see the 'find out more' button in a different colour to help distinguish it more from the rest of the page.

Additionally they would like to see more reputable resources reference in the 'find out more' section of the individual tips page

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

'Eat food to help with sleep deprivation tip' page → Homepage → Profile → Health Details

Task Completion time:

13s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

The user felt that the profile picture location is an initiative location for this information to be contained.

What did you find frustrating or confusing?

User noted that is slightly annoying having to remember to navigate back to home page in order to access the profile page.

Was there anything you expected but didn't see?

User stated that it would be easier if personal information was located within the menu bar or there was text under the profile picture indicating it's purpose.

Post-task Questions

Do you feel this product would meet your needs?

User felt that the app would meet their needs due to the initiative interface and how the biometrics are seamlessly integrated into the app's functionality. However, they raised concerns/ confusion around how the data was getting/ generating this data as their was not areas within the app that explained this functionality.

If you could change elements of this application, what would it be?

The user would like to see the three health areas be visible or present on the home page as they were confused about their exclusion due to their importance in indicating a user's overall health performance.

Additionally they would like to see the inclusion of visual cues that indicate what health areas metrics belong to (e.g. sleep falls under physical and cognitive health).

If there is any similar product that you used or know of? How would you compare with current competitor?

When comparing immunify to other health based tracking app they felt that the usability was really great as some apps only track a limited assortment of metrics e.g. only tracking sleep.

They also prefer this experience to what they felt was our main competitor, apple health. Their reasons for preferring our design was due to the greater degree of customisation and the better and clearer user experience. Additionally, another advantage they felt our app held over our competitors was that it occupied a niche place in the market due to it's focus on immunity.

SUS Questionnaire — SUS Score = 70

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."			x		
"I found the system unnecessarily complex"				x	
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."		x			
"I thought there was too much inconsistency in this system."				x	
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."					x
"I needed to learn a lot of things before I could get going with this system."		x			

10.8 References & Statement of AI Use

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Statement of AI Use

I do not acknowledge the use of AI in this report.

11. Individual Component: Geordie Marsh

11.1 Persona

Bio

Cooper Loveday is a 22-year-old full-time junior graphic designer. He lives near the Melbourne CBD, a good spot for him as he thrives off the hustle-bustle of city life, loves eating out and shopping, and his work is only a short walk away. As an immunocompromised individual, Cooper is used to having to regularly check in on his health, see doctors and avoid certain situations, and getting sick is an all-too-common occurrence for him.

Values & Interests

- Ambitious, has big career goals; puts extensive hours into his work and may sacrifice social life, personal life or even health to get ahead
- Highly appreciates and values art; loves going to galleries
- Introverted and needs time by himself to recharge
- Thrives in busy, urban environments, although this can conflict with his health
- Loud and energetic

Behaviours & Habits

- Likes planning events in advance
- Recognises exercise is non-optional so tries to exercise a few times per week despite disliking it
- Walks to and from work, greatly improving his mental health
- Cooks meals for himself but enjoys eating out
- Needs a lot of sleep (8 hours) but usually averages around 6 hours on weekdays because of work

Goals & Needs

- Stay healthy and avoid dangerous situations that could lead to sickness
- Recover quickly when sick so he can get back to work and normal life
- Doesn't like products that give him information he doesn't need (waste of time)
- Seeks ways to not let being immunocompromised dictate his life

Technology Use

- Uses a lot of technology: iPhone, MacBook Pro, iPad Pro, over-ear headphones
- He also owns an Apple Watch, but doesn't use it much anymore as he found it didn't give him much useful information

Frustrations

- Current technology is pretty limited in helping with being immunocompromised, which makes it harder for him to stay healthy compared to most people
- Many people, including at work, in the public, etc., don't pay much attention to spreading disease, but this disproportionately affects Cooper

11.2 Task Scenario

Cooper is a young graphic designer who lives and works in the city. Although he thrives in the hustle-bustle, being immunocompromised means this kind of situation is often dangerous for him, with the many people in close proximity being a perfect breeding ground for sickness. Although he tries to stay as healthy as he can, like by walking to and from work, making sure he exercises a few times a week and taking care of his mental health, these often don't do much compared to the mountain that is being immunocompromised. What's worse, is that compared to what's available for fitness tracking and mental health assistance, Cooper has never really come across anything useful for staying on top of his sickness and immune health.

