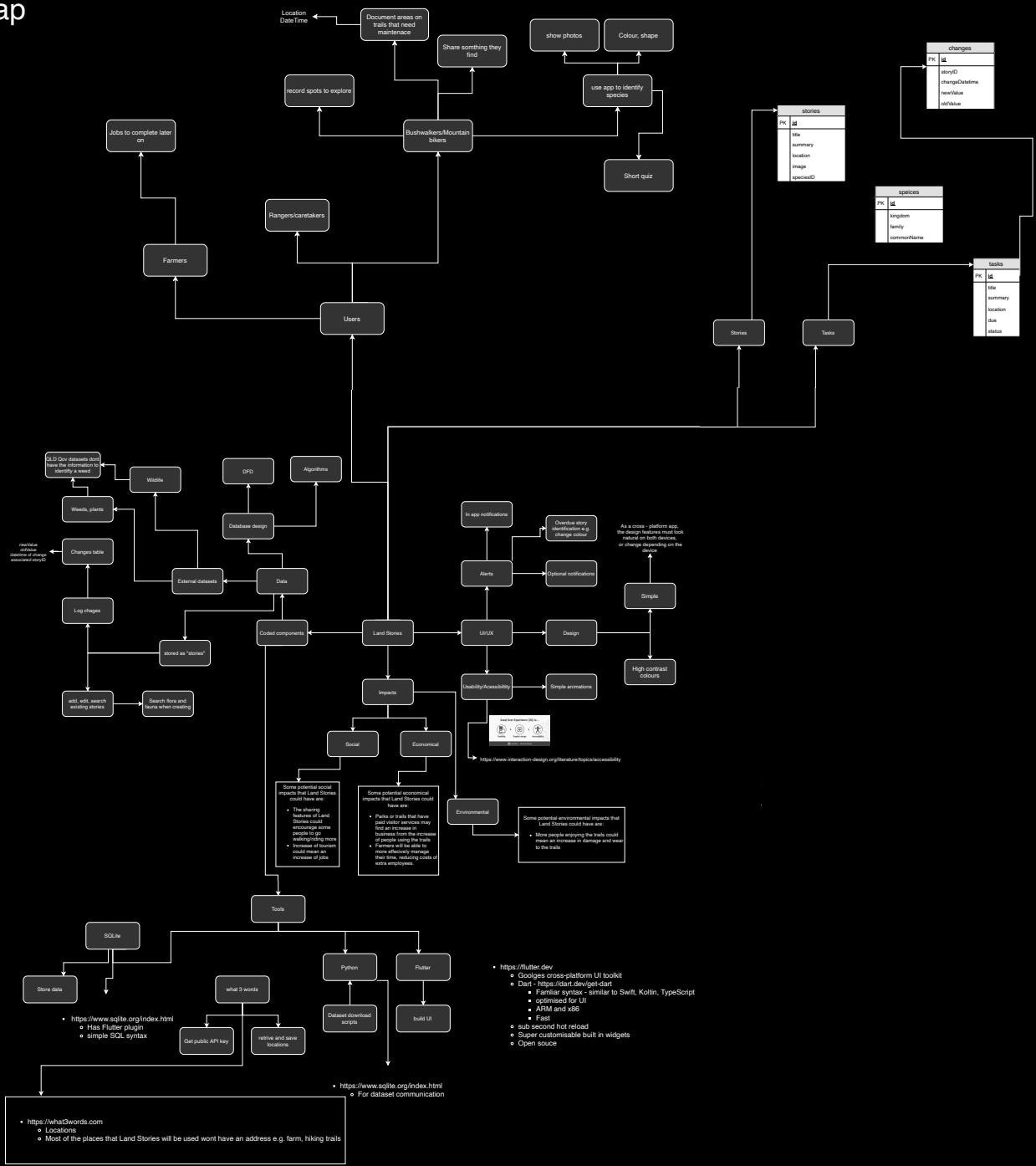
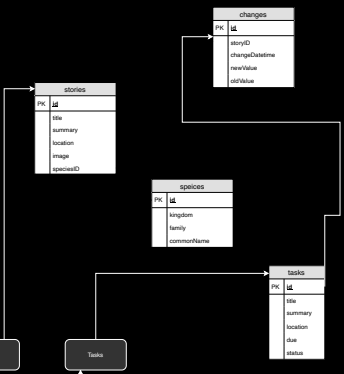


