Project Report

Accommodation Web Portal

Group Name:

Double Ninety

Group Member:

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Overview - Architecture / design of the overall system & functionalities

Our project's goal is to develop a concise and user-friendly web application which allows accommodation providers to present their holiday accommodation on our website easily, and on the other hand, allow visitors to search the accommodation places precisely based on their requirements, to make an online reservation and to review their order. In addition, travelers can also post their renting requirements.

Three main deliverables of this project include:

- 1. Visitor System (Without Session)
 - The visitor can only search the accommodation information based on his preferences such as location, date and review.
 - If the visitor would like to move on to the step, he will be asked to sign up or login.

2. Provider System

- The provider will need to fill the form of his accommodation following the instruction so that he can present his idle accommodation online.
- The provider can increase the exposure of his accommodation by paying extra money for the advertisement.

3. Traveler System

- The traveler can search the accommodation information based on his preferences such as location, rate and price.
- The traveler can add his preferred accommodation to the watching list.
- The traveler can add the chosen accommodation to the pending list.
- The traveler can book the accommodation and make a review to it.
- The traveler can also post his accommodation requirements.

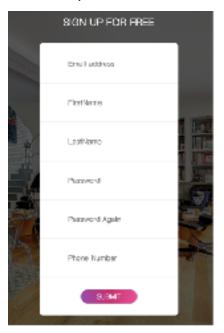
Description of the functionalities developed by the team

In this web application that we delivered, there are 14 functionalities developed by our team. I will describe the details about our function and explaining why we should have this module in our project below.

1. Register function

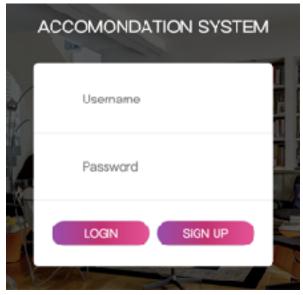
This function is about let the visitors of our website to be the user of our web application. In this function, visitor may insert their personal details such as

username, password, email address etc. After registration, users can login to their own account by username and password.



2. Login / Log out function

This function is about let the users to login or log out their own account of our web application. They can login with the username and password which they have registered.



3. Switch account type function

All users in our application will have two type in their Personal Profile page which is Traveller and Provider.

If we choose the traveller, then the webpage will show the history of the traveller and can review the accommodation which have already lived and

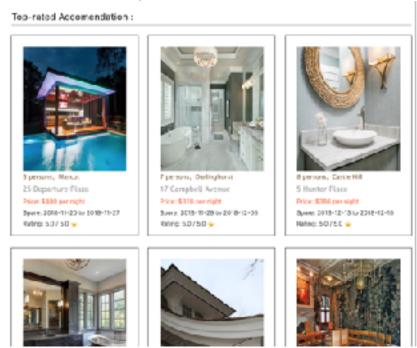
check the review the traveller has already make comment on it. After that, traveller can click the 'Release Accommodation Needed Information' to skip to the page to release the accommodation needed request.

If we choose the provider, then the webpage will show the owned accommodation of the provider and they can pay some money for their accommodation to show their accommodation in the advertisement page. After that, provider can click the 'Release New Property' to skip to the page to release the new property.



4. Recommendation function

This module is built to recommend traveler for the accommodation place. It will be presented on the home page, whatever if someone logs in or not. The recommendation is based on the average rate of a property, which is listed under the section head 'Top rated Accommodation'.



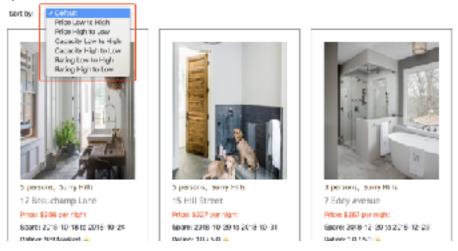
5. Search function

This function is for travellers to search accommodation which they want to rent. And providers also can search the needed accommodation which other travellers released. Users can both search the accommodation which they may want to rent and the accommodation requirements by postcode, suburb etc. After press the search button, it will jump to the Search Result page.



