

## ASSESSMENT TASK [1]

## COLLEGE OF [Informational Tech]



## GROUP TASK COVER SHEET

## Students

Please sign, date and attach cover sheet to front of assessment task for all hard copy submissions

<b>SUBJECT CODE</b>													
<b>STUDENT FAMILY NAME</b>		<b>Student Given Name</b>				<b>JCU Student Number</b>							
i.	PATURI	SUDHEER				1	3	3	9	1	1	4	6
ii.	CAHYADI	ANDRICO				1	3	2	3	2	8	4	0
iii.	SEN	RIYA				1	3	1	0	6	6	3	1
iv.	DHARMAWAN	HARI				1	3	2	6	9	2	8	2
v.		HENDRY				1	3	2	6	0	9	3	4
vi.													
<b>ASSESSMENT TITLE</b>		DESIGN THINKING Assignment 1											
<b>DUE DATE</b>		13 April 2017											
<b>LECTURER NAME</b>		Ms. Priyanka Rana											
<b>TUTOR NAME</b>													

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**Student signature(s)**

i.....sudheerpaturi.....	Submission date .....12./...04/ 2017	iv.....riyasen.....	Submission date 12...../04../ 2017
ii.....andricocahyadi.....	Submission date 12../...04...../ 2017	v ...hendry.....	Submission date 12../04../ 2017
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## **CP3405 Assignment 1 Report**

### **Our Group and its members:**

1. Sudheer Paturi (13391146) - Product Owner
2. Andrico Cahyadi (13232840) - Scrum Master
3. Hari Dharmawan (13269282) - Developer
4. Hendry (13260934) - Developer
5. Riya Sen (13106631) - Developer

### **Our Project:**

After discussing among the group members, we decided to do a project that Sudheer and his previous team did in the module CP2408. The project is regarding helping the immigrants that come to Singapore every year. The project that was done in CP2408, is in common terms a property app that agents can use to post properties for sale and rent. As the scope of the project is quite big and requires a lot of permissions and grants from the government in order to be implemented in full scale, we thought that we would alter the concept and make it into an app that needs limited resources to make and maintain.

The new project details are mentioned below.

Our objective is to help immigrants settle down in Singapore by helping them find an accommodation to stay in Singapore.

The extent of this project ranges from listing rooms or houses that are available for rent in Singapore and helping an immigrant enquire of the listing they prefer. The listings are approved after an user uploads all the details about the unit or the room they want to rent or share. In this case, the user who uploads the listing is one of the key players too; he/she can be an immigrant who has been already staying in Singapore or they can also be local people who wants to rent a place in their house.

## **Team Contribution:**

Although our project is a continuation of the work done in the module CP 2408, sudheer is the only person, who has full knowledge about it, as he did this project with a different team in the previous module. So, the team decided to make him the product owner so that he can backlog it and provide as much information and support as possible.

Andrico is the scrum master for this project. He is well known among the team members to collaborate well with others and contribute much. The other team members, Hari, Hendry and Riya are the developers.

Team collaboration can be achieved only when everyone in the team works to their best in their assigned roles and plays well with others. From the experiences, we gained while working for projects in the previous modules, we were able to achieve a good working culture in the team. The work has been completed before the deadline and almost everyone contributed as much as they can.

The following is a brief schematic of what was done by each team member:

<b>Usability testing</b>	- <i>Sudheer Paturi, Riya, Andrico</i>
<b>Personas of potential users</b>	- <i>Sudheer Paturi, Andrico</i>
<b>Wireframe model</b>	- <i>Sudheer Paturi</i>
<b>Technical Design Diagram</b>	- <i>Sudheer Paturi</i>
<b>High level Technical specifications:</b>	
<b>Objectives and business case</b>	- <i>Sudheer Paturi, Riya</i>
<b>Risks, Out of scope</b>	- <i>Hari, Riya</i>
<b>Servers</b>	- <i>Sudheer Paturi, Andrico</i>
<b>Assumptions</b>	- <i>Sudheer Paturi, Hari, Hendry</i>
<b>Concerns and issues</b>	- <i>Hari, Hendry, Andrico</i>

The proto personas that we assumed are written below.