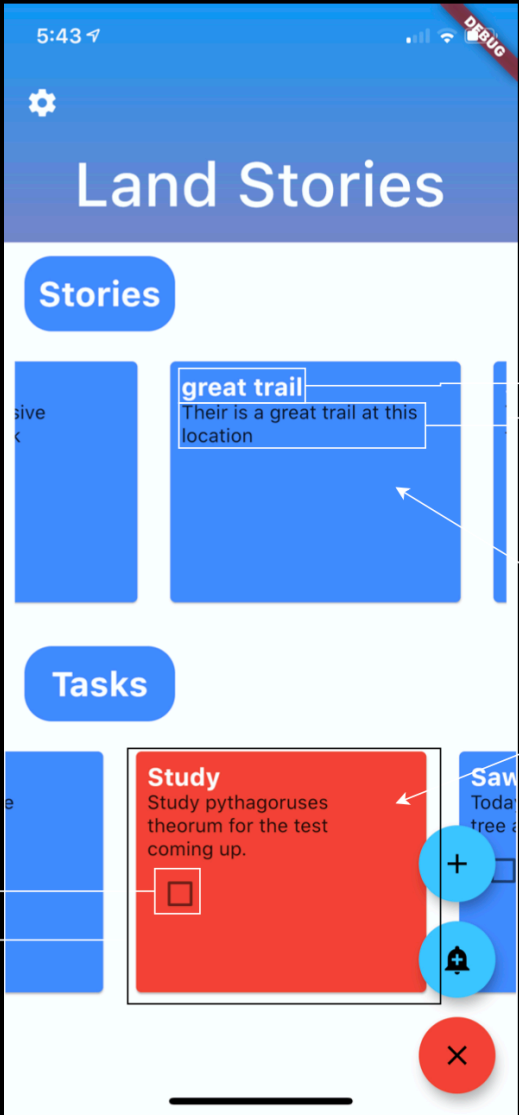
Mind Map



Database design



Data connection to UI



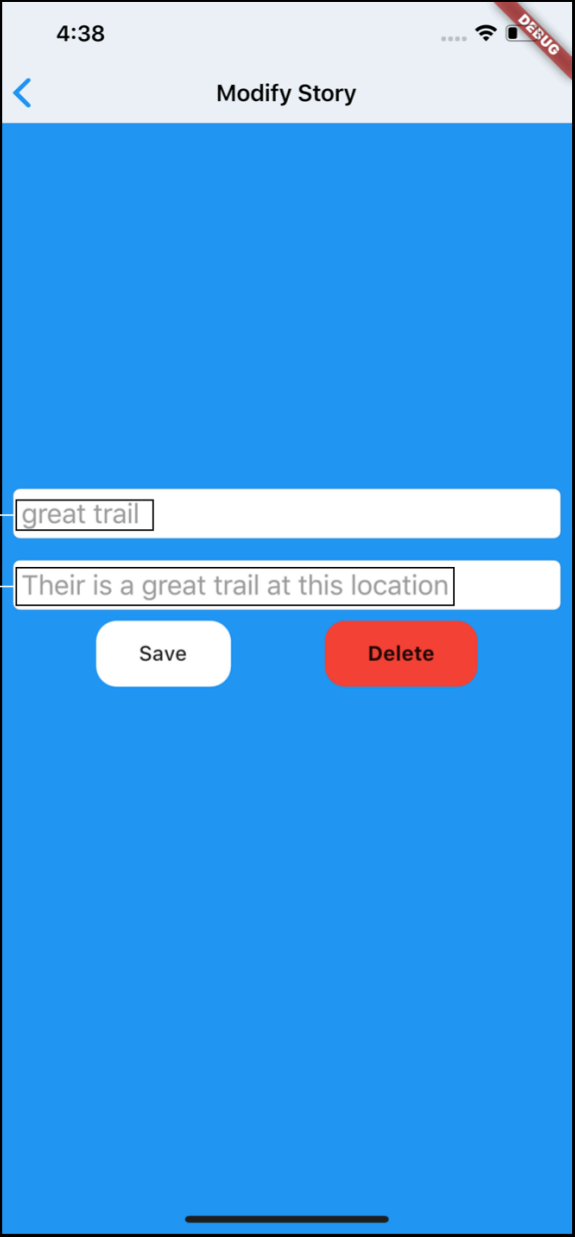
This is the value from the 'title' column

This is the value from the 'summary column'

This placeholder text is the summary of the story

This is the data from the Stories and Tasks tables

Modify page



Users

Fredrica Farmer

A land owner, she will use the app to identify, store and retrieve the location of weeds and pests on her property as part of her weed and pest management plan.

