

# Capstone Project

by Jian Zhou



# Weather NZ

[weather-nz.vercel.app](https://weather-nz.vercel.app)

# Objectives

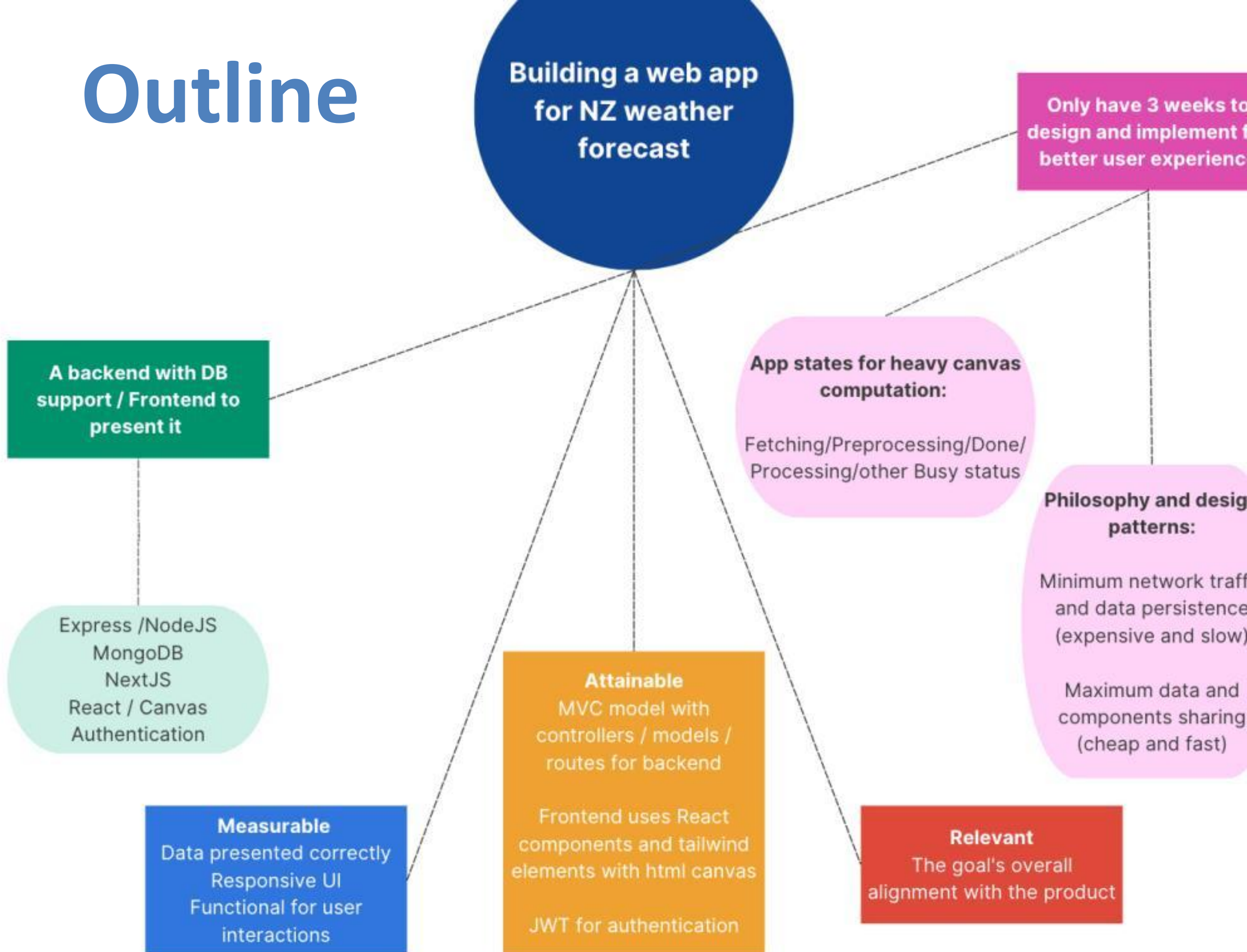
- Express / Node JS backend to provide data CRUD operations.
- Next.js frontend with ReactJS / typescript to cater a full featured UI.
- Authentication for admin users to manage backend data.

