Duyar: House Rental Application

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled **"Duyar: House Rental Application**", submitted by Mahabubullahi Nur (151-15-4723), K.M Maidul Islam (151-15-4714) and Md Jumaer Ahmed (151-15-5146) to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 12th December 2018.

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Ms. Farhana Irin, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

At the time we are in the era of technology. Using those technologies our life become very easy and helpful on day to day life. But some of our work not in the touch of technology. For an example rental process of our country. Based on Bangladesh, many people live in Dhaka city by many purposes. Not everyone has own apartment or house. So, others want apartment or house to stay. They must find those apartments or houses by searching here and there. It wastes many times and hard one. On the other hand, when the owner of the house or apartment need renter he print many posters of To-let and fitted into the wall. To get rid of this problem we developed a such kind of application which name is (Duyar). We developed our application based on android. because we want to have used this application in mobile phone by whom it will be available for everyone. Because nowadays most people have mobile phone mostly smart phone. Because of it our application easy to find also for the sharing the application with others. By using our application any Renter easily find the rental house/apartment advertisement in this application along with details. Owners can add their rental house/apartment for advertising. Only they need to give the information of that rental house/apartment they need renter. All those processes easily handle by our android application Considering on our mind that we should make that application user friendly. For that every person can easily use that application for rental process.

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CHAPTER 1

Introduction

1.1 Introduction

To-let or Rental management application ca be very important and useful for those whose are live in a big city. This android application helps everyone to find out which type of rental house or apartment they want for rent. They find it all in this application. No need to go out for finding those rental houses and apartment. On the other side owner of those houses and apartments also beneficial. They don't have to worry at all finding renter. Owner side or renter side both are find this application time saving and useful to them. Most of the people having a smartphone. And they can use it easily by their smartphone if it is android operating system. This chapter will help understanding the project how we motivate to develop this type of application, its objectives, expected outcome and report layout.

1.2 Motivation

House rent or apartment rent service is one of the necessity things for all who lives in a big city for a purpose. We are one of a kind. We live in Dhaka city for studying and after that our goal is to find a suitable job in here. We are not permanent in Dhaka city. So, we all need a place to stay. When we first come to Dhaka, we have to face a lot of trouble to find out a house. After that we changes houses several times. Most of the time we get into trouble to find out the rental house. Like some owners don't want bachelor but we don't know yet when they asked about our family status about married or bachelor. Sometimes we meet the owner see the house and suitable for stay but knowing that we are bachelor owners deny. All out time being waste to see the house. Because it's long process. Sometimes it takes a day to find out the suitable house or more than a day. On the other hand, owner's get irritated. They also don't find the suitable renter to rent their house or apartment. We are the CSE student. On the first semester we took a course which name Problem solving. Basically, it a C programming course but its name was the problem-solving course. After that we imagine that we are a problem solver not only programming but also all the problem. When title defense was knocking on the door, we want to do such a project that helps people and thinks get easier to them. We found out this rental problem. We think that if we work on this project many people get benefit from this project or this application we create. And it also helps us for finding rental house or apartment in future. So, we get motivated for doing this kind of project.

1.3 Objective

Our project is on house or apartment rental service. We are doing this project by purpose. We want to solve the problem of rental service of house or apartment. And we also consider the users whose are get profited by using this. Nowadays most of the people using smartphones. And most of the smartphone are running on android operating system. So, we want to build this application based on android. For this most of the people easy find out our application also can use it [7].

While we are doing this project considering on our mind that we must make is simple or make this application's interface easier for the users. So, they simply use this application and takes the benefit of it. In this project all our goal is to solve this rental problem. Also, we are trying that who wants rental house or apartment find out easily on this application. Also considering on the mind that different types of renter wants different types of rental house or application. Bangladesh is a developing country. It is developing day by day in every sector. Most of the things get digitalized. But rental system is not upgraded. So, we want to upgrade this sector. It is the part of our everyday life. By the blessing of science our everyday life is getting better are easier day by day. So, should not be the rental process. Most of the people want to find out the easy way not the hard way. Everyone wants to get rid of it find out easy way. So, our objective is to solve this rental problem and make it easier and digitalized.

1.4 Expected Outcome

Home is necessary for everyone. It is one of the important parts for everyone life. We face problem on that important part when we want to find out house or apartment for rent. Our android application is capable of get rid of this problem easily. We are expecting that people get benefited by using this application on their daily life. Owners also find out renter easily. They don't need to worry at all. Both side owner side or the renter side both are get benefited and get rid of the rental process. we develop this application considering on the mind that there are different types of renter some are bachelor, married, student, family etc. For apartment also different types of renter for office, showroom, shop, coaching center etc. On the other hand, owner of the house or apartment different point of view. Some owners want family or married renter not the bachelor, some wants both bachelor and family. Some owner wants to rent their apartment for office not for the shop or showroom, some want showroom or shop not the coaching center. There is different owner different demand. Also rent price also a big matter for both owner and renter. It is a complex process to get rid of. But we find easy way to get out of it. We develop an android application based on those problem. We expect that all this complex process is being solved by our rental system application. There is no complexity in there.