While in the waiting room before his monthly check-up with his immunologist, he notices a pamphlet for a new app called Immunify. The pamphlet boldly claims that it can track 20 different immune metrics and gives you personalised insights into your bodily health; although he's sceptical, he decides to pick up the pamphlet, scan the QR code and download the app.

Upon first opening the app, he's explained the various functions of the app: that it tracks various aspects of your immune, cognitive and physical health, uses your personalised health data and preferences and gives you detailed tips to improve your health. He's still sceptical and especially wonders whether it can take into account his being immunocompromised. He creates an account and enters his health details, and is surprised to see that he's able to enter not only the cause for his immunocompromisation but also the type, which gives him more confidence. The app tells him that he needs a smart wearable for it to work fully; luckily, he has an Apple Watch he used to use back at home, and so decides to re-engage with the app later.

After a few days of wearing his watch and letting the app gather data, Cooper's surprised to see the level of detail it's getting and how much useful information he can see. He's particularly impressed by how it tracks immunity, giving him insights into his body and health he's never really seen before. He also likes that he can see relevant tips about his health. He can see how extended use of this technology would greatly help him know when he's getting sick so he can better prepare. He recommends the app to his friends, family and colleagues, as well as his doctors to pass onto other patients.

11.3 Design Precedent

Continuous glucose monitoring (CGM), colloquially known as Blood Sugar Monitors, are a major advancement in wearable health technology. These small sensors, which typically are attached onto a person's upper arm, track glucose levels in real time, allowing people with Type 1 and 2 Diabetes to more easily track critical health information.

CGMs emerged in the early 2000s. They were designed out of a desire to create an alternative from the invasive, time-consuming process of finger-prick testing. In addition to being more accessible and less harmful, these CGMs also provided more continuous, actionable insights than their predecessors, enabling deeper data collection and understanding. The core innovation lies in their ability to measure glucose from interstitial fluid using a subcutaneous sensor (Martens, 2021; Tan, 2024); the data gathered is then transmitted wirelessly to a mobile device, typically the user's phone or smartwatch.

Figure 12.3.1: A CGM on a person's upper arm and its companion phone app, displaying live data and trends.

CGMs have gotten significantly better since the technology's inception, and several variants have emerged. Early models were bulky, required frequent calibration and the data they provided was not current. Modern versions are smaller and adhesive-based, and automatically sync with phones, smartwatches and insulin pumps (Figure 12.3.1). Some modern CGMs are also starting to integrate predictive algorithms that forecast glucose trends, enabling users to get alerts and do preventative measures before glucose levels become critical, something not possible with previous technology (Tan, 2024). The emergence of this non-invasive, deeply-connected technology reflects and ongoing push towards seamless, less intrusive glucose monitoring methods.

The success of CGMs is well-documented, both clinically and anecdotally. Several studies show that continuous monitoring significantly improves long-term control of glucose levels (glycaemic control) and reduces adverse events far better than traditional testing methods (Tan, 2024). Beyond clinical settings, many users state how CGMs transform glucose tracking from a tedious, invasive chore into a passive, data-driven process (Ahn, 2024). There are still some minor challenges with the technology, however; mainly with the technology's cost, skin irritation issues, and data overload from constant alerts.

In the same way that CGMs have completely transformed the way diabetic people can interact with their health, our design concept's utilisation of the speculative MedTech we envision would allow everyday people to glean deeper insights into their health. Current immune health testing is invasive, inefficient and ineffective if it even currently exists in the first place; just as CGMs have brought down costs, made glucose tracking completely passive and eliminated invasive procedures, our app would provide these same benefits for immune health.