6. Filter function

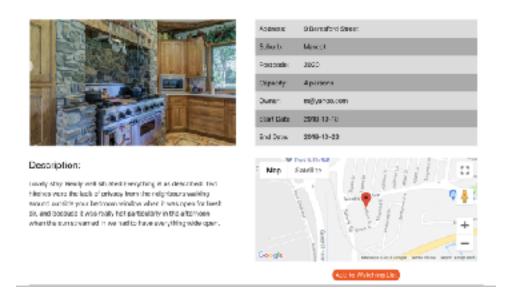
In this function, our application will add a filter on the search result page. At first, all the result matching with the suburb will be shown on the search result page by advertisement. In the filter, we will set options of the price and rank of the accommodation. After selecting the criteria, the result will be filtered and then presented on the website.



7. Accommodation Display function

In this function, if a user clicks into an accommodation card, it will show you this accommodation's details. We also call google map API to show the google map of the place which is chosen in our webpage.

9 Beresford Street



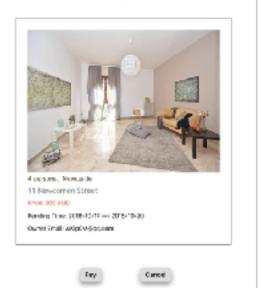
8. Book function (Watching list & Pending list)

After a traveller selects an accommodation and click the 'Add to Watching List' button, the system will jump into watching list. The traveller can review the accommodation in watching list for more consideration. After the traveller submit the book request in watching list, the state of the accommodation will be changed into pending and other travellers cannot search this accommodation. Otherwise the accommodation's state will change back to 'available' state and the status in the personal profile will be changed into 'cancelled'. Moreover, if there are more than one accommodation in your watching list, we add another function is that you can only choose one accommodation to your pending list.

Watching List



Your Pending Transaction



9. Similar Suggestion function

This function will be shown under the accommodation detail which is chosen by the traveller. This will show some similar accommodation places as the accommodation show above.

Some Similar Near From You:

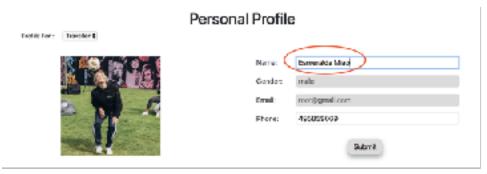






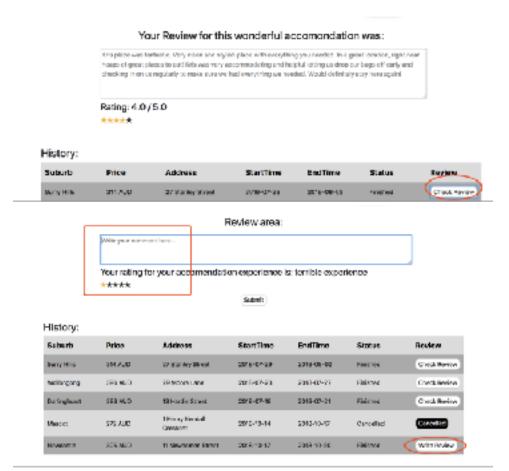
10. User Display / Edit function

This function is about the user's personal information. They can edit their detail information and it will be shown when they click Personal Profile button on the navigation bar.



11. Review & Comment function

This function is in traveller's Personal Profile page, traveller can review the accommodation which he has lived. And traveller can see the previous review which he gave before.



What's more, in the accommodation detials page, we can find the all the comments to this accommodation.

2 reviews from people who commented this accommodation



12. Release requirements function

This function can let traveller release their rent requirement about the accommodation to let the provider know which kind of accommodation is needed recently. After traveller release this requirement, provider can search it by search bar.