Typical Scenario: Wandering the back paddock toward dusk, Fredrica notices a plant that looks like Fireweed. She uses the app to identify the plant, mark its location and take photos to add to a weed management plan. She will later use the app to help direct her back to the plant's location, for monitoring and eradication.

Belinda and Bob Bushwalker

As outdoor enthusiasts, Belinda and Bob use the app to identify, store data, and locate wildlife and plants they see during their adventures. They also use the app to indicate the location and other details of any rubbish they encounter on walks through State and National parks.

Typical Scenario: On a walk to the top of Mount Barney, Belinda and Bob use the app to help identify interesting flora and fauna they see. On their return, they notice a pile of rusted 20litre steel drums. They use the app to record the location, and take photos to assist Park and Forest officers with their park maintenance plans.

Harriet Horserider

As a stock woman, Harriet uses the app to store the locations of pests, and various jobs that need her attention she sees while riding and monitoring her cattle.

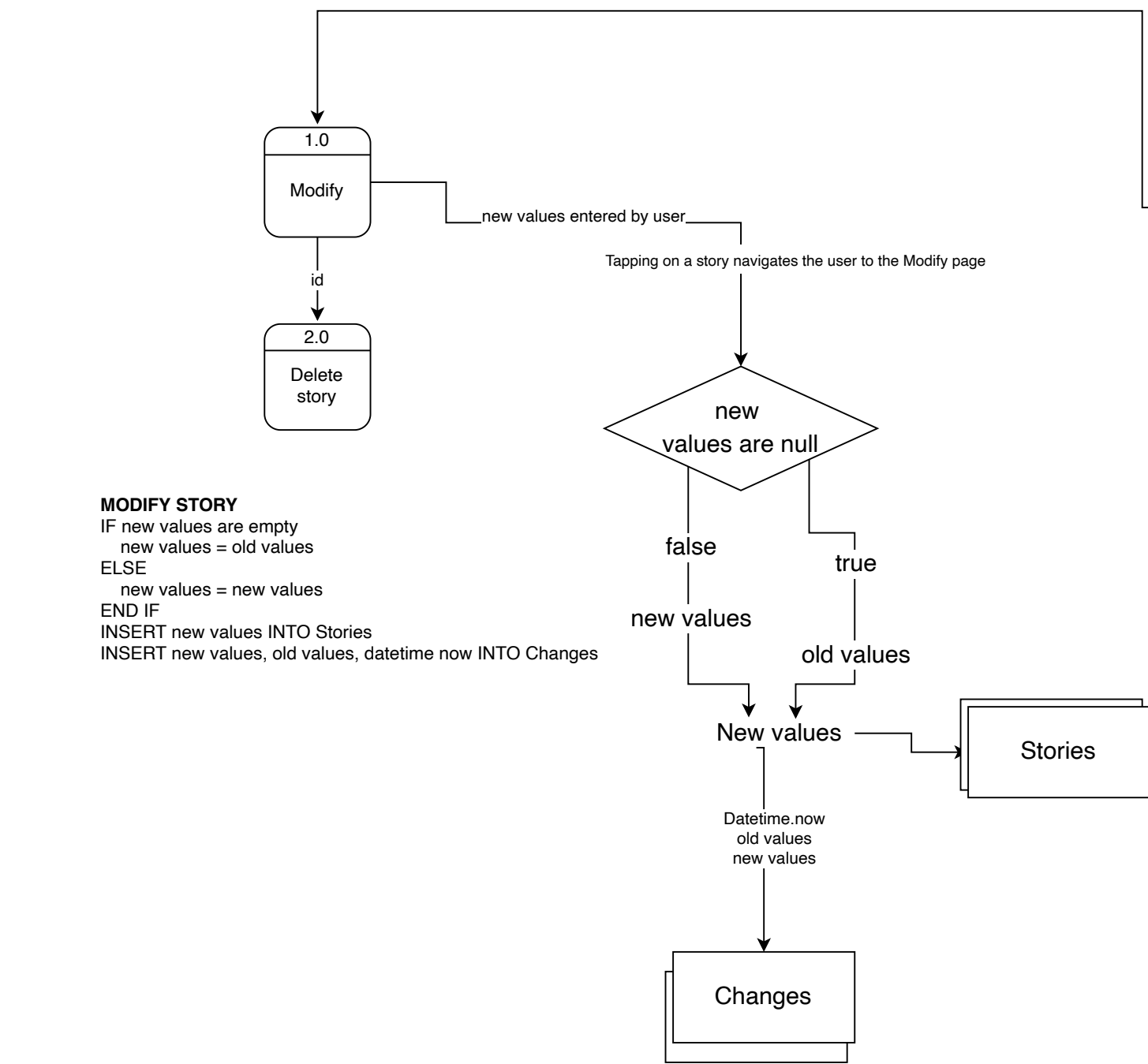
Typical Scenario: While mustering, Harriet sees evidence of wild boars, noticeably where the boars have busted through her fences. She uses the app to locate and record the damage to her fence. Once mustering is complete, she will use the app to return to fix the fence, and to inform the local hunter of the likely location of the pigs.