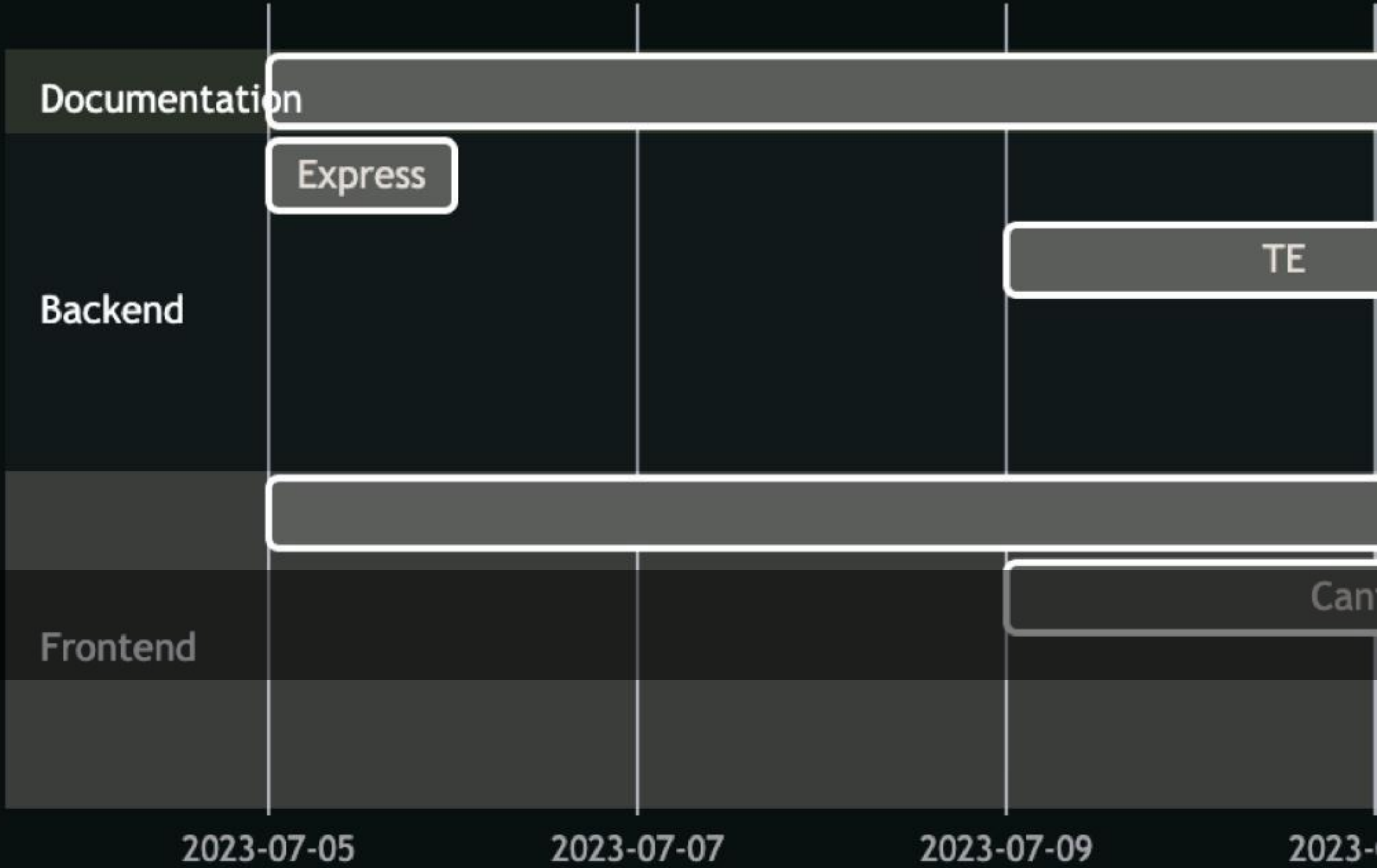


# Technologies / Tools

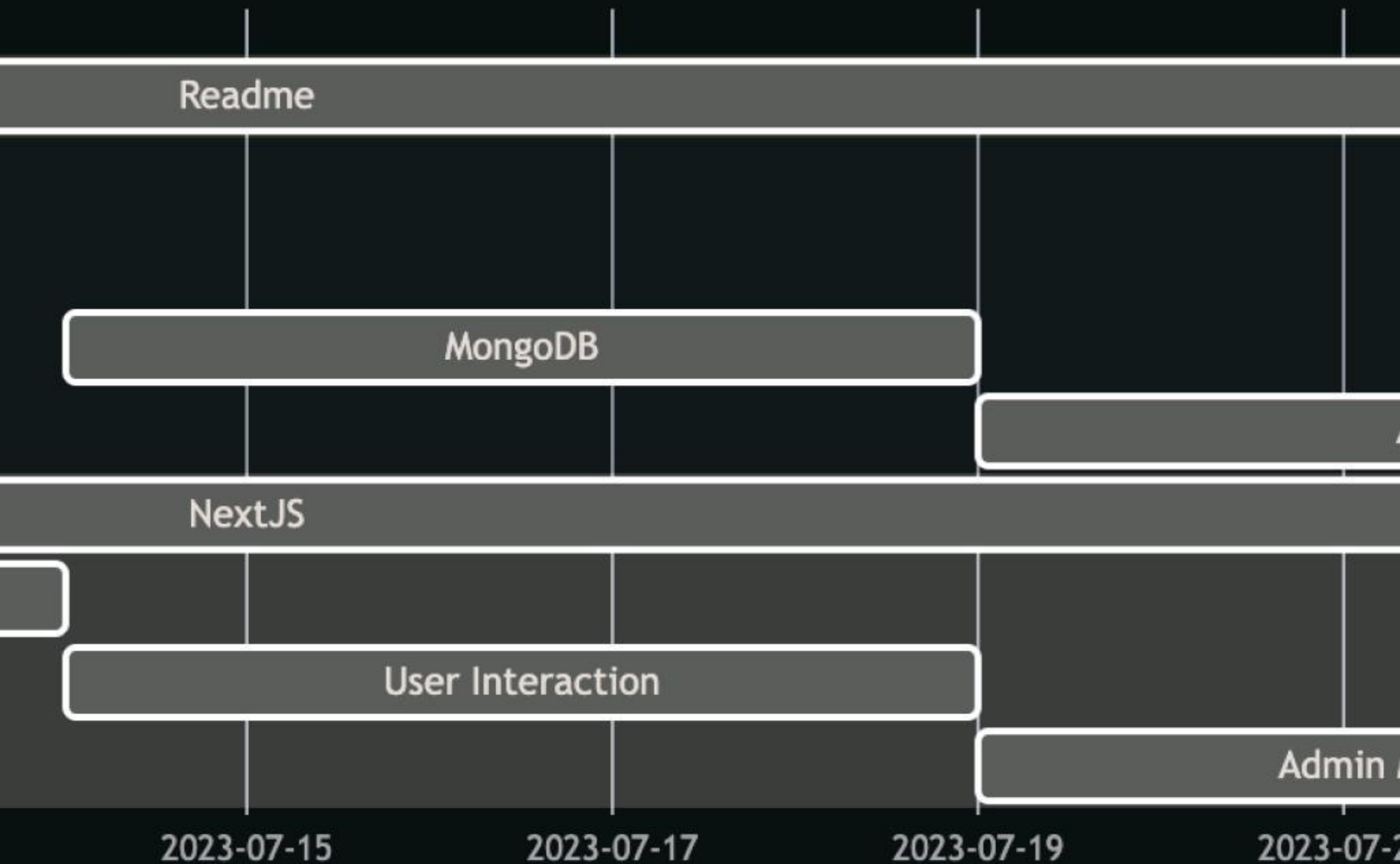
- MongoDB / Cloud
- Next JS / React / Typescript
- Tailwind CSS / Elements
- GitHub
- HTML Canvas
- Express / Node JS

# Outline





# Phases of The Project





# The Backend

- Utilize the weather API and build a backend to cache data for it
- Improve the functionality to facilitate weather checking for New Zealand by incorporating with geographic data.
- Use online data from the United Nations and parse it.
- Adding areas, distance and forced fresh queries for NZ users