1.5 Report Layout

On this report all the topic/content is divided part by part along with their name and chapter. From the beginning front cover page attached with title work, student information, supervisor information. Along with approval page, declaration, acknowledgement and the Abstract. After that main part of the report begun. There are table of content with separate page numbers along with separate content. There are also figure list numbers with page numbers. Those figures are in the main body of the report. In the First Chapter We discuss in different content. Contents are Introduction, motivation, Objective, Expected Outcome, Report Layout. All those contents are including in chapter 1. In the second chapter we discuss on the background of the project. Like related works, comparative studies, Scope of the problem, Challenges. On chapter 3 we discuss about the requirement. For doing this project what are the requirement and specified it. In chapter 3 contents are Business Processing Model, requirement collection and analysis, use case model, Logical data model and design requirement. We also all some figures on the chapter 3. In chapter 4 we include the picture of our application front end design with description. Also include the implementation requirements. On the chapter 5, We add database table along with table figures of those database. Also have content like Implementation of front-end design. In this chapter we also add some test report of our android application we tested. Last chapter is chapter 6. In this chapter we are discussing about the application and the conclusion. Also, we discuss about the scope for the future development of this development project. Last, we add some references we are being helped from those sites.

CHAPTER 2

Background

2.1 Introduction

This project is mainly developed for android operating system. Because it's easy way to reach people hand. To connect on this application must have the internet connection. Some of similar project are on the web page but not on android. But those are not so effective and helpful for others. In this chapter we discuss about related work, comparative studies, scope of problem, and the challenges.

2.2 Related work

Rent a house or apartment is common for some one. Because every day someone or somebody must need this house or apartment for rent or need a renter. Our project is based on this common topic. So, it is easy to find this type of rental system project. But mostly we find in the web pages. There are many sites in the web but not much application [9].

Those websites not so helpful to others whose are trying to find a house or apartment and whose are trying to rent their house or apartment. Some of the web page can't run on the mobile phone if someone is trying to reach their website using phone. It's a big problem. Because not everyone uses computer or laptop. But currently most of the people have mobile phone not only mobile phone most of them have smartphone. So, our application is based on android operating system which runs our application easily on those smartphones. On the other hand, some webpages haven't much information about the rental house or apartment. Some web pages have only the address and phone number. No picture of that house or apartment, is it for bachelor or family, for male or female nothing. Old rental process on the internet not in the wall right now. All we are trying to say that all those similar websites are not properly useful for the renter person or the owner. Those have major lack on their site [10].

They failed to remove the basic problem of rental system. But our application hasn't those type of problem. We provide an application where users easily find rental and house or apartment rent. Using our application, they easily get the location of the rental house or apartment using google map. Location has been set and showing nearest rental house or apartment. So, we think that our application is much better than those websites and it's proving most of the information for searching a rental house or apartment and easiest way.

2.3 Comparative Studies

While doing this project firstly we search for the related. We search it because we want our project would be better than those projects. We found many web pages but not much application. We look on those webpages and trying find the information we need to develop our application better than them. Though those are the web pages, but content is similar to us [11].

Firstly, we looked at the user interface. Because it's the main point. Because our goal is to find better rental system than others. The application must have to be user friendly. Then we looked at deficiency of that site so that we fulfill those lack in our application. And that's how our application become effective and helpful for others. We are studying on those websites only because of to gather some information by whom our android application being better. We also find similar application in android but it not much and also not helpful [7].

Every day we all learn new formula, get new idea, and upgraded day by day. We can't say that this application has no lack or deficiency. In future someday, someone may be look into our application find out lack or error and develop a new upgraded also more efficient application. In this project only, we are trying to create a system for rental system which is helpful for renter and owner.

2.4 Scope of Problem

Developed an application and not find any problem it not possible. To develop this application, we also face some problems. To adding google map and location of rental houses and apartment. Also adding image of rental house or apartment. But we are working on those problem and find a way out. Using the application when the owner will get the renter for his/her house or apartment then the owner has to manually delete his/her post. Problem will arise when the owner forgot to remove his rental post from the app. New renter see those post which already booked. For that owner and renter both get irritated. It's a problem of scope. We are working on this problem for finding a solution. On the other hand, it may have some privacy issue for the owner. Using this application anyone can see his/her rental post which have his/her details like phone number, e-mail, address. But nowadays for any online system we have to give our details. Like name, phone, e-mail etc. It's not a problem but arise a problem. We can't solve every problem of this application. We are considering the basic one. In future we will try to solve those type of problems and that's how our application being more efficient and secured.

2.5 Challenges

In this project our first main challenge was to make an an application what we think of. We passed on that challenge because we developed an android application what we think of to

develop. We worked on such a topic that already have existence. But the good thing was that those project/work can't fulfil the main purpose of the project. Some project has some impressive stuff [12]

But most of them are web pages. We think that we have to do this project in different process. We worked on rental system processing and those projects also do. So why should people get benefited from our work, why should people use our application not their application. That's our main challenge. So, we accepted that challenge and we tried to make such an application that makes better than other application. We make an application because there is not much application on rental system. Those have, don't have the basic need for a rental system processing. So, we tried to fill-up those needs what should be included in rental system app. Also doing this development project we face some problems also find something we don't understand who to do it. We found out those particular problems and understand it and implemented it onto our project.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