Accomondation Needed Requirements

| Suburb | Postcode | Capacity | Start Time | End Time | Min Price | Max Price |
|-----------|----------|----------|------------|------------|-----------|-----------|
| Kingsford | 3052 | 2 | 2018-10-20 | 2018-10-21 | 300 | 500 |

13. Release new property & spare time function

This function let provider release new property and can add more spare time on their own property. This can let our application has more property on it. And

add to our database.

Property Release Information



14. Advertisement function

This function can let providers pay money for their owned accommodations. If one provider pays more money for one accommodation, it will appear on the advertisement part in our homepage.

Personal Profile Profile For: Promder 8 Esmerolda Mino seet@gmail.com Emails Phone: 495009050 Submit. Owned Accomondation: Start Time End Time Advertisement \$16 4 Per 10 Stunder Steet 2018-12-12 2016-12-22 200 North Park Advertisement 19 Srendon Street 29 De Westre Place 9 Beresford Street Price 3000 per right Price \$250 per night Price: \$550 per right Spany 2018-13-12 to 3018-12-22 Spane: 2016-10-17 to 2018-10-22 Sport: 2018-10-18 to 2018-10-29 Pring 25/50 🌞 Rating: Not Marked 🌞

Implementation challenges:

1. Architecture

At the beginning, we decided to use the traditional MVC architecture with MongoDB, Express, jQuery and Node. However, we found that this will lead to a combination of logic and view codes in one page. Thus, we decided to separate front-end and back-end. Front-End adopts React.js and handles View and Controller, while Back-End still adopts Node.js and handles Model. In addition, RESTful API are the interface between them.

2. Back-End

JavaScript is a language different from python or java because it executes codes asynchronously. It results in huge problems when we try to do some operations that need to be run step by step. It cost us lots of time to learn the logic of 'Callback' and 'Promise' in order to execute codes at our will.

3. Database

In this project, we decided to use MongoDB as our database. However, it is a non-relational (NoSQL) data structure. On one hand, we take NoSQL's dynamic storing structure as an advantage; on the other hand, in order to manage relationships between data, we used Mongoose which is an Object Data Modeling (ODM) library for MongoDB and Node.js. Afterwards, during handling database operation, we used lots of tricks such as 'Populate' and 'Nested Array'.

4. Dummy Data

In this project, there should be some 'real' data shown on the website. This is not only for the testing and also for the demo. Due to the complex logic behind this project, making data become complex and difficult, including how to ensure the correction between the user and the property (for example, no conflict when the user decide to book an apartment) and how to write the valid spiders in order to crawl the house pictures.

5. Front-End

In this project, the framework we used in out project is React.js. Since this technology we did not use before, hence learning the new technology without tutoring is time consuming and difficult. Fortunately, by discussing with peers and self-learning, we finally learned how to use that framework to build our application

Another challenge that we met in front-end was we need to align our UI/UX design with front-end engineering construction. It is a not easy because everyone in our team has different background.

User documentation:

How to build and setup dependencies for running our project:

Preparation:

Before running the website, you need to install **Python**, **MongoDB** and **Node.js** at first.

- Install Python and related packages
 Please download the Python 3.x from here and install it. Then open the
 Terminal, type `pip install <package name>` or `pip3 install <package
 name>` to install the following packages in your Python 3 environment:
 - a. pymongo
 - b. pandas
 - c. numpy

For example, type 'pip install pymongo' to install package pymongo.

1. Install MongoDB

Please click the following link to install <u>MongoDB Community Edition</u> and there are three editions: Windows, Linux and macOS.

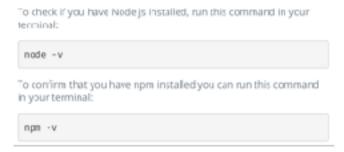
If you are using macOS, please strictly follow the instructions in this <u>link</u>. We strongly recommend you install MongoDB with Homebrew and remember to set permissions.

After MongoDB is installed, please run 'mongod' to start the server (if permission denied, you can run 'sudo mongod'). Then, open another terminal and run 'mongo' to ensure MongoDB can be successfully connected.

