DESIGN AND DEVELOPMENT OF HOUSE RENT SOLUTION

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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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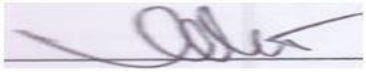
APPROVAL

This Project titled **"DESIGN AND DEVELOPMENT OF HOUSE RENT SOLUTION**", submitted by Md. Golam Rob Miah and Md.Shofiqul Islam and Md. Shibli Shadik 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 19 August 2015.

BOARD OF EXAMINERS



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DECLERATION

We hereby declare that, this project has been done by us under the supervision of **Md. Sadekur Rahman, Lecturer, and 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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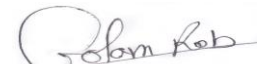

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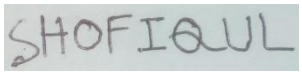

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We would like to express our heartiest gratitude to **Dr. Sayed Akter Hossain, Head, Department of CSE, Professor and Head, Department of CSE,** for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

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ABSTRACT

The core concept behind this project work is to eliminate the hard work normal civilians have to go through to find a new home for rent. Our capital city Dhaka is a densely populated city with more than seven core living in a small city. Finding a proper house for you and your family can be tricky. We believe our software / project will help everyone living in capital Dhaka and slowly as we extend to further more cities to produce adds that a house is free to rent, and provide easy facilities for general people to find and take rent easily.

Before implementing such an idea, we conducted several surveys on local areas and figure out the differences in policies how each area home owner has their own terms and handle the house rent process. We were amazed how much the home owners appreciated our idea and wanted to take advantage of this system. We also researched in the internet about existing websites that supports this idea. We came up with a list of lots of website in foreign countries who are already providing this support to local civilians. More features are provided by those websites but to provide up to that extend is outside the scope of this academic project. To implement such an idea needs maximum effort and dedication from our team – and we believed to put the effort needed.

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CHAPTER ONE

INTRODUCTION

Introduction

The project House Rent has a great and new concept hidden in this project. The concept is new for our country Bangladesh and will help everyone very much. After studying extensively and facing this house renting problem personally in real life in our capital city Dhaka – we came up with the idea to decrease the pain general people go through to rent a house.

The project has many sides to it and we believe by implementing such an idea in the market will benefit all sides and users of House Rent project. Much like general people – who are searching for houses to rent – the home owners also seek for good and trusted people to give rent to. Both parties will be highly benefited if this project can be implemented successfully.

After studying and figuring out the needs of both the parties and the underlying processes that lies within the concept of house rent – me and my team decided to go ahead with this idea and implement a solution that will help everyone living in the city[Shown theFig1.1].