This (figure:3.1) is the business processing model of our project. It is a graphical representation of our project defining with various objects. In this model there are three different activities. There is renter, (Duyar) our application and the owner. All have different types of objective. Renter have 3 different objects, Application have 4 different objects and the owner have 5 different objects. Those three activities are inter connected with each other with arrow symbol. This business processing model defines the whole process of the application and how it works. It would be clear to everyone after seeing this Model about our application working process.
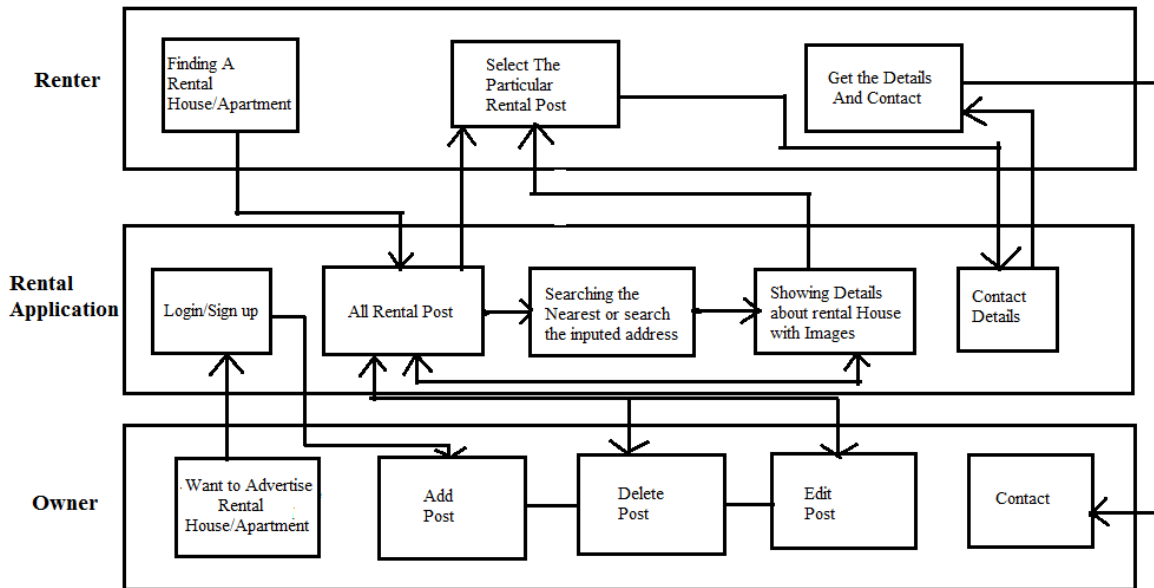

Figure 3.1: Business Model of our Application

3.2 Requirement Collection and Analysis

Our application is based on android operating system. And we work on rental system of a house or apartment. We already told that we looked some of the similar project. Considering in our mind that we have make better and efficient application from those. After seeing those similar projects, we easily find out what we require or include into our

application. To find a rental house or apartment what renter need or want to see. Firstly, the location which area they need rental. So, location is must add to our application. Then comes which type of rental house or apartment they want. Different people have different types of requirement. Then the renter wants to see how the room condition was. Another main part is fare. Fare depends for both renter and owner. Then there have to the contact address by whom the renter and the owner makes the deal done. All these basic things must to be included. On the owner's side must advertise his/her rental house or apartment. So, he/she might have to add his rental house room image. Then he must have to add the address of the rental house or apartment. Another important part is different owner needs different renter. Like some want to have bachelor some are not, some want family or couples also for apartment different owner different need. Fare is most important for the owner. So, all those requirements must be included for the owner. After collecting that we are analyzing on those requirements and also considering those similar projects we found out that if we improve some requirement steps then our application is very helpful for the users. Like location, its very important for the renter side. If they easily find rental house or apartment it would be very helpful for them. Then we decide that we add the google map. By whom the renter easily searches for his selected location and find rental house or apartment in google map and we also want to add extra feature in search option. It's an android application so the requirements to develop an android application is not so difficult. There are many platforms where we can develop an android application by our own.

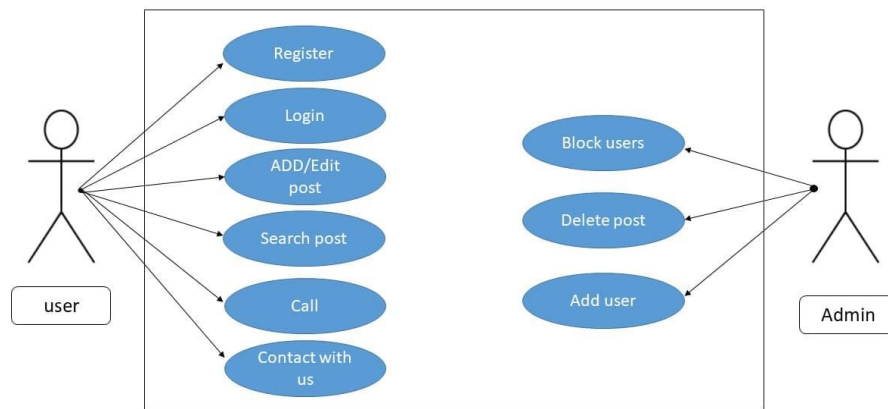## 3.3 Use Case Modeling and Description

Figure 3.2: Use case diagram of our Application

This is the use case model of our application. In this model there are two users. There is the owner of the rental house or apartment and the renter who wants rental house or apartment. Considering the renter side first he/she have to see the rental post or then he/she

select the rental house, or he/she search the rental house or apartment. Then the on-going process and then get details of contact. Considering the rental post in their renter have seen different types of rental house or apartment. He/she have to decide which type of rental house/apartment he/she need. Also, there are some details about the rental house/apartment. Like the rental house/apartment images and its details. So, it's easy for a renter to select which rental house/apartment he/she need. On this use case there is another user which the owner is. Considering the owner side owner must have to add his rental house/apartment details in there for advertisement. Firstly he/she must sign up/log in. Then he would add rental post or see his previous rental post or delete his/her post. His/her post is inter connected with rental post. Because when an owner adds rental post then the renter able to see those post. So those are interconnected. Then comes to contact. Contact is also interconnected with renter and owner. Because the after selecting the rental house/apartment he finds the contact address like email or phone number which was given by owner. The renter contact to the owner using those address. So, contact is interconnected.