## **Personas of Potential users:**

### **1st Potential user**

**Name:** Sundar

**Age:** 31

**Occupation:** Construction Worker

**From:** Chennai, India

### **Story:**

Got a job at a construction site in Singapore and has high hopes of travelling to and living in Singapore. Not very fluent in English, but hopes to improve it and familiarize with the Singaporean culture.

### **Biggest Needs:**

Sundar needs a place to stay in Singapore which is affordable and can provide with the common facilities he needs. He wants to rent a place near an MRT so that it'll be easy for him to commute to work daily. He doesn't know many people in Singapore and not good with the local dialect yet, so he thinks that staying in his ethnic community would make him feel comfortable and secure. He wants the experience of choosing an accommodation to be smooth and easy and he doesn't want to pay any extra fee for getting an accommodation. As he is not fluent in english, he wants to search for an accommodation where he can get information in his national language. He tried many apps and websites, but he couldn't find what he is looking for and he couldn't understand the info mentioned in the apps and websites. So he asked his co-employees for a suggestion and they recommended an app where he can lookup places to stay.

### **Next Big Thing:**

Sundar got the place he wanted without any additional fee and is comfortable and happy about it. He is changing and improving his lifestyle to become a better

person. He is part of a big project now at the company he is working in and is in the process of shaping his future the way he wants to live.

## **2nd Potential User**

**Name:** Hendry

**Age:** 19

**Occupation:** Student

**From:** Indonesia

### **Story:**

Hendry got an offer to study Informational Technology at the National University of Singapore. He aims to become an Network Engineer and wants to settle down in Singapore after his studies.

### **Biggest Needs:**

Hendry is staying at an accommodation near his school. He wants to share the room he is staying with someone, so that he can reduce on the utility bills and save up some money. He wants to post the pictures and details of his room online, where he can find a good roommate to stay. He asked around on the facebook group for his school and one of the students recommended an app to him where he can post a listing of his room.

### **Next Change in Life:**

He is sharing his room with another student from the same school and is well bonded with him. He had a good experience finding a roommate. He is saving up money every month so that he can use it for something good later on.

## Wireframe model:

We are including the mock-up images of the wireframe we did for this project since we cannot share the wireframe itself in this document. All the changes made to the project from the previous prototype will be explained in detail below.

*The following is a low-resolution wireframe model, the high resolution images will be placed in the appendix at the end of the report.*



### **Changes and Justification to Changes:**

1. Changed the welcome screen
  - Modified the welcome page with the language options to better suit the design and make it more user friendly
2. Changed the registration page design and added social accounts linking to login to the app
  - The registration page is now added with features of social account linking for easy sign up
3. Changed the home page to be the EXPLORE page
  - The new explore page will help the user to directly look for the accommodation without any additional clicks to get to this page. We thought that this would make the process simpler.
4. Made a small change to the property viewing page and removed the chat with agent feature
  - As there is no need of agent details now, we removed that feature and just improved the enquire feature.
5. Added contact details page
  - The enquire option in the property viewing page is directly linked with this page so that the user will be directly able to contact the uploader of that listing without any hassle.
6. Made a new side menu page with the following options
  - a. POST PROPERTY
    - Helps the user post a new listing; this feature was included in the previous prototypes and it was one of the most asked feature during the user testing
  - b. SEARCH BY INTEREST
    - The old search by interest feature was liked by users during the user testing, so we did not make any changes to this feature and just added this into the side menu
  - c. LANGUAGE

- The language options will let the user change the language of the app, if they didn't change it at the welcome screen.

d. PROFILE

- This feature needs further improvement and is not yet implemented in the app. Added this feature as suggested by the users during the usability testing.

e. SETTINGS

- The main function of this option is to let the user change the behaviour of the app like, font size, push notifications, etc. This feature is yet to be implemented in the app. The settings option was not implemented in the previous build although it was thought out. Entire implementation of this feature will be seen in the future, probably in the next build.

f. CONTACT US

- A brief information about the company and contact details will be featured in this option

7. Made Five new pages for the POST PROPERTY option

- The full implementation of the post property feature.



## **High Level Technical Specification**

### **1. Project Overview:**

#### **1.1. Objective:**

Many immigrants come to Singapore every year in search of job, to study, etc. One of the most common problems they face is finding place to stay. High room rents, extra agent fee and commute problems make the process of finding place a nightmare.