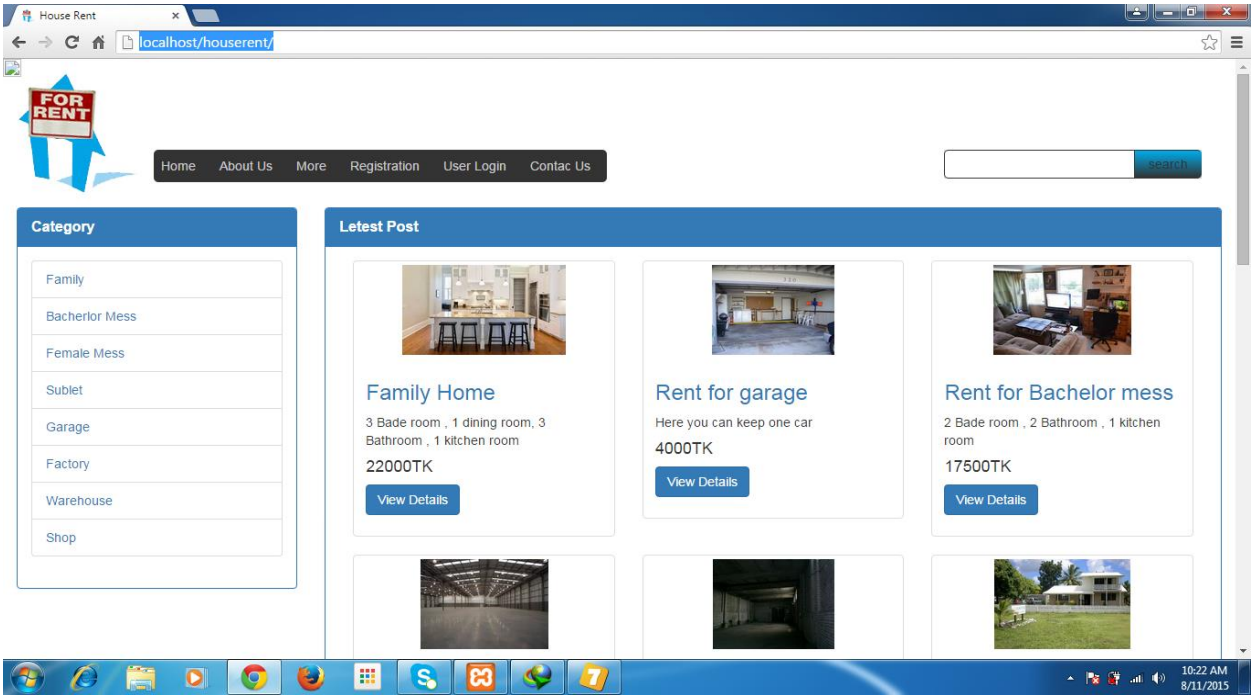

Figure 1.1: screen shot of the project.

Why choosing this Project

The project has been a hit in foreign countries for a long time now. In foreign countries, getting your house rented is very easy and to take a rent and know about the price and facilities that the house owner will provide is easy. Therefore like our country Bangladesh – people don't have to go to door to door to know about the house and ask whether they permit bachelor or family rent. This is very tiring and frustrated. Changing a home and taking a new rent takes months ahead planning and preparation in our country.

Having said that – the house owners also stay in tension and pressure whether or not their house will get rented or not. They have to buy or make ads and hang this adds in front of the house and in the common advertisement section of the area. This is costly and also takes effort to serve potential renting. With every renting – the owners have to have a long discussion with everyone – making them see the house and deal about pricing. This takes time and effort and also produces a risk of losing potential client if the owner is not available at that particular period of time.

Me and my team discussed how could this all be eliminated and came up with the project idea House Rent. After sharing our idea with our supervisor and having several short chats about the idea – we received the initial guideline of the project. This project could be the solution for all the questions that both house owners and the renting people have to face – and could save both of the parties time, effort, energy and most importantly money. We also took reviews of different individuals and find out that almost everyone is interested and appreciated the idea. After getting positive feedback – I and my partner started brainstorming how to implement the idea so that it stays easy for both shop owners and for customers. We than set off for the project.

Objective of the project

The main objective of this project is to facilitate two major parties involved in the process of renting a house – the house owners and the renting party.

The objective is to produce a solution which can be used extensively by anyone to get a categorized list of all the houses available to take rent and to contact with the house owners easily. From the other side of the project – it will also facilitate house owners extensively as it will save a lot of time and effort which was previously needed to serve each interested renter. House owner now can easily publish ads and showcase their houses and can easily come in comparison with other house owners and the facilities they provide and stay ahead to get more hits form potential renter – which in the old traditional system of renting a house is not possible.

House Rent – the project is developed using PHP, JavaScript, HTML, CSS and to stylize Bootstrap framework is also used. House Rent project contains both the back end and the front end. It has panels for potential house owners who want to showcase their house and publish ads. It has a panel for users / interested renters who want to communicate with the owners. House Rent also facilitates the owner of the system (us) by providing an admin panel – form which every customer registration, new post and other important issues can be controlled and configured. While developing the service – user friendliness and the ability to cope with different facilities that house owners might require is kept in mind and considered. The website is dynamic and is very flexible to meet user needs.

CHAPTER TWO

FEASIBILITY STUDY

Feasibility study is the study that reflects whether the project is feasible or not. It will help us determine whether this project will take us to loss or it will ultimately bring up profit as expected. A feasibility study of a system proposal is according to its workability, this has an impact on the organization, ability to meet their user needs and satisfy them and do an effective use of the company's resources. Thus when a new application is proposed it normally goes through a feasibility study before it is approved for development.

For bigger projects – feasibility study is done extensively and reports produces, but due to academic scope limitation and project boundary – we studied the feasibility in a standard and summarized manner and found out that the project has a high potential to be feasible in our country Bangladesh.

In this chapter of our documentation we will look upon few major aspects of feasibility and its studies. Among various types of in depth feasibility studies available for bigger / higher end projects – we will study three major / standard feasibility types that are needed for any kind of project to understand feasibility of the project. The three feasibility types are:

1) Technical Feasibility
2) Economic Feasibility
3) Behavioral Feasibility

Technical Feasibility

Technical feasibility is one of the major components of understanding feasibility and should be studied at the very beginning once the project is identified. Technical feasibility should mainly contain the following three major aspects of understanding:

- Availability of raw materials for input
- Availability of market for output

- Various efficiency factors.

The system must be evaluated from the technical point keeping the listed aspects in mind. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, the availability of technologies that my team has good grasp on and the ability to get the resources required. The resources required to develop this project is available for free to use and my team will face no problem in acquiring them.