Please ENSURE the MongoDB successfully installed and it can work properly!

2. Install npm & Node

Since npm is installed with Node.js, please click this <u>link</u> to download Node.js and npm package. In addition, you can use the following command to check that you have node and npm installed.



Setup and Run project on localhost:

- 1. Type 'mongod' in your Terminal to ensure you open the MongoDB.
- Please open another Terminal in your own laptop and type: `git clone https://git@bitbucket.org/doubleninty/comp9900-mern.git` to download our project repository.
- 3. Then, type `cd comp9900-mern/` to enter the folder.
- 4. Type: `npm install` to install our server-side dependencies.
- 5. Type: `npm run client-install` to install our client-side dependencies.
- 6. Type: `cd Datamodel` to enter the folder `comp9900-mern/Datamodel/`.
- 7. Type `node plz_run_me_first.js`, it will insert the dummy data into the database. If there is no error shown in the terminal, this means success.
- 8. Type `cd ..` to go back to the upper folder comp9900-mern.
- 9. If you use macOS, type `pwd` to ensure you are under this path `<YOUR PATH>/comp9900-mern/`
- 10. Type: `npm run dev` to run the client & server with concurrently.

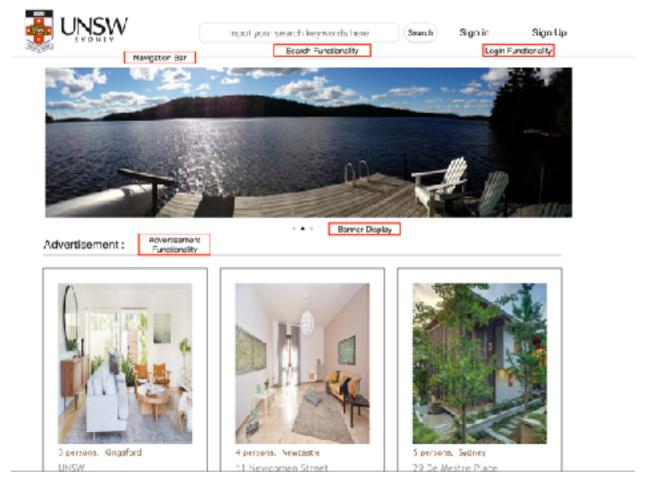
11. If the chrome window does not pop up, please open your own browser and type 'http://127.0.0.1:3000' in the address bar.

Configure:

1. If you want to stop running our project, please press Ctrl + C to interrupt the program.

User Documentation:

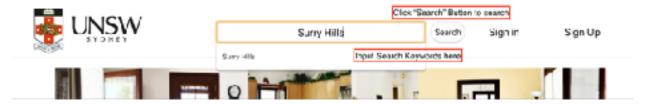
When you first running our project in your browser, you may see our "homepage" like this:



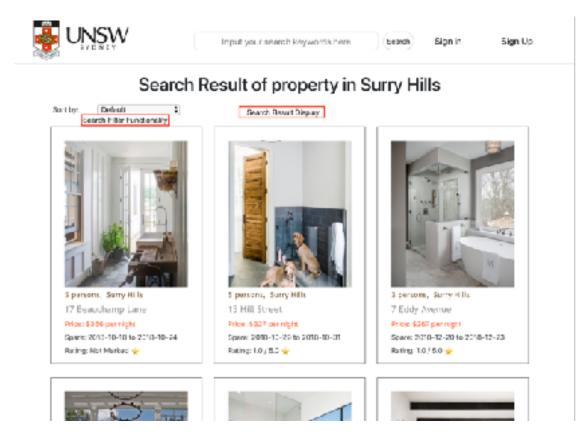
On the Upper part of our homepage, you may find there is a "navigation bar" on the top side, here you may can **search** the available accommodation by input **suburb keywords** or **postcode**.