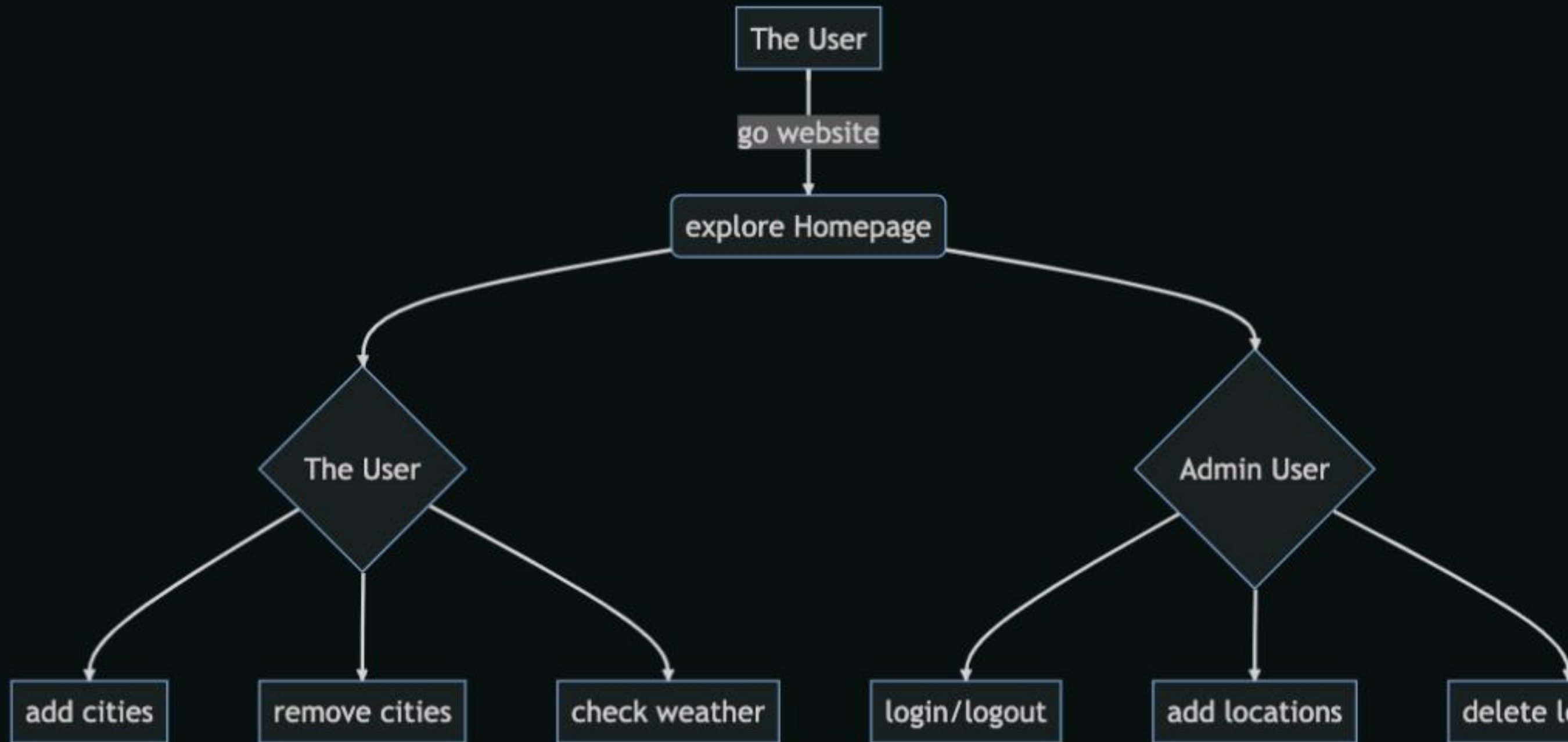


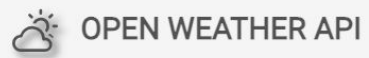
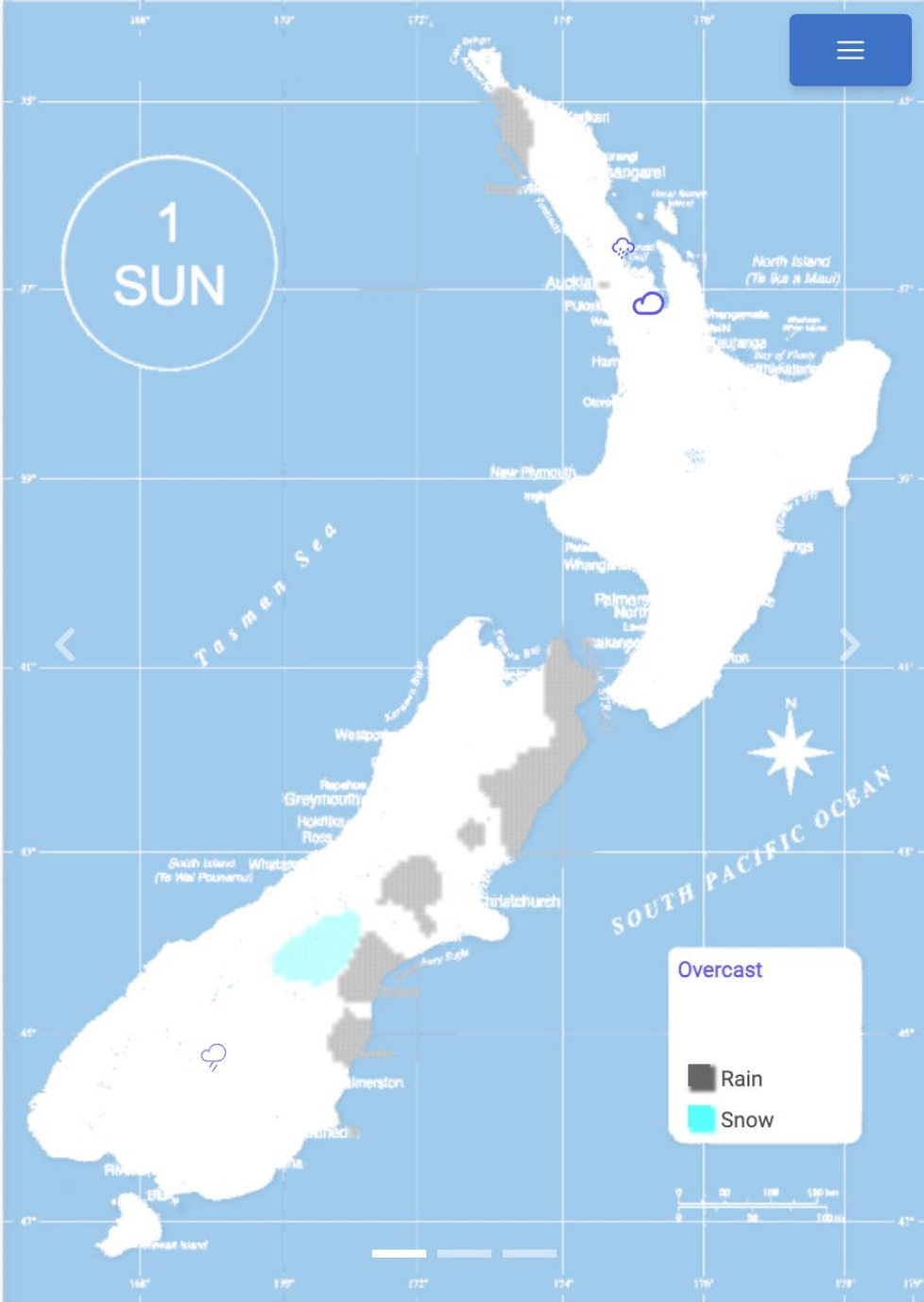


Frontend

Responsive design

# Workflow





OPEN WEATHER API

Free access for non-commercial use.

CONTACT

wood.azure@gmail.com



+ 64 212 355 546



Weather NZ



Weather 7 Days



My Cities



Clear Cache



Admin



About



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Search

welli

WellingtonWGN

Mount WellingtonAUK

Wellsford

Mount Wellington

Queenstown

Wellington

WGNSet HomeRemove



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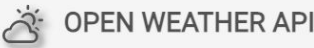
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|            |                      |     |      |      |     |
|------------|----------------------|-----|------|------|-----|
| 2023-07-22 | Mainly clear         |     |      |      | SAT |
| °C         | km/h                 | mm  | cm   |      |     |
| 4          | 10                   | 0   | 0    | 2.25 |     |
| 2023-07-23 | Overcast             |     |      |      | SUN |
| °C         | km/h                 | mm  | cm   |      |     |
| 5          | 6.6                  | 0   | 0    | 1.8  |     |
| 2023-07-24 | Overcast             |     |      |      | MON |
| °C         | km/h                 | mm  | cm   |      |     |
| 8          | 5.3                  | 0   | 0    | 0.9  |     |
| 2023-07-25 | Rain showers: Slight |     |      |      | TUE |
| °C         | km/h                 | mm  | cm   |      |     |
| 6          | 13                   | 0.9 | 0    | 1.75 |     |
| 2023-07-26 | Snow showers slight  |     |      |      | WED |
| °C         | km/h                 | mm  | cm   |      |     |
| 5          | 13.6                 | 0.3 | 0.21 | 1.95 |     |
| 2023-07-27 | Rain: Slight         |     |      |      | THU |
| °C         | km/h                 | mm  | cm   |      |     |
| 5          | 7.1                  | 0   | 0    | 0.45 |     |
| 2023-07-28 | Fog                  |     |      |      | FRI |
| °C         | km/h                 | mm  | cm   |      |     |
| 3          | 4.1                  | 0   | 0    | 2.5  |     |