Robin Ryder

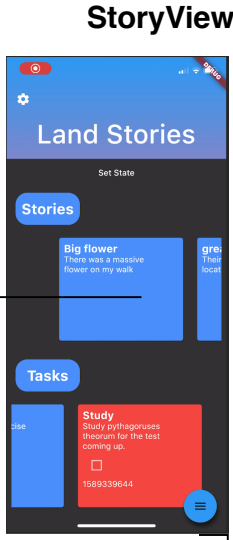
A mountain biker, and trail maintainer, Robin uses the app to record details about sections of the trails she rides that need attention or repairs.

Typical Scenario: While riding mountain bike trails on Mt. Joyce, Robin records the location and condition of damaged sections of the trail. The information recorded will be passed on to the local trail-riders alliance to be added to their to do list.

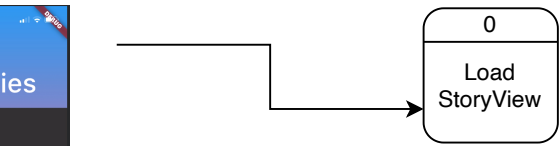
Flowcharts and Pseudo code



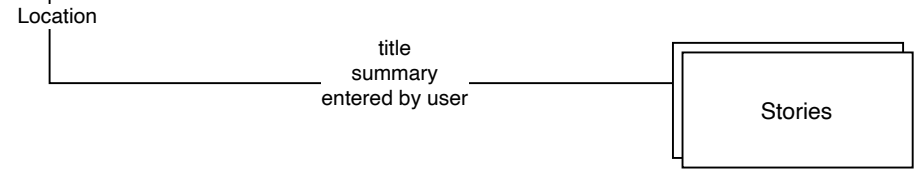
MODIFY STORY
IF new values are empty
 new values = old values
ELSE
 new values = new values
END IF
INSERT new values INTO Stories
INSERT new values, old values, datetime now INTO Changes



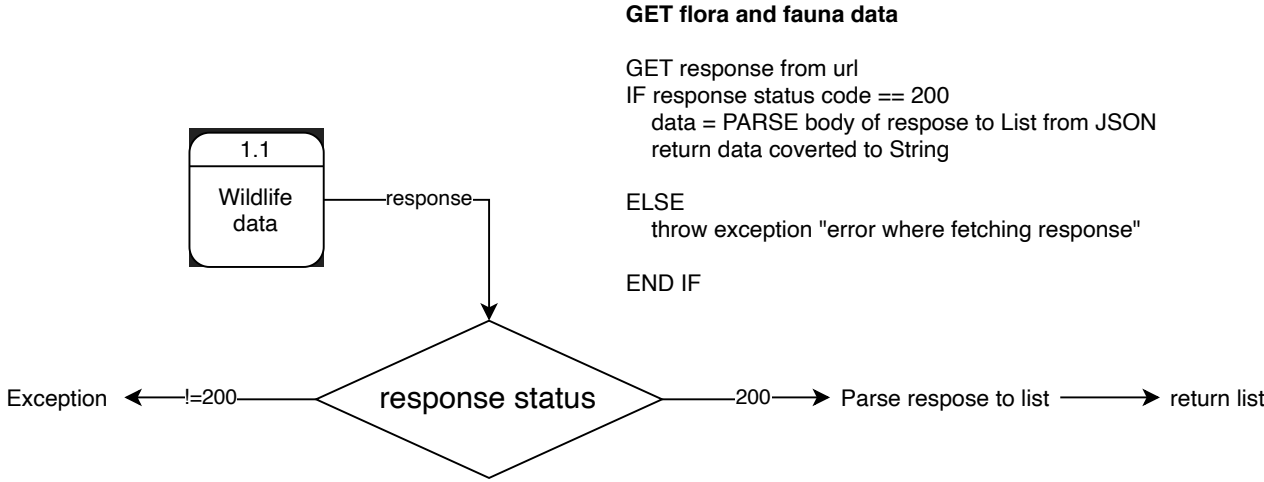
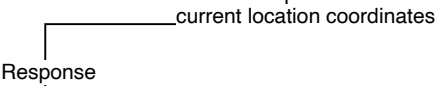
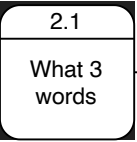
StoryView