3.4 Logical Data Model

Data table is created in the database with different table with relation/ interconnected with each other. Those are the logical data model of our application. In this model Different table have different data segment but all together needed for the application. Five different table with different part. Post table, user table, image table, map table, sub-post table.
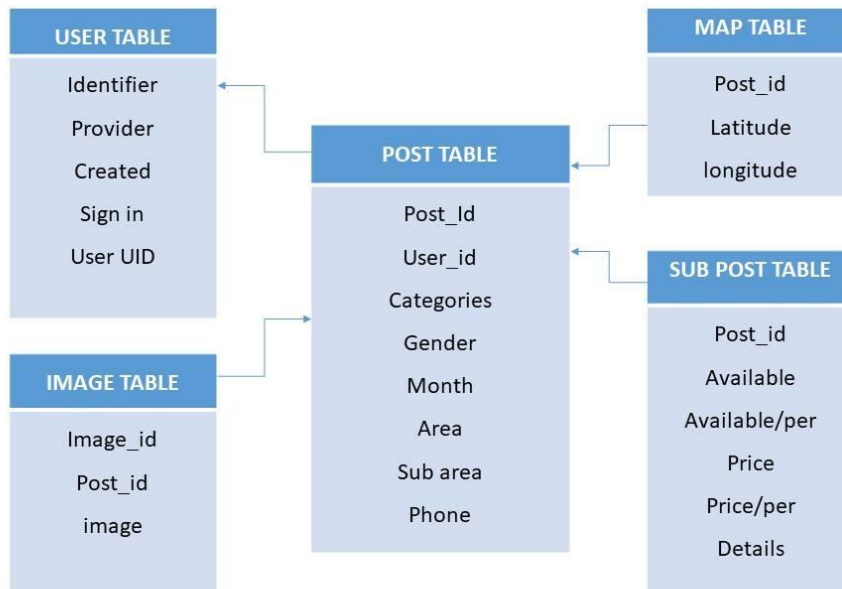

Figure 3.3: Data Model of our Application

Post table is related with user table. Post table data is depending on the user table. On the other hand, Map table and Sub-Post Table depends on post table. And for the Image table. For testing we only use SQL lite. We stored our data in online using Json parsing. And we implemented it for our application.

3.5 Design Requirement

Design is also an important part. Our application is developed for rental system. Application's front-end design or it's interfaces design should be user friendly and easy to handle by the users. By whom users are willing to use this application for rental process. Our application is both for renter and owner. So, Two different users two different interface. If someone as a renter using the app which part would be showing. For renter he/she wants to need rental houses/apartment. So. Showing the rental house/apartment with details. Before start developing the app, we create a list what should be in our application and its interfaces and its design. As our application is based on android application [5]. Developing this Application requirement tools are given below-

Requirement-

Table 1: Requirements for the developing Application

Android API level requirement	API 18
Uses For	Only Dhaka City
Hardware requirement	Desktop or a laptop with 4gb ram or higher version
Android development	Android Software Development Kit (SDK) And Android Studio Google Map API
Language	Java XML
Testing	Android device, Android studio (Using as Emulator)

Android is that kind of platform where open sources application basically mobile application is being used. Android SDK is used to build an application using java. IT's also able to test or run on the emulator and also real device. It's very important for developing or designing for an application.

Chapter 4

Design Specification

4.1 Front-end Design

This is our application icon. It is a sign or symbol of our android application. We named it (Duyar). Duyar is a bengali word which means house/home.

Figure 4.1: App icon

This is the first page showing after entering our application. In this page we see different rental post. Renter must select the post he/she to interested to know the details of that rental post.

Figure 4.2: Front Page of our application

This is the page after selecting a rental post by the users. In this page renter will know about those rental post which he/she want. In the figure (4.1.3) are showing mess rental post.
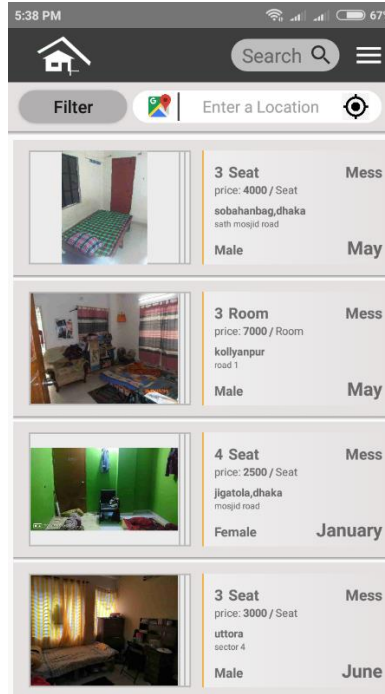

Figure 4.3: Rental Details

In Figure (4.1.4) Showing the google map location of a rental post. In our application there is a search option where users input the location and rental post is showing on those location using google map. Also, an option for the renter to search nearest place.