**Our objective is to solve that issue by making a mobile application where the users can rent a place to stay by choosing from many listings posted by other users who are already living in Singapore, who want to share their place or rent their place.**

#### **1.2. Business Case:**

The area where the most impact can be seen is in the property management in Singapore. We are aiming to solve the problem of high costs and inefficient process of finding a place to stay by creating an app which serves as a portal for listing the vacant properties and also finding those places in order of interest.

Our intention is to make the app free of cost to download and use and maintain it for a good period without gaining any profit, so that the user base will increase in order for us to expand it further. In doing so, we expect the investors to invest much more into the company as the progress improves. After a period of time when the product gains the targeted user count, we want to implement advertisements for the free usage and also introduce premium features into the app.

The benefit of this process is, there is a high chance of success if the app is free to use, as it attracts more users and the popularity of the product increases with good reviews and opinions of the users.

**1.3. Risks:**

The risks that we assumed are that, we would not get sufficient funding for the project, the process of development might take longer than expected, getting licenses for the usage and sharing of information and content, etc. These are the fundamental risks that we are assuming. The risks further associated regarding the maintenance are yet to be determined.

**1.4. Out of Scope:**

In the previous version of the project, we had features that explored a broader perspective. But, considering the scope of the project, it would require a lot of resources to implement those features, so we delete some of the features to work on them more and maybe add them in the future.

Some of the features include;

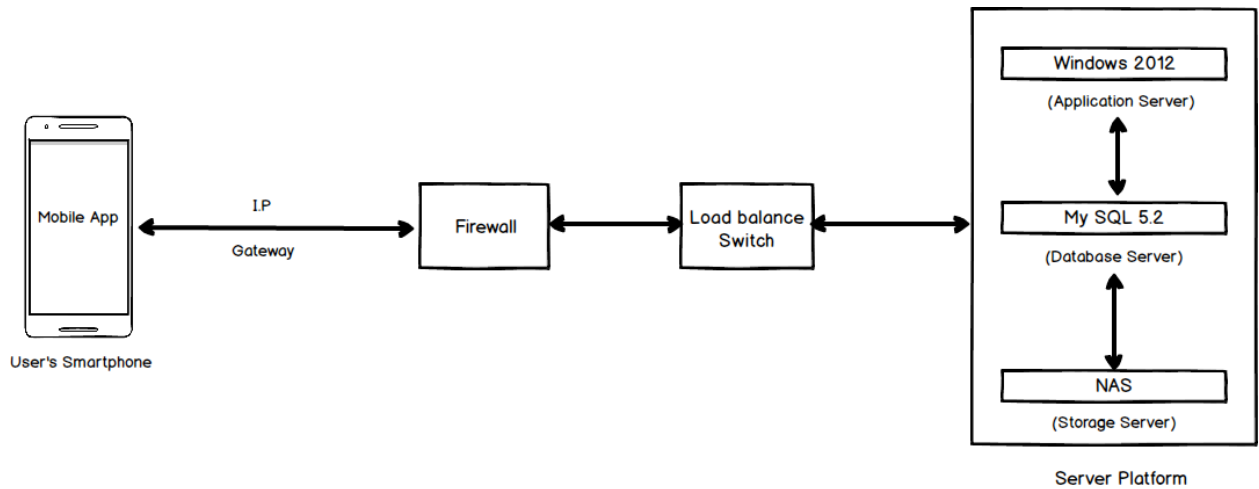
Agent registration,

Property management,

Chat with agent,

Buying properties, etc

## 2. Technical Design Diagram:



## 3. Technical Specifications:

*The technical specifications that mentioned here are an assumption to the long-term goal of the project and do not hold any justification when launching the product, and are also subject to change in the future. If we would be launching the product on a full scale, these would be our requirements.*

### 3.1. Servers:

#### 3.1.1. Application Servers:

**Server:** Windows server 2012

**Specifications:** 20core CPU with hyperthreading, 512GB RAM, 2TB Storage

**Operating System:** Microsoft Windows

**Functionality:** Handles all the application operations between users and the backend servers, deploys applications

#### 3.1.2. File Servers:

**Server:** NAS

**Specifications:** 20core CPU with hyperthreading, 512GB RAM, 8TB Storage

**Operating System:** unRaid OS 6

**Functionality:** Stores all the application data and mirrors the data to a secondary drive in case of a drive failure. All the application data can be accessed from here.

