



# SmartWeather

**IS52018C/F/S:**

**Software Projects**

**SmartWeather, AI weather mobile application**

**Created by:**

Aleksandrs Larionovs ([alari001@gold.ac.uk](mailto:alari001@gold.ac.uk))

Eleanor MacCarthy ([emacc001@gold.ac.uk](mailto:emacc001@gold.ac.uk))

Rui Abreu ([rabre002@gold.ac.uk](mailto:rabre002@gold.ac.uk))

Laurent Kurbalaj ([lkurb001@gold.ac.uk](mailto:lkurb001@gold.ac.uk))

Mohammed Jalloh ([mjall001@gold.ac.uk](mailto:mjall001@gold.ac.uk))

## ABSTRACT

Weather apps offer users weather information, and the effectiveness of an app is dependent on the accuracy of its data. Weather apps rely on third-party APIs, which, in turn, often depend on traditional methods of weather forecasting. Until recently, AI models didn't perform as well as traditional methods of weather forecasting. This project aims to create an advanced AI weather app that uses the latest technologies, with a specific focus on design. The project focuses on understanding the limits and progress of AI models for weather predictions. We compare existing weather apps to identify their features, limitations, and areas for improvement. Face-to-face surveys were conducted at various stages to collect vital information and evaluate the app's navigation, accessibility, and functionality.

Results indicated widespread approval among participants for the layout, colour scheme, navigation, functionality, and overall importance of the application. Taking into account the numerous feedback received, we implemented changes to enhance the prototype.

# 1.0 INTRODUCTION

## 1.1 Problem statement

While most weather apps are typically accurate, occasional inaccuracies can present challenges when planning weather-dependent events such as family barbecues, outdoor gatherings, hikes, and more. In addition to this, the user interface of the majority of weather apps on smartphones tends to be dull and can be a complex experience, especially for customers who may not be tech-savvy.

## 1.2 Solution

Until recently, AI weather models didn't perform as well as traditional methods of weather forecasting that *rely mostly on complex numerical weather prediction (NWP) models – often consisting of millions of lines of computer code – which simulate the Earth's atmosphere using mathematical equations. These models require vast amounts of data, including atmospheric measurements, satellite observations and historical weather data, as well as powerful computational resources.*<sup>10</sup>

The situation changed rapidly, between February 2022 and April 2023. *In a series of papers, predominantly from large technology companies such as NVIDIA, Huawei and Google DeepMind, rapid progress was made in the quality of ML-based weather forecasts.*<sup>11</sup>

There was another development on November 14, 2023. Peer-reviewed journal Science published a study that shows how an *AI meteorology model from Google DeepMind called GraphCast has significantly outperformed conventional weather forecasting methods in predicting global weather conditions up to 10 days in advance.*<sup>12</sup>

The concept of this project is to use the latest advances in AI to supplement or enhance traditional forecasts delivered through a mobile app. Incorporating AI in a traditional weather app aims to deliver more frequent forecasts. AI models can provide hyper-localised forecasts by considering specific geographical features, offering more relevant information to users in distinct areas.

Upon the initial installation of the app, users are prompted to agree to privacy agreements and grant permission to access their location if they desire a forecast for their current location. The app is initially free, and creating an account is not mandatory. However, to participate in voting for forecasts and earning badges for accurate predictions, users must sign up using a social media account like Facebook or Google.

### 1.3 Project scope

In this chapter, we outline the components that will be incorporated into the Minimum Viable Product (MVP). The MVP represents a proposed product with the essential minimum requirements necessary for stakeholders to comprehend the final product. This approach is employed to save time and mitigate the risk of investing substantial time and resources into a finished product that might be discarded in the end.

The MVP comprises just three core features:

Today's weather forecast	Weekly Forecast	Settings page
This shows details on current weather temperature, wind, humidity, and more	This feature enables users to check upcoming weather conditions	Customization of units and preferences

Here are some features that are planned but are not part of the MVP:

**Voting mechanic: Likelihood of rain:** This feature aims to engage users with the app by introducing a playful element.

**Badges page:** A collection of achievements tightly integrated with the feature mentioned above.

**Forecast map/radar:** Advanced feature visualising changes in weather over time.

## 2.0 THE STAKEHOLDER ANALYSIS

### CUSTOMERS

A customer is any party that purchases the rights to use our product or install the app. We do not plan to charge for the product initially. However, in the event of success and user base growth, we may need to include ads to cover the costs of running the app.

#### Our target audience

- Drivers, Travellers and Hikers; who constantly need the weather to plan around trips and who need to make decisions about how to travel on particular days.
- Those who are tech-savvy; use smartphones and apps daily to get information about the world
- individuals aged 16 to 44; *older age groups, particularly those aged 75 or over, display a higher tendency to switch their phones off, with approximately 40% of them doing so.*<sup>5</sup>

### EMPLOYEES/DEVELOPERS

Those who are working on the development and maintenance of this weather prediction service.

### INVESTORS

The group will invest in the development and have a point of opinion/decision-making regarding the future development of the app and projects related to the development of this app.

It includes and is not limited by, sponsors and parties that financially invest in the development of the app, provide us with additional support (technically and non-technically) for the maintenance of the app and extends to those who endorse the product, such as influencers and online personalities who use and advertise this product.

### TESTERS

Individuals involved in evaluating our product design during its development are referred to as testers, primarily comprising

This has been split into 4 teams to allow even distribution of work:

- Planning
- Competition analysis and application requirement
- Systems development and prototyping & iteration (front-end and backend)
- Security

We intend to leverage a range of serverless services to minimise the need for ongoing maintenance. In certain instances, future maintenance requirements are expected to be eliminated.

#### **COMMUNITIES**

Customers that are self-organised into various groups. One example of such a community could be the r/weather subreddit on Reddit<sup>9</sup> or a specific programming language-related subreddit, such as r/[insert programming language]. To minimise advertising costs, initially, our product will rely on peer-to-peer propagation. We discuss it in detail in marketing chapter 8.0 (marketing).

friends, family members, and fellow students from Goldsmiths. We anticipate testers to provide constructive criticism on design elements, the user interface (UI), and the overall user experience. Additionally, we welcome their advice on enhancing the app.

#### **SUPPLIERS**

Suppliers primarily refer to service providers responsible for hosting the server/code on which our web application operates and API providers.

## 3.0 PLANNING

### 3.1 General approach

Since we started working as a team, we've been focused on talking about our ideas and potential issues before jumping into any work. We set up weekly meetings on Fridays after lunch, just before our module lectures, to discuss things and get clarifications from our module leaders. These meetings helped us work together better and use our resources effectively. Everyone in the team played their part and we assigned roles based on our strengths. Some of us focused more on coding, while others worked on reports. In a crowded market, we knew our weather app had to stand out. So, we put a lot of effort into making the user experience better, hoping users would enjoy our product. That's been our main goal throughout this project.

### 3.2 Agile development techniques

We implemented **agile development techniques**<sup>13</sup> to guide our project strategy. Key aspects of agile development specific to our project include:

**Frequent iterations with working software:** Our original intention was to adopt a step-by-step approach, starting with a simple software skeleton and gradually adding functionality. However, due to unforeseen project delays, we faced challenges in realising this principle. Despite the setbacks, we focused on delivering incremental prototypes to showcase evolving concepts and gather feedback.

**Frequent team communication:** Our team prioritised regular communication, diligently documenting successes, failures, and unresolved issues. To accommodate varying time availability, we maintained a flexible scheduling approach, ensuring continuous collaboration and knowledge sharing among team members.

**Communication with external stakeholders:** Recognising the significance of user satisfaction, we actively engaged in communication with external stakeholders, particularly testers. This ongoing dialogue aimed to ensure that

the prototypes' accessibility and usability aligned with user expectations. We sought valuable input from stakeholders to enhance the overall quality of the prototypes.

**A focus on responding to change:** A focus on responding to change: We faced setbacks in our plan, requiring us to learn and adapt our work methods on the fly.

### 3.3 Roles assigned at the beginning of the project

Our team "007" consisted of

Project Leader - Aleksandrs Larionovs

-My main roles are to ensure that everyone knows what they are doing, set requirements and deadlines for everyone's work to be completed and oversee the work.

Front end - Eleanor MacCarthy

-My main role is to ensure is to develop the front-end UI and work with testers to ensure that all features are running as intended and have good functionality

Creative lead/Wildcard - Rui Abreu

- My main role is to ensure the report is compiled on time, and to a great standard because I am very good at writing and presenting ideas clearly. Additionally, I will carry out a portion of the research. The 'wildcard' role means that I can do a bit of everything and will help in whichever part of the project needs more work at the time.

UX and UI - Mohammed Jalloh

-My role within the team is to ensure that user experience and user interface are both intended as we initially set out in the project.

Research - Laurent Kurbalaj

-My role within the team is to carry out market research and competitor analysis to provide the best information for our team on what we should and should not do in order to gain an advantage in the market. Additionally, I will also be overseeing the report and working on the User interface.

### 3.4 Time management

#### Original Time Schedule

We discussed and created the project idea within the first month of the project being set out. We discussed the target audience, gaps in the market, competitors, user needs, etc. Whilst we did all this we also started the documentation process as we thought it would be good to get a head start because we knew it would be a long and potentially tedious process, especially considering the workload that would continue increasing the deeper we dived into the project. We also carried out market research and competitor analysis for the majority of the first half of the project because we believed in gathering as much information as possible in order to make the best-informed decisions every step of the way which in turn could save us some time and hassle in the future due to the solid foundations we have built due to the research and competitor analysis.

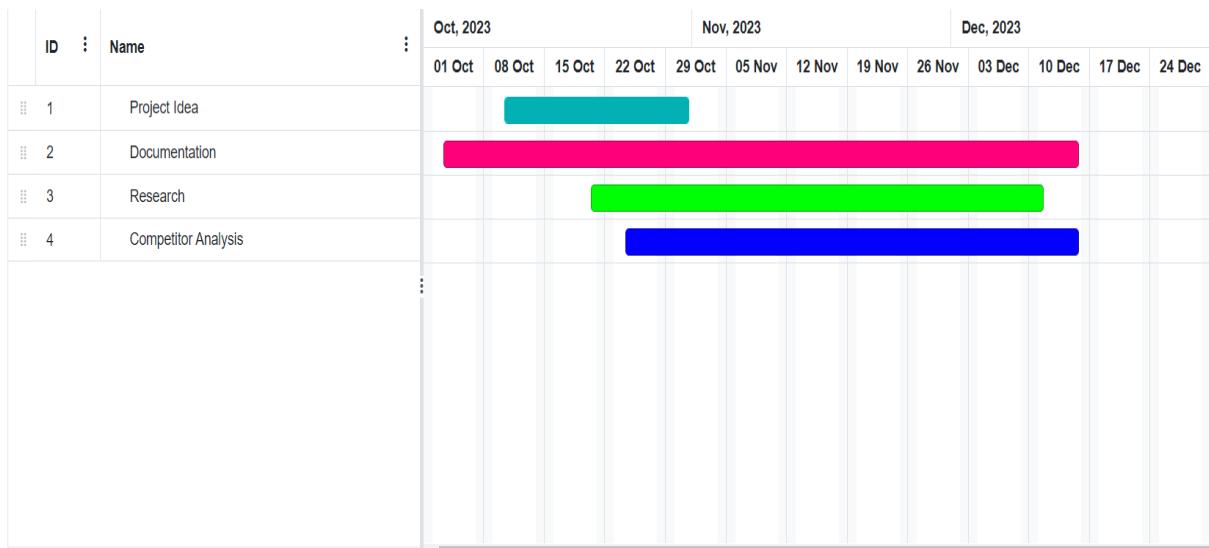


Figure 1: One of the early Gantt charts.

### 3.5 Group management

Weekly scheduled meetings, initially planned for effective communication, faced disruptions due to inconsistent attendance and adherence to promised deadlines. This resulted in delays, necessitating constant adaptations to our project timeline. Due to group and time management issues, individuals were

encouraged to work on tasks they felt comfortable with. However, the workload was unevenly distributed, and some participants only contributed when explicitly asked, lacking initiative.

### 3.6 Technologies used

**Google Drive:** This was a straightforward choice for our report and other necessary documents. It provided a user-friendly platform, allowing everyone to collaborate on the same file simultaneously. It also facilitated tracking individual contributions, ensuring accountability and enabling us to address any issues promptly.

**Discord:** Discord served as our primary communication tool. Given our familiarity with the platform and its user-friendly nature, we found it highly effective. We established a dedicated server for our group, including a voice channel for regular calls and meetings throughout the project. Discord proved invaluable for weekly virtual meetings, in addition to our in-person Friday meetings. The chat feature allowed us to share ideas and discussions, with the ability to pin important information for easy reference.

**GitHub:** Since we haven't started to work on the functional prototype or MVP, we used GitHub sporadically to store code related to market analysis (chapter 4.0).

**Monday.com:** While initially considered for project management, we ultimately opted for other tools that better suited our needs. Monday.com, with its visual project tracking and collaboration features, could be a valuable asset for teams managing tasks, timelines, and workflows. However, in our case, the familiarity and effectiveness of other tools led us to prioritise alternatives.

## 4.0 RESEARCH & ANALYSIS

### 4.1.0 Initial survey

Our initial survey (figure 1), conducted before submitting the proposal, didn't deliver the results we were hoping for.

People were presented with images of 8 apps (Appendix, chapter 12.2) and asked to pick the one they thought was the most appealing. There wasn't a clear winner, and it seemed people were selecting apps at random or sometimes the ones they've used themselves. We were planning to survey at least 50+ people, but we had to stop halfway through after a clear flaw in the way we conducted the survey became apparent. People were asked to mark their choices on the tablet with an e-pen, and their choices were visible to other people. Additionally, in retrospect, the apps' UIs were not distinct enough, and there wasn't a clear choice. The apps were too similar in appearance.

We decided to move to data analysis instead. All the data was already out there on the internet. All we had to do was to go through reviews and people's preferences, including visual appearance preferences, would become clear.

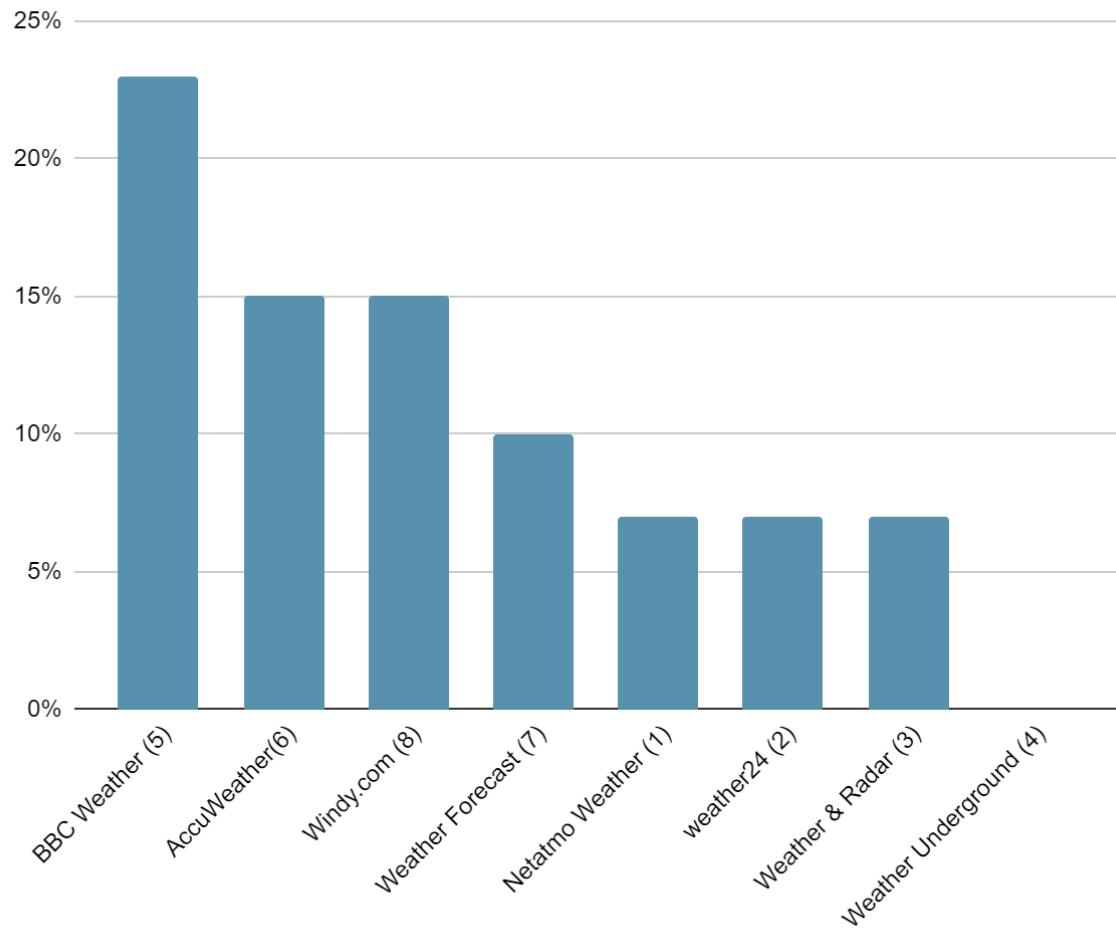


Figure 2: Results after 30+ surveyed people (Note: Due to data loss, we are uncertain about the names of numbers 4 and 5 counting from the left). The number enclosed in parentheses indicates the corresponding number on the survey sheet (Appendix).

#### 4.1.1 Manual analysis of Google Play Store reviews

Before initiating any scraping, we manually parsed through the apps' reviews. We aimed to identify aspects that users liked and disliked, creating a list of noteworthy reviews (refer to Appendix, chapter 12.9). This process provided valuable insights into what we could and should develop. Common pain points surfaced in many apps, such as inaccuracies in reported temperatures or issues with widget implementation (e.g., problems with text colour or background colour visibility on the phone background). At this point, we

hesitated to proceed with prototyping because we only looked at reviews from a few apps suggested by the Google Play store, and we thought a more thorough and scientific approach was necessary.

## 4.2 Data extraction and initial foray into data analysis

We started by identifying 47 weather apps in the Google Play Store, and scraping reviews. Our objective was to collect one thousand reviews from each app, and ultimately, we successfully gathered a total of 39,728 reviews, averaging 845 reviews per app. To accomplish this task, we utilised Node combined with Puppeteer (Appendix, chapter 12.4).

Subsequently, we trained a classifier model using Keras and Tensorflow. The model demonstrated 85% precision after 20 epochs (Appendix, 12.5).