11.4 Usability Rationale

A key usability heuristic in our design concept is 'Recognition Rather than Recall'. This heuristic describes the fact that people are naturally better at recognising information, elements or processes rather than having to specifically remember them each time. For example, someone in a supermarket may be more likely to recognise the visual design of a package rather than remember the brand's name.

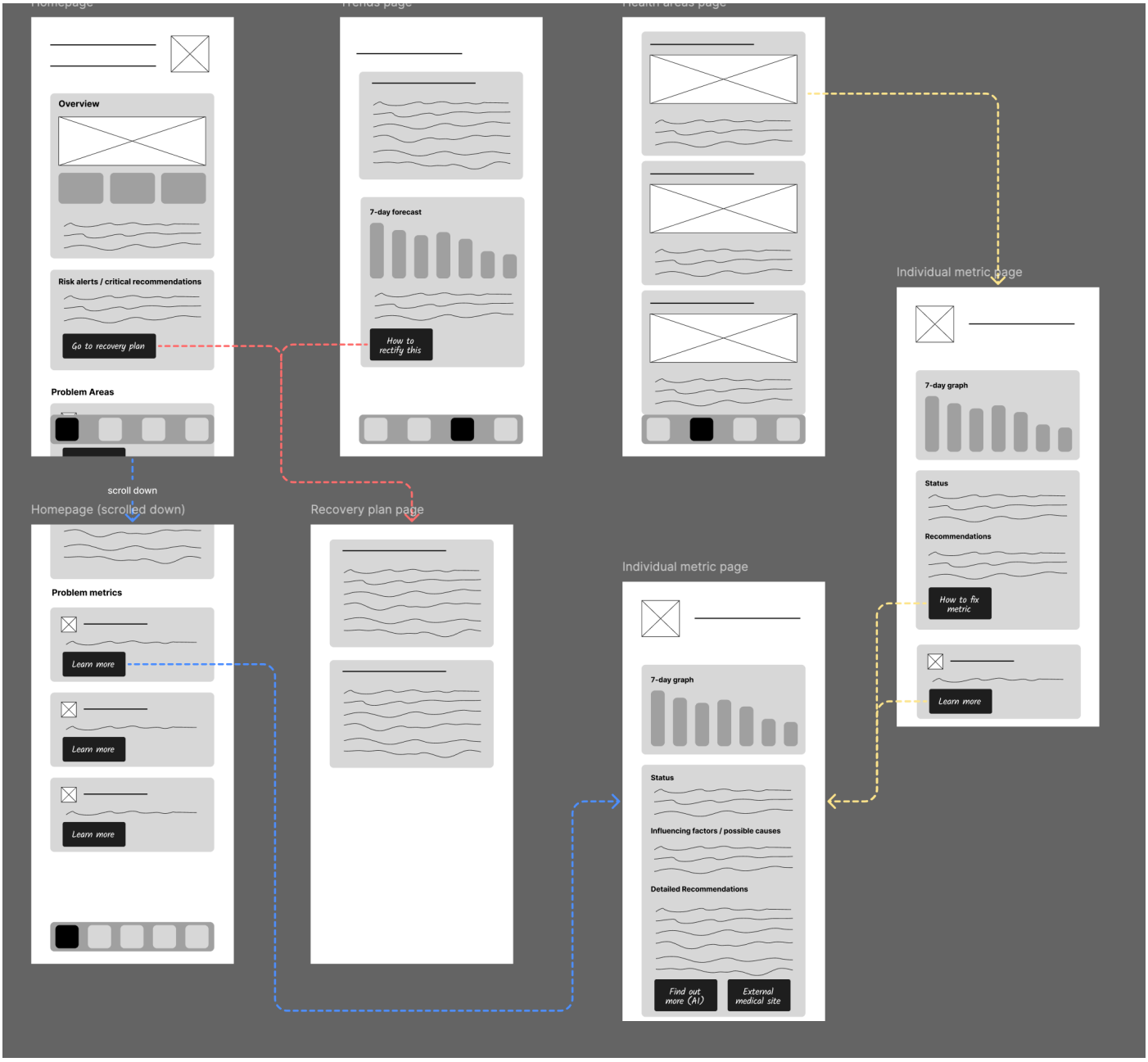
Adhering to this usability heuristic is critical to ensure users don't get lost within the system or overwhelmed trying to remember specifics. Further, an element on a page that the user recognises they were looking for directly affords the user to engage with it, leading to a more streamlined user flow.