We also considered the availability of market for output. The project will be a great hit only if can be launched in proper market at the right time with the rite facilities provided. The consideration of output and market availability shows us the positive aspects of the project and me and my team is very confident that the output of this project will be a good one.

Having identified an output system, the investigation must go on to suggest about various efficiency factors that needed to be considered before starting the project. The efficiency factors of this project lies in its availability and user friendliness for all purpose users. My team and me believes that this can be achieved with ease and due to usage of the latest technologies – the efficiency factors can be achieved.

We as Analysts have identified the existing computer systems (hardware & software) of the concerned department and have determined whether these technical feasibility study and resources are sufficient for the proposed system or not**.** We have found out thus, that the project is technically very much feasible and should have no problem in execution.

Economic Feasibility

The main concern of economic feasibility study is to consider the possible economic benefits that the host company / team will have by implementing this project. It includes quantification and identification of all the benefits expected. This economic feasibility study typically involves a cost/ benefits analysis. For me and my team – the economic facilities might not be that much due to academic project and scope – but the project itself holds some economic value for all parties related.

The developing system must be justified by cost and benefit. Few questions needed to be asked during the initial stages of economic feasibility study – the questions are:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

After going through the study of economic feasibility and cost / benefit analysis and finally asking the questions for this project feasibility – me and my team found out that the project is economically feasible and should be taken into consideration of having positive impact on market.

Cultural Feasibility

Cultural feasibility is the study of the impact that the project might have culturally – which might lead the project to be popular or lead to a failure. The concept is to understand and accept the cultural bindings and also findings the strong aspects that any culture could provide to be a project tremendously successful. For any cultural acceptance of any project – the following questions should be considered:

- Is there sufficient support for the users?
- Will the proposed system cause harm?
- How can it increase anyone's daily activity?

The project would be beneficial because it satisfies the objectives when developed and installed. All cultural and behavioral aspects are considered carefully and conclude that the project is feasible and should be considered for implementation locally.

CHAPTER THREE

FUNCTIONAL SPECIFICATIONS

Functional Requirements:

Server / Backend

For a project this sophisticated – a good backend / server support is one of the most important things to plan ahead. Therefore I brought this at the very top of functional requirements. Without this requirement – the functionality of our project will not be complete. The project will not run. Regular monitoring and database backup should be taken.

During server / backend functionality understand – we have to keep in mind that the most advanced and updated latest technologies should be used to get the optimum facilities that the server configuration could provide. The database design should follow the standards methods and techniques to avoid any later errors. The dependencies should be checked and used accurately.

Accounts

To get or use the facilities of House Rent – users have to register and create their own accounts to post new ads or to request / communicate with the house owners for any desired house. The user accounts can be regularly monitored and maintained by the admin from the admin panel. If any user tries any harmful methods – admin will have the power / rights to block any user account whenever necessary. The purpose of the account information is to hold login information, network information, profile details. Accounts functionality will help the project to show information that is required to show up in the user's accounts. The user can edit this by modifying his/her profile. Accounts will help the House Rent System to be dynamic – to provide user specific data to each user and also it will enable many hidden facilities and open up new possibilities that user accounts holds in every project / system.

House RentPost

After creating an account under House Rent system – any user can post a free add about available house if necessary. This feature is the core of the project and should be maintained accurately and monitored regularly by admin. The post works like any other post we see in social media. In any post – the house owners can choose categories under which their post falls and can provide basic information – set price for the rent, also provide image.

The post will be displayed in the front end of the system and anyone interested can conduct with the house owner by viewing the details of the post. If anyone wishes to communicate with the owner via House Rent system – then have to have an account to do so.

Network

The most important feature is being able to add and remove other users from the network. In our DIU Alumni Social Networking site, making friends is a fairly straightforward process. Keeping that experience in mind – we also planned to implement a network enables system that can easily brings different users in one platform and communicate and share information about vacant houses and many more. House Rent system can be a common ground for house owners and renter where they can communicate, share needs and views how to do the deal and understand mutual interests. Therefore if network enabled system is planned to be implemented in this project.

Registration

When a user comes to this site for the first time, he/she must create an account before using any of the site features.Anyone can create an account. Sign Up deals with the login information and is required for the user to fill out. By providing basic information users can easily perform the registration and should be approved by admin in the second stage. User has to provide information like name, email address, mobile number, and address with zip code. Users can also upload image as desired to represent themselves in their profile. Provide a password for their account – which they can later use to login to the system and use the systems functionalities.