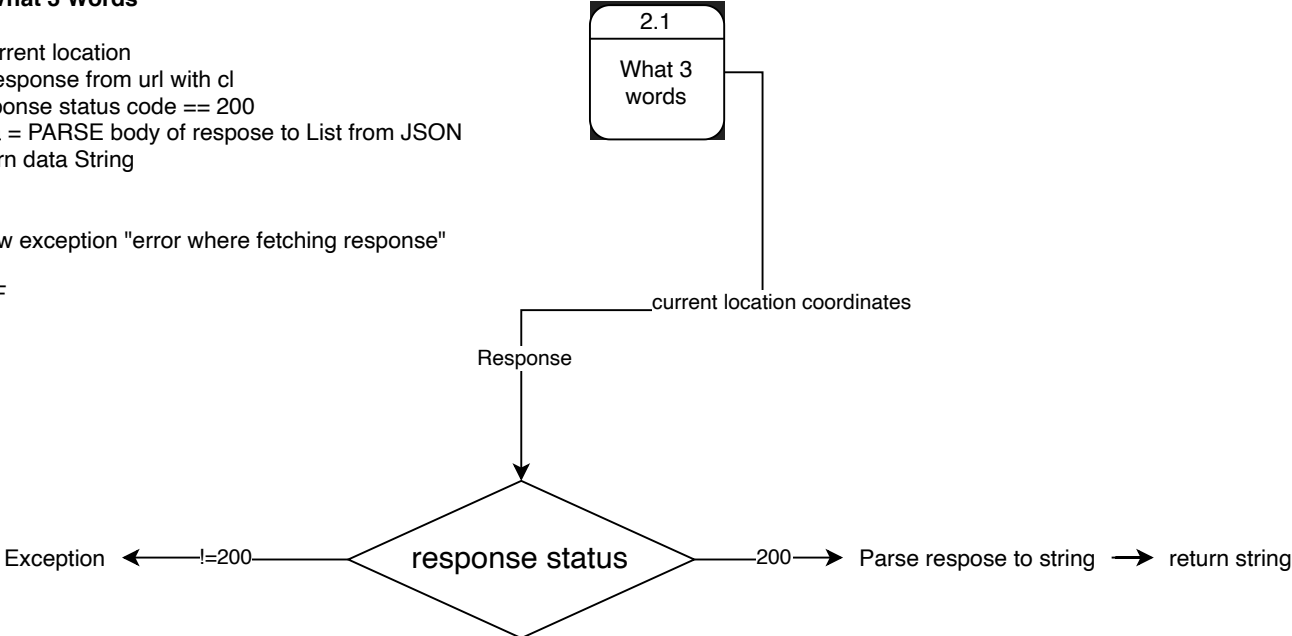
LOAD STORY VIEW
FOR EACH Task in Tasks
 IF task due datetime < current Datetime
 IF task is uncomplete
 task colour = red
 ELSE
 task colour = blue
 END IF
ELSE
 task color = blue
END IF
END FOR



GET What 3 Words
cl = current location
GET response from url with cl
IF response status code == 200
 data = PARSE body of response to List from JSON
 return data String
ELSE
 throw exception "error where fetching response"
END IF



GET flora and fauna data
GET response from url
IF response status code == 200
 data = PARSE body of response to List from JSON
 return data coverted to String
ELSE
 throw exception "error where fetching response"
END IF



External dataset

In the future, the app will have some flora and fauna identification features.
To do this, the app will need some data about the different species, such as their common names, family names, and scientific names.
This data can be accesed from the QLD wildlife API.