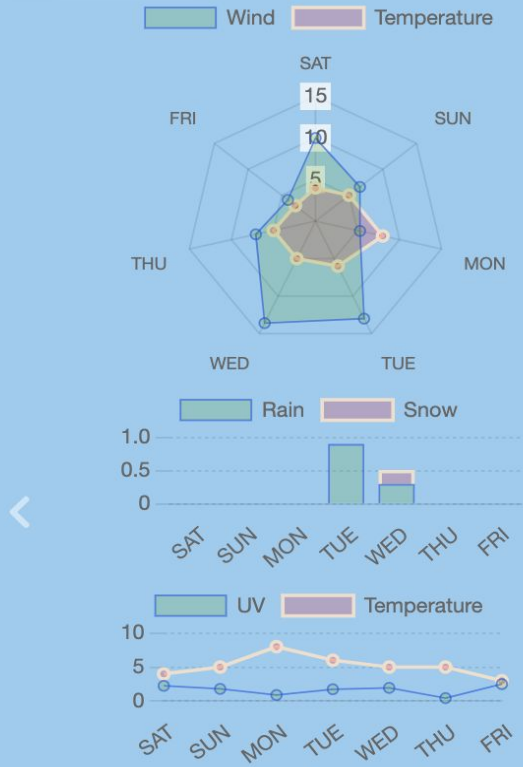
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zhouj

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Home > Locations

Select Region  
AUK

Add a new location

Name

Area  
AUK

Coordinates

SUBMIT

Mangere

Mansion House

Manukau City

Matakana

Matiatia Bay

Metroport/Auckland

Moerewa

Mount Wellington

New Lynn

Newton

North Shore City

Northcote

Onehunga (Manukau Harbour)