**3.1.3. Web Servers:**

We are not implementing any web servers.

**3.1.4. Database Servers:**

**Server:** SQL

**Version:** 5.2

**Specifications:** 20core CPU with hyperthreading, 512GB RAM, 4TB SSD Storage

**Operating System:** Windows

**Functionality:** Structurally formats the data and stores it so that the data can be easily accessed and managed throughout the system.

**3.2. Access Requirements:**

Administrative privileges are given only to our team members and to the developers that if any, in the future we add to our team.

The following is a brief estimate of number of users that require simultaneous access to the application.

**1st week:** Approx. 20 users per day

**1st month:** Approx. 100 users per day

**6 months' period:** Approx. 200 users per day

The numbers are however just an estimate that we assume would be using the application, if in case there is a spike in the number of users; we have enough server equipment to deal with it.

### **3.3. Databases:**

We are using an SQL server, the specifications of which are mentioned above in the database servers section. The server version is MySQL 5.2.

Other requirements and add ons will be thought out in the future as per need. We do not require any additional server hardware or software as of now.

### **3.4. Storage Needs exclusive of databases:**

We expect around 512GB to 1TB of data flow in the first 12 months, the storage needed to store all this data is added up to the file servers in the specifications above. We project an annual growth of 2TB from 2nd year. We have dual drive data protection enabled in the SQL servers, which backup all the user data to a secondary drive in case of any main drive failure. Additional resources if needed will be added in the future.

#### **4. Assumptions:**

During the first two years, till we get a solid user base, we will not be monetizing on the product. We expect to attract investors and get resources by making the application free and attract more users. We are taking this initiative inspired through the apps like 'carousel', 'Instagram', 'Facebook' and some other apps, which gained a user base first, before monetizing it through implementing advertisements and other premium features. The following will be our management and maintenance cost in terms of long term investment

The server will cost around 30.000 SGD each and with 3 servers it will cost 90.000 SGD in total. These servers have great specs which could work for a long term with a few maintenances. With a low maintenance cost, we can improve more for our storage database which will need more spaces as more people are using our apps.

As for the apps development, itself we will be needing assistance from 2 experienced programmers which will be paid 5000 SGD for the development itself. Any further improvement will be dealt with accordingly as we could employ them again with different payment.

Our total expenditure for the first 2 year will be 150,000 SGD

We intend to get revenue by introducing advertisements in the free version of the app and making a premium paid version, advertisements free.

Within the calculation, our product will earn us no profits in 2-year time; after that we intend to make a revenue of \$10,00,000 every year after the two year term.

## **5. Concerns and Issues**

- **Disgruntled Employees**

**Internal attacks are one of the greatest threat confronting the application framework. Rogue workers, especially with high knowledge of and access to data centres and admin accounts, can badly damage application performance.**

- **Spam**

**Purposely spamming through SMS / Email with no intention of buying / renting at all.**

- **Loss of Data**

**There is no backup for our database, data could be lost due to any kinds of problems.**

- **Performance**

**To attract and keep customers, the application needs to perform flawlessly and logically.**

- **Platform issues**

**Currently our software only works on android platforms, further improvement will be make in order to support device from another platform**

## **Appendix**

### **Practical 1:**

#### **CP 3405 - Practical 1**

### **Usability**

In this practical, we are going to assess the user interfaces (usability) of the project that you completed as part of CP2408. Usability/assessing user interface is a method used to improve ease-of-use during the design phase of a project.