DATASET DOCS

<https://www.data.qld.gov.au/dataset/qld-wildlife-data-api>

An example of the data:

```
{ "Kingdom": [ { "KingdomName": "Animalia", "KingdomCommonName": "animals", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=animals" },
  { "KingdomName": "Chromista", "KingdomCommonName": "chromists", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=chromists" },
  { "KingdomName": "Eubacteria", "KingdomCommonName": "bacteria", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=bacteria" },
    { "KingdomName": "Fungi", "KingdomCommonName": "fungi", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=fungi" },
    { "KingdomName": "Plantae", "KingdomCommonName": "plants", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=plants" },
    { "KingdomName": "Protista", "KingdomCommonName": "protists", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=protists" },
  { "KingdomName": "Protozoa", "KingdomCommonName": "protozoans", "ClassNamesUrl": "http:\\\\apps.des.qld.gov.au\\species\\/?op=getclassnames&kingdom=protozoans" } ] }
```

The final fuctional UI is very similar to the proposed design mockups. A few variations in the design are:

- No image implementation
- No species identification

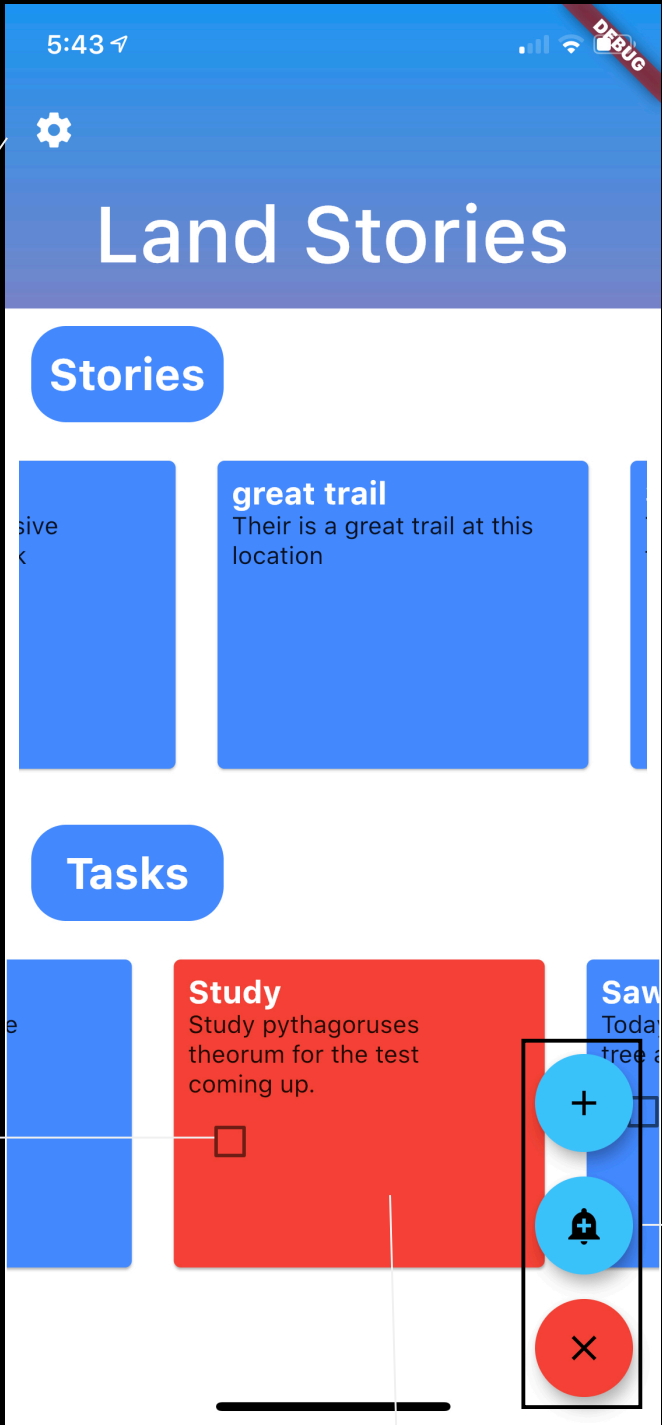
These features will be implemented in future updates to the app, but due to time constraints, they will not be in the first version.

Overall, the apps design has highly visible contrasting colors, large buttons, and bold text. This makes the app very good for users with impaired vison and also makes it eaiser to navigate when users are on the go. To furthur improve acessblitly, future updates of the app may include support for iOS's built-in accessibility features which will make the app be completely controllable by voice and more.

The app uses cog as a button to navigate to settings as most app use a similar icon, so users wont have any trouble learning and identifying the function of the button.