Figure 4.4: Google map location

This is the page where users/ renter selects a particular post and get details about price, location, Available room/seat and also find an image slider to see the rooms, house or apartment. For confirmation renter will find two tabs where one is call option or another one is SMS. By whom renter contact with owner and fixed the rental house/apartment.
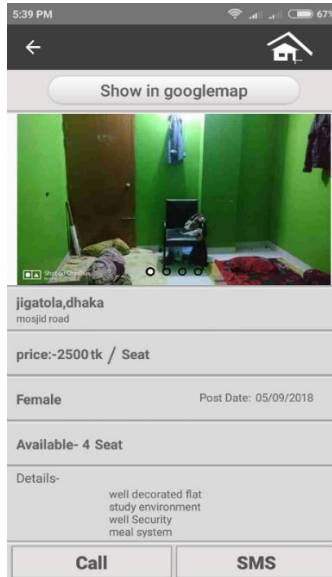

Figure 4.5: A particular rental post details.

This is the menu bar of our application. Using this menu bar owner log into their account or get sign up option. Also add the rental post, see his/her post etc. Also there logout option and also some information bar about the application.

Figure 4.6: menu bar
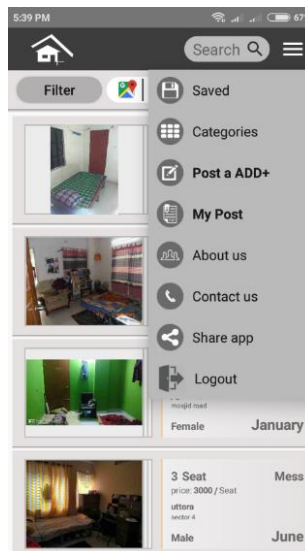
This is the page for login for the renter. It must need for the renter to add any rental post or delete or edit. This data must be remembered and inputed by the renter for any further option.
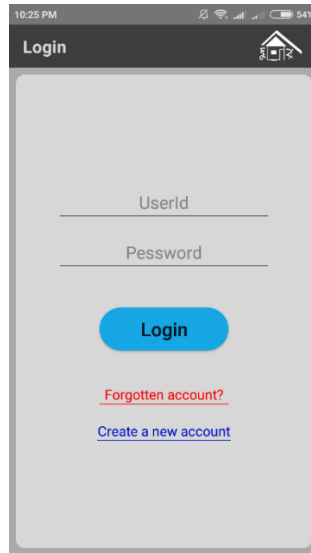

Figure4.7: login page

After log in renter first see his/her post he added in the past if it is not deleted. To do further option tab into the selected option.
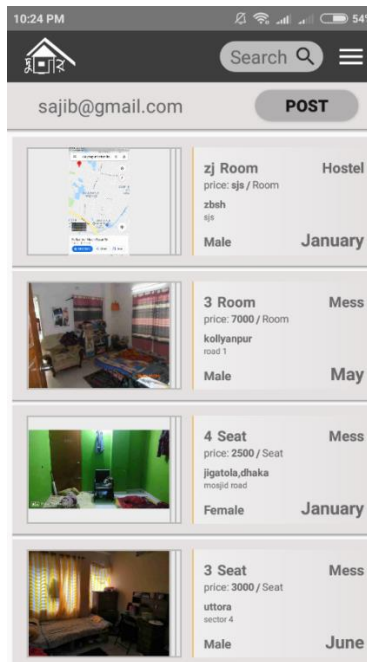
Figure 4.8: Showing owner Post

This is the page where owners are able to Edit or delete his/her post. It only possible after owner post his rental hosuse/apartment with details.
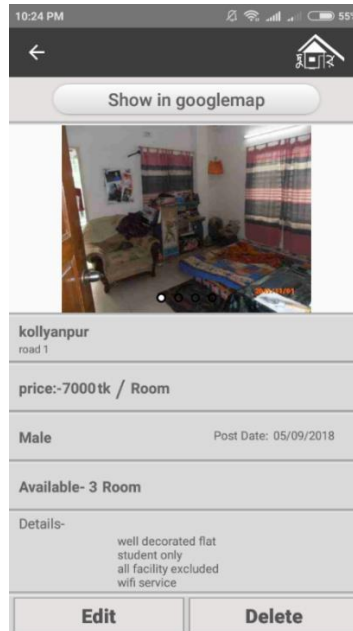

Figure 4.9: Edit/Delete Option For Owners

This is where renter have to add their rental post by fillup those information. Without fillup those information the post will not be completed. So renter have to give the corret details about rental house/apartment.
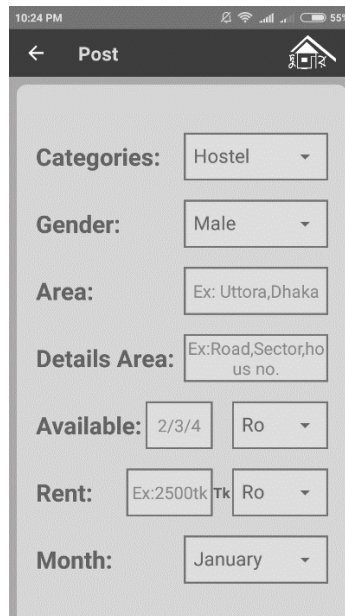
Figure 4.10: Add post

This this the page where owners need to add the images of their rental house/ apartment. So that renter get more information about rental post.

Figure 4.11: Adding image

4.2 Back-end Design

We developed an android application where the owners need to log in/sign up also give the location of the rental house/apartment. For this we needed to save those data which is given by the owners. To save those data we must needed an back end. And we created back-end. We used firebase for back-end because it is a real time database and easier to user for an android application [4].