- 1. Search Functionalities demonstration:
 - Search accommodation by suburb:
 - Input suburb keyword "Surry Hills" to search bar and click "Search" button

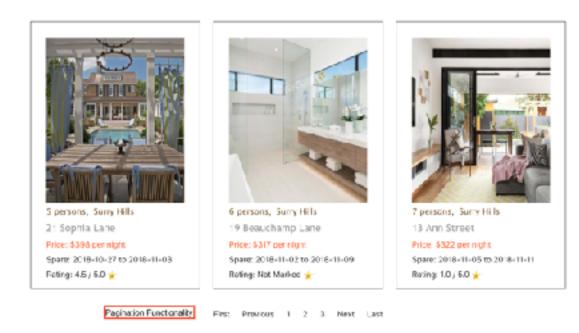
- Search accommodation by postcode:
 - Input postcode keyword "2052" to search accommodation where are located in postcode 2052



Now you may find the search result like this:

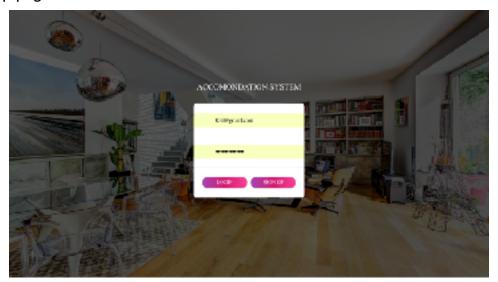


If you scroll down, you can see the pagination functionalities that can help user to get different page.



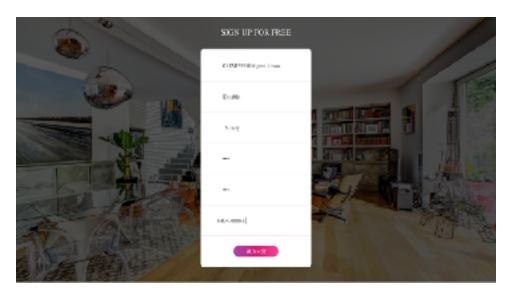
2. Login / Sign Up functionalities

If you click the "sign in/ sign up" button, you may jump to the login page or sign up page like this:

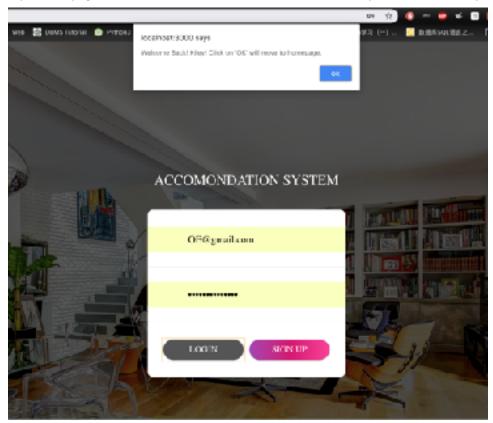


Here you may can use any user information that you can get in **mongoDB** or use a tool called **Robo 3T** to visualise database.(Root account: root@gmail.com password: root)

Below is the example for sign up function, here we did some necessary check for register



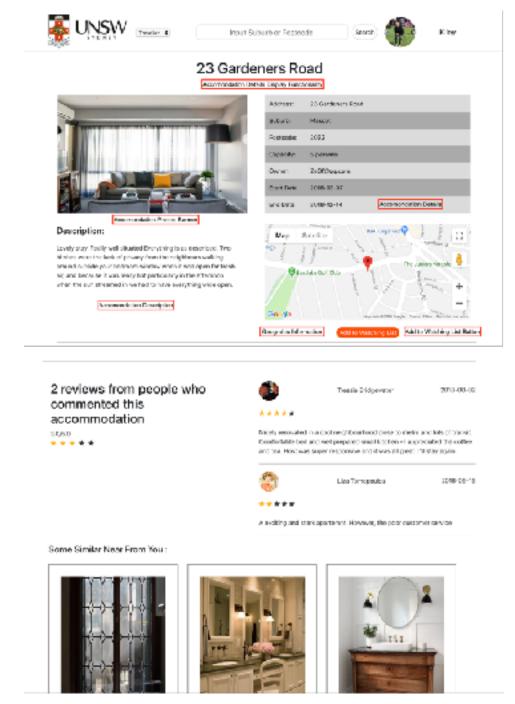
If you login to our system using user's information that we have stored into our system, you may get the information that indicates that you successfully logged in:



Now we will back to our homepage

3. Accommodation Details functionality

If you randomly click one accommodation, you may jump to the "Accommodation Details Page", where you can check all information about this property and reviews written by other users.



Besides, you may can click "Add to watching list" to your watching list if you want to rent this house probably.

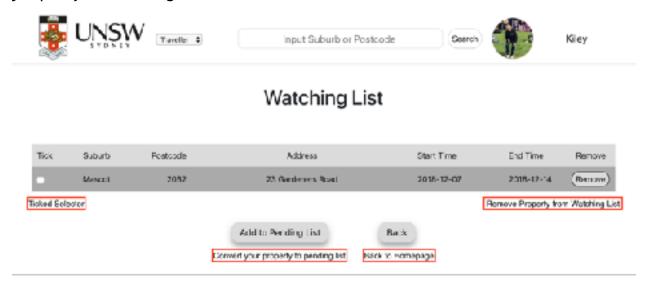
Now we are going to try to add this property to our watching list

4. Watching / Pending List functionalities (Booking Available Accommodation System)

If we clicked "Add to watching List" Button, you may find that we are reminded that this accommodation has been added to watching list.

Now, you can put your mouse over the name of user in the top right of navigation bar,

You may find that the user's menu has been extended, please click "watching list" to jump to your watching list.



You may can click "Remove" to remove the chosen booking transaction.

You may can tick the selector in the left of every record to choose the watched transaction to pending list.

You may click "Back" to return the homepage.

You may click the "Add to pending list" to add the chosen watched transaction to pending list.

When you clicked "Add to pending list", you may find the "Add to pending list" button has been changed to "Please check your transaction in pending list", now, you may can choose click it to go to pending list.

Watching List

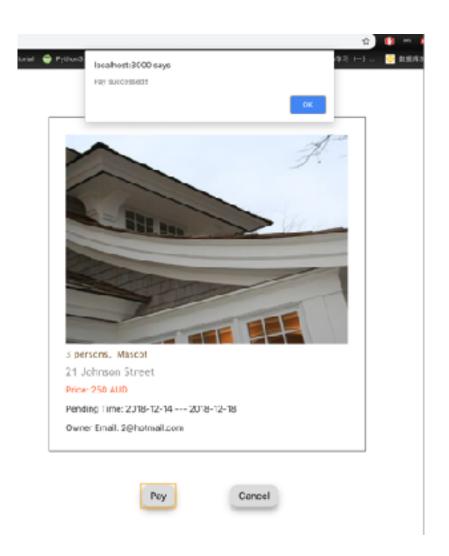


Your Pending Transaction

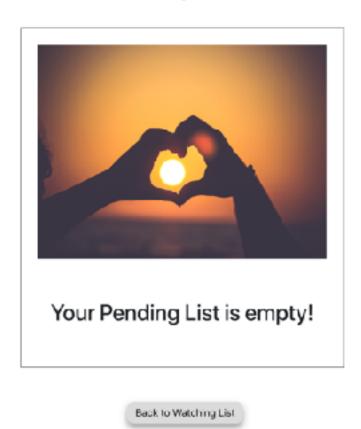


Here you can choose pay your money to provider, which means the transaction will be successfully completed, and it will be recorded to database.

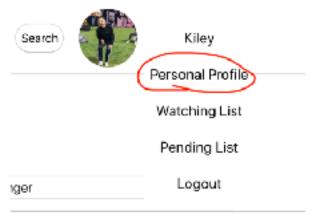
Now, for demonstration, I will choose "cancel" to cancel our transaction ,and then I will add another property to property again, finally ,I will click pay to finish our booking.