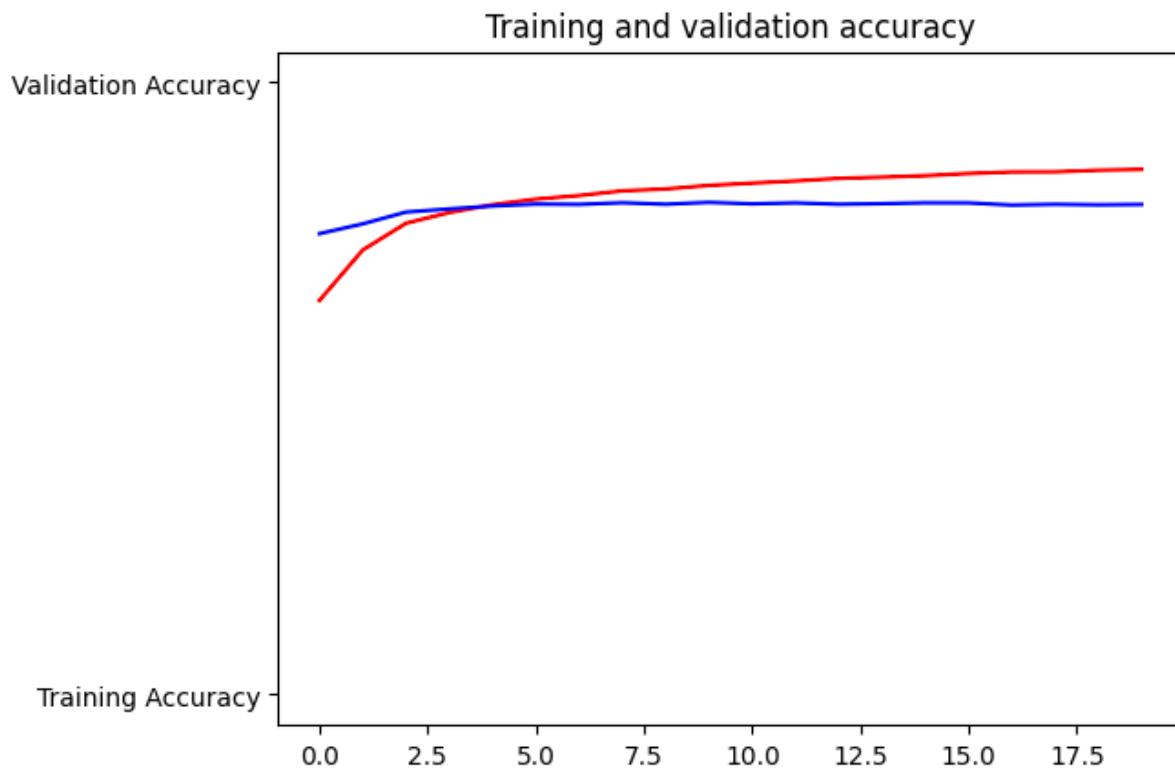


Figure 3: Training and validation accuracy

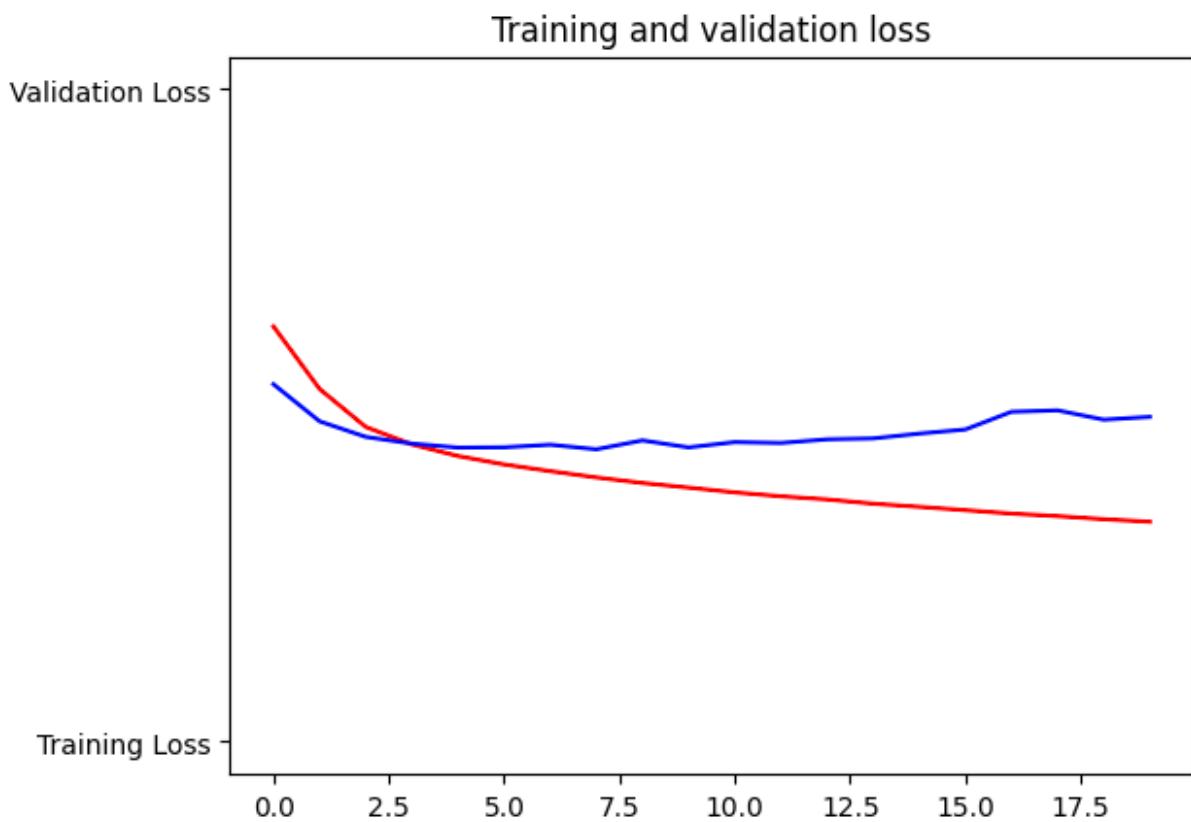


Figure 4: Training and validation loss

Increasing the epoch size resulted in only marginal accuracy improvement and may have led to overfitting the model. We didn't explore alternative configurations or building methods as it was our first attempt at sentiment analysis. Our precision rate wasn't as high as we had hoped for and could possibly have been improved with additional data scraped from the App Store. However, we deemed it sufficient to identify correlations between specific words and review ratings (ranging from 1 to 5 stars).

```
Most Negative Words: ['useless', 'scam', 'straw', 'alternate', 'say', 'repeat', 'buyer', 'amazon', 'uninstalli
Most Positive Words: ['perfect', 'keeper', 'uv', 'webcams', 'destination', 'bonus', 'xperia', 'hence', 'cellph
```

Figure 4: List of the most negative and the most positive words

After isolating nouns from the most negative and positive words, a few words caught our attention. One particularly important word was 'widget'.

#### 4.3 Looking for correlations

Continuing further, we began to explore the correlation between review ratings and the words that appeared in each specific review (code can be found in Appendix, chapter 12.7).

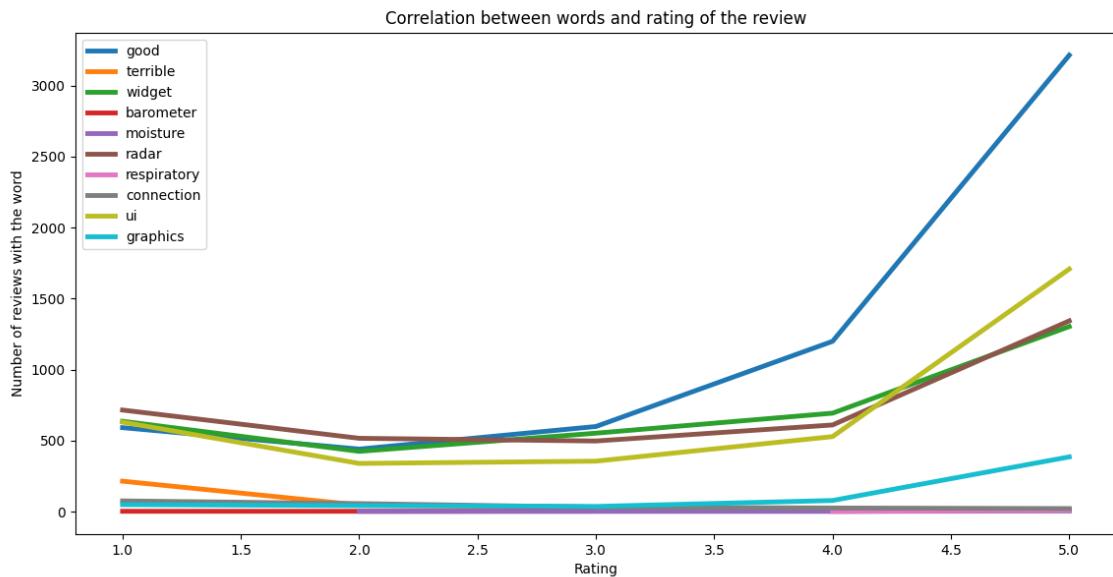


Figure 5: Correlation between words and the star rating

Word 'widget' again appeared on our radar, there was a direct connection between review rating and 'widget'. We used the terms 'good' and 'terrible' as benchmarks for comparative analysis. Another word that strongly correlated with the rating was 'ui.' 'Graphics' and 'radar' also showed an upward trend.

Following that, we utilised the 'WordCloud' Python package to visualise word frequency (Appendix, chapter 12.8). We filtered out everything but nouns before visualising and also excluded some common words like 'app,' 'weather,' and 'location', etc.



Figure 6: Word Cloud for 5-star reviews



Figure 7: Word Cloud for 1-star reviews

## 4.4 Zeroing in on the competition

It was important for us to narrow down apps that we could use as inspiration for our prototyping/design. Out of the 47 apps, we aimed to select 5 that would excel in terms of design. We had already determined a clear correlation

between the word 'ui' and an app's rating. All we had to do was find out which app's reviews contained the word the most. For that, we counted the number of appearances of the word in an app's reviews, divided by its total number of reviews, since the total number of reviews varied from app to app (Appendix, chapter 12.6).

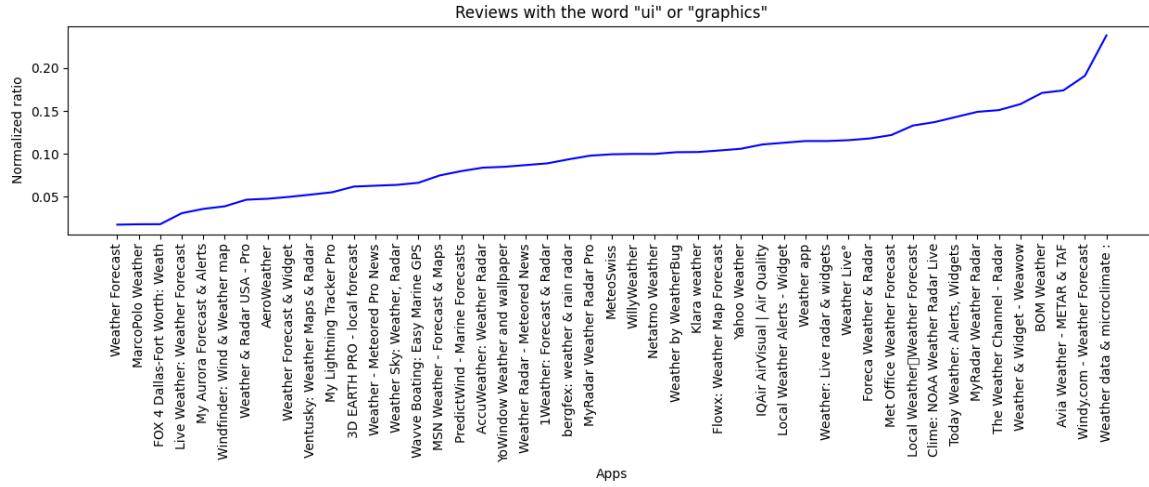


Figure 7: Normalised occurrences of keywords in reviews.

After we selected the top 5 and conducted competition analysis: '**Weather data & microclimate**', '**Windy.com - Weather Forecast**', '**Avia Weather - METAR & TAF**', '**BOM Weather**', '**Weather & Widget - Weawow**'. (found in the Appendix).

## 4.5 Conclusions

It seems that app support for widgets is of high importance, which rules out PWA as a viable option for building our app. PWAs, or Web Apps, are the simplest way to build an application that doesn't require high performance. Over the years, native feature support has been added; however, PWA widgets are still under development and not yet widely available. On Android, there is no official support for PWA widgets. This leaves React Native and Flutter as the only hybrid options for building our app.

Widgets weren't in our plan initially, but now they are at the top of our list of most desirable features after the precision of the AI weather model and a pleasant UI.

## 5.0 PROTOTYPING AND ITERATION

### 5.1 UI - Concept

During the beginning of the application's development, we planned an app with at least five different main pages: 'Today's Forecast,' 'Settings,' 'Badges,' 'Instructions' and 'Weekly Forecast'. The 'Weekly Forecast' page was excluded from the final prototype and replaced with a simple time slider in the initial stages. We deemed it necessary to remove 'Weekly Forecast' in order to make the application more user-friendly. Later in the development process, we also found the 'Instructions' page unnecessary. However, the majority of our original plans successfully made it to the final prototype.

The figure 8 shows an early UML diagram of the interactions the user will have with the application.

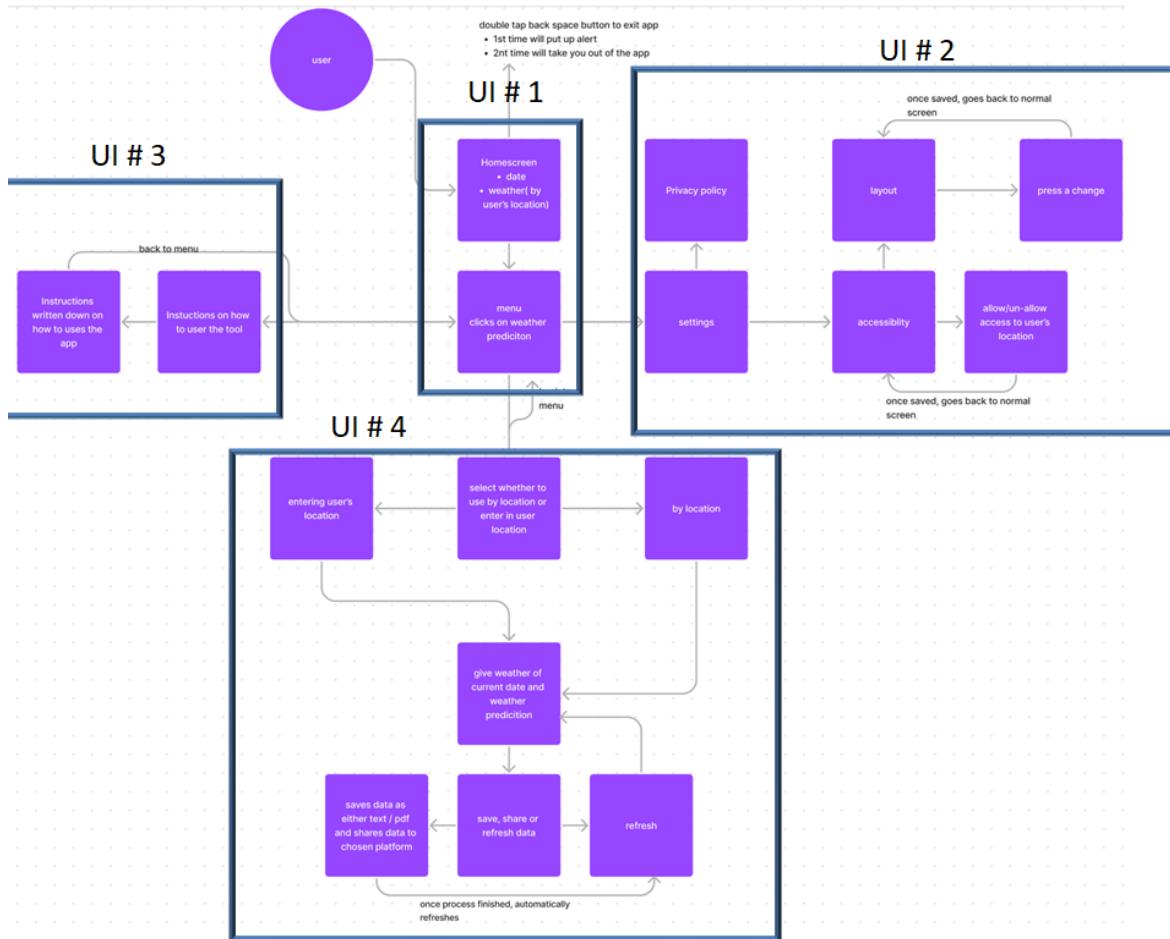


Figure 8: Early UML diagram

The UML diagram was constructed with the project specification as its primary foundation. It features four distinct UI elements, enclosed within a blue-coloured box, each representing different states of the general user interface. The lines connecting them denote pathways to these states. Some lines are annotated to provide additional details, elucidating aspects beyond mere state transitions and illustrating variations in user interactions. The initial state, UI #1, signifies the landing page, serving as the initial screen when the user enters the app. UI #2 corresponds to the settings state, accessible through a symbol on the home page. UI #3 represented the instructions page, providing guidance on app usage. Finally, UI #4 is the configuration state, where users set the application to obtain weather information for their current location. Users can input their location manually or use the phone's GPS feature. Additionally, in this state, users have the option to share or save their weather results.

## 5.2 Initial prototyping

We began by creating early prototypes before submitting the proposal. At that time, we didn't particularly know the direction our app would take. However, after a brief look at our competition, it became clear that weather apps, in general, have few screens/views. Therefore, the main screen, the source of all daily weather information, is of utmost importance and will be iterated upon many times. Due to the lack of decisive information from the early survey (Appendix, chapter 12.2), the first prototype (figure 9) was based on a generic perception of weather apps.

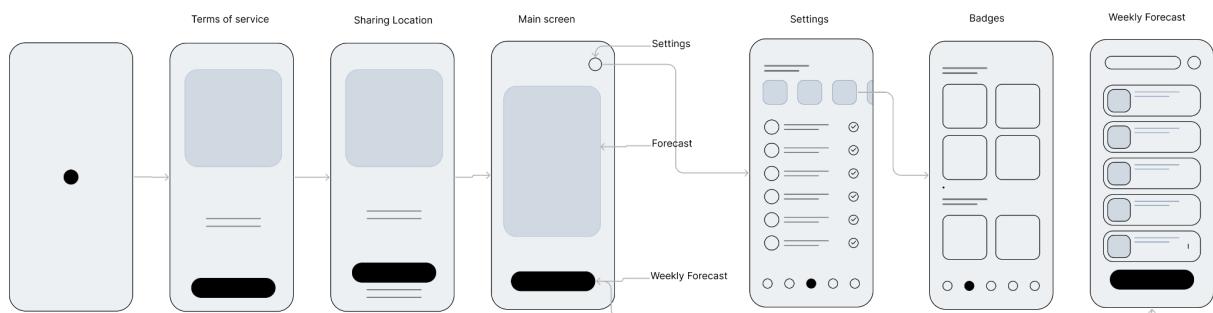


Figure 9: Early wireframe.

We also discussed what the landing page would look like.

The annotated figure 10 below indicates the overall design philosophy we intended to iterate upon.

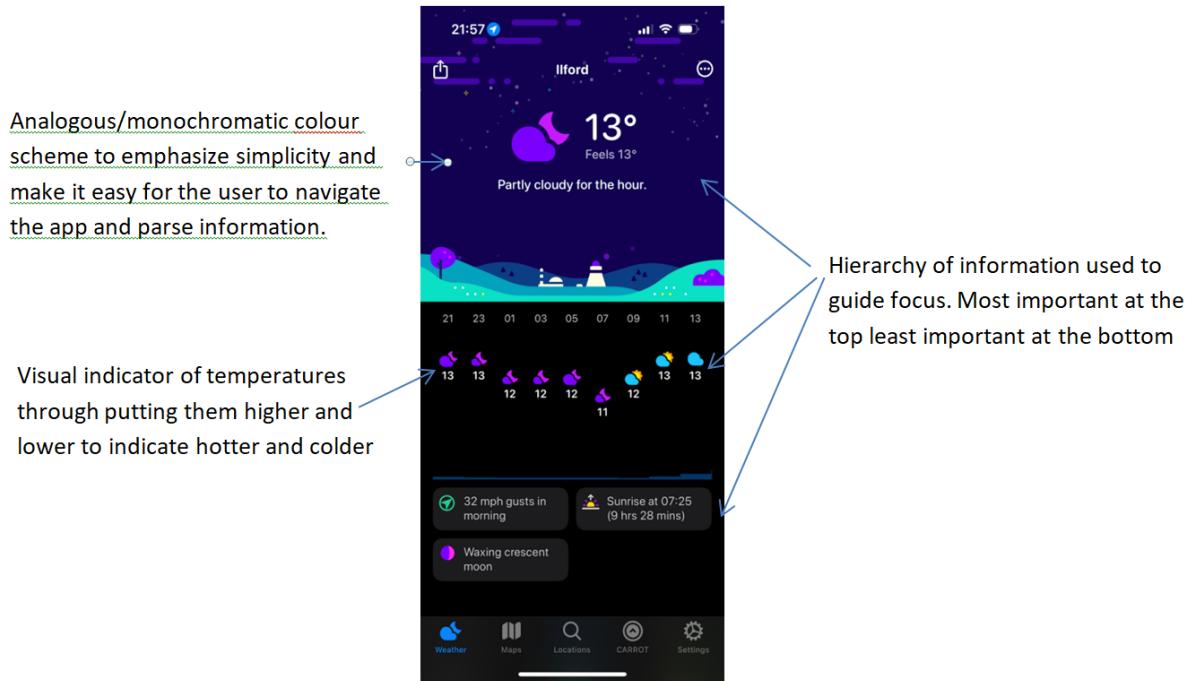


Figure 10: Carrot App (Appendix:Competition analysis, chapter 12.3)

We planned to build it upon two core principles: providing information in a concise manner and providing direction; to enable users to navigate the app. To achieve this we planned to use a minimalist design approach when it came to the elements and their respective colours. We planned to follow a monochromatic colour scheme in order to create a sense of greater simplicity in our design and reduce the possibility of clashing colours. This makes contrasting colours, like the sun and the night sky, stand out.