#### **More Reading: Usability 101: Introduction to Usability**

There are 5 components in assessing usability: **learnability**, **efficiency**, **memorability**, **errors** and **satisfaction**. In your groups, assess the user interface of the project you completed in CP 2408 based on above components. Fill out the following questions

**Learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?

<b>Very Easy</b>	<b>Easy</b>	<b>Neutral</b>	<b>Hard</b>	<b>Very Hard</b>
	X			

#### **How?**

**The user finds it to be friendly and uses a common layout so the user can navigate easily.**

#### **Why do you think so?**

**Because the user can navigate from page to page with ease with only a few moments of hesitation shown. Though the user hesitates a while on some of the new features, they understand quickly after.**



**Efficiency:** Once users have learned the design, how quickly can they perform tasks?

Very Quickly	Quickly	Neutral	Slowly	Very Slowly
X				

**How?**

After they learned the design, they can quickly perform the task they wanted to with ease as the layout is quite common. They can buy, rent, etc. swiftly.

**Why do you think so?**

Because the users can do the specific task wanted with precision only in few moments. Moreover, they don't hesitate and stuck during the whole navigation.

**Memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?

Very Easy	Easy	Neutral	Hard	Very Hard
	X			

**How?**

After an hour, the users are asked to do the exact task and the user can do it quickly without any hesitation. The user spend only a while longer compared to their normal time.

**Why do you think so?**

As the layout is common and follow current standard, people can easily recall all the feature with ease. The user can navigate through it casually without hesitation and trying hard to recall the feature.

**Errors:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?

**Number of Errors**

High	Average	Low
	X	

**Why do you think so?**

The user is a bit confused on some features causing them to make a few errors during performing the task.

**Severity of Errors**

Severe	Average	Slight
		X

**Why do you think so?**

Though the user make errors during performing the task, the error doesn't seem to make them frustrate and just casually continue without complaining as the errors were not severe.

**Ease of Recovery**

Easy	Average	Hard
X		

**Why do you think so?**

As the user makes error that change the page, they can return to the previous page with the ease of navigation. Other errors the users made such as wrong filter can be fix easily by undo their previous action. No one complain about the errors they made.

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**Satisfaction:** How pleasant is it to use the design?

Very Pleasant	Pleasant	Average	Below Average	Very Poor
	X			

**Why do you think so?**

**Because the user seems to like it. All the IU and layout ease the user to perform their task. Though some misinterpretation happens as some of the feature and popup are unique**

## **Practical 2:**

### **CP 3405 - Practical 2**

## **Usability**

In this practical, we are going to assess the user interfaces (usability) of the project of another project that was completed as part of CP2408. Usability/assessing user interface is a method used to improve ease-of-use during the design phase of a project.

### **More Reading: Usability 101: Introduction to Usability**

There are 5 components in assessing usability: **learnability, efficiency, memorability, errors** and **satisfaction**. In your groups, assess the user interface of another project that was completed in CP 2408 based on above components. Fill out the following questions

**Learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?

<b>Very Easy</b>	<b>Easy</b>	<b>Neutral</b>	<b>Hard</b>	<b>Very Hard</b>
		X		

### **How?**

**The navigation is a bit confusing for most users and it lack some standards features such as settings, profiles, and logout button**

### **Why do you think so?**

**Because most of the users tend to click around trying to understand what does the button do. And they tend to hesitate and confuse while navigating through each panel.**

**Efficiency:** Once users have learned the design, how quickly can they perform tasks?

Very Quickly	Quickly	Neutral	Slowly	Very Slowly
	X			

**How?**

The design and layout are simple and easy to be understand, each main feature button label provide enough information for user to understand.

**Why do you think so?**

Because user can perform task that are assigned to them quickly without problem.

**Memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?

Very Easy	Easy	Neutral	Hard	Very Hard
	X			

**How?**

We use design that didn't need any assistance regarding the usability of the product.  
We use good design standard to make the product, that is how we were able to achieve a feasible and simplistic design.

**Why do you think so?**

Because users are able to perform the exact same task with almost the same time after they gain proficiency of the product.

**Errors:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?

**Number of Errors**

High	Average	Low
	X	

**Why do you think so?**

Because it is only our prototype so we didn't do the full version of it, we couldn't put all of the features in the app. There are a lot of scenarios that we didn't consider that we found out in the usability testing. They try to explore the product which is incomplete. Most of the errors are because we didn't complete the program.

**Severity of Errors**

Severe	Average	Slight
		X

**Why do you think so?**

Although the users encountered a few errors they are still able to complete the task assigned to them.