Your Pending Transaction



Now we click "Back to watching list" to back to our watching list. You may find that you watching list is empty, now we are going to check our transaction in profile, please click "personal profile"



5. Personal Profile and Posting Functionalities

Now we are moving to personal profile, here we designed a lot of functionalities that user can make interaction with our application.

You may notice that there is a toggle selector where you can switch your role from traveller to provider or vice versa

Now we are going to walk through the functionalities that we designed for user as traveller.

| Suburb | Price | Address | StartTime | EndTime | Status | Review |
|---------------|----------|---------------------|------------|------------|-----------|---------------|
| Pyrment | 308 AUD | 17 Herbart Street | 2018 10 06 | 2018-10-09 | Finished | Chool: Feviow |
| Campbelltown | 315 AUD | 7 Biologhton Street | 2016-08-26 | 2018-08-31 | Firished | Check Review |
| Perrametta | 290 AUO | 13 Hassel Street | 2018-00-10 | 2010-00-10 | Finished | Check Feview |
| North Ryde | 385,700 | 7 David Avenue | 2018-08-06 | 2019-06-10 | Firethed | Check Feview |
| Backban Hils | 251 ALID | 3 Besidey Piece | 2018+07-20 | 2018-07-26 | Firedwed | Clasck Review |
| Newcoadle | 383 AUD | 11 Newcomen Street | 2016-07-26 | 2018-07-30 | Finished | Check Feview |
| Surry Hills | 324 XUO | 9 Bedford Street | 2016-07-11 | 2018-07-15 | Finished | Check Review |
| Mascet | 341 AUD | 23 Gerdeners Poeci | 2018-12-07 | 2018-12-14 | Cancelled | Cancelled |
| Mascet | 280 700 | 21 Johnson Street | 2018-12-14 | 2018-12-18 | Firithed | Write Feview |

Here you may notice that all transaction about this user has been listed in the "history" table.

There are four different status for a transaction:

Cancelled: The booking transaction was failed.

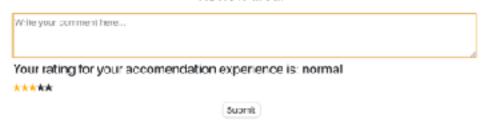
Success but not review written: The transaction was successfully booked, however the transaction has not been commented by traveller, it will displayed "Write Review" in Review area.

Success and the review has been written: The transaction was successfully booked, and the review has been written.

Pending: The transaction has been added to watching list, need user to check in pending list.

If you clicked the "Write review" you may find that there is a review window popped up on the above area like this:

Review area:



If you clicked the "Check Review", your review will be popped up as well, however, you probably could not edit in review area, like this:

Your Review for this wonderful accomondation was:



Now, you can click the bottom button to jump to our "release accommodation needed information functionality"



After clicked the button, we are moved to the release information page,

Accomondation Needed Release Information



Here you can input your personal demands and post them.

If you want to check others post, you may can switch search role from traveler to provider:



Then you may input search suburb keywords and postcode keywords to search area. For example, I did post a demand in "Kingsford", now I am going to search it.

When I typed "Kingsford" in this area, you may see:



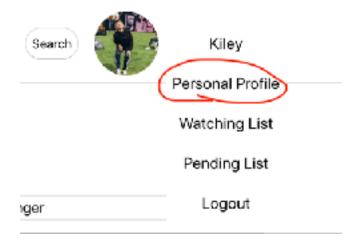
Accomondation Needed Requirements

| Suburb | Postcode | Capacity | Start Time | End Time | Min Price | Max Price |
|-----------|----------|----------|------------|------------|-----------|-----------|
| Ringsford | 2062 | 3 | 2013-10-20 | 2015-10-21 | 300 | 500 |

Above is all functionalities that we designed for a traveller

Now we are going to introduce the functionalities that we designed for a provider.