Figure 4.12: Back-end Database Design

This is back-end design of our application. In our application there is log-in/sign up option where the user need to sign up or if he/she already signned up need to log in to furthure

activites in the application. For all those we created database. In that database all the data is being stored or evoked when it needed. There are the tables of database.

Table 2: Back-end database user table

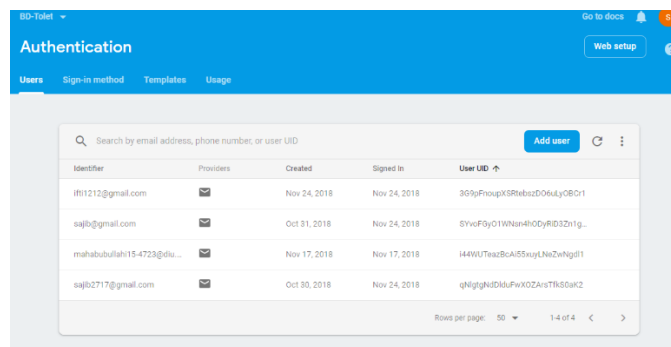| Identifier	Password	created	Sign in	User UID
sajib2717@gmail.com	******	Oct 31, 2018	Nov 16, 2018	SYvoFGyO1WNsn4hODy RiD3Zn1gA3
zafor@gamil.com	*******	Oct 30, 2018	Nov 16, 2018	qNlgtgNdDlduFwXOZArs TfkS0aK2

This is table used for the owners and it is created for sign-in/log-in part. This table used to identify the owners with his rental posts.

Table 3: Back-end database Post Table

Id	User id	Categories	Require	Month	Area	Sub Area	Phone no
1	SYvoFGyO1WNsn4hOD yRiD3Zn1gA3	Hostel	Male	June	Uttora, Dhaka	Road 3, Sector 11	0155555555
2	qNlgtgNdDlduFwXOZAr sTfkS0aK2	Mess	male	July	Mirpur, Dhaka	Kazipara	035623423
3	SYvoFGyO1WNsn4hOD yRiD3Zn1gA3	Flat	Family	June	Savar, Dhaka	Opposite of Bata showroom	0176666666
4	qNlgtgNdDlduFwXOZAr sTfkS0aK2	Sublet	female	June	Azimpur, Dhaka	Road 5	014865549

This post table is being implemented for the post option in our application where an owner needs to fill up those part and it also needed for the renter because using those data renter find rental post. Also, this post is responsible for the review post for the owners who posts those kinds of rental information.

Table 4: Back-end database Sub Post Table.

Post id	Available	Available/per	Price	Price/per	Details
1	3	Room	7000	Room	Details.....
2	2	Seat	2500	Seat	Details.....

This is also necessary for the application because these data needed to be stored/used. It's also a part for the owner. Post table and sub post table are inter connected with each other.

Table 5: Back-end Database Image Table.

Image Id	Post id	Image
1	1	BLOB
2	1	BLOB
3	1	BLOB
4	2	BLOB
5	2	BLOB
6	2	BLOB
7	3	BLOB

All those given data needed to be stored. Using those kinds of data our application become valuable to use for both owners and renters. Must needed to store/save those data. So, we created back end for our application using firebase.

4.2 Implementation Requirement

Our developed project is basically based on Android. It is an operating system which mainly designed for smartphones. And nowadays smartphone is become a necessary need. And day by day smartphone getting better and better along with user interfaces. We implemented the design as if the user gets comfortable to use it and find an easy solution to find rental house/apartment. It's an android application. So, we implemented the design by writing the java code. Those java code compiled with Android SDK made APK. And this APK file have all the objects of that android application. Then we easily install the application in any android device which fulfill the minimum API. Our minimum API is 18. Lower the API our application can't run. We have to specific requirement for designing but we don't skip the basic design what we need for the users. This application is made for the users of the rental process. There are two interfaces along with two different users. We implemented it for two users. We implemented a logo for the application which hold the sign of our application. All the design concept is preplanned, and we implemented it by coding on Android studio. Also, we are using google map site for the location of rental house/apartment. Including the search location and google map is makes the application more efficient in rental process. We add google map service along with search option that's make our application identical than other rental system. Google map is a section of google play service. Google is a huge source of information, but we don't need all the information only we need google map. We add Google map API and implemented it in our application.