Below is the initial high-fidelity concept draft of the landing page (Figure 11), which features information such as today's weather and predicted forecasts. The design strategically places them at different points to indicate variations in temperatures. Additional miscellaneous details are positioned at the bottom of the page, creating a 'hierarchy of focus.' This design approach prioritises the most important features at the top and middle, utilising lots of whitespace to emphasise their importance. Less critical details, which are still indirectly tied to the forecasts, are placed at the bottom.



Figure 11: The initial high-fidelity concept draft of the landing page.

### 5.3 Low-fidelity prototyping following market analysis.

After conducting some review scraping/data mining in chapter 4.0, we identified a few features that correlated with successful weather apps. One of the features that will have a direct impact on the main screen of the app is **radar**. Apps don't always have this at the top of the view; users would have to scroll down.

We also identified two types of general UI layouts. One type showcases a radar in a prominent position, usually at the top of the main screen. Another variation incorporates a background image at the top of the main screen.

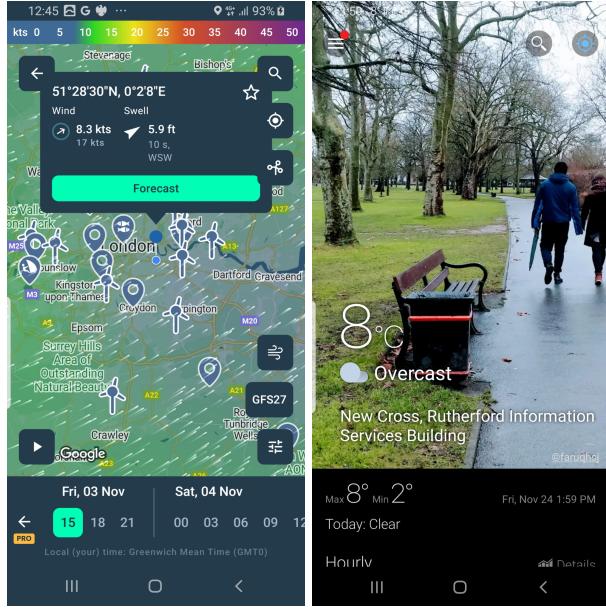


Figure 12:Windy.com (LEFT) and Wewow (RIGHT) (Appendix, Competitor analysis, chapter 12.3)

Two examples that stood out during our research and data mining were Windy.com, an extreme example of a weather app centred around radar functionality, offering multiple map/radar overlays (40+) tracking various weather and environmental indicators such as storms, temperature, CO<sub>2</sub>, etc. Wewow, featuring a radar in a less prominent position, incorporates an image at the top of the screen. Notably, there is no repetition in the displayed image, and it changes 2-3 times per day which adds a surprise factor. We can attest that the images add quite a lot to the UI design but the quality of the images varied in the Wewow app, so that could be improved upon. We based our further prototypes on these two archetypes.

Before the next round of prototyping, we decided to conduct a survey. People were presented with sections of a possible prototype, some without a clear use case, and then asked to order the sections from top to bottom based on importance. We were inspired to create sections by analysing apps from the competition (see the Appendix). No context was provided regarding what each section represented



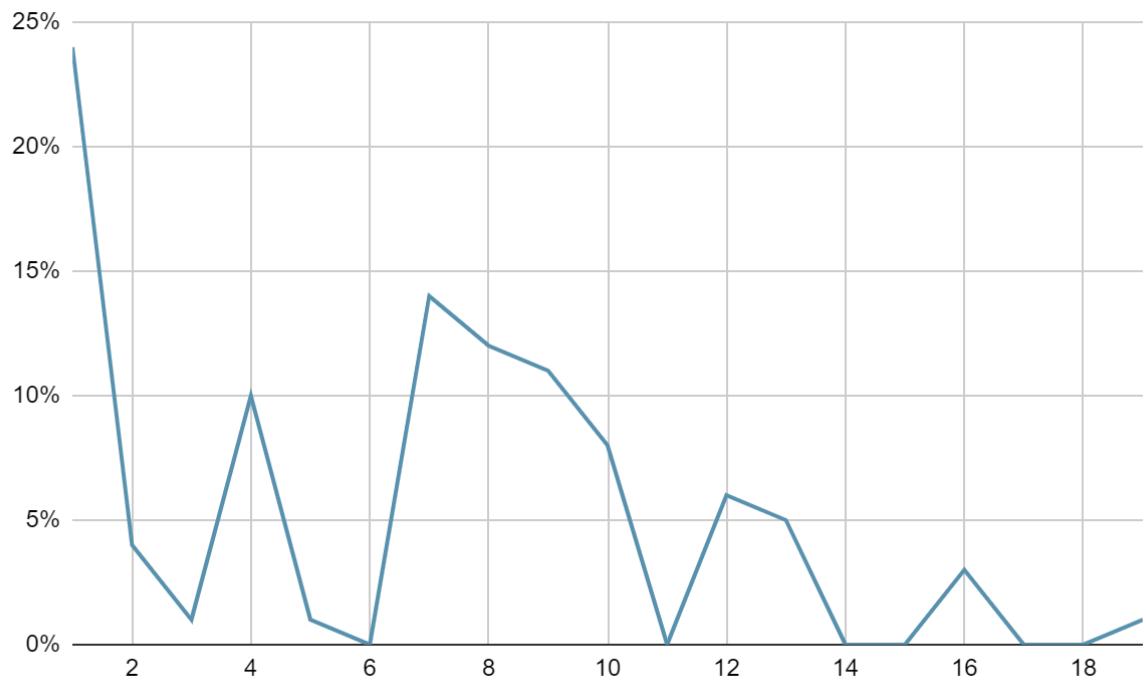


Figure 14: 2nd survey results. Sections are rated based on their visual importance.

Survey findings indicate a preference for visual information presentation. Sections with charts, maps, and graphical elements consistently scored higher than other sections. With that in mind, we proceeded to build the next prototypes.

1. Settings
2. Location search
3. Map overlay
4. Overlay gradient scale
5. Use current location
6. Today's weather report
7. Chart data (1)
8. Chart data (2)
9. Weather factors (temperature, humidity, etc.)"
10. Background image
11. Saved locations

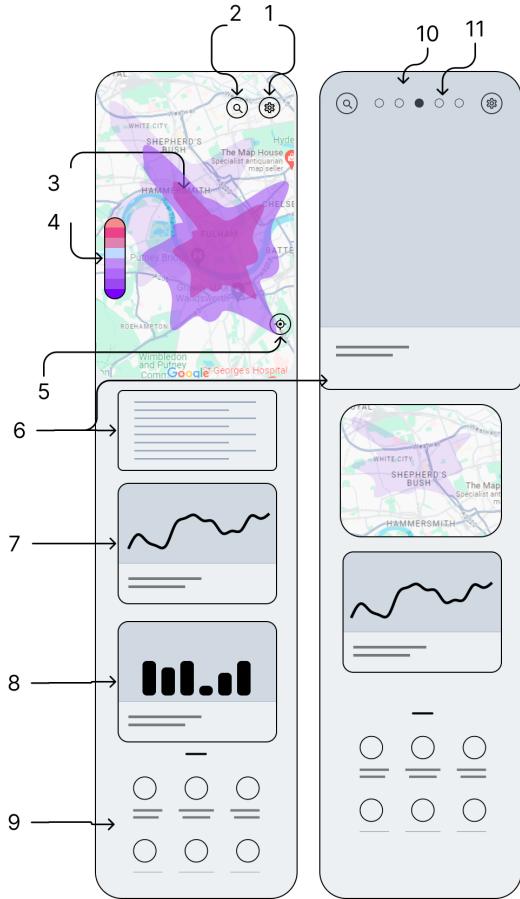


Figure 15: Second round of low-fidelity prototypes: one with the radar on the right, and another with an image on the left.

Both prototypes (figure 15) generally provide the same information, but the way it is ordered is different. Each has a distinct top section, which is either a full-screen picture or a radar. The radar was more popular among the surveyed people. However, it is also more challenging to build and could be a roadblock in the app development process. Therefore, we felt that having an alternative design as a backup option was a good idea.

## 5.4 3rd Survey - Features

After completing the general prototyping, we proceeded to analyse smaller details of the app that might have been overlooked. We presented a list of non-exclusive features and asked participants to choose the ones most important to them. There was no limit on how many they could select.

Additionally, we asked participants to select their preferred location for the chosen feature. The options provided were: Top, or Scrollable (requiring scrolling down to view). N/A would be placed next to features that are not on the main screen.

Feature	Description	Preferences (%)	Screen Location
Current Conditions	Get real-time information on the current temperature, humidity, and wind speed to plan your day.	94%	Top
Forecast	Stay ahead with daily and hourly forecasts, providing insights into expected high and low temperatures.	82%	Top
Precipitation	Prepare for the day by checking the probability and amount of rainfall or snowfall.	90%	Top
Sunrise and Sunset Times	Know when the day begins and ends with accurate sunrise and sunset times.	25%	Scrollable
Interactive Maps	Track storms and precipitation with interactive radar maps and view real-time satellite imagery.	88%	Scrollable
Severe Weather Alerts	Receive timely push notifications for severe weather alerts, ensuring your safety during storms and emergencies.	71%	N/A
UV Index and Air Quality	Monitor UV radiation strength and air pollution levels to make informed decisions about outdoor activities.	75%	Scrollable

Customizable Units	Tailor the weather app to your preferences by choosing between Celsius and Fahrenheit and other customizable units.	90%	N/A
Location-based Services	Automatically detect your location for accurate local weather information and easily add and track multiple locations.	89%	Scrollable
Weather Widgets	Access quick weather updates directly from your device's home screen with customizable weather widgets.	82%	N/A
Historical Weather Data	Review past weather conditions with access to historical weather data, helping you plan for seasonal changes.	11%	Scrollable
Weather News and Articles	Stay informed with the latest weather-related news and articles, providing insights into current weather phenomena.	36%	Scrollable
Offline Mode	Access cached weather data even without an internet connection, ensuring you're prepared for unexpected changes in conditions.	72%	Top
User-Submitted Reports	Contribute to the weather community by submitting real-time weather observations and reports.	68%	Scrollable
Dark Mode	Optimise your viewing experience in low-light conditions with a dark mode option.	45%	Scrollable

Integration with Smart Devices	Connect with smart home devices for personalised weather-related recommendations and seamless integration into your daily routine.	6%	Top
Accessibility Features	Ensure the weather app is accessible to all users, including those with disabilities, through features like voice commands and screen reader compatibility.	15%	N/A
Weather Trends and Statistics	Explore long-term weather trends and statistics for a specific location, helping you plan for seasonal variations.	9%	Scrollable
Social Sharing	Share interesting weather updates and forecasts with friends and family on various social media platforms.	4%	Scrollable
Customizable Notifications	Personalise the types and frequency of weather notifications you receive to stay informed without unnecessary interruptions.	87%	Bottom
Moon Phase Information	Track the current phase of the moon to plan nighttime activities or stargazing sessions.	8%	Top
Wind Gusts	Get information on sudden increases in wind speed, providing a comprehensive overview of wind conditions.	74%	Top
Pollen Count	Monitor pollen levels for allergy-awareness, helping users plan outdoor activities based on allergen exposure.	42%	Top

Travel Advisory	Receive alerts and information about weather-related travel disruptions, ensuring safe and informed travel plans.	70%	N/A
Outdoor Activity Planner	Utilise personalised recommendations for outdoor activities based on current and forecasted weather conditions.	5%	Scrollable
Air Travel Weather	Check weather conditions at major airports, receive flight delay notifications, and get recommendations for optimal travel times.	70%	N/A
Gardening Weather Insights	Receive tailored weather information for gardening, including optimal planting times and care recommendations for specific plants.	2%	Scrollable
Sun Safety Index	Assess the level of sun exposure and receive recommendations for sun protection based on UV index and personal characteristics.	70%	Top
Real-Time Earthquake Alerts	Receive alerts for earthquakes in your region, providing crucial information for safety and awareness.	2%	Top
Local Weather Cameras	Access live streams or snapshots from local weather cameras to see real-time weather conditions in your area.	12%	Scrollable
Weather-Influenced Clothing Suggestions	Get clothing recommendations based on the current weather, ensuring you dress appropriately for the day.	6%	Scrollable

Weather-Related Reminders	Set weather-dependent reminders, such as bringing an umbrella if rain is forecasted or wearing sunscreen on a sunny day.	68%	N/A
Astronomy Events Calendar	Access a calendar of upcoming celestial events such as meteor showers, eclipses, and planetary alignments to enhance your stargazing experience.	18%	Top
Weather-Integrated Calendar	Sync your calendar with the weather app to receive weather-related information for your scheduled events and appointments.	35%	N/A

Figure 16.1: Survey number 3 - Features

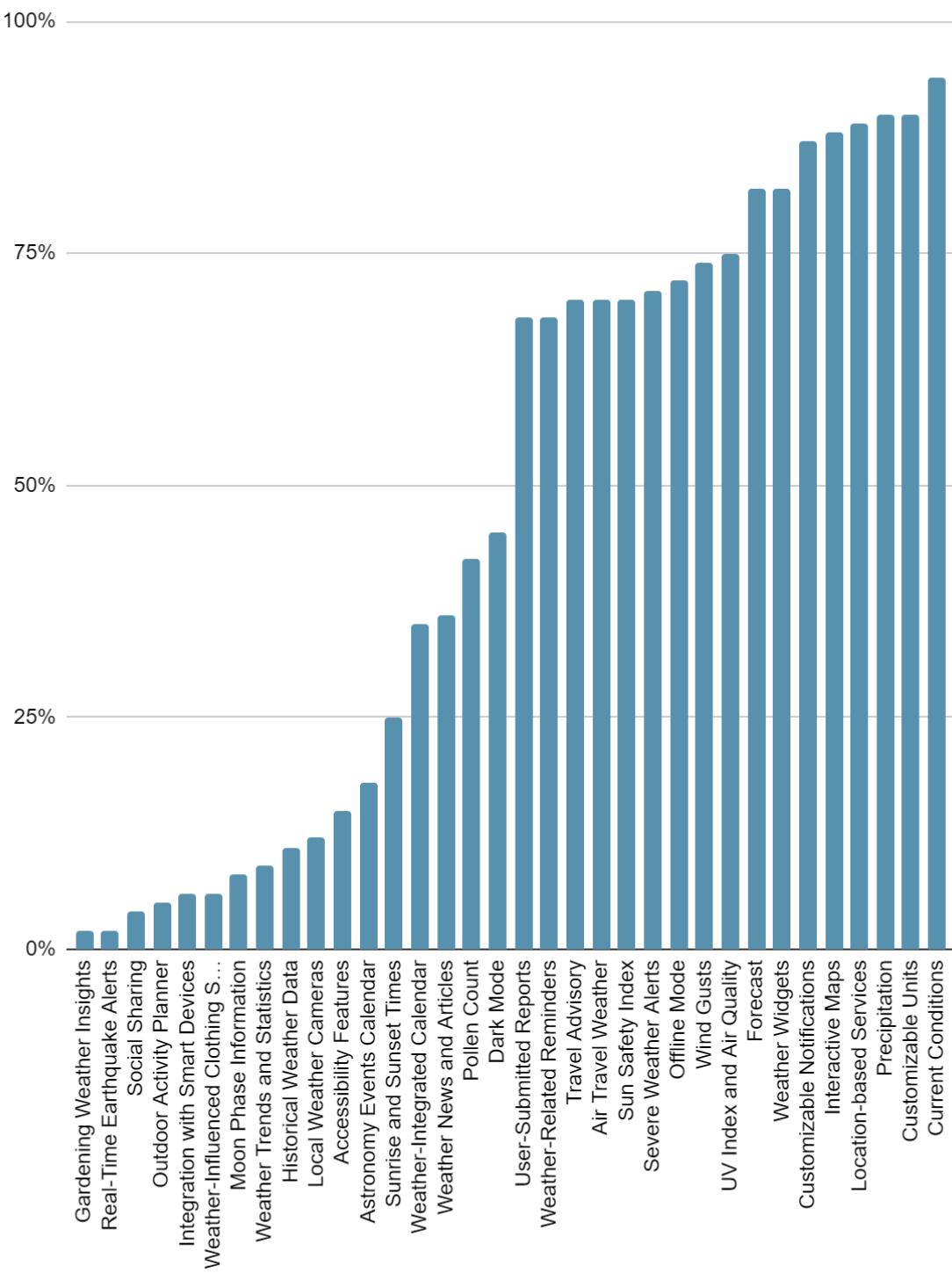


Figure 16.2: Features chart

In general, the purpose of this survey was twofold: first, to identify weather app features that might be popular with the public, and second, to determine

whether they should be included on the main screen before starting high-fidelity prototyping/design.

Features that scored lower are not deemed as important, although we acknowledge the need to account for potential biases. For example, features like 'Real-Time Earthquake Alerts' might not be popular locally but could score higher in a different country or location.

Few features that we added to the survey are really interesting, such as "Local Weather Cameras." There should be a market for this since no app currently offers it, but, sadly, it's out of the scope of this project.

We felt that we could add a lot of features from the table on figure 16.2 but, uncertain about the data availability through APIs or otherwise, we decided to focus on core features for our high-fidelity prototype.

## 5.5 High-fidelity prototype, 1st take

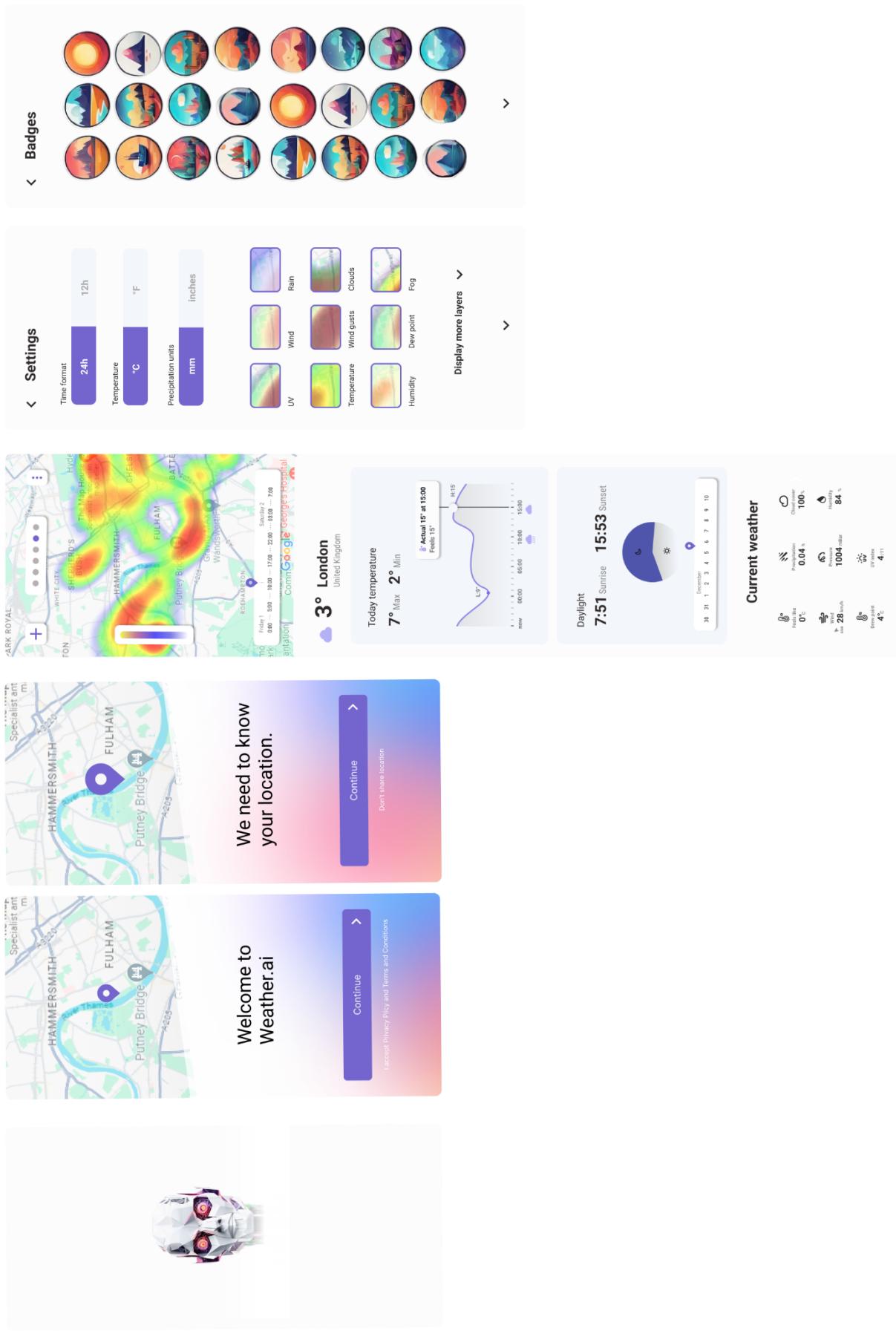


Figure 17: High fidelity prototype, 1st take.