Back to Personal Profile via clicking user menu in the top right section of navigation bar:



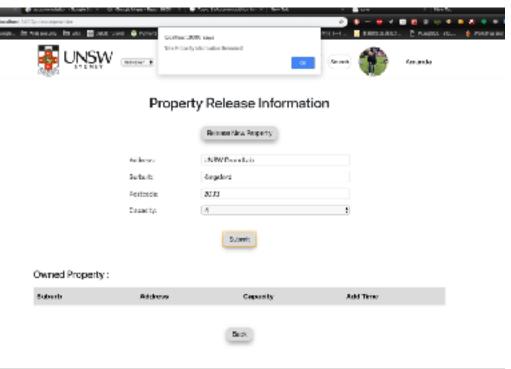
You can change your role in personal profile like this:



You may can check the property that you owned here:



And if you clicked the "Release New Property" button, we can get into the property release information page like this:



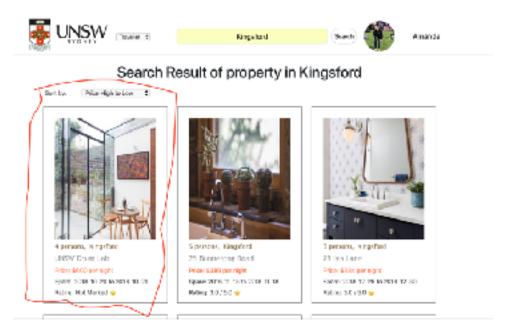
Now you may can input the information about the property that you want to post on our website. When you submit your post request, it will pop up a message to remind that you post successfully.

And back to the management page (click ok), you may can add available accommodation transaction date and price via clicking "add spare time", like below:

Property Release Information



Click Submit to submit your post, now, you may can search the property that you just put by input search suburb or postcode in navigation search bar, in the demo example, I search "Kingsford" to search this property.



Here, your post has been displayed in the search result!

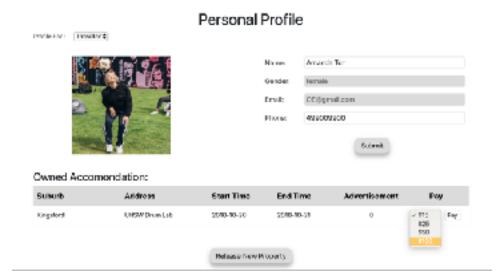
6. Advertisement Function(Payment Function)

Now we are going to top up to our "UNSW Drum Lab" accommodation, to make it show up in the front page.

Back to our personal profile, switch your role from "traveller" to "provider", you may find there is a record that you can check, also you can top up money for your property.

Since our advertisement in homepage sorted by the money that user pay for their property they owned, hence, the more money you top up, the higher probability that your property show up on homepage.

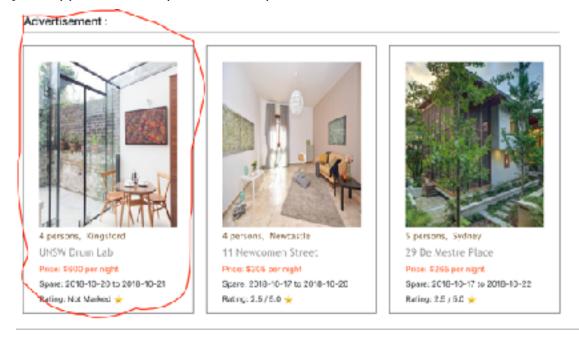
Now I am going to do the demonstration to top up our property:



After many topped up, our advertisement value has been: 300 (if you want to see it show up, I recommend that you top up at least 300 as we randomly initialise advertisement value for some property in database)



Now, click the top-left "UNSW" to back our homepage, you will see the property that we just topped showed up on the first place of advertisement area.



References of All third-party resources used in the project implementation

- Google API
- React Express Starter: https://github.com/bradtraversy/react_express_starter
- Bootstrap v4.1.3