**Ease of Recovery**

Easy	Average	Hard
	X	

**Why do you think so?**

Because all of the errors are fixable after analysing them and trying them a few times.



**Satisfaction:** How pleasant is it to use the design?

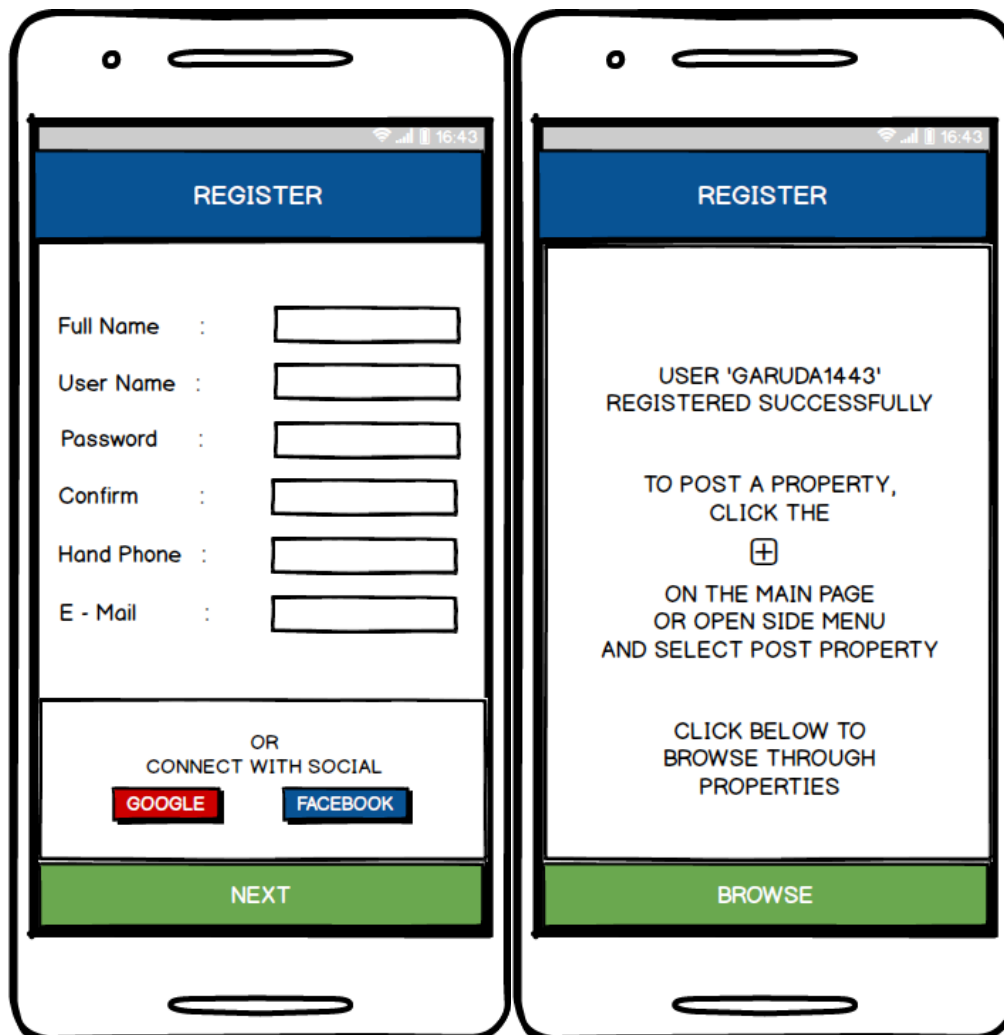
Very Pleasant	Pleasant	Average	Below Average	Very Poor
	X			

**Why do you think so?**

**Most of the users are pleasant regarding the design, but had a few issues with the navigation, so overall everyone is satisfied with the product. They didn't complain about the UI or the product design.**

**Wireframe mockups:**





FORGOT

!

ENTER THE E-MAIL THAT YOU USED TO REGISTER WITH US.  
IF YOU FORGOT YOUR E-MAIL, YOU NEED TO REGISTER AGAIN..

E-Mail :


Submit

☒

CHECK YOUR E-MAIL FOR A NEW VERIFICATION LINK TO SET A NEW PASSWORD OR USER ID.