When creating our high-fidelity prototype, we sought inspiration from various applications, analysing their successful features to incorporate into our design.

We found merit in the time/date slide feature, allowing users to smoothly transition between different points in time and observe the dynamic evolution of overlays/data on a map over time. In our implementation, we incorporated a slider inspired by a similar functionality in the Windy.com app.

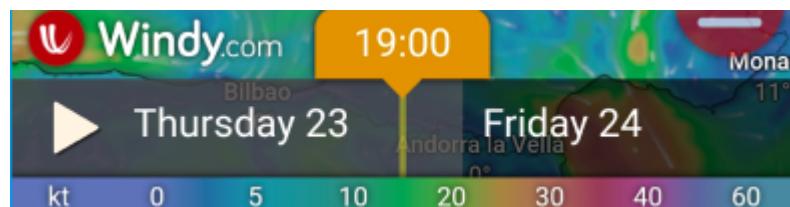


Figure 18: Windy.com, time slider.

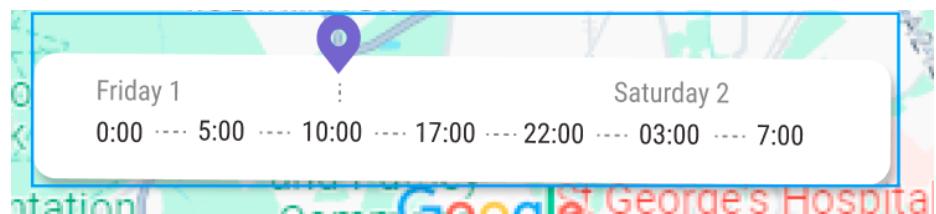


Figure 19: Our prototype, time slider.

Another feature that caught our attention early was location/city Slider (figure 20).



Figure 20: Our prototype, location slider.

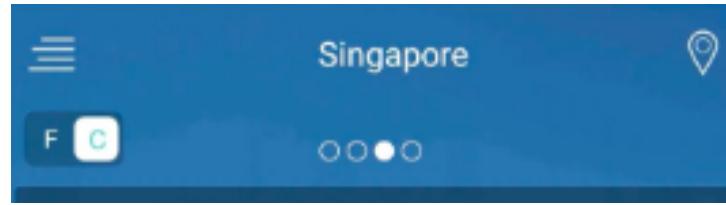


Figure 21: Weather App, Google Play, location slider.



Figure 22.1: Weawow ( Appendix, competition analysis ), location search.

An alternative could be a location search (figure 22.1), but this would require additional clicks from the user. We opted for the location slider as a more user-friendly alternative.

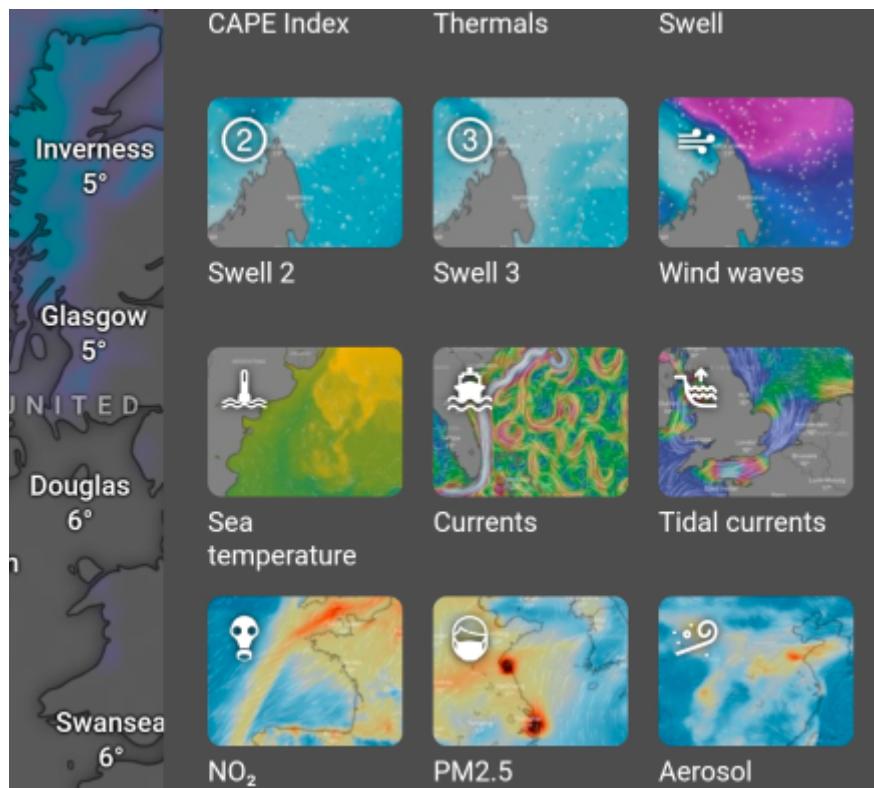


Figure 22.2: Windy.com ( Appendix, competition analysis ), different overlays found in settings.

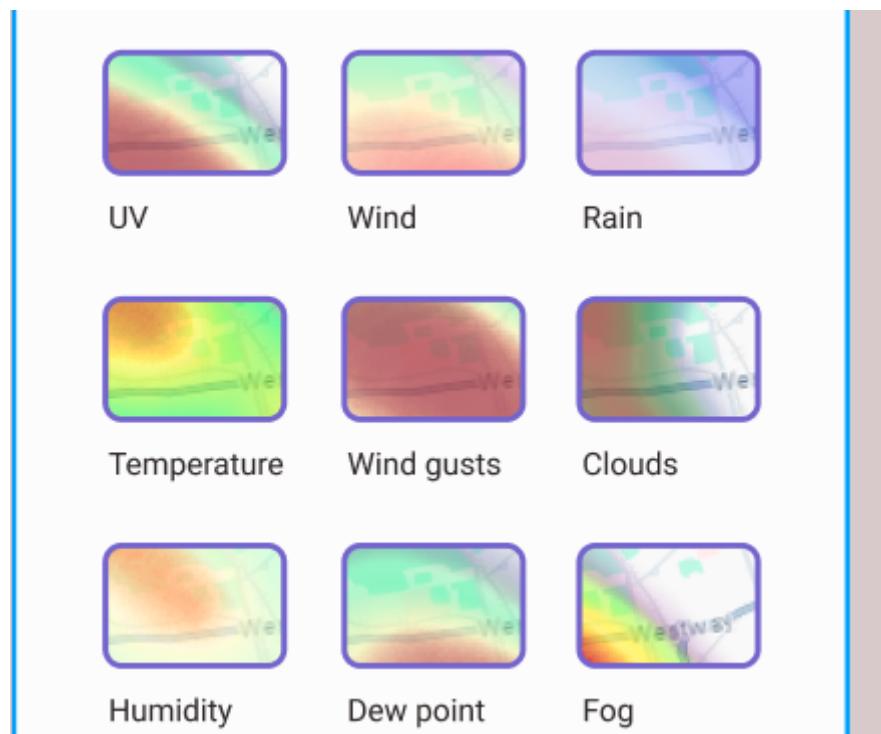


Figure 22.3: Our prototype, Different overlays found in settings.

## 5.6 System usability scale

After completing our first high fidelity prototype we conducted a SUS questionnaire.

Question	Average Score (1-5)
I think that I would like to use this weather app frequently.	3.3
I found the weather app's user interface unnecessarily complex.	1.8
I thought there was too much inconsistency in the weather app's user interface.	1.4
What aspects of the ui do you find particularly helpful, and what aspects do you find negative?	N/A

What improvements or additional features would you suggest to enhance the usability?	N/A
Is the information effectively conveyed?	3.7
I found the design and layout of the system to be consistent with what I am familiar with.	4.1
Text on the UI is easily readable, and font choices contribute to a positive user experience	3.9
Navigating through different sections of the UI is efficient and intuitive	4.4
The visual elements and design throughout the UI are consistent	4.6
The colour scheme used in the UI is appropriate and enhances the overall user experience.	3.7

Figure 23.1: System usability scale, survey of 20+ people

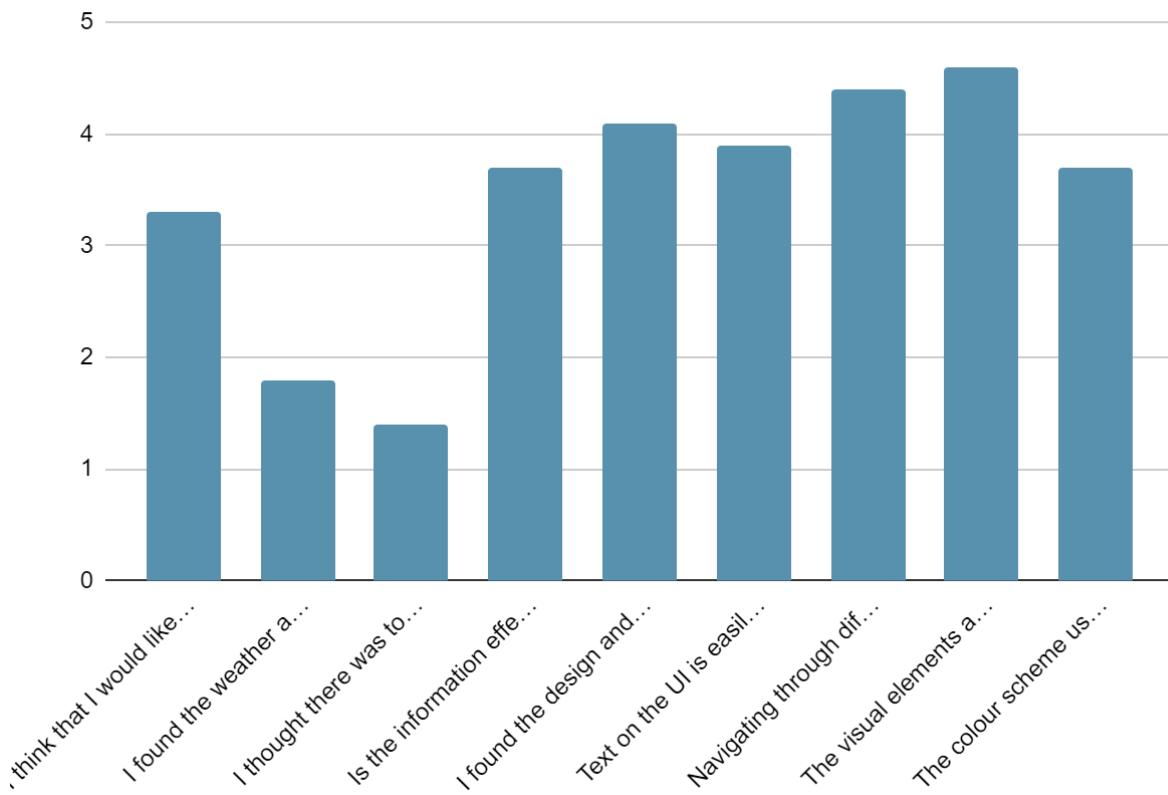


Figure 23.2: System usability scale, chart

### Shortlisted answers for the open ended questions

- What improvements or additional features would you suggest to enhance the usability?
  - The interactive map features, such as zooming and panning, enhance my ability to explore weather conditions.
  - Incorporate a button for convenient access to the current location.
  - Change overlays through a finger swipe.
  - Integrate UI customization options.
  - Gestures (e.g., swiping, pinching) in the UI prototype are intuitive and enhance the user experience.
- What aspects of the ui do you find particularly helpful, and what aspects do you find negative?

#### Negative:

- Excessive information.
- The clarity of the radar gradient scale needs improvement.

- The purpose of the badges is not clearly defined.

#### Positive:

- The user interface is straightforward.
- Graphs and charts in the UI prototype effectively convey weather data, making it easy for users to interpret.

## 5.7 Addressing the results of the System Usability Scale survey

After conducting the System Usability Scale survey (figure 23.1), we concluded that, overall, we were successful in creating a visually appealing and straightforward user interface. Our design draws on insights gathered from competitors and enhances certain weak points identified in their interfaces. We were given a few hints to improve our interface, and we successfully implemented the improvements.

Addressing “*The clarity of the radar gradient scale needs improvement*”:

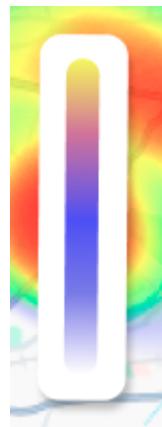


Figure 24: Gradient scale before the improvement

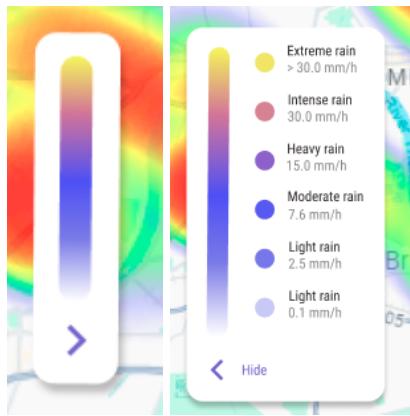


Figure 25: Gradient scale after the improvement, now with collapsible state

#### *Addressing “Excessive information”:*

The abundance of information was primarily associated with the radar's presence, leading some individuals to perceive it as overloaded. Additionally, we showcased an extended prototype with a screen that appeared longer than its actual dimensions. Typically, the height of the screen should not exceed an inch below the radar.

#### *Addressing “The purpose of the badges is not clearly defined”:*

The core concept is to introduce gamification to the app, enhancing its engagement, similar to the Carrot app (refer to the Appendix for competition analysis). The prototype shared with individuals lacked a voting button to predict whether it would rain or not.

#### *Addressing “The interactive map features, such as zooming and panning, enhance my ability to explore weather conditions”:*

This appears to be an advanced feature that we may consider implementing in the future, contingent upon the availability of APIs. However, the absence of such a feature in other radar-equipped apps might suggest that its implementation is either too complicated to implement, or there are no APIs that support it.

#### *Addressing “Incorporate a button for convenient access to the current location”:*

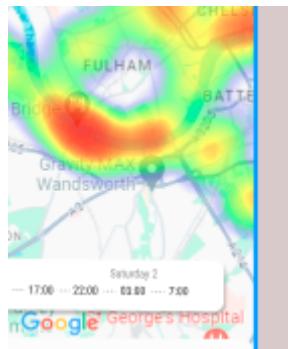


Figure 26: UI before the improvement

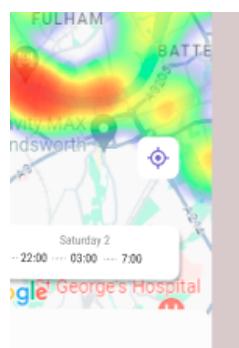


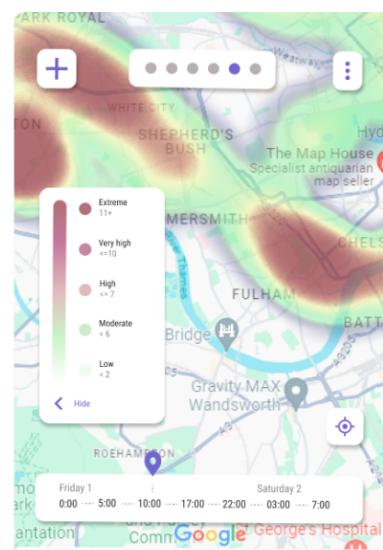
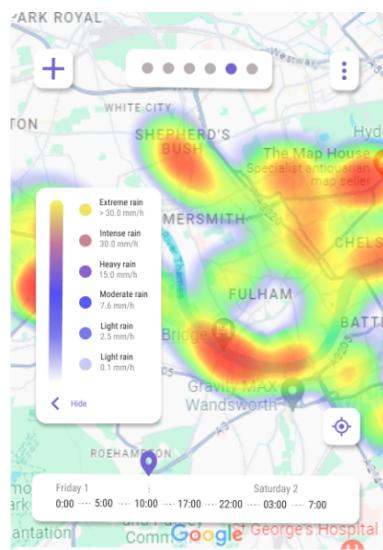
Figure 27: UI after the improvement, "current location" button is added

Addressing “*Change overlays through a finger swipe*”:

This feature is fairly easy to implement and it is not present in any other apps.

Addressing “*Integrate UI customization options*” and “*Gestures (e.g., swiping, pinching)* in the UI prototype are intuitive and enhance the user experience”:

We will incorporate these advanced features once we are content with the overall app experience.



## 3° London

United Kingdom

Today temperature

7° Max 2° Min



## 3° London

United Kingdom

Today temperature

7° Max 2° Min



## 3° London

United Kingdom

Today temperature

7° Max 2° Min



Daylight

7:51 Sunrise 15:53 Sunset



December  
30 31 1 2 3 4 5 6 7 8 9 10

Daylight

7:51 Sunrise 15:53 Sunset



December  
30 31 1 2 3 4 5 6 7 8 9 10

Daylight

7:51 Sunrise 15:53 Sunset



December  
30 31 1 2 3 4 5 6 7 8 9 10

## Current weather



## Current weather



## Current weather



Will it rain?

Yes No

Will it rain?

Yes No

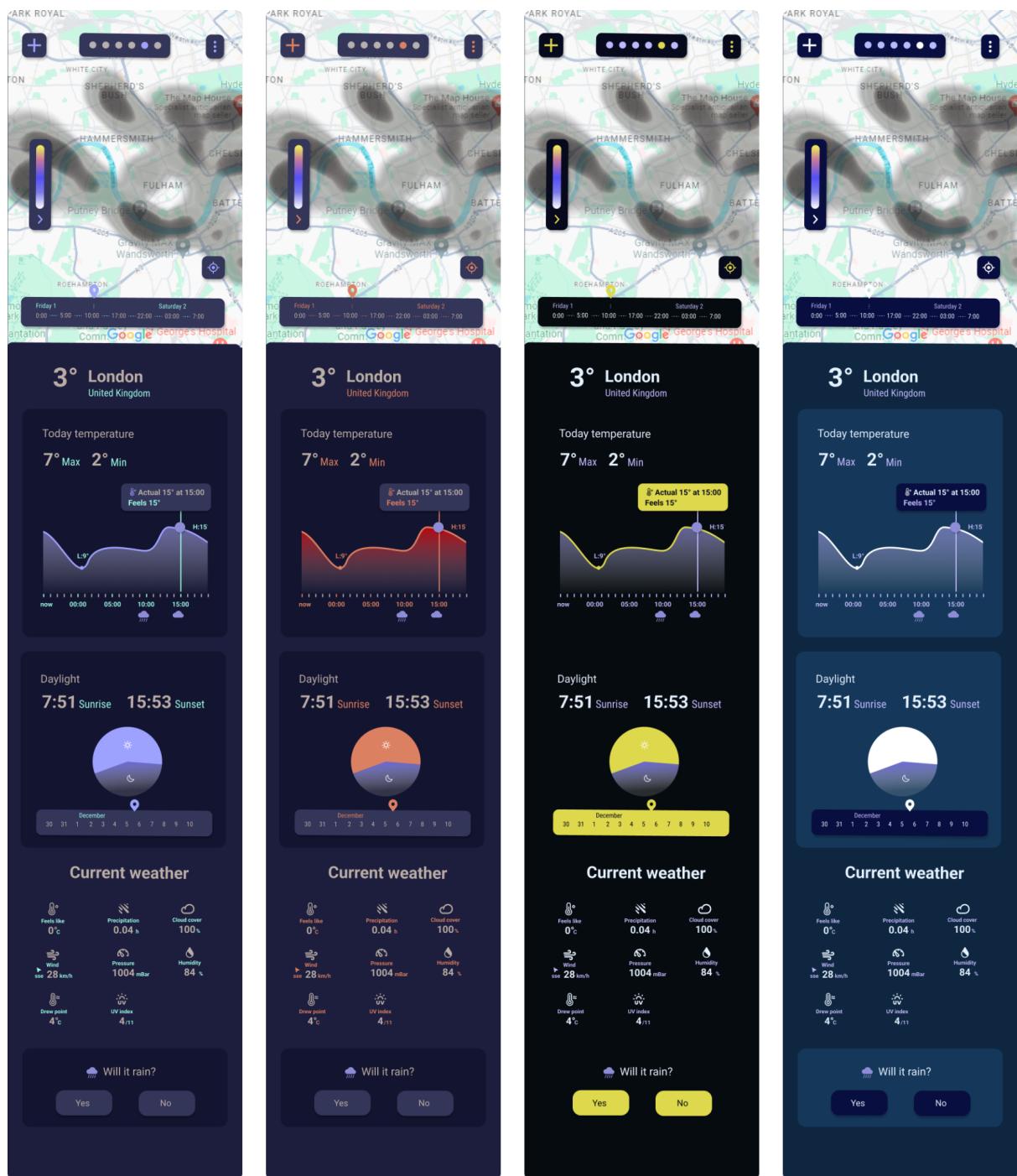
Will it rain?