Chapter 5

Implementation and Testing

5.1 Implementation of Database

Database Implementation means that implementing database software also for the configuring with some customization and running the application, testing the application. Also, implementation steps DBMS is needed. Creating the database with table format. Then loading up data for users and its security purpose. For our application we also implemented database. Firstly, we design the application and its interfaces which needed. Creating database for this application and creates table. Four Different table are created with different purposes. There are User Table, Post Table, Sub Post Table, Image Table.
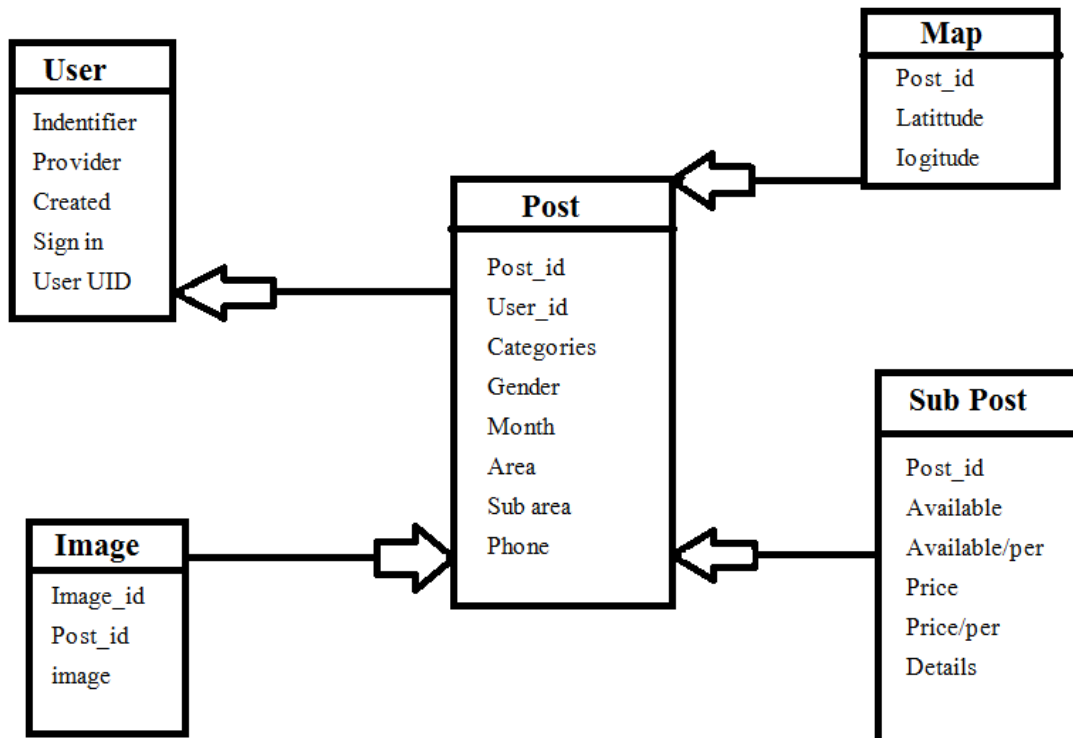
Figure 5.1: Database Table

 In our android application sign up option is required. By giving email and password sign up completed. And it's also uses for log in part. Because those is required for log in. Post table is used for post option. It is created for owners. Because rental a house/apartment owner need to give that information and it's also important for the renter by whom renter know the information about the rental house. And this table help to separate different types

of rental advertising. Owner input that information and this table is required. Sub Post table is also a part of post table. Implemented this table as the Post table. Post table and sub post table both have been implemented for the same reason. There is also a table which is Image table. This database table is implemented for image. Because in our application we provide rental house where a renter wants to see the rental house present condition like have window or not, have balcony or not, how was the room condition etc. For this this database is so helpful for the users to select a rental house/apartment. For this this image table is implemented in database table. In database we created only those table which are basically needed for our application. No extra data table implemented in Database. We created database for our android application as if in future if we need to add any extra feature which must have to connect present database easily can recall or access. Considering all those in our mind we implemented database in use for our rental application.

5.2 Implementation of Front-end Design

We developed an android application which handle the rental process. For implementing the design, we create a draft. In that draft we consider all possible design, how the interface will be, which part should add which are not, how its look, front end design etc. Our application is only for two users the owners and the renters. For the renter what are the requirement. Before implementing renter part, we think as a renter and trying to find the needs for them before rent a house and implement on this basis. Different renter different views different needs. Before implementation we consider all those different views different need. It is helpful for us to make a beneficial and useful application which help the renter to rent a house/apartment. We also think o the owner side. Same here different owner different need. Also considering those need and implement the owner's part. It's an application and it should be user friendly. By whom users handle the application easily. All the users not so good at using smartphone. So, application should be implemented like that by whom new users or old users faces not much trouble [2].

Before implementation of front-end Design that draft helps us a lot to create this application design part. All we need to do coding and build a design as given in draft. We are developing a mobile application we do coding on eclipse which is a platform for java language. We are also test this on the emulator and run on the emulator. Front end design is very important because it holds the actual value lies one. If someone make an application but the interface design or front-end design is not to up to mark and not so easy interface design for the users. So that application has no purpose or no value. An application is built for users uses. If the user can't do such kind of work that application has value. Also, someone think the design but can't design as he/she thinks. Also, that's a fail and for that application can't fulfil his purposes. We also face some problem for implementing the front-end design. We overcome those problem and implement the front-end design as we think on this application we developed.

5.3 Testing Implementation

Testing is important for an application. If it comes to android application which runs on various devices. To ensure that application which is developed run well without error. Ours's also an android application. So, we tested the application which developed for rental system which helped to enhance the application and maintained it. We are using android studio for testing. Also, we run the application in some real android devices. We consider/ select a part which we want to test. On our first test we found out an error. In our application we add slider part where users change the images of rental house/apartment by sliding left or right. But it was not working properly. We work on the particular problem and fixed it. We tested again we didn't find any error until we tested the adding image part. There is a problem to add the image. Error occurs when we want to add extra image. It's a big problem for us because it's a basic need for users. Also, we found out the solution of it and tested again. Our testing implementation is based on this figure.
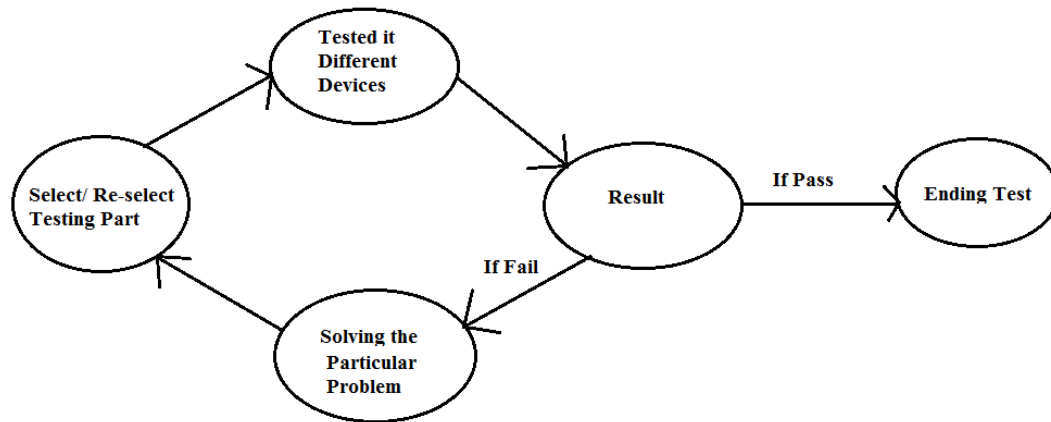