BACK

EXPLORE



Entire House

Room

Location:

Q Enter a locality...

Radius :

☒ Search within 1 KM

Price :

☒ 500 - 1000

Type :

HDB Apartment

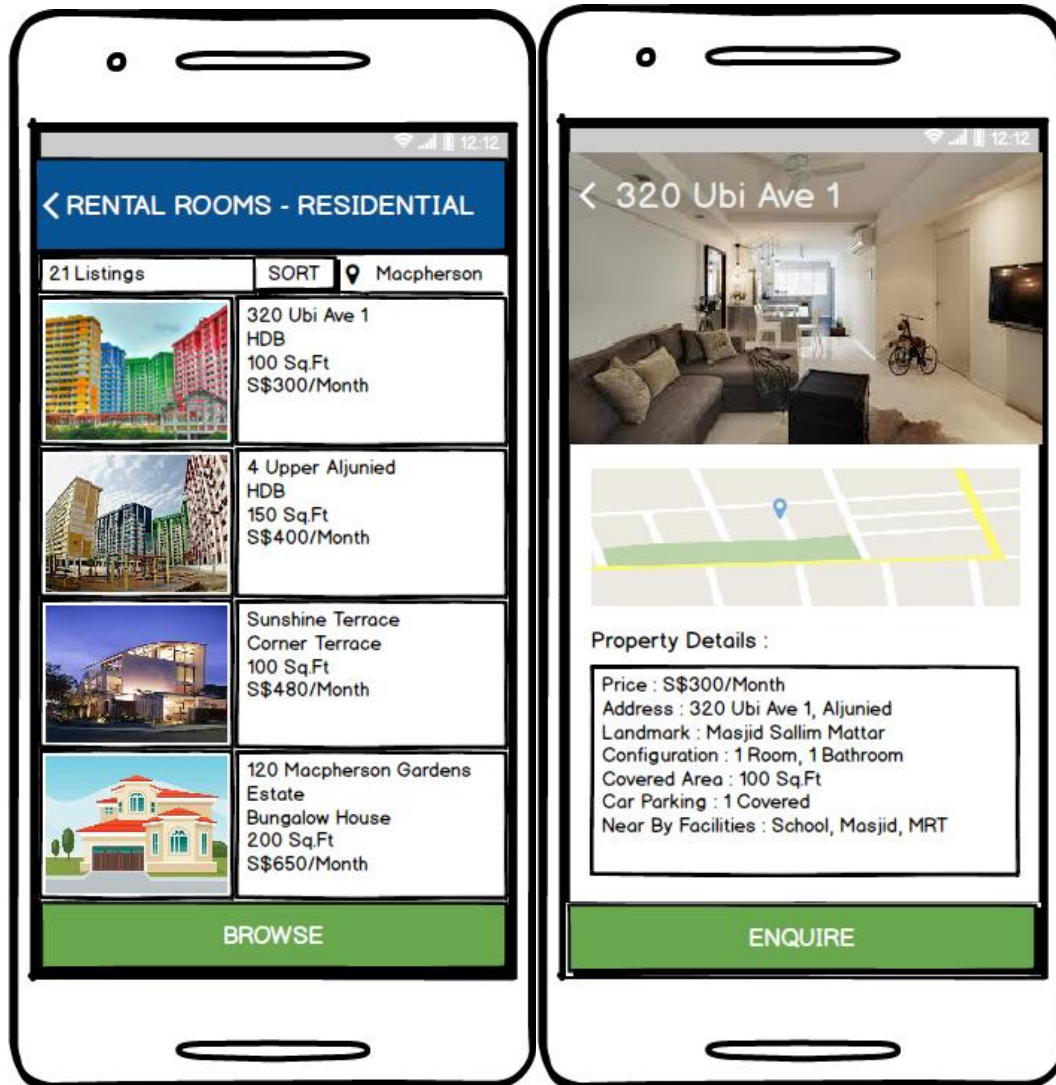
Furnishing :