Yes No

Figure 28: Updated UI

## 5.8 Colour themes and palettes

After the final prototype was finished, we went on to create a few dark mode themes.



1

2

3

4

Figure 29: Dark theme variations

We conducted a survey, asking participants to choose the two themes they liked the most.

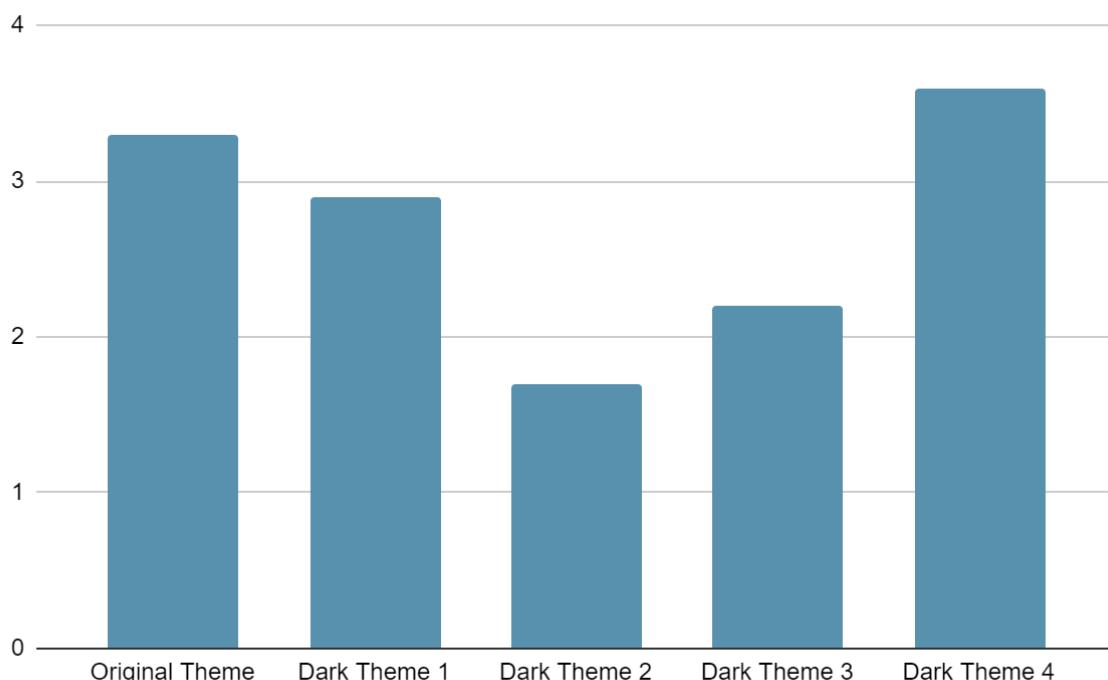


Figure 30: Theme survey results, 15+ people surveyed. 1-5 score

As you can see on the figure 30 above, Dark Theme number 4 scored higher than the original light theme. That being said, we felt that the results were inconclusive. We agreed to keep it as a potential future dark theme and move forward with the original light theme.

## 5.9 Looking back: Prototyping and Design in Review

In general, we felt satisfied with our final result. However, due to timing issues (discussed in detail in the Evaluation section), we were unable to start working on functional prototypes. Despite this, we felt confident that we could build the app. That being said, implementing some features, notably the real-time

weather map, might pose a challenge. In anticipation of potential issues, we had a backup plan, which involved replacing the map with a simple picture or visual art. Possible alternative shown below on figure 31.



Figure 31: Weather app concepts generated by Midjourney<sup>3</sup>

## 6.0 Technical & Functional Specification

### 6.1 System Overview

#### 6.1.1 Server

At the start of the project, we had to decide whether we wanted to go completely serverless, and we opted against that due to uncertainty about where our project would end up and how well it would do in the market, which obviously has some cost associated with it. Even though some serverless database providers offer generous free tiers (like Firebase), it's always free to start but becomes expensive as the app grows.

Hence, we began searching for server providers. While big cloud providers such as AWS, Azure, and Google Cloud also offer VPS, their services tend to be more expensive compared to those provided by smaller companies like Vultr, Digital Ocean, Hetzner, and others. Choosing Google Cloud VPS does offer some perks, as we intended to utilise its services like Firebase Auth. However, the negatives, primarily the high cost, outweigh the positives ( no data transfer fees between services ).

Cost per month (06/2022 vs 01/2023)

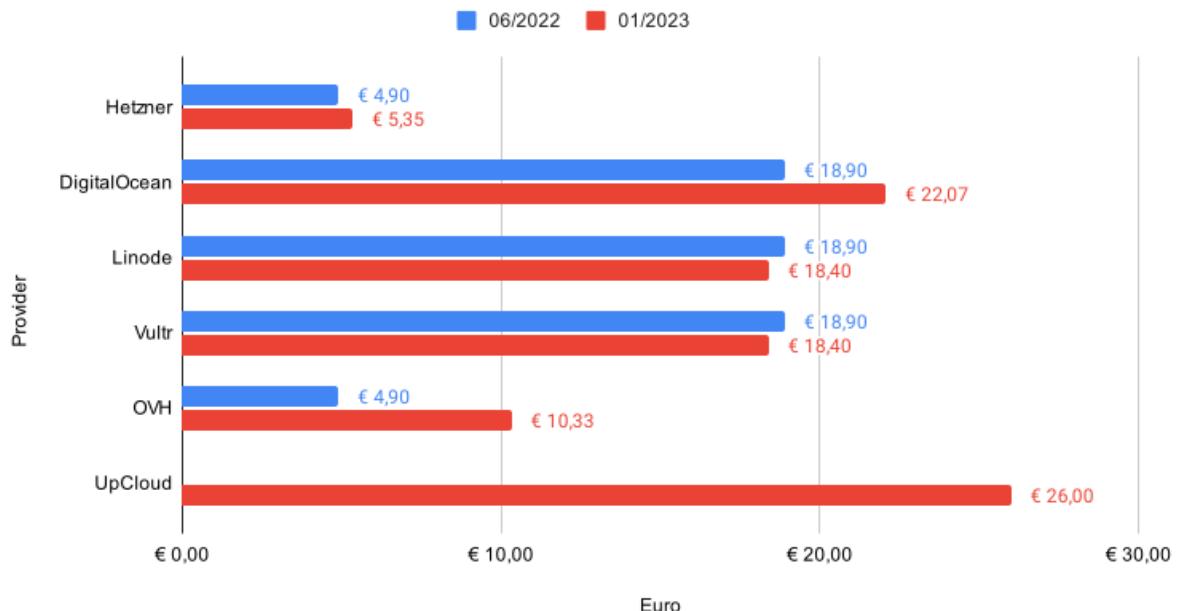


Figure 32: Cost per month for a VM with 2 vCPU and 4 GB ram<sup>1</sup>.

Among the smaller cloud providers, Hetzner stands out as the cheapest option (figure 32). However, it has a poor reputation for numerous IPs being blacklisted by many email providers. Due to its low cost, Hetzner is quite attractive to spammers. Consequently, if we were to send an email from the server—such as a password reset email for a user—there would be a high likelihood that it might never reach its intended recipient. With all that said, we are not planning to handle authentication ourselves, nor are we planning to send emails from the server. And if we were to do so, we would have used a service like SendGrid<sup>35</sup>. Hence, for our project, Hetzner was the most attractive option.

#### 6.1.1 Server Type

We chose a shared CPU over a dedicated one due to the lower price, and we require an instance with at least 4 GB of RAM because we will be dockerizing our application (Docker requires a minimum of 2 GB)

Best price-performance ratio with Intel® Xeon® Gold or AMD EPYC™ 7002 series Processors.								
Primary IPv4		IPv6 only		save € 0.60				
CX11	vCPU 1 <span style="background-color: #e0e0e0; padding: 2px;">Intel</span>	RAM 2 GB	Disk space 20 GB	Traffic 20 TB	IPv4 ✓	Locations +	€ 0.0071 / hr	€ 4.51 / mtl.
CPX11	vCPU 2 <span style="background-color: #e0e0e0; padding: 2px;">AMD</span>	RAM 2 GB	Disk space 40 GB	Traffic 20 TB	IPv4 ✓	Locations +	€ 0.0084 / hr	€ 5.18 / mtl.
CX21	vCPU 2 <span style="background-color: #e0e0e0; padding: 2px;">Intel</span>	RAM 4 GB	Disk space 40 GB	Traffic 20 TB	IPv4 ✓	Locations +	€ 0.0104 / hr	€ 6.37 / mtl.

Hetzner pricing as of 08 November 2023<sup>2</sup>.

Optimize your workload with AMD Milan EPYC™ 7003 and AMD Genoa EPYC™ 9654 processors.								
Primary IPv4		IPv6 only		save € 0.60				
CCX13 <span style="background-color: #28a745; color: white; padding: 2px 5px;">New</span>	vCPU 2 <span style="background-color: #e0e0e0; padding: 2px;">AMD</span>	RAM 8 GB	Disk space 80 GB	Traffic 20 TB	IPv4 ✓	Locations +	€ 0.0238 / hr	€ 14.86 / mtl.
CCX23 <span style="background-color: #28a745; color: white; padding: 2px 5px;">New</span>	vCPU 4 <span style="background-color: #e0e0e0; padding: 2px;">AMD</span>	RAM 16 GB	Disk space 160 GB	Traffic 20 TB	IPv4 ✓	Locations +	€ 0.0466 / hr	€ 29.14 / mtl.
CCX33 <span style="background-color: #28a745; color: white; padding: 2px 5px;">New</span>	vCPU 8 <span style="background-color: #e0e0e0; padding: 2px;">AMD</span>	RAM 32 GB	Disk space 240 GB	Traffic 30 TB	IPv4 ✓	Locations +	€ 0.0925 / hr	€ 57.70 / mtl.

Figure 33: Hetzner pricing as of 08 November 2023<sup>2</sup>.

### 6.1.2 Database

Choosing the right database for our application involved evaluating various options. While several databases were viable, we opted for Postgres for several reasons. One critical consideration was Postgres' support for JSONB, offering a robust method for storing data like preferences. In contrast, databases like MySQL lack this capability.

Furthermore, we explored two possibilities:

Case 1, where the app becomes popular

If the app were to grow, we reached a consensus that we didn't want to manage the database ourselves and would instead opt for a managed database. Then there are few options. First, MongoDB. NoSQL database known for its ease of use. The issue with MongoDB lies in the limited availability of managed MongoDB database providers. The few that do exist, such as MongoDB Atlas, may come with higher associated costs. In our research, we discovered *user complaints about high read rates between database replicas in MongoDB Atlas*<sup>36</sup>. This issue could potentially lead to increased costs as the application scales, rather than immediate performance concerns. Another provider that supports managed MongoDB databases is Digital Ocean, but their MongoDB service is more expensive than their own Postgres offering.

Postgres, on the other hand, enjoys wide support from managed database services. Digital Ocean offers a managed Postgres database for as low as \$15. It is also easy to migrate to another SQL database if needed.

### Case 2, where the app slowly declines or never grows

In this situation, we wouldn't prefer to rent a server and would instead consider migrating to a service that offers a free tier. MongoDB Atlas is one such option, providing 5GB of space and a 512MB cluster. Additionally, there's a Postgres service called Supbase that offers a smaller space of 500MB but without any performance or memory bottlenecks. It's a challenging decision between the two, there is no clear winner.

### More options

We obviously considered databases such as DynamoDB by AWS and Firebase by Google. One of our group members has experience with both of them. The downside of DynamoDB is that we have to provision read/write capacity units. Consequently, if the app's usage sharply increases, it might not scale as we intended. Firebase is a strong contender, but being a NoSQL database, it's not as flexible as Postgres

### Final decision

We opted for Postgres while considering both the Digital Ocean's managed Postgres database (if the app grows) and Firebase (if the app slowly declines)

as potential future services that we might explore, depending on the project's trajectory.

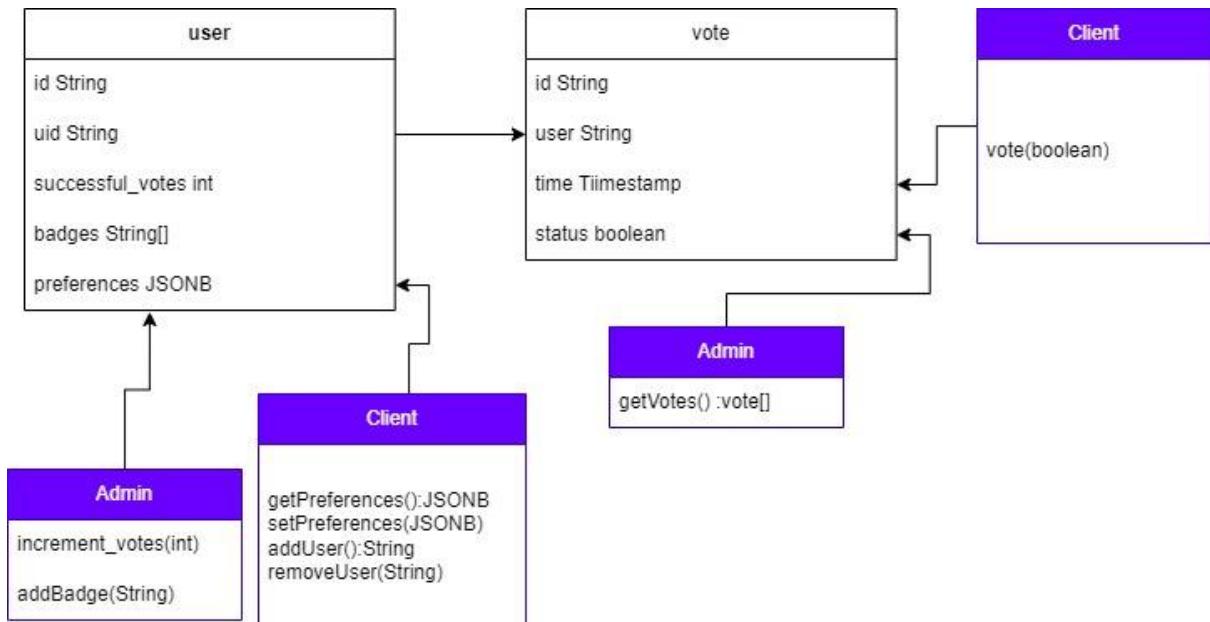


Figure 34: first draft class diagram

### 6.1.3 Database ORM

We didn't see much benefit in using database ORMs, as the added complexity didn't offer additional benefit because we have few tables. Instead, we decided to use raw queries with Knex, an SQL query builder.

### 6.1.4 Security

The app might require authentication in some cases and that will be handled by Firebase Authentication<sup>4</sup>. Firebase Authentication is a managed service by Google that simplifies user sign-in. It supports various methods and handles security aspects. While we had the option to implement authentication ourselves, there's little reason to do so. In fact, it would be impractical, as Firebase Auth is freely available.

### 6.1.5 API

Early on, we decided to create separate API endpoints for weather information and the general server that would host our database. We did this primarily to separate concerns, following a microservices infrastructure. Additionally, this approach would scale better, whether scaling up when the server could potentially come under significant load, or scaling down by moving our database to Firebase or the cloud in such cases.

The API will be powered by a cloud function, with an API Gateway in front acting as a rate limiter to prevent abuse.

## 6.2 System requirements

The MVP of the app should be available on both Google Play Store and the App Store. The app is not demanding on hardware, so any modern smartphone should be able to run it. Users need internet access to use the app, as it assumes a constant connection; otherwise, forecasts may become stale and not relevant.

## 6.3 Functional requirements

This will define our application's basic functions and essentially narrow it down to what the system does or does not do in terms of the inputs.

Accept Privacy Agreement	The system should not allow the user to proceed without accepting the terms and conditions.
Share Current Location	The system should allow the user to use the current location for the forecast.
Add New Location	The system should allow the user to add a new location.
Pick The Existing Location	The system should allow the user to select one of the previously added locations.
Date/Time Slider	The system should allow the user to change the date and time of the forecast.
Expand Overlay Gradient Scale	The system should allow the user to view a full-sized overlay gradient scale.

Vote On Weather	The system should allow the user to vote on whether it will rain or not.
Settings	<p>The system should allow the user to change the map/radar overlay.</p> <p>The system should allow the user to change the theme or visual appearance.</p> <p>The system should allow the user to change units.</p> <p>The system should allow the user to control the amount of notifications the user receives.</p> <p>The system should allow the user to log in and log out.</p>
Badges	The system should allow users to view all badges/rewards.

Figure 34: functional requirements

## 6.4 Non-functional requirements

**User-friendly interface** - The app should have a visually clear and appealing interface without any useless or excessive information on the main page of the screen. The users should be able to navigate easily around the pages or different sections of the app.

**Accessibility** - The app must be accessible to people with disabilities by offering customizable settings. This includes options to adjust text size for those with poor vision, customise colours and screen brightness/contrast for enhanced accessibility, and the ability to change the theme colour.

**Offline Functionality:** Users should have access to the application even when offline. Albeit some information displayed and provided on the screen will be dated. The lack of internet connection should be communicated to the user.

## 7.0 ETHICAL AUDIT

The application requires very little personal information since login is not mandatory for app usage. Additionally, any registration or login is delegated to Firebase Authentication, which subsequently generates a unique UID to serve as the user's identifier.

Admin access to the server is secured through SSH, backed by Yubikey<sup>37</sup>. All connections to the database are routed through the 443 port and encrypted on the fly to prevent unwanted access to user data.

The application complies with data protection requirements, such as GDPR, or other applicable laws. After installing the application, users are prompted to accept the privacy agreement before proceeding.

Users can voluntarily share their location, and this information is stored only on the mobile phone, with no involvement of third-party services.

We will make an effort to offer precise and trustworthy weather predictions so that people can base their judgements on the data they get and update weather data often to reflect current conditions and forecasts, reducing the possibility that users would rely on out-of-date information.

All market research was conducted on adults and no minors were involved.

## 8.0 MARKETING

Marketing is the final stage of our project. This stage is optional and will only commence if the final product is deemed worthy.

### 8.1 Website

Maintaining a dedicated website enhances the app's prestige, lending it a more professional image. It is not the focus of this project; therefore, we don't plan to spend much time developing it. Instead, we will opt for a ready-made template from Tailwind UI<sup>7</sup>, as shown in figure 35.