The checkboxes could be improved. At the moment, they are small and unnoticable. New users may have some trouble finding and using it till they learn its function.

The red tasks makes it obvious when the user hasnt completed a task



This debug banner will not be in the app in the release version. It is only for developers to identify that the app is in debug mode, which may impact the performace.

The horizontal scrolling list of stories/tasks creates an inuitive and simpe interface for the user to navigate the app. This enchances the user experience.

New task/story buttons pop up from the floating action button in the bottom right corner. The buttons are a different shade of blue so they contrast to the blue story and task cards. The new tasks button has a bell icon to represent the reminder feature. The buttons can be easily dismissed by the red cross below them. All the buttons are large and obvious making the app useable and learnable. The large, contrasting buttons, also makes the app acessible to users who have poor eyesight. The buttons were positioned in this area as they are in the "thumb zone" - the spot where its easy to reach for user.

More on the thumb zone - <https://www.islandmediamanagement.com/the-mobile-thumb-zone/>

User interface and experience analysis

New task pages

The new story page is identical, except it doesnt have the datetime picker. So only the new task page will be analysed. The Modify stories page also has the same design so it will not be analysed

Using a blue background makes the text fields very disernable. The text fields have grey placeholders that describe the type of information that users should enter. The What3Words card cleary displays the W3W location. The three red /// is similar to the W3W logo. In the future, a image of the logo could be used to better identify the feature. The blue text commonly represents a button in iOS, so that was used to show the "set reminder time" button. Since this is a cross-platform app, a more android - esque button style will be used on Android platforms.

This is the popup that appears when when the users taps "set reminder time". This is an iOS style datetime picker. The design could be improved by adding an option to change minutes to 5 minute increments which will make it easier and faster to pick a time. Also, tapping anywhere outside the picker will dismiss it, but a designated done button should be added in later versions to increase learnability. An Android picker will be used on Android devices.

6:49

DEBUG

New Task

Task title

Task description

/// W3W Location:

trail.resolving.substantial

Set reminder time

May 17, 2020 6:48 PM

Save

7:18

DEBUG

New Task

Task title

Task description

/// W3W Location:

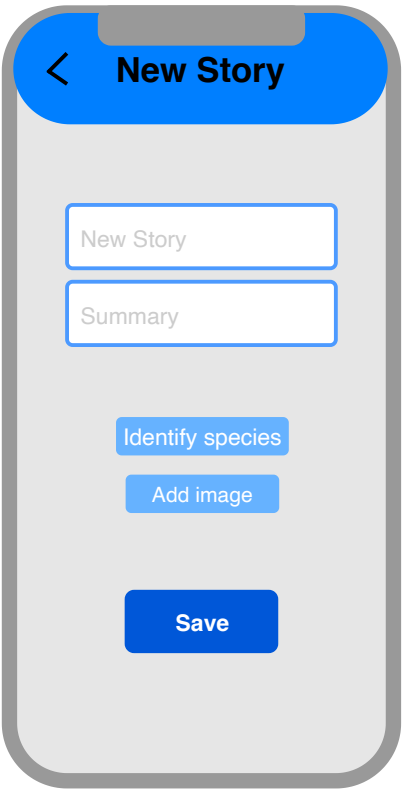
trail.resolving.substantial

Set reminder time

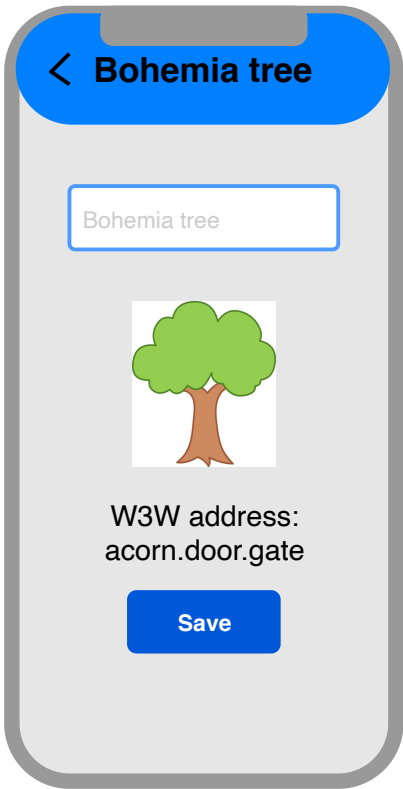
May 17, 2020 6:48 PM

	4	14	
	5	15	
	6	16	
	7	17	AM
Today	8	18	PM
Mon May 18	9	19	
Tue May 19	10	20	
Wed May 20	11	21	
Thu May 21	12	22	

Mockups



These designs are very user friendly and offer a simple UI to navigate the app.
The final design may differ from these mockups, but will be very similar



References

Brady Stroud

StackOverflow

StackOverflow is a site where developers can share issues and get advice on their projects. During the development process, these were the questions that were used to solve issues.