Figure 5.2: Testing Implementation

5.4 Test Result and Report

We select the part which we want test by whom if that part work properly or not. We use many devices for testing [1].

Devices we tested.

Table 6: Device Specification with test result

Device Name	Android Version	Ram	Processor	Resolution	Result
Huawei Nova 2i	Android 7.0	4GB	1.7GHz octa Core	1080*2160 pixel	pass
Nokia 2	Android 7.1.1	1GB	1.3GHz Quad core	720*1280 pixel	pass
Xiaomi Redmi 4A	Android 6.0	2GB	1.4GHz quad core	720*1280 pixel	pass
Walton N2	Android 6.0	2GB	1.3GHz quad core	1080*720 pixel	pass
Samsung J7 pro	Android 8.0	3GB	1.6GHz octa Core	1080*1920	pass
One plus 6	Android 8.1	8GB	1.7GHz octa Core	1080*2280	pass

On those devices we also test some operation. Those operation is depending on ours which part we want to test and implemented in testing. Some of the operations are

Operation (Testing)

Table 7: Different functional Test Result

Installing the Application	Passed
Internet connection/ Wi-Fi operation	Passed
Login screen, login option operation	Passed
Password forgot operation	Passed

Minimize/ using multiple app beside	Passed
Using application during calling	Passed
Uninstall and re-install the app	Passed
Rotation operation	Passed
Show to App icon (Duyar)	Passed
Minimize app pressing home button	Passed
Sliding/ Scrolling/Swipe works operation	Passed
Sharing app operation	Passed
Open from multiple tab operation	Passed
Image operation	Passed
Location operation (Google Map using GPS)	Passed
Sign up operation	Passed.

We find some bug in testing. In nova 2i the application works little bit slow. But it's not a problem because in that devices also the other devices the application work perfectly. On the other hand, all the devices we are using for testing the application works fine. No major errors or bug appears till now.

Chapter 6

Conclusion and Future Scopes

6.1 Discussion and Conclusion

Day by day technology makes our better and better. We developed this application as the purpose. Trying to make rental process easier with the help of technology. We consider an android application because android is open source and it is that kind of development platform which is free. It's mainly based on Linux. We developed this application on basis of people of Dhaka City. We need internet/Wi-Fi connection for using this application and which is available in Dhaka City. We developed this kind of application to remove the chronic rental process and introduce with technology. And also, we tried to make an efficient android application. Besides man are getting smarter along with technology. Like they order food, take ride, paying any kinds of bill, shopping etc. They don't need to go outside to do those stuff. They are doing those with the help of the internet with technology devices. We are also wanted to include something as those work. We developed an application which handle the rental system processing. We use mobile phones because we want that this application easily finds out and see it every people hand. We are using smart phone the reason behind that it's the common thing for most of the people also uses it too. And it became a daily need for us for the people of Dhaka city. We only developed this application for making the rental process easier for the renter and the owner. Old rental process is difficult and wastes lot of our time. We tried to get rid of the old process of rental system. Our application is the solution to get rid of the old rental process which is become quick and easy.

6.2 Scope for Further Development

Developers developing their application for making their application more efficient more effective. We are also developed an application too and it has also scope for future development. Earlier we told that our application is limited. It is only useful for the people of Dhaka city. Outside of Dhaka city our application not providing any rental service. There is a scope for future development. In future we will provide rental service other big cities in BANGLADESH where people need rental services. Onto our application we are using google map API Which is not premium. By whom only we can use limited map. In future if the application become more valuable and needier thing, we will update the google API in premium segment which increase the users also become more efficient rental service application. In our application owners need to delete his rental advertising by its own after confirming a renter. In future we will change this feature on automatic delete the post which get renter. So, for this future change the owner gets benefited by using this application. We

will work on this application for sure in future. In future we will make our application more secure for the owners. Because by using this application they give their person data for a purpose. By improving the security, the owners use our application more secured way and not get any trouble giving the personal information. We also thinking that in future we will input login/ sign up option for renter. For adding that no one easily get the rental information and use that information in any kind of harmful purpose. If such kind of harmful think happed investigating team found out the data. It will make the application more secured. In future we are thinking that we also make an option for videos. Owners will make video of his/her rental house/apartment and post it. If that happened the renter no need to go to the rental house/apartment to see. It will save the time both the owner mainly the renter. We will make all those possible scopes be done in future if needed for this rental processing management application.

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