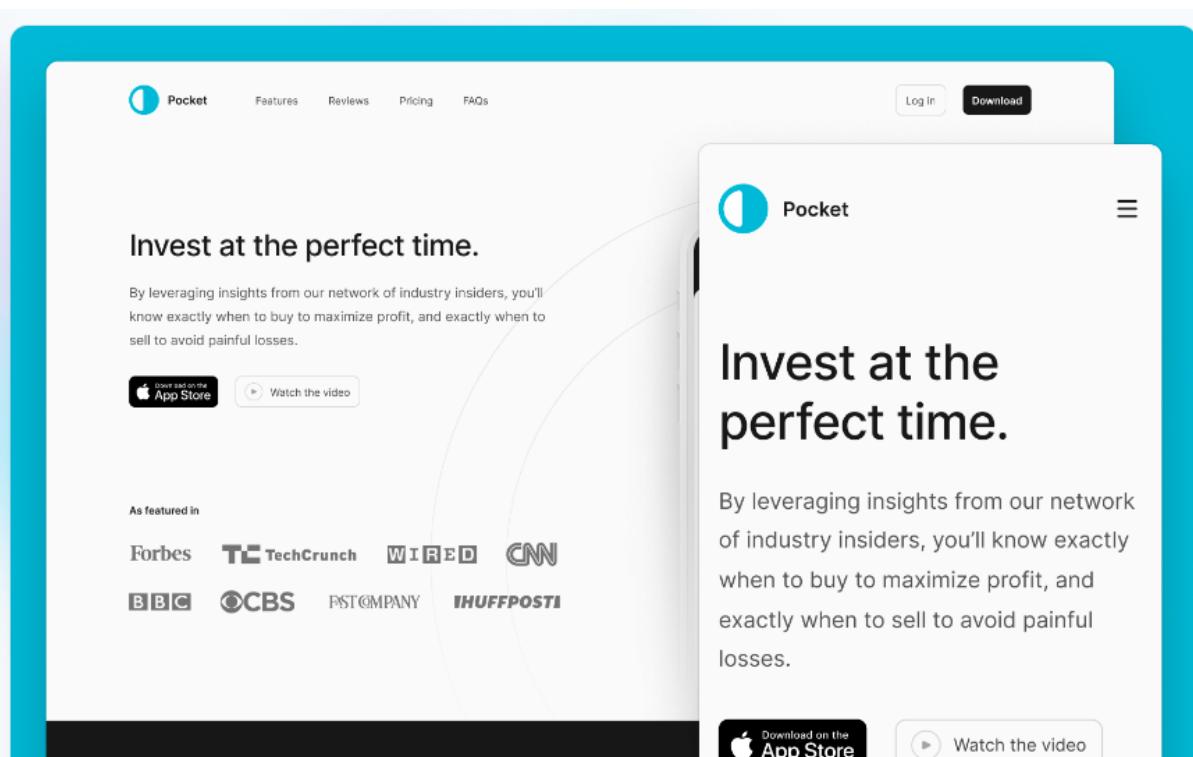


Figure 35: Pocket, Tailwind UI template<sup>6</sup>

### 8.2 Advertising

To reduce advertising expenses, our strategy involves word-of-mouth promotion and peer-to-peer propagation, especially in the initial stages. This may encompass covert or stealth marketing techniques<sup>8</sup>. An illustration of covert marketing involves the utilisation of purchased, aged Reddit accounts

available for sale online. This strategy entails engaging in discussions and threads while discreetly promoting our product. The advantages of this approach lie in its cost-effectiveness. However, potential downsides include the need for manual work, though there is the possibility of offloading tasks to generative AI. It's important to note that relying solely on AI may compromise the quality of results.

## 9.0 EVALUATION

### 9.1 EVALUATION OF TEAMWORK

Throughout our team's journey, we encountered substantial challenges in time management and group dynamics. Attendance at our scheduled meetings was inconsistent, with members occasionally failing to attend. Promises made by team members regarding task completion were not always kept, leading to delayed work deliveries. The persisting issues in our group's collaboration and workflow even prompted discussions about the possibility of restructuring or disbanding the group, a consideration that still looms on the horizon. Recognising the significance of these challenges, we grappled with the need for improved time management and a more committed approach from all team members. The struggle to maintain consistent attendance, fulfil promises, and meet deadlines has underscored the critical need for a more cohesive and accountable team dynamic. Despite these ongoing challenges, we remain determined to address and overcome these obstacles to ensure the successful completion of our project.

### 9.2 EVALUATION OF THE END RESULT

The challenges outlined in the assessment of teamwork significantly impacted our ability to achieve our initial goals. As a result, we faced difficulties in developing the first Minimum Viable Product (MVP) and creating a functional weather prediction model as a proof of concept. These setbacks introduced uncertainties and jeopardised the timely delivery of the expected product. With that said, we successfully designed a prototype that we can confidently build upon in the second half of the project. It was well-received by the surveyed individuals, and the thorough market analysis and prototyping process will save us a lot of time in the future.

### 9.3 LESSONS LEARNT SO FAR

- Effective communication is important: Our emphasis on regular team meetings and open communication channels proved essential.

However, we recognized that maintaining consistent communication remains a challenge, and strategies to address this need to be refined.

- Adaptability is crucial: Unforeseen delays and setbacks reminded us of the importance of adaptability. While we aimed for frequent iterations, unforeseen circumstances hindered our progress, underscoring the need for flexibility in our approach.
- Role assignment requires regular review: Assigning roles based on individual strengths initially seemed effective. However, periodic assessments and adjustments are necessary to ensure equitable distribution of workload and optimal utilisation of team members' skills.
- Prototyping yields valuable insights: Our funnel prototyping approach, despite not reaching the MVP stage, provided valuable insights and feedback. It became evident that this method could save time in the later stages of development.
- External stakeholder involvement: Engaging with external stakeholders, particularly testers, has been beneficial. Their feedback has contributed significantly to refining our prototype and understanding user expectations.
- Continuous learning: The project's complexities revealed the need for continuous learning. New technologies, market dynamics, and project management strategies require ongoing adaptation and education.

#### 9.4 FUTURE WORK

As the project enters its second phase, for the group to be successful and avoid falling apart, we will have to implement new workflows and changes that incorporate the lessons learned listed in the chapter 9.3. The second phase of the project, on one hand, is much easier, but some may struggle to adapt since continuous learning is more important than ever.

## 10.0 CONCLUSION

In summary, our group used various methods and tools to create a prototype for a user-focused product. We delved into market research surveys, design, and prototyping to refine our application. We scraped 39 thousand reviews and analysed it using different techniques. We identified patterns and correlations between successful apps, and refined it in a formula/idea for our app. We built a prototype based on that idea, conducting multiple surveys to refine it further. With confidence in its quality, we are ready for the next steps—implementing technologies and bringing our user-centric product to life. This marks an exciting transition as we turn our vision into a tangible solution.

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12.0 APPENDIX

## 12.1 Market Analysis. Word cloud results: 2-4 stars.



Figure 36: Word cloud results: 2-star reviews.

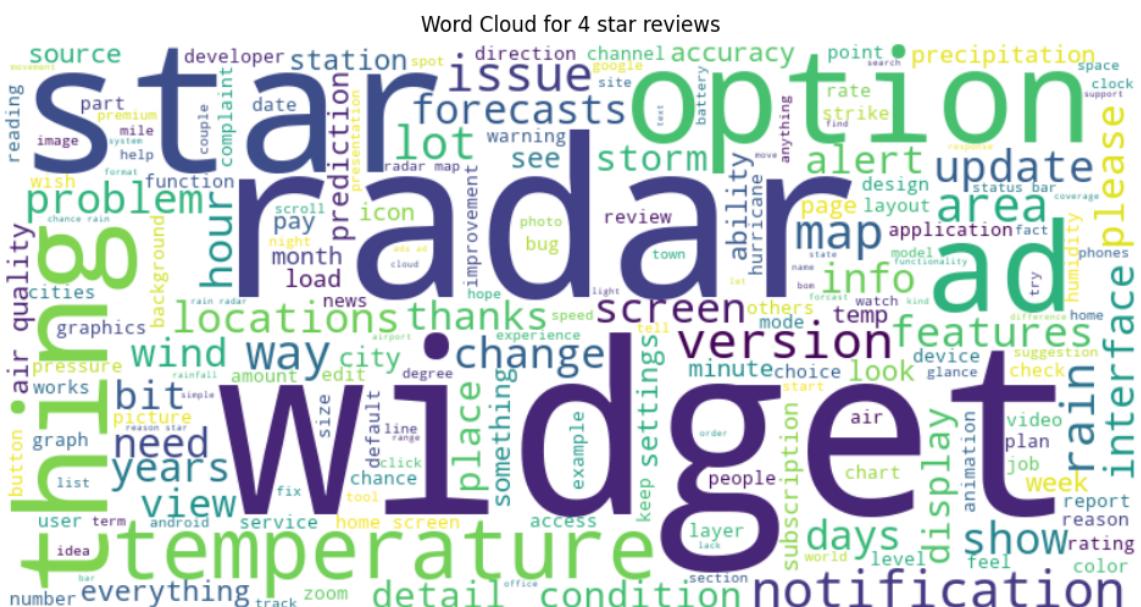


Figure 37: Word cloud results: 4-star reviews.



Figure 38: Word cloud results: 3-star reviews.

## 12.2 Survey 1. Template.

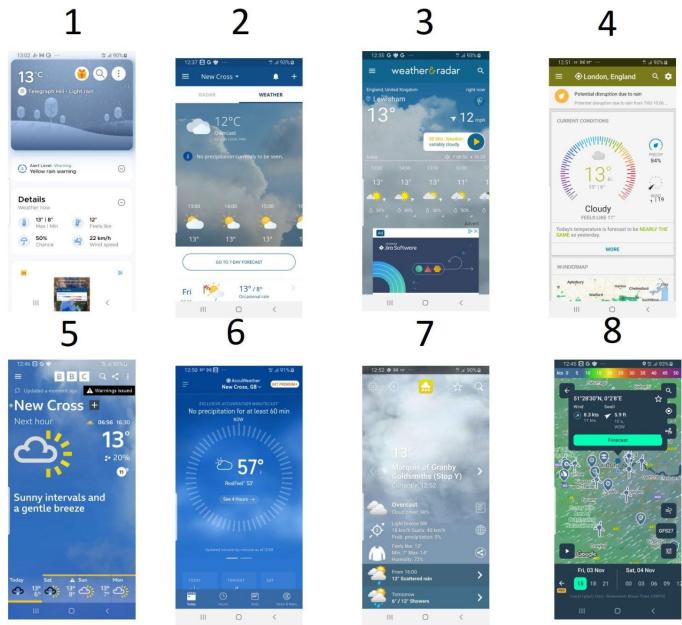


Figure 39: Survey number 1. Template.

## 12.2 Survey 1. Template.

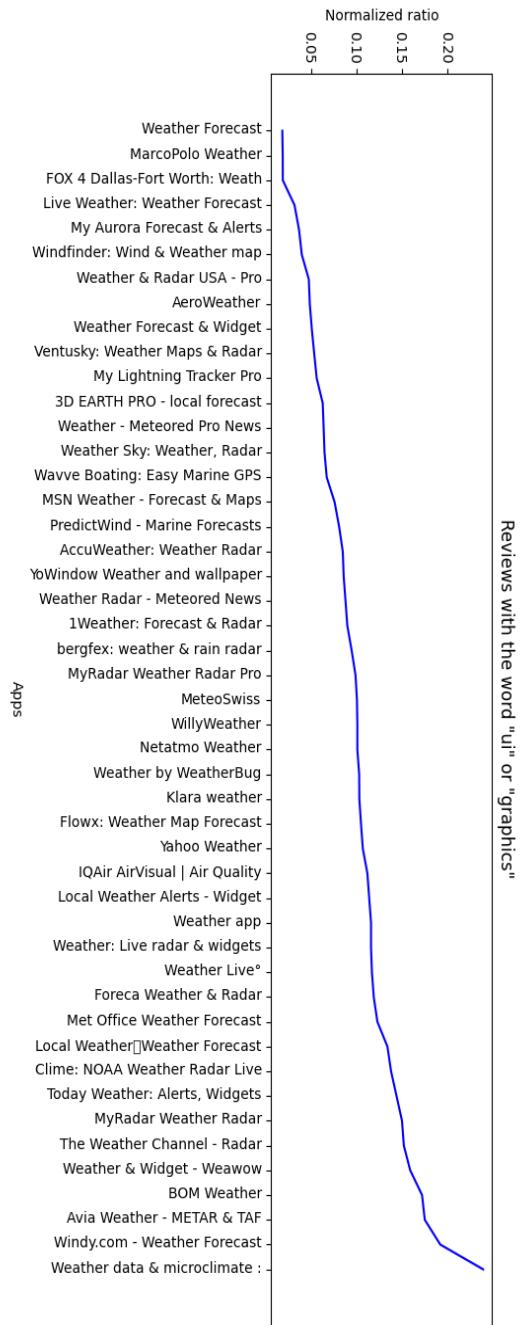


Figure 40: Reviews with the word “ui” or “graphics”. Data is normalised.

## 12.3 Competition analysis

Windy.com

## What do they do

Windy.com is a weather app which is more focused on wind directions, force and speeds. It shows the weather within the next couple of days in your location

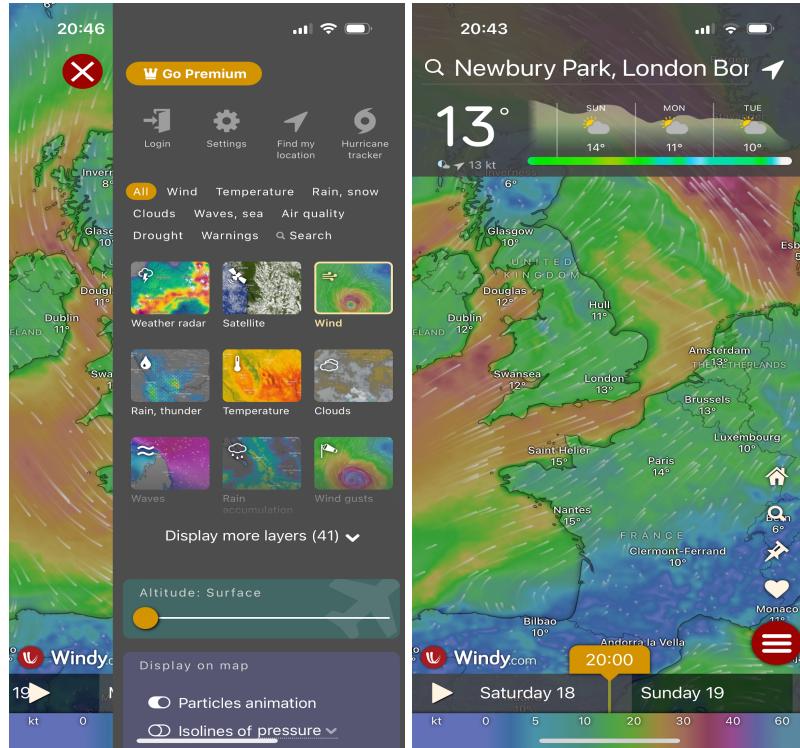


Figure 41: Windy.com UI

## How do they do this

- They do this by using satellite imagery and radar systems to find the information of the winds and temperatures.
- There's an ability to add reviews
- You can set favourites on the locations so it's simple to find instead of using the search bar

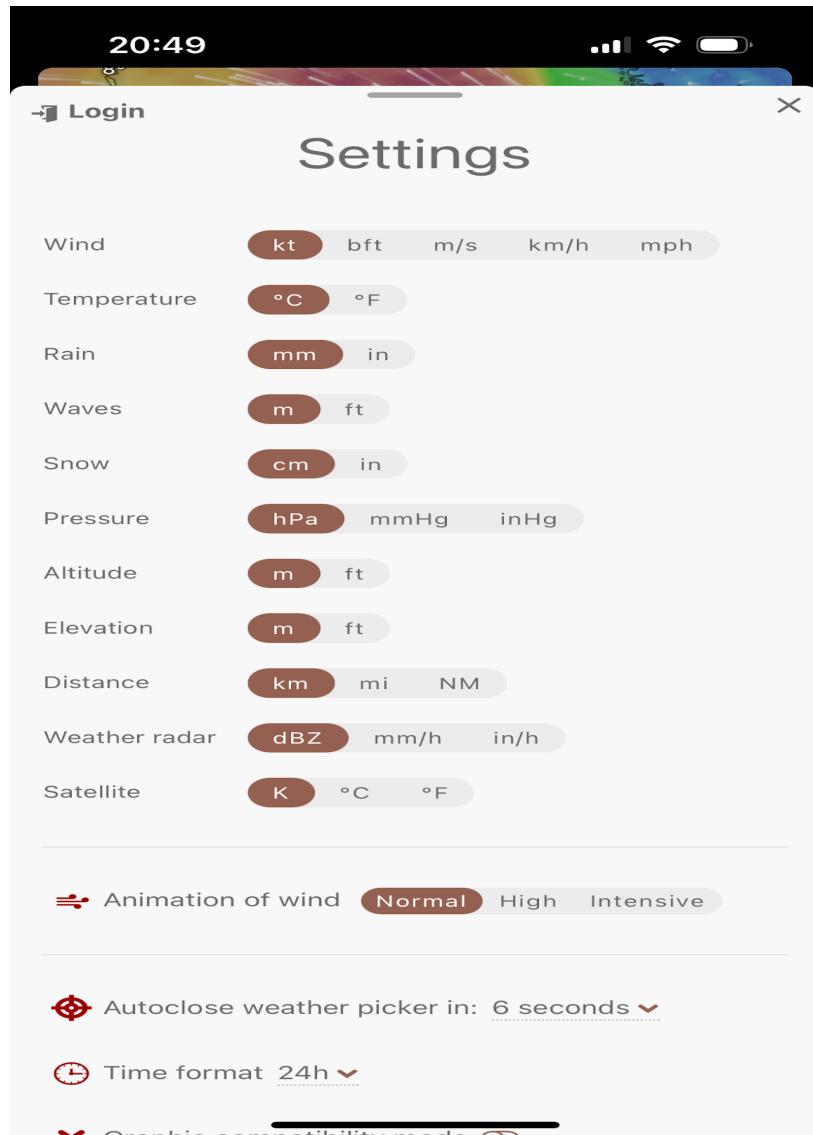


Figure 42: Windy.com Settings

## Review their application

It has a 4.8 /5 rating with 9100 reviews showing that the app is very good and useful

- An advantage is being able to switch between weather info providers is so useful
- Designed simply for all types of devices iPads and iPhones and Android phones..
- A disadvantage is that it doesn't show the chance of rain percentage

## BOM Weather

### What do they do

BOM Weather is a weather app where it shows the winds speeds, humidity, temperature and rainfall in your rainfall. It focuses on giving the most accurate temperature in the following week.