1. **Dart: Iterable<E> vs. List<E>, always use Iterable? - Stack Overflow** <https://stackoverflow.com/questions/52345694/dart-iterable-vs-list-always-use-iterable>
2. **flutter - Create a button with rounded border - Stack Overflow** - <https://stackoverflow.com/questions/50083390/create-a-button-with-rounded-border>
3. **dart - How to make a small rounded rectangle in Flutter - Stack Overflow** - <https://stackoverflow.com/questions/54244820/how-to-make-a-small-rounded-rectangle-in-flutter>
4. **flutter - Root widget not rebuilding when popping from child - Stack Overflow** - <https://stackoverflow.com/questions/61710396/root-widget-not-rebuilding-when-popping-from-child>
5. **android - Is there a way I can run a python Script when a button programmed in flutter is pressed? - Stack Overflow** - <https://stackoverflow.com/questions/59697971/is-there-a-way-i-can-run-a-python-script-when-a-button-programmed-in-flutter-is>
6. **Root widget not rebuilding when popping from child - Stack Overflow** - https://stackoverflow.com/questions/61710396/root-widget-not-rebuilding-when-popping-from-child?noredirect=1#comment109156834_61710396
7. **dart - Flutter setState to another class? - Stack Overflow** - <https://stackoverflow.com/questions/51798498/flutter-setstate-to-another-class>
8. **Global Variables in Dart - Stack Overflow** - <https://stackoverflow.com/questions/29182581/global-variables-in-dart>
9. **flutter - Set State of parent Widget - Stack Overflow** - <https://stackoverflow.com/questions/52082981/set-state-of-parent-widget>
10. **how to implement checkBox in flutter - Stack Overflow** - <https://stackoverflow.com/questions/52814039/how-to-implement-checkbox-in-flutter>
11. **dart - DateTime and duration add - Stack Overflow** - <https://stackoverflow.com/questions/26486952/datetime-and-duration-add>
12. **flutter - Reload data when using FutureBuilder - Stack Overflow** - <https://stackoverflow.com/questions/53170330/reload-data-when-using-futurebuilder>

13. **android - oval shape in flutter - Stack Overflow** - <https://stackoverflow.com/questions/56161967/oval-shape-in-flutter>
14. **Dart/Flutter : Converting timestamp - Stack Overflow** - <https://stackoverflow.com/questions/50632217/dart-flutter-converting-timestamp>

Other References

1. Api.flutter.dev. 2020. *Timer Class - Dart:Async Library - Dart API*. [online] Available at: <<https://api.flutter.dev/flutter/dart-async/Timer-class.html>>
2. Brand, O., 2019. *Real Time Messaging With Flutter*. [online] Medium. Available at: <<https://medium.com/flutter-community/real-time-messaging-with-flutter-5dc05d90f48>>
3. Flutter.dev. 2020. *Fetch Data From The Internet*. [online] Available at: <<https://flutter.dev/docs/cookbook/networking/fetch-data>>
4. Flutter.dev. 2020. *Navigate To A New Screen And Back*. [online] Available at: <<https://flutter.dev/docs/cookbook/navigation/navigation-basics>>
5. Flutter.dev. 2020. *Scrolling Widgets*. [online] Available at: <<https://flutter.dev/docs/development/ui/widgets/scrolling>>
6. Medium. 2019. *How To Include Images In Your Flutter App*. [online] Available at: <<https://medium.com/@suragch/how-to-include-images-in-your-flutter-app-863889fc0b29>> [Accessed 4 June 2020].
7. Mutisya, P., 2019. *Dark Mode In Flutter*. [online] Medium. Available at: <<https://medium.com/@pmutisya/dark-mode-in-flutter-3742062f9f59>>
8. Surya, A., 2018. *Create A Simple Animated Floatingactionbutton In Flutter*. [online] Medium. Available at: <<https://medium.com/@agungsurya/create-a-simple-animated-floatingactionbutton-in-flutter-2d24f37cfbcc>>