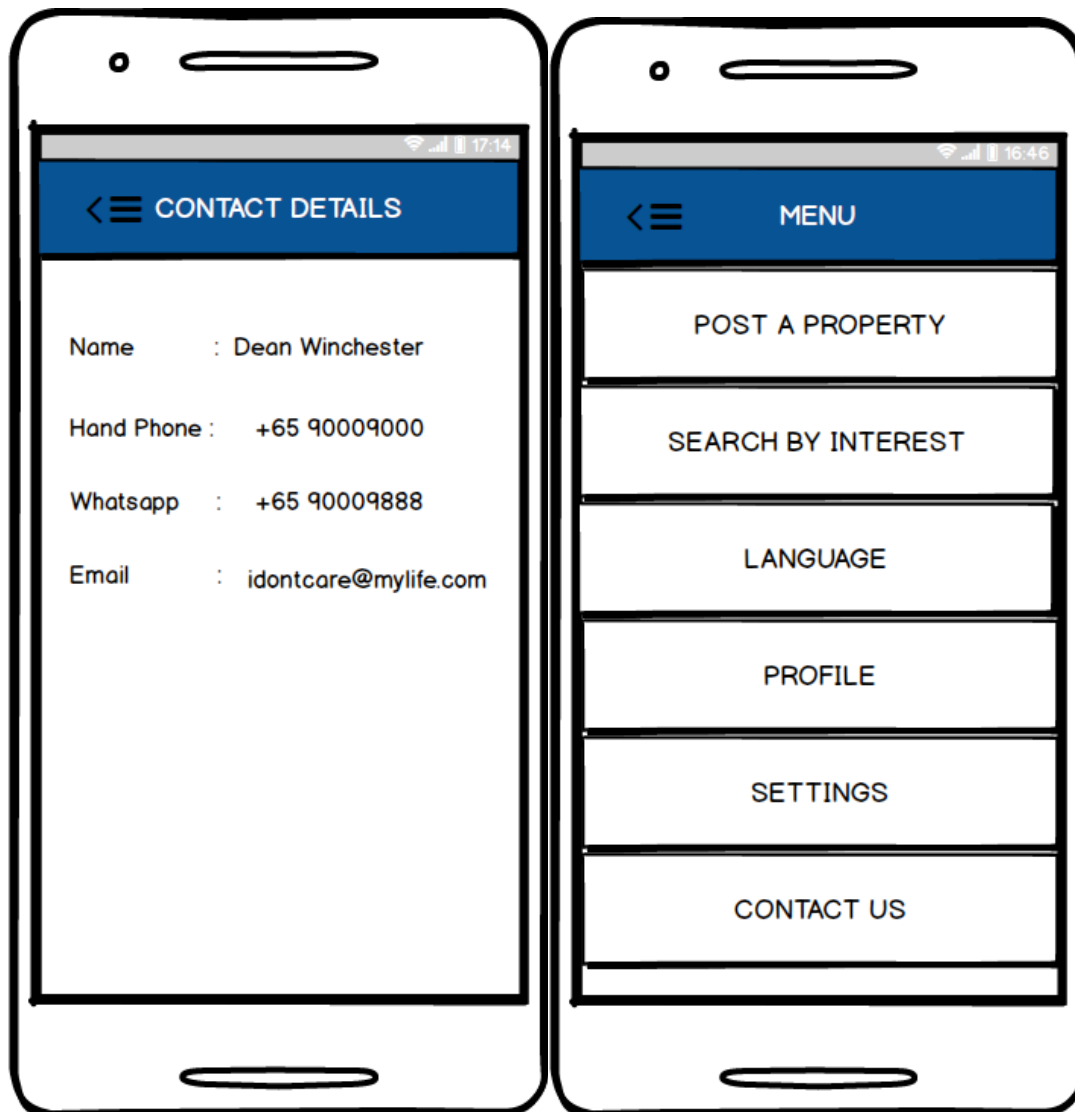
Semi - Furnished

No. of People :

2

BROWSE







16:43

POST PROPERTY

Select the following depending on the availability

Pool : Not Available ▾

Kitchen : Can Use ▾

Laundry : Can Use ▾

Parking : Not Available ▾

Gym : Not Available ▾

Next >

16:43

POST PROPERTY

Address

Country : \_\_\_\_\_

City : \_\_\_\_\_

Street : \_\_\_\_\_

Block : \_\_\_\_\_

Postcode : \_\_\_\_\_

Next >