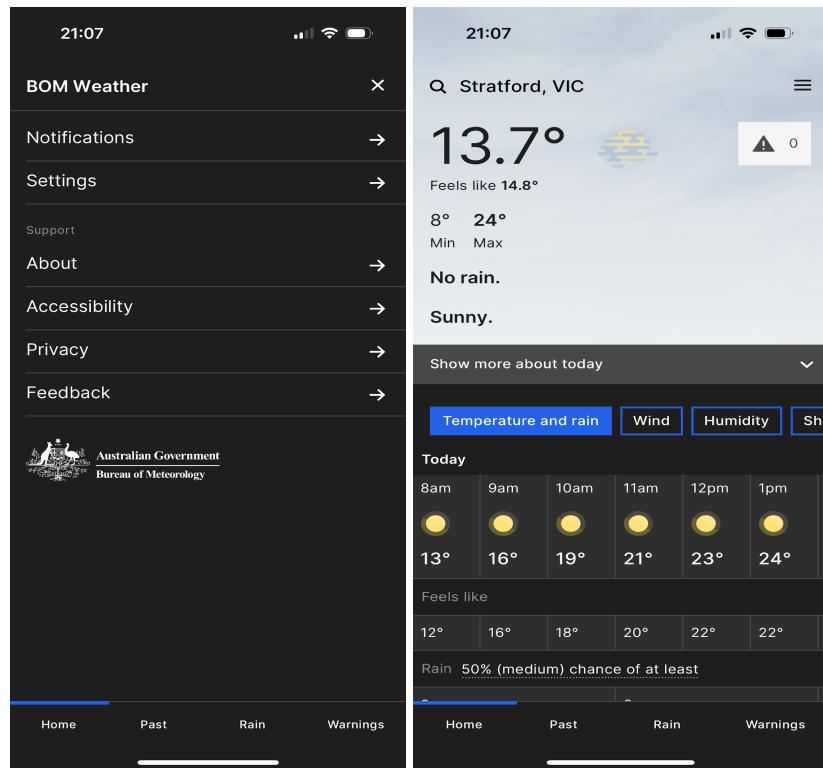


Figure 43: BOM Weather UI

### How do they do this

- The Bureau of meteorologist gets their weather predictions from a very reliable computer model and satellite imagery
- The datasets they use are an open street map and the Australian Bureau of Statistics
- You can set favourites on the locations so it's simple to find instead of using search bar

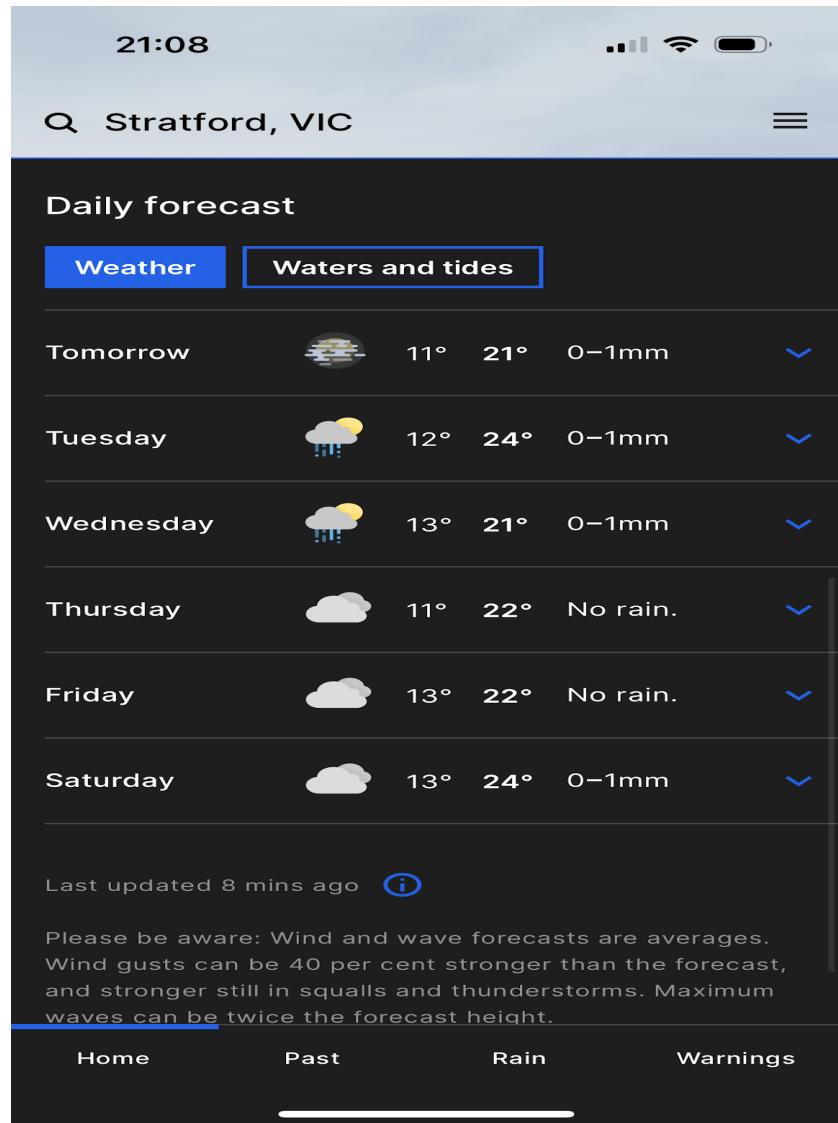


Figure 44: BOM Weather UI

## Review their application

- They are rated 4.7/5 with 109 reviews, so they are quite reliable with their weather analysis
- Easy to navigate and find the information you need
- Design is too simplistic with basic colour nothing eye-catching to engage the audience

## What do they do

Weawow is a weather app which is enhanced by weather-related photos taken by photographers around the world to reflect the current weather in real-time. It has very precise weather forecasts

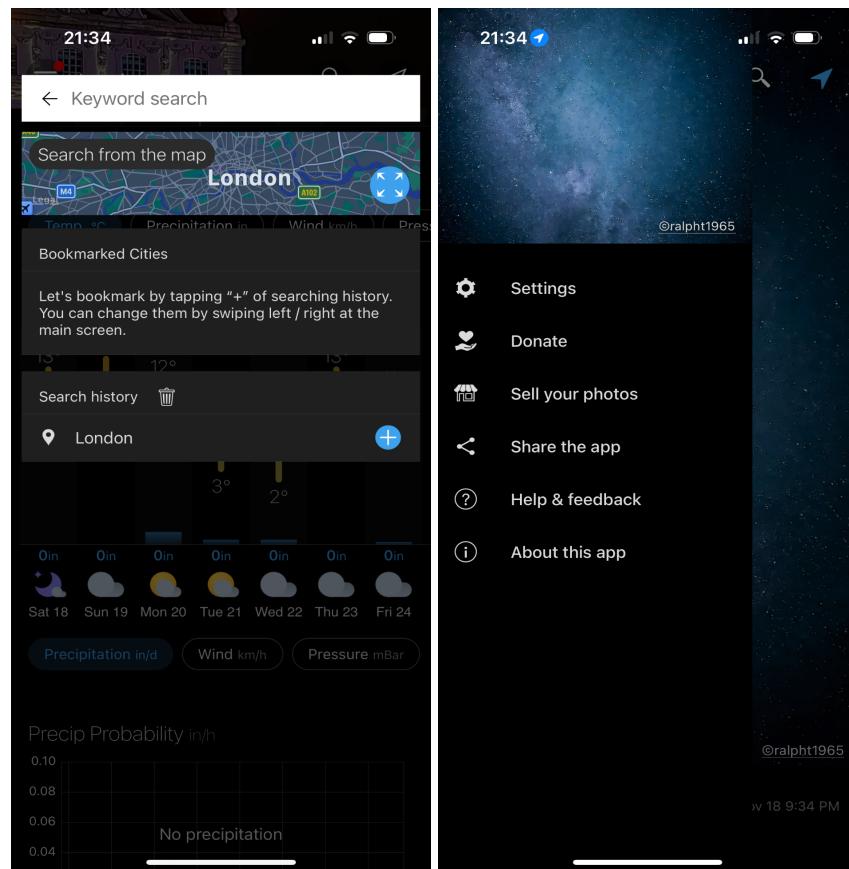


Figure 45: Weawow UI

## How do they do this

- Real-time photo images in relation to the current weather
- They do this by using satellite imagery and radar systems to find the information of the winds and temperatures.
- You can donate and sell your photos in the app

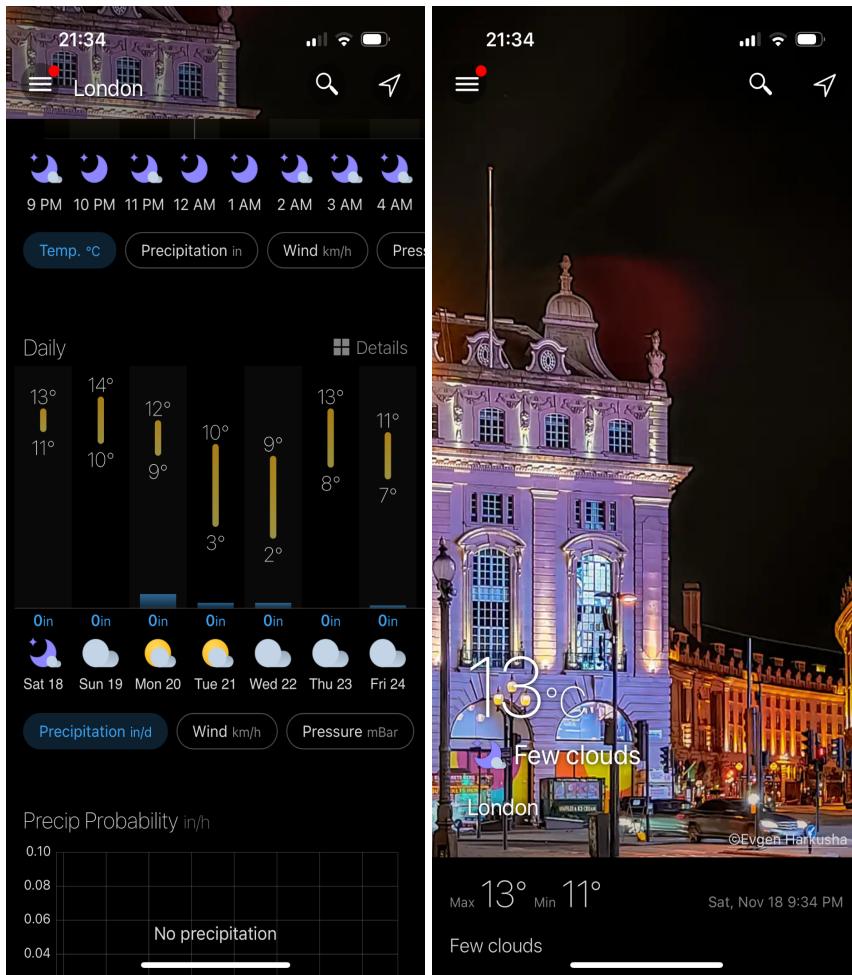


Figure 46: Weawow UI

## Review their application

- It had 4.8/5 with 209 reviews
- Lots of information and customisable,
- It has widget issues where some widgets do not display properly
- Very detailed and reliable app with good background images

## CARROT

### What do they do

CARROT is a forecast to reveal more meteorological with hourly updates, also there are in-app mission to keep you more engaged in the app

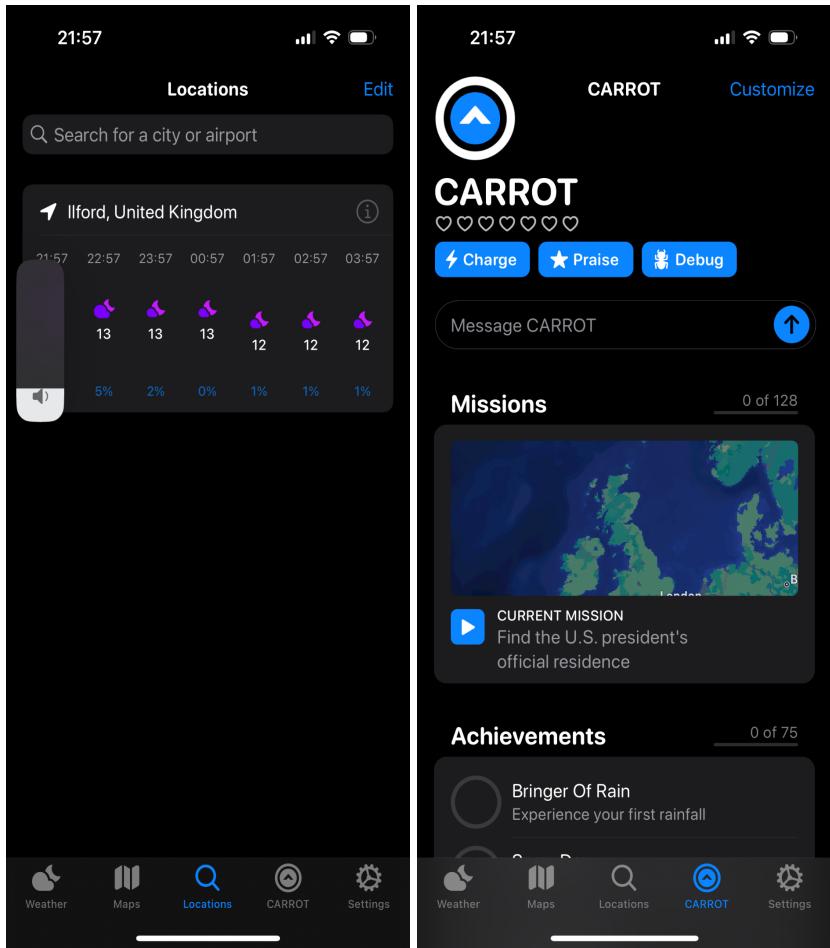


Figure 47: CARROT UI

## How do they do this

- Added missions are the users can gain points and achievements
- Premium club subscription to show a lot more detailed information and world maps images with real life weather

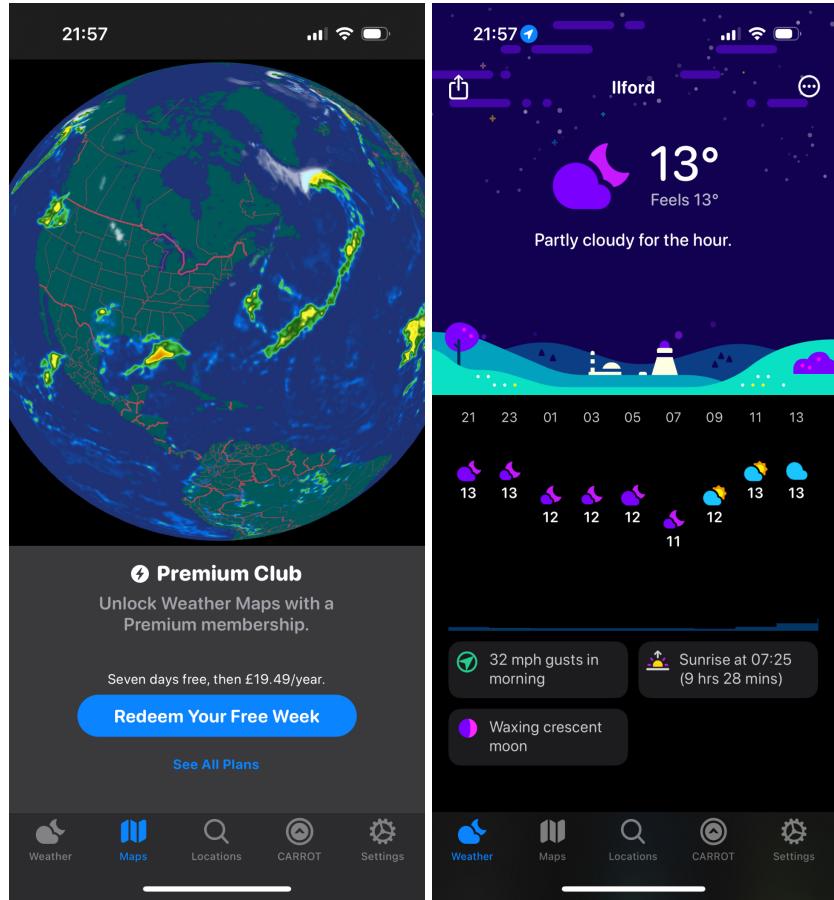


Figure 48: CARROT UI

## Review their application

- It is rated 4.6/5 with 5400 ratings
- Has secret missions to play to unlock achievements
- alongside viewing the weather forecasts
- Too expensive for the slight extra information which isn't very useful

## 12.4 Review Scraping

```
import puppeteer from "puppeteer";
import apps from "./play_store_apps.json" assert { type: "json" };
import fs from "fs";
const wait = (ms) => new Promise((resolve) => setTimeout(resolve, ms));
const filePath = "output.json";

const scrape = async (index) => {
```

```
let data = [];

const browser = await puppeteer.launch({
  headless: true,
  ignoreHTTPSErrors: true,
  slowMo: 0,
  // args: [
  //   "--disable-gpu",
  //   "--disable-dev-shm-usage",
  //   "--disable-setuid-sandbox",
  //   "--no-first-run",
  //   "--no-sandbox",
  //   "--no-zygote",
  // ],
  // ],
});

const page = await browser.newPage();
await page.setUserAgent(
  "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
  Chrome/112.0.0.0 Safari/537.36"
);
await page.goto(apps[index]);
await wait(3000);

const applInfo = await page.evaluate(() => {
  const node = document.querySelector('[itemprop="starRating"]');
  const title = document.querySelector("h1")?.innerText;
  if (!node) {
    // no reviews
    return null;
  }
  const rating = parseFloat(
    node
      .querySelector("div:first-child")
      ?.innerText?.match(/\d+\.\d+)?.[0] || 0
  );
}

const reviewNode = document.querySelector(".wVqUob div:nth-child(2)");
let reviewNumber = parseFloat(
  reviewNode?.innerText?.match(/\d+(.\d+)?)/?.[0] || 0
);

if (reviewNode?.innerText.includes("M")) {
  // test millions or thousands
```

```
reviewNumber *= 1_000_000;
} else if (reviewNode?.innerText.includes("K")) {
    reviewNumber *= 1_000;
} else {
    // no reviews
    // we are not interested
    return null;
}

const downloads = document.querySelector(".wVqUob:nth-child(2) div");

let downloadsNumber = parseInt(
    downloads?.innerText?.match(/\d+/)?.[0] || 0
);
if (!downloadsNumber) {
    // no downloads
    // we are not interested
    return null;
}
if (downloads?.innerText.includes("M")) {
    // test millions or thousands
    downloadsNumber *= 1_000_000;
} else if (downloads?.innerText.includes("K")) {
    downloadsNumber *= 1_000;
} else {
    // no downloads
    // we are not interested
    return null;
}
const ads = /contains ads/i.test(document.body.innerText);
const purchases = /In-app purchases/i.test(document.body.innerText);

return { title, rating, reviewNumber, downloadsNumber, ads, purchases };
});

if (!appInfo) {
    await browser.close();
    return null;
}
await page.click(
    [aria-label="See more information on Ratings and reviews"]
```

```
);

data = await page.evaluate(async () => {
  let oldNodes = [];
  let nodes = [];
  const wait = (ms) => new Promise((resolve) => setTimeout(resolve, ms));
  do {
    const node = nodes[nodes.length - 1];
    if (node) {
      node.scrollIntoView();
    }
    await wait(3000);

    oldNodes = [...nodes];
    nodes = document.querySelectorAll(".RHo1pe");
    if (nodes.length === oldNodes.length) {
      break;
    }
  } while (nodes.length < 1000);
  const localData = [];
  //$('.RHo1pe header > div:nth-child(2) [aria-label]')
  nodes.forEach((el) => {
    const rating = el.querySelector("header > div:nth-child(2) [aria-label]");
    const dates = el.querySelectorAll("header > div:nth-child(2) span");
    const date = dates[dates.length - 1];
    const review = el.querySelector(".h3YV2d");
    const helpfulText = el.querySelector("div:nth-child(3) div")?.innerText;
    const helpful = parseInt(helpfulText?.match(/\d+/g)?.[0] || 0);
    localData.push({
      rating: parseInt(rating.ariaLabel?.match(/\d/g)[0] || 0),
      date: date?.innerText,
      review: review?.innerText,
      helpful,
    });
  });
  return localData;
});

await browser.close();
applInfo.reviews = data;
return applInfo;
```

```
};

const data = [];

for (let x = 0; x < apps.length; x++) {
    console.log(`Scraping ${x + 1} of ${apps.length}`);
    const url = apps[x];
    let app = null;
    try {
        app = await scrape(x);
    } catch (error) {}
    if (app) {
        data.push({ url, ...app });
    }
}
try {
    fs.writeFileSync(filePath, JSON.stringify(data, null, 2));
    console.log(`File '${filePath}' has been created with the array data.`);
} catch (err) {
    console.error("Error writing file:", err);
}
```