Medical information is typically difficult to digest and extremely complicated. Many people have very little knowledge on most medical terminology, data, units, etc. in the first place, so a user seeing technical statistics and numbers would likely mean nothing to them and may create overwhelm. This was reinforced by our initial interviews, which confirmed that many people have little to no meaningful medical knowledge save for basic hygiene or first aid, let alone about detailed understandings of a medical area still under active research.

To ensure users would understand the data they were being presented, therefore, our design includes descriptions wherever technical data is used. For example, under the current value for a health metric, say White Blood Cell count, a simple tooltip or link to learn more would be placed. This enables users to find out more about what they're looking at whenever they need rather than having to remember technical information about what the metric means. Additionally, whenever a user encounters an issue with their health, such as a risk alert, they are provided with a link of how to fix this rather than them having to rely on their own knowledge about the issue.

Ideally, any time the user is presented with medical information, they should also be provided with a plain-language description or a link to further information. This would ensure they don't have to rely on their own prior knowledge or be left wondering what something means, preventing overwhelm and streamlining user flows.

11.5 Wireframes



11.6 Interview Transcript & Themes: P5

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Tries to swipe to next page but can't, clicks through all the pages, ends on last page

Task Completion time:

27s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

All nice, big, so percetages are very clear, colours are showing the level of health, although physical health is green but immune health which is unclear whether it's good or bad, overall score red to green scale is ok, little icons are good and clear, only thing would say is that although the different colours are pretty, they don't really reflect a typical slider.

What did you find frustrating or confusing?

Didn't quite know how to navigate, would've wanted to swipe, having to tap on the dots was frustrating, clear that there were 4 pages form that, and can't click into look into more detail

Was there anything you expected but didn't see?

When first saw metrics button it would've been a menu, no ability to do anything on the screen, would expect to see more detail when clicking in

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Looks through homepage → Metrics (very easy to see to go into more detail) → Cognitive health page →Individual metric (sleep) →Back out → Tries to click into other metrics

Task Completion time:

31s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Very easy to use, used functions that she would expect to use with this like a Fit app with arrows to drill into detail, panels are clear and separated, nice use of colour, key metrics are big and easy to read, in metrics showing other metrics

likes that there are tips to see if you can improve, nice use of colour to show importance

Very pretty, likes the big easy to read metrics

What did you find frustrating or confusing?

Does a red up and down arrow mean different things? Assumes that it's diff for different metrics but maybe a bit unclear, technical info about the metric scores means nothing to her so seeing a number for blood pressure doesn't really tell her anything—what is she comparing it to?

Not sure what the sort arrow is supposed to mean — completely misunderstands the arrows

Only some metrics have averages

Was there anything you expected but didn't see?

Expected to see explanations for the technical data with the metrics !!!

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Scrolls down and finds tips, Flow 2: Clicks tips page, would click on health area filter (if live)

Task Completion time:

10s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Likes the ability to filter

Likes that the tips have the relevant health area and impact level

All very pretty

Says once you're used to the app and the symbols and colours, would be easy to piece together

What did you find frustrating or confusing?

Nothing really, just that as a very first time user you have to learn the system (like the icons, colours, filters system, etc)

Was there anything you expected but didn't see?

Still hasn't seen anything about Cortisol even though it was a low metric

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Clicks into profile page → Health details → Clicks diet edit button

Task Completion time:

20s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

All as she'd expect, typical for settings to be under profile, expects that you can go into profile from anywhere in the app (which you can)

What did you find frustrating or confusing?

Nothing, except it's a BIT of a guess where diet is as it could've been under settings but still easy to find

Was there anything you expected but didn't see?

No

Post-task Questions

Do you feel this product would meet your needs?

With a bit more detailed info about the metrics and what they actually mean and the good/bad/average for her and the population, it would definitely meet her needs.