Orakei

Oratia

Orewa

Otahuhu

Pakatoa Island

Pakuranga

Panmure

Papakura

Parnell

Penrose

Point Chevalier

Pokeno

Ponsonby

Port Fitzroy

Pukekohe

Saint Heliers

Silverdale

Surfdale

Takanini

Takapuna

Tamaki

Titirangi

Torbay

Tryphena

Waiheke Island

Waitakere

Waiuku

Warkworth

Western Springs

Weymouth

Whangaparaoa

Whangaparapara

Whenuapai

Home > Locations

Select Region  
GIS

Add


Gisborne

GIS 01

GIS 02

Edit a location

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{"result":200,"data":
{"_id":"64b7dc32c05f7fc3dc40eaa5","name":"test","area":"
GIS","coordinates":"nonsense","_v":0}}
```


 Name  
test


Area  
GIS

Coordinates  
nonsense

SUBMIT

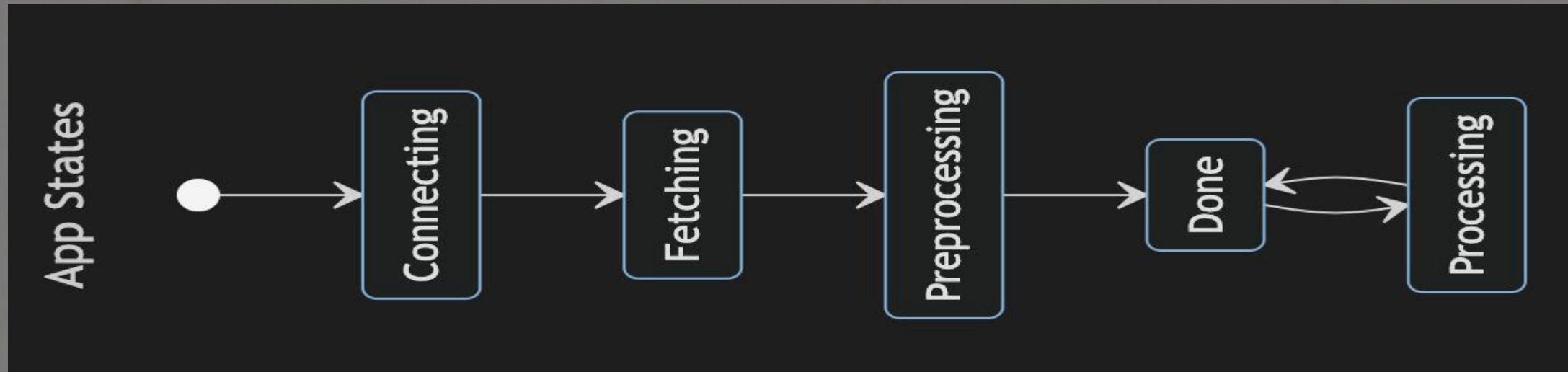
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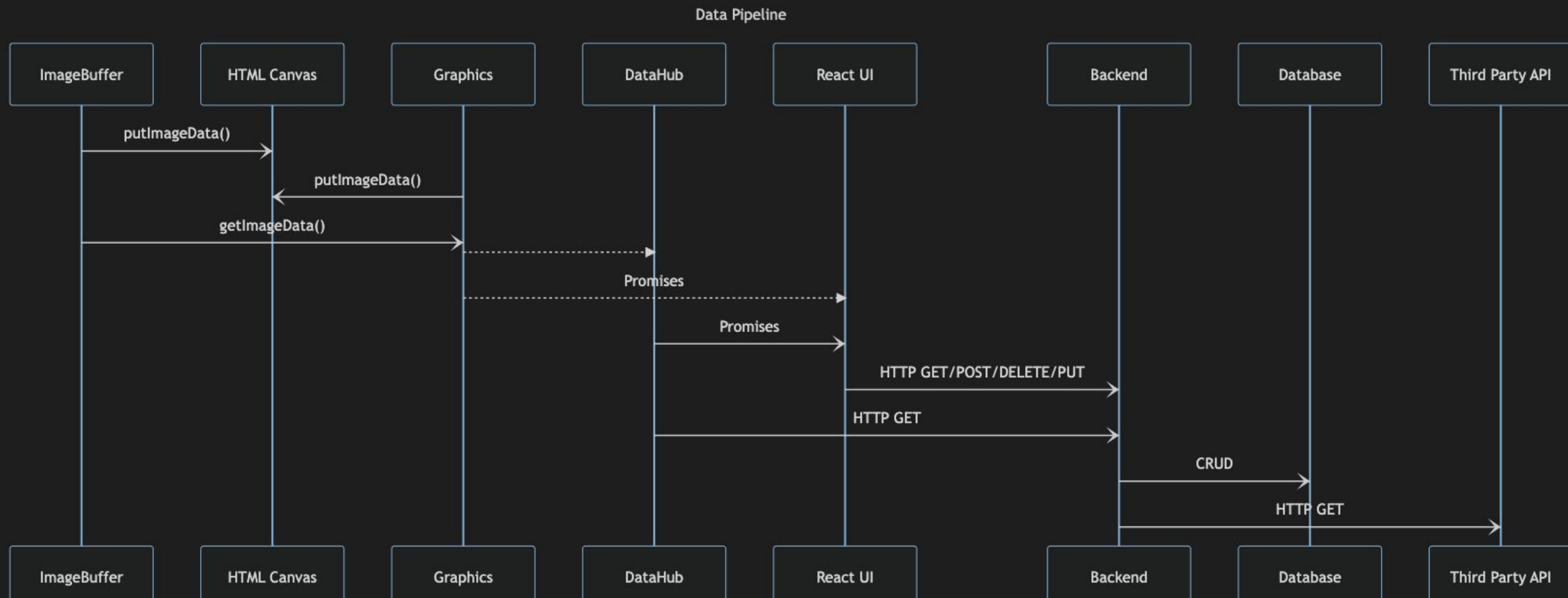
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- Frontend State Management



- Backend/Frontend Data Pipeline





# Summary

- Stakeholders
- Frontend State Management
- Conceptual Ideas
- Design Patterns
- DevOps Strategic Alignment



# Thank you!

Please visit <https://weather-nz.vercel.app/>