## 12.5 Sentiment Analysis

Model (the final version is lost, this is one of the code iterations)

```
import numpy as np

import tensorflow as tf
from keras import models
from keras import layers
from keras.preprocessing.text import Tokenizer
from keras.utils import to_categorical
```

```
import json

from google.colab import files
uploaded = files.upload()

def vectorize(sequences, dimension=10000):
    results = np.zeros((len(sequences), dimension))
    for i, sequence in enumerate(sequences):
        results[i, sequence] = 1
    return results

with open('output.json', 'r', encoding='utf-8') as file:
    app_data = json.load(file)

# Initialize lists to store all reviews and labels
texts = []
labels = []

# Loop through each app
for app in app_data:
    app_reviews = app["reviews"]

    # Filter reviews with a rating of 3
    filtered_reviews = [review for review in app_reviews if review.get('rating') != 3 and 'review' in review]

    # Extract review text and labels from filtered reviews
    texts_partial = [review['review'] for review in filtered_reviews]
    labels_partial = [1 if review['rating'] > 3 else 0 for review in filtered_reviews]

    # Append to the lists
    texts.extend(texts_partial)
    labels.extend(labels_partial)

# Tokenize the text data
max_words = 10000
tokenizer = Tokenizer(num_words=max_words)
tokenizer.fit_on_texts(texts)
sequences = tokenizer.texts_to_sequences(texts)

# Vectorize the text data
```

```
data = vectorize(sequences)

# Convert labels to numpy array
labels = np.asarray(labels).astype("float32")

# Split the data into training and testing sets
test_size = 200
test_data = data[:test_size]
test_labels = labels[:test_size]
train_data = data[test_size:]
train_labels = labels[test_size:]

# Define the model
model = models.Sequential()
model.add(layers.Dense(50, activation="relu", input_shape=(max_words,)))
model.add(layers.Dropout(0.3))
model.add(layers.Dense(50, activation="relu"))
model.add(layers.Dropout(0.2))
model.add(layers.Dense(50, activation="relu"))
model.add(layers.Dense(1, activation="sigmoid"))
model.summary()

# Compile the model
model.compile(optimizer="adam", loss="binary_crossentropy", metrics=["accuracy"])

# Train the model
results = model.fit(
    train_data, train_labels,
    epochs=2,
    batch_size=32,
    validation_data=(test_data, test_labels)
)

import matplotlib.pyplot as plt
# Plot training and validation loss
plt.figure(figsize=(12, 6))
plt.subplot(1, 2, 1)
plt.plot(results.history['loss'], label='Training Loss')
plt.plot(results.history['val_loss'], label='Validation Loss')
plt.title('Training and Validation Loss')
plt.xlabel('Epochs')
```

```

plt.ylabel('Loss')
plt.legend()

# Plot training and validation accuracy
plt.subplot(1, 2, 2)
plt.plot(results.history['accuracy'], label='Training Accuracy')
plt.plot(results.history['val_accuracy'], label='Validation Accuracy')
plt.title('Training and Validation Accuracy')
plt.xlabel('Epochs')
plt.ylabel('Accuracy')
plt.legend()

plt.tight_layout()
plt.show()

weights = model.layers[0].get_weights()[0]

# Flatten the weights array
flattened_weights = weights.flatten()

# Get the indices of the top 30 most positive and most negative words
top_30_positive_indices = np.argsort(flattened_weights)[-30:][:-1]
top_30_negative_indices = np.argsort(flattened_weights)[:30]

# Ensure the indices are within the expected range and get corresponding words
vocab_size = min(max_words, len(reverse_word_index))
top_30_positive_words = [reverse_word_index.get(index % vocab_size, "Not found in vocabulary") for index in top_30_positive_indices]
top_30_negative_words = [reverse_word_index.get(index % vocab_size, "Not found in vocabulary") for index in top_30_negative_indices]

# Print the top 30 most positive and most negative words
print("Top 30 most positive words:")
for i, word in enumerate(top_30_positive_words, 1):
    print(f"{i}. {word}")

print("\nTop 30 most negative words:")
for i, word in enumerate(top_30_negative_words, 1):
    print(f"{i}. {word}")

```

## 12.6 Frequency plot

```
import json
import matplotlib.pyplot as plt
from matplotlib.lines import Line2D
import pandas as pd

# Load data from JSON file with explicit encoding specification
with open('output.json', 'r', encoding='utf-8') as file:
    app_data_list = json.load(file)

data = []

mentionsSum={}

reviewCount = {}

data=[]

word = 'connection'

for app_data in app_data_list:
    # Extract reviews for the current app

    app_reviews = app_data["reviews"]

    # Count the number of reviews mentioning "ui" or "graphics"
    # reviews_with_mention = sum('ui' in review.get("review", "").lower() or 'graphics' in
    review.get("review", "").lower() for review in app_reviews)
    reviews_with_mention = sum( word in review.get("review", "").lower() for review in
    app_reviews)
    rating = app_data['rating']

    mentionsSum[rating] = mentionsSum.get(rating, 0) + reviews_with_mention
    reviewCount[rating] = reviewCount.get(rating, 0) + len(app_reviews)

# average normalized rating
for key in mentionsSum.keys():
    print(key, mentionsSum[key],reviewCount[key],mentionsSum[key]/reviewCount[key])
    mentionsSum[key] = mentionsSum[key]/reviewCount[key]
```

```

# Plot line chart
myKeys = list(mentionsSum.keys())
myKeys.sort()
sorted_dict = {i: mentionsSum[i] for i in myKeys}
plt.plot(sorted_dict.keys(), sorted_dict.values(), color='blue')
plt.title('Correlation between rating and the number of reviews with the word "' + word + '"')
plt.xlabel('Rating')
plt.ylabel('Number of Reviews with the word "' + word + '"')
plt.show()

```

## 12.7 Correlation between words and rating of the review

```

import json
import matplotlib.pyplot as plt
from matplotlib.lines import Line2D
import pandas as pd
# Load data from JSON file with explicit encoding specification
with open('output.json', 'r', encoding='utf-8') as file:
    app_data_list = json.load(file)

keys = ['good', 'terrible', 'widget', 'barometer', 'moisture',
        'radar', 'respiratory', 'connection', 'ui', 'graphics']
my_dict = {key: {} for key in keys}

for app_data in app_data_list:
    # Extract reviews for the current app

    app_reviews = app_data["reviews"]

    for review in app_reviews:

        for word in my_dict.keys():
            if word in review.get("review", "").lower():
                rating = review['rating']
                my_dict[word][rating] = my_dict[word].get(rating,
0) + 1

# Plot line chart
for key in my_dict.keys():

```

```

myKeys = list(my_dict[key].keys())
myKeys.sort()
sorted_dict = {i: my_dict[key][i] for i in myKeys}
plt.plot(sorted_dict.keys(), sorted_dict.values(),
label=key, linewidth=3.5)
plt.legend()
plt.title('Correlation between words and rating of the review')
plt.xlabel('Rating')
plt.ylabel('Number of reviews with the word')
plt.show()

```

## 12.8 Word Map for each star rating

```

import json
from wordcloud import WordCloud
import matplotlib.pyplot as plt
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
import string
import nltk

# # Download NLTK resources
# nltk.download('punkt')
# nltk.download('stopwords')

# Function to preprocess text, keep only nouns, and filter
specific words
def preprocess_text(text, filtered_words):
    # Tokenize the text
    tokens = word_tokenize(text)

    # Remove stopwords and punctuation
    stop_words = set(stopwords.words('english'))
    tokens = [word.lower() for word in tokens if word.isalpha()
and word.lower() not in stop_words and word not in
string.punctuation]

    # POS tagging and filtering for nouns
    tagged_words = nltk.pos_tag(tokens)
    nouns = [word for word, pos in tagged_words if
pos.startswith('N')]

```

```

# Filter out specific words
filtered_nouns = [noun for noun in nouns if noun.lower() not
in filtered_words]

return ' '.join(filtered_nouns)

# Load data from JSON file with explicit encoding specification
with open('output.json', 'r', encoding='utf-8') as file:
    app_data_list = json.load(file)

dict = {1: "", 2: "", 3: "", 4: "", 5: ""}

# List of words to filter out
filtered_words = ['app', 'feature', 'data', 'work', 'phone', 'apps',
'weather', 'location', 'time', 'day', 'year',
'today', 'times', 'nothing', 'forecast', 'information', 'use', 'great',
'love', 'accurate',
,'thank']

# Iterate through each app entry
for app_data in app_data_list:

    # Extract reviews for the current app
    app_reviews = app_data["reviews"] # app_data is already a
list of reviews

    # Combine all review texts into a single string
    for review in app_reviews:
        rating = review["rating"]
        dict[rating] += ' ' + review.get("review", "")

for key in dict:
    # Preprocess the reviews, keep only nouns, and filter
specific words
    preprocessed_reviews = preprocess_text(dict[key],
filtered_words)
    # Generate word cloud
    wordcloud = WordCloud(width=800, height=400,
background_color='white').generate(preprocessed_reviews)

    # Plot the word cloud
    plt.figure(figsize=(12, 8))
    plt.imshow(wordcloud, interpolation='bilinear')

```

```
plt.title(f'Word Cloud for {key} star reviews') # Assuming  
the app title is in the first review  
plt.axis('off')  
plt.show()
```

## 12.9 Notable reviews

★★★★★ April 1, 2020

Finding the right weather app is shockingly hard. This one is clean, simple, and easy to read with some customization. There are a few things I would like to see added: View percent chance of precipitation on a graph instead of reading the summary. Reorder the different sections by choice. Ability to see more than 6 days on the future temperature chart.

17 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ October 28, 2022

Great app, horrible support. I've emailed the developers about annoying "small craft advisory" notifications as I drive through different cities on the highway, but got no reply. They are part of "severe" weather alerts and cannot be disabled individually. I get them daily. I want severe alerts, but not pointless ones. Edit: after many tries, support got back and fixed the issue. Small craft advisories now appear in the app, but a notification is not sent.

54 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ January 22, 2022

BETTER & Fine . A modern version of classic weather applications. I like details revealed by holding Mobil horizontal.

14 people found this review helpful

Did you find this helpful?

Yes

No

Direct Cursus Computer Systems Trading LLC

February 17, 2022

Thank you for your feedback about our work! We hope that you will continue to be pleased with the convenience and accuracy of the application.

★★★★★ June 27, 2022

Beautiful interface, probably my favorite of all the weather apps. But, and this is a big but, the weather always seems to be off... Like it doesn't update frequently enough. It actually says high chance of right now, and I look outside and it's sunny. The Weather Channel says the rain is coming this afternoon. I always find myself having to check the Weather Channel to validate this data.

19 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ July 8, 2022

I love the app, its design and its features. I have for many years. Unfortunately, lately it has been consistently giving inaccurate information for my home location including current and predicted temp and precipitation. I thought powered by NOAA itself would be the gold standard. I think NOAA is, especially since it's gotten two new supercomputers. Now if they'd do something about their app I'd be thrilled.

20 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ October 28, 2022

Great app, horrible support. I've emailed the developers about annoying "small craft advisory" notifications as I drive through different cities on the highway, but got no reply. They are part of

★★★★★ April 3, 2023

I am using web version via Yandex browser, which shows more detail forecasts and have professional gui design. This stand alone app is poor with details, there is no AQI, no wind / humidity / pressure / visibility reading clearly seen because graphical design is terrible, especially after recent graphical changes. Why would anyone install stand alone app then? Web version is way better.

15 people found this review helpful

Did you find this helpful?

Yes

No

Direct Cursus Computer Systems Trading LLC

April 4, 2023

Thank you for the feedback! We will definitely save and discuss with the team your wishes about the design and weather indicators. You can also switch to the old design in the app settings.

★★★★★ July 8, 2023

No mph as a option and developer stated that it will never be a option in the app. I am perplexed why you would cut a large segment of users out just because you will not put a mph option into your app

2 people found this review helpful

Did you find this helpful?

Yes

No

Direct Cursus Computer Systems Trading LLC

July 9, 2023

Thank you for your feedback and request. So far, there is no such possibility in our service. But its appearance in the future is not excluded. We always discuss our users' ideas while developing new versions of the app and try to realise them whenever possible.

★★★★★ July 14, 2023

Just recently started using this app, but so far so good. Very easy to use & customize. Seems to be as accurate as the more popular & more highly rated apps (ran this & my previous app side by side for a week). 'Persistent Notification' in the Status Bar actually loads & updates on its own without having to open the app & continuously displays the CURRENT temp. & Not some silly icon.

2 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ August 17, 2022

Great app! There are a couple minor bugs in the notifications where the wind units are always in m/s regardless of the settings. Also, any plans for adding air quality index?

5 people found this review helpful

Did you find this helpful?

Yes

No

Direct Cursus Computer Systems Trading LLC

August 18, 2022

Thank you for the feedback, Adrià! We keep improving our service. As for your wish about the air quality index, we will definitely take it into account.

★★★★★ June 25, 2023

I've been using for 5 years. I love the hourly weather accuracy & ability to save multiple locations, even international. The UI takes a bit

★★★★★ June 27, 2023

First of all no Ads even when its free. Secondly it's very accurate. I was using Google weather but I found it inaccurate many times. This app has just the right amount of information and you won't be overwhelmed by information overload like other apps. The small snapshot of radar image on the side of widget when it's raining is very helpful. Finally stopped my search for a good weather app.

21 people found this review helpful

Did you find this helpful?

Yes

No

Direct Cursus Computer Systems Trading LLC

June 28, 2023

Thank you so much for your inspiring feedback and evaluation of our app! We will try to make the app and widgets even better. It really means a lot to us.

[See all reviews](#)



David Harding

⋮

★★★★★ 8 October 2022

Appearance and ease of use are superb. Graphics are clear, information is well laid out and it is easy to save 'favourite' locations. What's not to like? Accuracy!! I have honestly sat looking out at pouring rain on a number of occasions when I'm told there is 0% chance of precipitation! Temperature accuracy is + or - 3°. Maybe more accurate in the continental USA, but for Europe/UK, give it a miss. Uninstalled.

27 people found this review helpful

Did you find this helpful?

Yes

No



David Harding

⋮

★★★★★ 8 October 2022

Appearance and ease of use are superb. Graphics are clear, information is well laid out and it is easy to save 'favourite' locations. What's not to like? Accuracy!! I have honestly sat looking out at pouring rain on a number of occasions when I'm told there is 0% chance of precipitation! Temperature accuracy is + or - 3°. Maybe more accurate in the continental USA, but for Europe/UK, give it a miss. Uninstalled.

27 people found this review helpful

Did you find this helpful?

Yes

No



Mega\_Pixlzz1215

⋮

★★★★★ 31 May 2021

The layout/structure is nice, accurate forecast, and has nice sounds effects, but it lacks some important/necessary information about the weather (like Humidity). I also have a suggestion to add an option that allows the text on the weather widget to be a different color (like, black)? Since my wallpaper is white, I can't see it clearly and it's kind of frustrating. Please fix/look onto this. Great weather app, anyway.

461 people found this review helpful

Did you find this helpful?

Yes

No

[See all reviews](#)



Kavita Sonar

⋮

★★★★★ September 13, 2022

poor detection...its heavy rain fall

4 people found this review helpful

Did you find this helpful?

Yes

No

Weather Forecast Technologies

June 5, 2023

We appreciate your feedback and apologise for any frustration or inconvenience. Our team is dedicated to providing a seamless and enjoyable app experience for all our users and we are working on improvements. If you have any further comments or ideas, please don't hesitate to let us know, share them via email: support@rainbow.ai.

0

Olaf

⋮

★★★★★ January 2, 2023

The really first and only one piece of software, predicting rain ahead. Sometimes only a few minutes. Still a huge wish left: acoustic alarms. Can't get anything like this to work

32 people found this review helpful

Did you find this helpful?

Yes

No

Weather Forecast Technologies

May 30, 2023

Thank you for sharing your experience with us. Your feedback helps us in our mission to provide an exceptional app experience. Stay with us to get even more features!



Gaurav Jahagirdar

⋮

★★★★★ April 26, 2023

needs always on location service even if app is not in use

19 people found this review helpful

Did you find this helpful?

Yes

No

Weather Forecast Technologies

May 30, 2023

We appreciate you taking the time to share your experience. We're dedicated to making our app even better, and your feedback motivates us to improve it and continue working hard. If you'd like to share more detailed feedback contact us via email: support@rainbow.ai



Chris Clark

⋮

★★★★★ August 27, 2023

Add a 5 or 7 day forecast and I'll happily use it. It looks good. Right now, it's too limited for me.

1 person found this review helpful

Did you find this helpful?

Yes

No

be shown with a white cloud or a dark cloud, or even a dark cloud with one drop of rain. What sense am I supposed to make of that?

Hit and miss

5y ago



Geekocrat

There isn't a perfect weather app but this is one of the better general ones. The graphics are clear and very user friendly. It gives basic data on sunset/sunrise, temperature, humidity, rain prediction and wind direction. However, it's local weather forecasting can be a bit hit and miss. This is where the addition of weather radar would have been invaluable. As a bird watcher I have to supplement the app with two others: Home and Dry and Windy. The latter app isn't free but has weather radar. Very useful for predicting local rain/thunderstorms and surprisingly accurate. The Windy app gives more accurate wind shifts and wind speeds for the UK and Europe. Very useful during Spring and Autumn bird migration. I suspect this app would also be a boon for sailors and surfers.

12:48

4G

Back

## Ratings & Reviews

so good (can't knock it there), but from an accurate forecasting perspective, it is consistently inaccurate in my area.

As a keen motorcyclist of a custom bike that is a nightmare to clean after a complete [mor](#)

Essential service - well delivered. 1y ag

★★★★★

4 seasons fa

The site is excellent with the ability to look at specific locations, and all the detail, all of which we use daily - wherever we are. The 'feels like' facility is especially useful. But it would also be really helpful to have a click button which gives you the National forecast over the next say 24 hours. Many of us travel from one part of the country to another, either for business or leisure, and seeing the overall picture is immensely useful. We could of course go into the whole national forecast via other routes online but a one click button to take us there instantly

12:48

5G

Back

## Ratings & Reviews

You need to add something that enables you to select a default location.



App review, not weather!

6y ago

★★★★★

seedsforveggies

We are asked to review the app - not the weather. As previous reviewers have remarked the weather here is nearly impossible to accurately forecast living on an island, but actually these guys do get it very very close most of the time. Don't blame the app or the weather forecasters, its the weather that changes!

The App - I like it. It's very clear, you can swipe across to see the whole day broken down, the symbols are clear and easy to read. One point I have only just found is that when you search other areas, other than your own, it saves them so if you swipe up and down the screen you can easily go to and from previous area searches - a very useful

 Back

## Ratings & Reviews

Latest release is very slow to produce forecast for the location you are at. Spinning wheel appears for ages and sometimes it gives up.

Moving the search function away from the menu is really annoying. You look in the menu to see if you have a location save [more](#)

Widgets don't work but app is fine 2y ago

 ★★★☆☆ Someone else got my nickname!

I generally like the design of the app and the forecast seems generally reliable. The apple weather app doesn't vary too much in terms of the results. The symbols are clear for me as well.

So why only 3 stars? The new iOS 14 widgets don't work, which is super annoying as I'd like to get the immediate forecast on my home screen. The widget just says "Your forecast is not available right now" and never updates. Restarting my phone, or uninstalling then reinstalling the app makes no difference. It appears to be some sort of bug because the app and the old style widget update fine.

I must have the Edward Hyde versi... 1y ago

★★★★★ April 3, 2020

I like the design, especially the super dark theme. I think the "detail" section would be much more useful with the wind speed/direction instead of visibility, UV level, or pressure. Or make it customizable along with the order of the main sections. Having to scroll nearly all the way to the bottom just to find out the wind is crazy.

8 people found this review helpful

Did you find this helpful?

Yes

No



A Google user

⋮

★★★★★ January 22, 2019

this review would be 5 stars however there are a few important things missing. The widget background transparency is not adjustable so if you have a light or busy wallpaper it is impossible to see. This may be fixed by simply added the ability to change font colors, but it is also not available. That being said it's still the best weather app I've used.

7 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ August 1, 2020

I purchased this app back in 2017 and it's been my go-to ever since. The information display is consistent, I appreciate being able to choose what theme to use, although I'd appreciate it if it would follow the default phone theme (feature request!). I really like that I can change between different data sources, especially since there can be differences between them regarding current and future weather conditions. The widgets I've tried work well and can be customized, although you have to make your choices when creating the widget to begin with; not a big deal to me. Changing data sources will affect how the widget displays. Overall, I really like Today Weather. I've tried others over the past couple of years, but I always come back to this one. Thank you!

41 people found this review helpful

Did you find this helpful?

Yes

No

★★★★★ August 1, 2020

The first thing I noticed is that the app runs in full screen mode for some reason, covering my notification bar while it's open, making it incredibly awkward to use. I was always planning on paying to get rid of ads, but I can't even try out the app for 5 minutes without being bombarded by HUGE fullscreen ads that don't have an option to close them. There might be a good app hidden behind all this junk, but I don't really want to pay just to find out. Covering my navigation bar is NEVER okay.

99 people found this review helpful

Did you find this helpful?

Yes

No



Joe DeRose

⋮

★★★★★ July 10, 2020

I love the app. My only "complaint" is really a feature request. As a bicycle commuter, I need to be especially attentive to rain predictions and (more in fall and winter) the possibility of falling temperatures during the day, so I can dress appropriately. Your "Chance of Precipitation" chart is great for the rain issue. But your hourly temperatures (since they're just a series of numbers) make it easy to miss falling temperatures that might affect my afternoon commute. It would help me (and, I suspect, a lot of others) if you could create a line graph showing temperature for the next 24 hours as well. Ideally (for me) this would be superimposed on the "Chance of Precipitation" chart – but, of course, it could be