If you could change elements of this application, what would it be?

Given that it's unfinished it's hard to say, but more detail about all the measures when you click into them,

Could be a little confusing, although the colour helps it, is that the down and up arrows for the metrics can mean good or bad

Suggests that there's an information button for each metric to explain what it means

If there is any similar product that you used or know of? How would you compare with current competitor?

Only comparative is the Fitbit and Apple Health and Samsung Health, but they don't do exactly that sort of thing (other than sleep and heartrate)

Things like WeightWatchers app which has lots of tips about eating and health, also gives you social media links to groups/communities with the same kinds of issues for help, also little inbuilt podcasts and videos about health and what they're experiencing

SUS Questionnaire — SUS Score = 92.5

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."			x		
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."					x
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."					x
"I needed to learn a lot of things before I could get going with this system."		x			

11.7 Interview Transcript & Themes: P6

Task 1: Check Immunity on Smartwatch

Task Scenario:

You are in the middle of a tutorial at university and want to get a quick glimpse at how your immunity is performing, so you quickly check Immunify through your smart watch.

Path:

Very easy to use and see (assumed this is the right answer)

Task Completion time:

Instant

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Very easy to use and see

What did you find frustrating or confusing?

No

Was there anything you expected but didn't see?

No

Task 2: Specific Metric Analysis

Task Scenario:

You have noticed that your cognitive health is underperforming compared to your other health areas. Using Immunify on your phone, investigate the possible causes for your subpar cognitive health.

Path:

Scrolls down homepage → clicks metrics tab → Cognitive page → Scrolls down →

Task Completion time:

24s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Pretty intuitive and easy to use

What did you find frustrating or confusing?

That he didn't know what a lot of the technical numbers meant, would benefit from some sort of explanation

Was there anything you expected but didn't see?

Nope

Task 3: Look for Tips

Task Scenario:

Following on from the previous task, choose a metric that you discovered was under performing from your cognitive health and look from some tips or suggestions to help improve it.

Path:

Clicks on sleep metric → Back to cognitive page → Scrolls down to tips

Task Completion time:

35s

Task Rating (1-5, 5 being very difficult):

1

What did you like most about the experience?

Easy to find

What did you find frustrating or confusing?

Not frustrating, but went within the sleep metric and expected to find tips there but they were actually on the frontpage

Was there anything you expected but didn't see?

Tips on sleep page

Task 4: Modify Details

Task Scenario:

You recently switched from a pescatarian to a vegan diet and you want to update your details so Immunify doesn't suggest any nutrition recommendations that involve animal products.

Path:

Homepage → Scrolls down then back up (gets confused) → Metrics page → Profile icon → Health details → Tries to edit diet

Task Completion time:

1m 20s

Task Rating (1-5, 5 being very difficult):

2

What did you like most about the experience?

Reasonably intuitive to work out but because each of these apps is different it could've worked one of several ways, but was obvious once he found it

What did you find frustrating or confusing?

Having to look through the various options where the settings might've been, but wasn't frustrating becasue he'd expect that with a new app anyway

Was there anything you expected but didn't see?

Nope

Post-task Questions

Do you feel this product would meet your needs?

Yes

If you could change elements of this application, what would it be?

Pretty intuitive and good

If there is any similar product that you used or know of? How would you compare with current competitor?

Feels a bit like Samsung Health

SUS Questionnaire — SUS Score = 95

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
"I think that I would like to use this system frequently."			x		
"I found the system unnecessarily complex"	x				
"I thought the system was easy to use."					x
"I think that I would need the support of a technical person to be able to use this system."	x				
"I found the various functions in this system were well integrated."					x
"I thought there was too much inconsistency in this system."	x				
"I would imagine that most people would learn to use this system very quickly."					x
"I found the system very cumbersome to use."	x				
"I felt very confident using the system."					x
"I needed to learn a lot of things before I could get going with this system."	x				

11.8 References & Statement of AI Use

References

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Statement of AI Use

I do not acknowledge the use of AI in this report.