Non Functional Specification

- Implementation of security from both user access and backend access. Secured admin access should be provided. Secure access of confidential data by user name and password. This application is secure for every kind of its users, because if any user logout from any session then nobody will be able to access his profile without knowing his confidential password.
- Ability to post posts easily without getting errors.
- 99.9% UP TIME or in other word 24 X 7 service availability is very important.
- User friendly design and better component design usage to get better performance at peak time.
- Designing a robust and dependable database. So that data transmission and query execution time is less and thus users will not have to wait for the output very short time.
- Responsive and should have the ability to be accessed from any type of platform.
- Avoid and maintain database redundancy.
- Username & password are sent to the users via email after registration.

CHAPTER FOUR

SYSTEM TOOLS SPECIFICATION

Bootstrap

Bootstrap is a powerful front-end framework for faster and easier web development. It includes HTML and CSS based design templates for common user interface components like Typography, Forms, Buttons, Tables, Navigations, Dropdowns, Alerts, Modals, Tabs, Accordion, Carousel and many other as well as optional JavaScript extensions.

Bootstrap also gives you ability to create responsive layout with much less efforts.

jQuery

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers.

PHP

PHP is scripting languages that fill the gap between Server Side Includes and Perl, intended for the web pages having dynamic constants. PHP is one of the frontrunners in the Open Source software movement. Currently PHP has two major versions: PHP 4 and PHP 5. PHP 6 is currently under development. PHP was design by RasmusLerdorf to display his resume online and to collect data from his visitors.

Originally PHP was implemented as an interpreter and still this is the most popular implementation. Better execution speed, static analysis, and improved interoperability with code written in other language is the advantages of compilation. It can be used in standalone graphical applications. With core build PHP includes Open Source libraries. Fundamentally PHP is a Internet-aware system with modules built in for accessing File Transfer Protocol (FTP) servers, database servers, embedded SQL libraries such as MySQL, Microsoft SQL Server and SQLite and others.

PHP MyAdmin

PHP MyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web. PhpMyAdmin supports a wide range of operations on MySQL, DB and Drizzle. Frequently used operations can be performed via the user interface, while you still have the ability to directly execute any SQL statement.

Features provided by the PHP MyAdmin:

- Web interface
- MySQL database management
- Import data from CSV and SQL
- Export data to various formats: CSV, SQL, XML, PDF, Word, Excel and others
- Administering multiple servers
- Creating PDF graphics of the database layout
- Creating complex queries using Query-by-Example
- Searching globally in a database or a subset of it
- Live charts to monitor MySQL server activity like connections, processes, CPU/Memory usage, etc.

CHAPTER FIVE

FUNCTIONAL SPECIFICATIONS

Key Features

The key features / functionality of the project are listed below to give an understanding of the system boundary and the core functionality that the project Home Rent is providing. The functional specifications implemented are listed below accordingly:

Front Website Features:

The front end is beautifully designed and maintained so that any user / customer can easily get the information they require and can find comfort in usage. The posts of empty houses for rent are categorized and assembled in such manner so that different category of people can easily find what they are searching for. A general shown the [Fig5.1] of the front end is provided below:

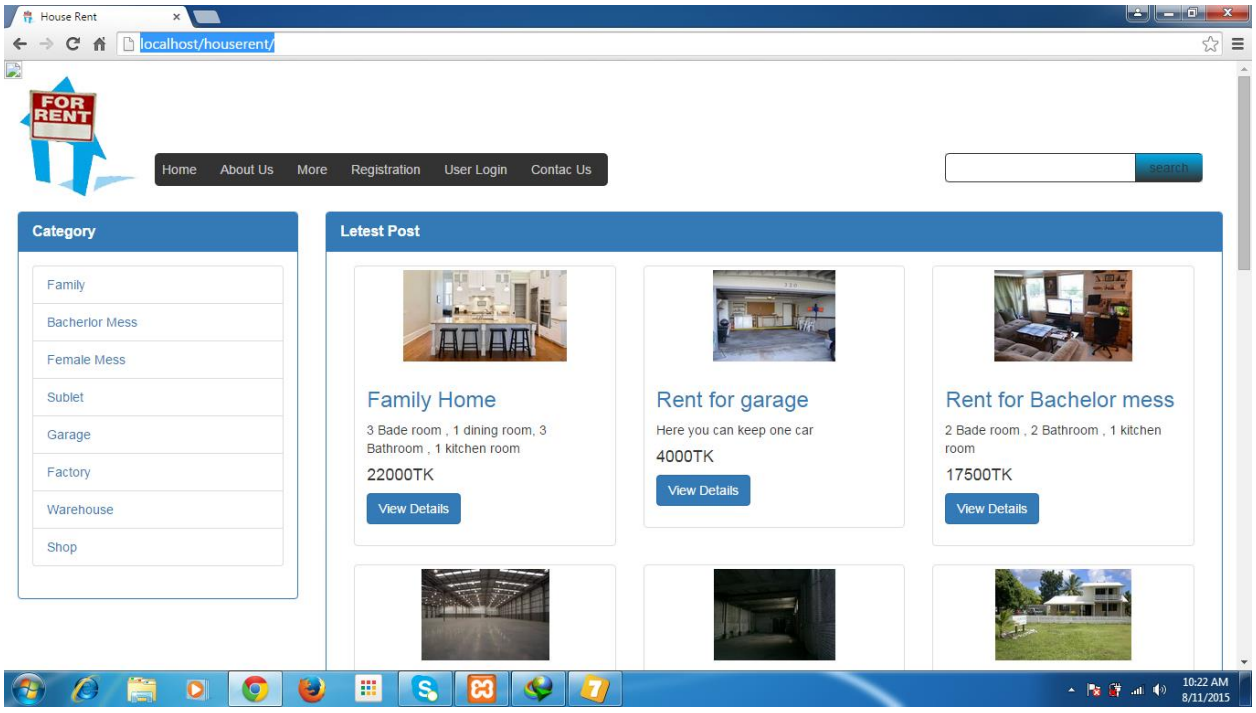

Figure 5.1: general view of the front end website.

Features that the frontend website provides to the system or customers are listed below:

- **Find empty houses according to category:**

  From the front end users can easily see new posts and find desired houses from categories. The category provided is very realistic and goes along with the cultural practices of Bangladesh. The categories are displayed in the home page for easy reference. A screen Shown the [Fig5.2] of categories is displayed below:

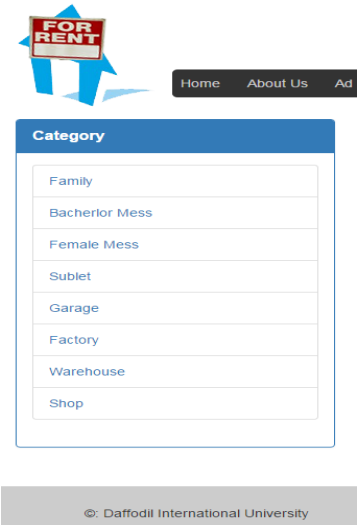

Figure 5.2: category screens shot

- **Know About the company providing the service:**

  A simple and easy about us form is placed. The screen Shown of [Fig5.3] provided below contains dummy text. Admin can change and provide about us information as required:

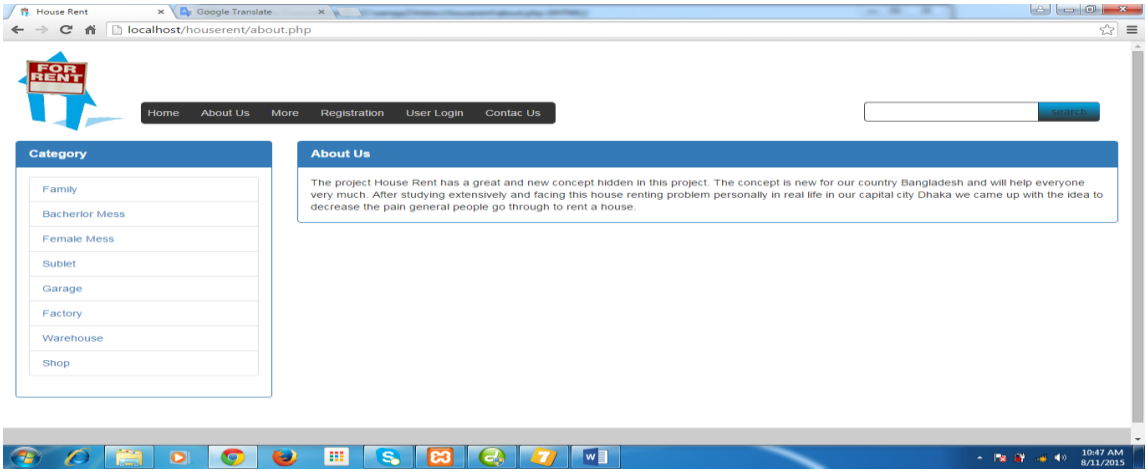

Figure 5.3: about us screens shot

- **Get all updated post in the Home Page:**

  Users can easily view all latest post in the home page. All posts will be shown in the home page. A sample is shown in the screen shown of [Fig5.4] below:

Figure 5.4: all post screen shot

- **See Details of any post posted:**

  If interested to see the details of any post – any visiting user can easily click on the button View Details than see the details of any post. A screen shot is shown of [Fig5.5] about the details view:

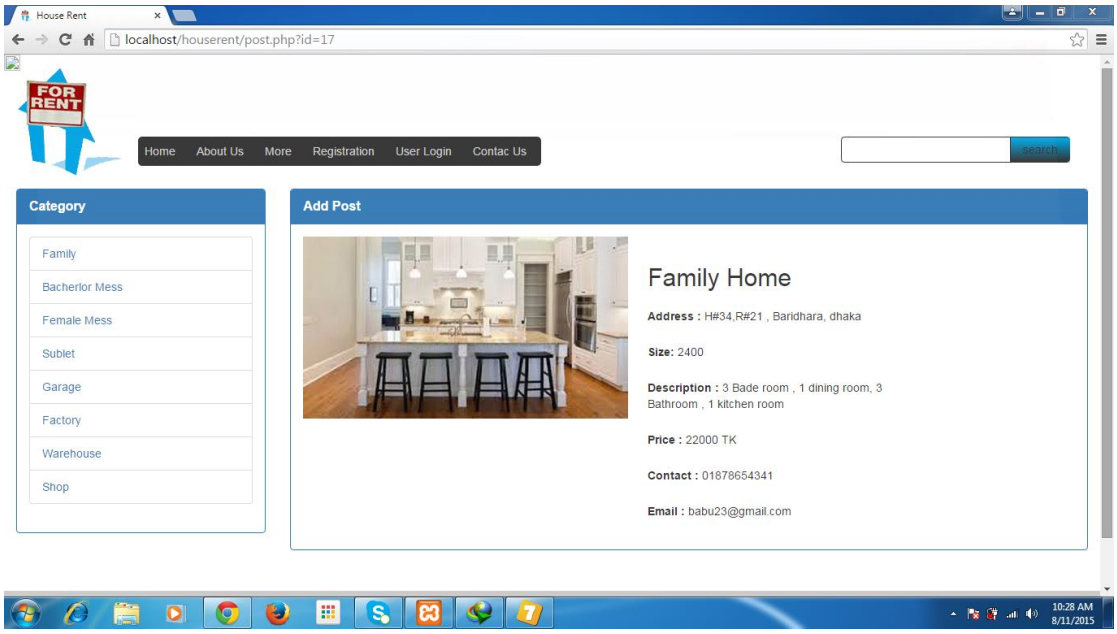

Figure 5.5: post details screen shot

➢ **Perform Registration to open an account:**

Potential clients interested to take advantage of the system can register easily using the registration form. A sample of the registration form is providedshown of [Fig 5.6]:

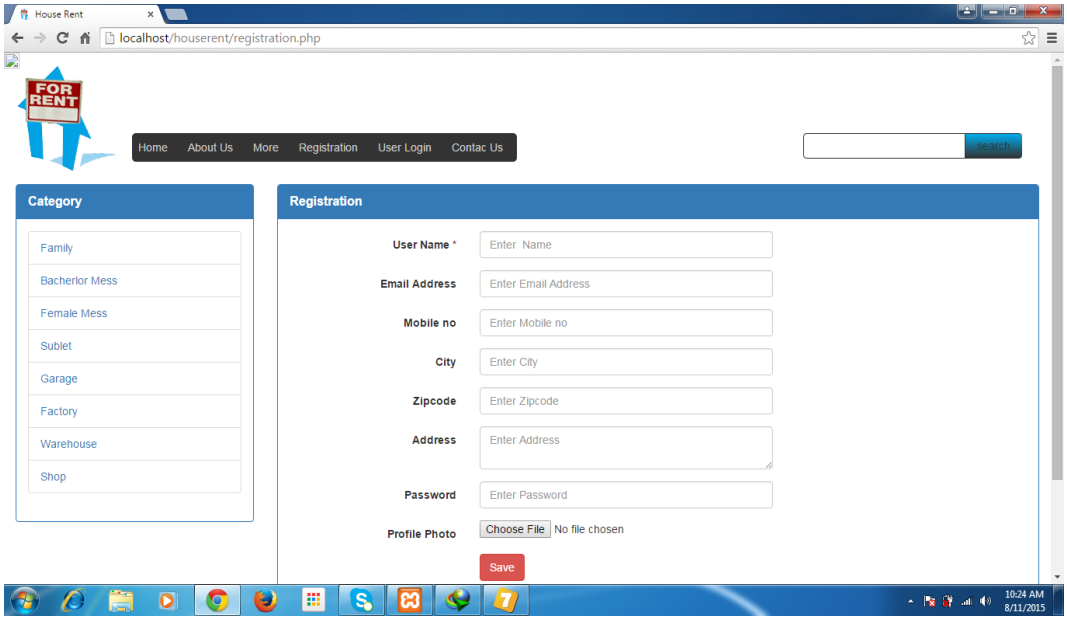

Figure 5.6: registration form screen shot

➢ **Login Form to login to respected panels:**

Admin and Users can use the login form to login to their desired panels. A sample of the login form is provided shown of [Fig 5.7]:

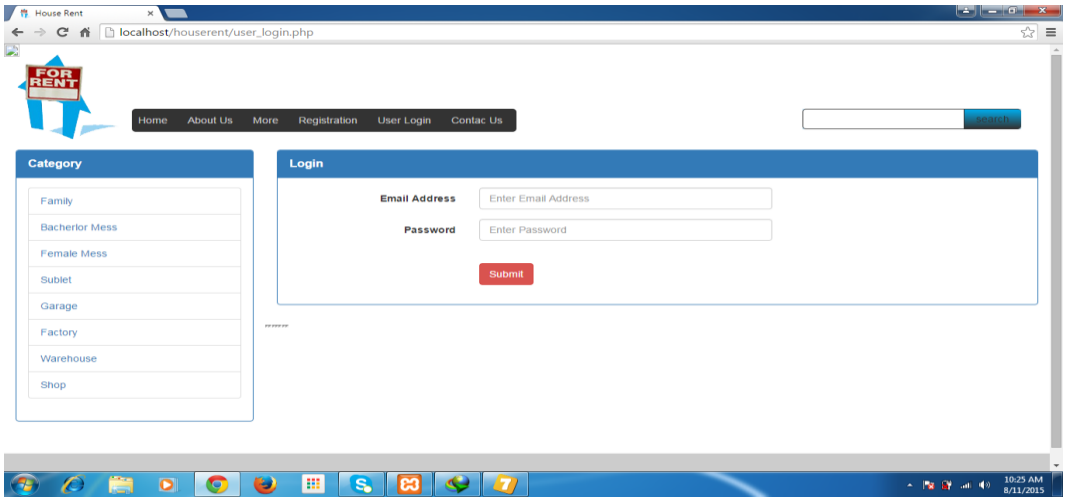

Figure 5.7: login form screen shot

- **Contact Us Page to easily find contact information:**

  Contact us form and information is not provided yet. This is left empty for admin preference. If admin wants he can provide information from his panelshown of [Fig 5.8]:

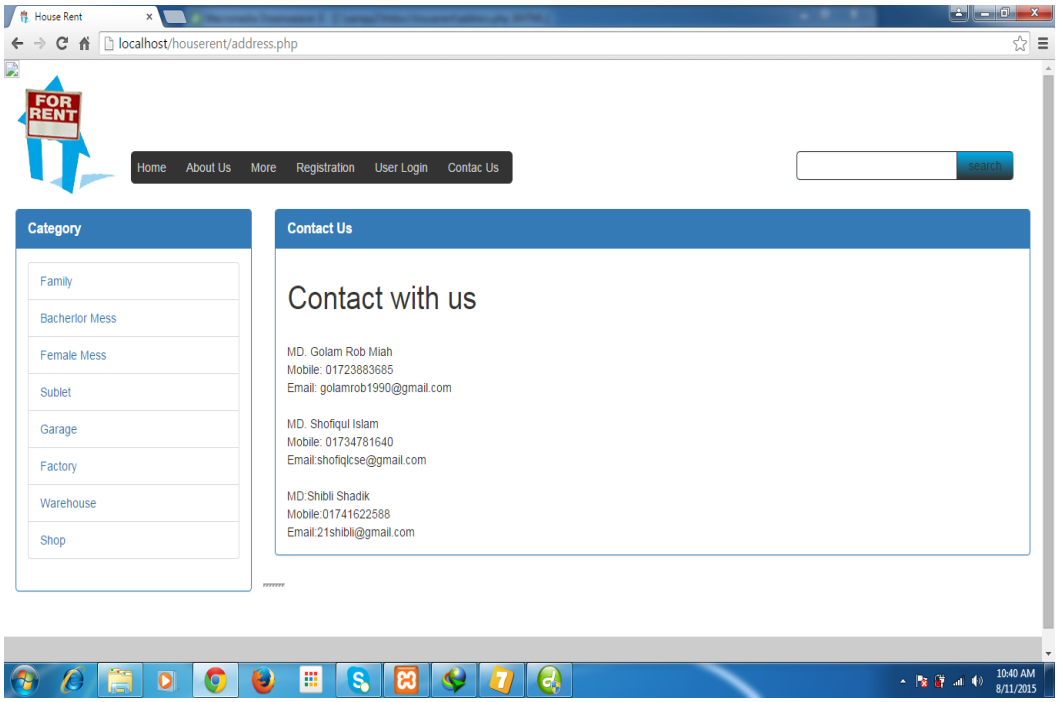

Figure 5.8: contact us form screen shot

Admin / Backend Features:

The back end is also developed beautifully and by keeping in mind about user friendliness and usability. The back end admin panel is shown below in the screen shown of [Fig 5.9]:

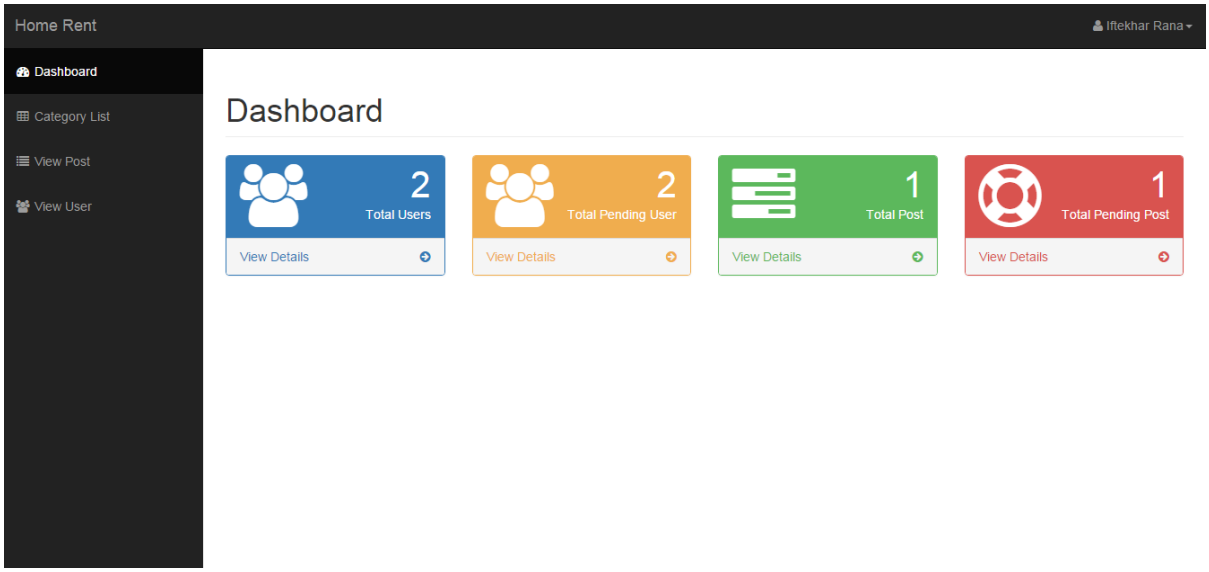

Figure 5.9: admin panel screen shot

From the admin panel – Admin can perform the following tasks:

- **Create Category for posts**

  Admin can create, edit and update category and category list. All posts have to go under a specific category. This category is set by Admin. The sample screenshown of [Fig 5.10] is provided below:

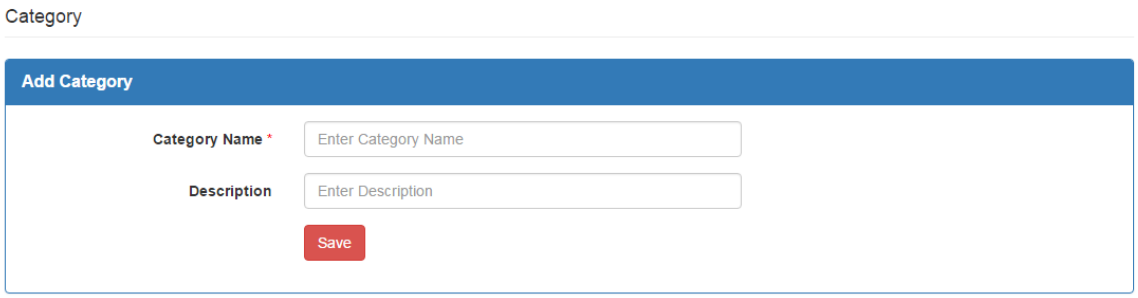

Figure 5.10: add category screen shot

- **View category list**

  Admin can view list of all existing categories and form there if required can easily edit / Delete any category. The screen shown of [Fig 5.11] below:

Category List

SL	Category Name	Description	Action
1	Family	This is Family Category	Edit Delete
2	Bacherlor Mess	This is Bacherlor Mess Category	Edit Delete
3	Female Mess	This is Female Mess Category	Edit Delete
4	Sublet	This is Sublet Category	Edit Delete
5	Garage	This is Garage Category	Edit Delete
6	Factory	This is Factory Category	Edit Delete
7	Warehouse	This is Warehouse Category	Edit Delete
8	Shop	This is Shop Category	Edit Delete

Figure 5.11: list of all categories screen shot

- **Add Post for new empty houses**

Admin can add post if required and can publish that post in the front end. The add post form and screen is shown below in the screen shown of [Fig 5.12]:

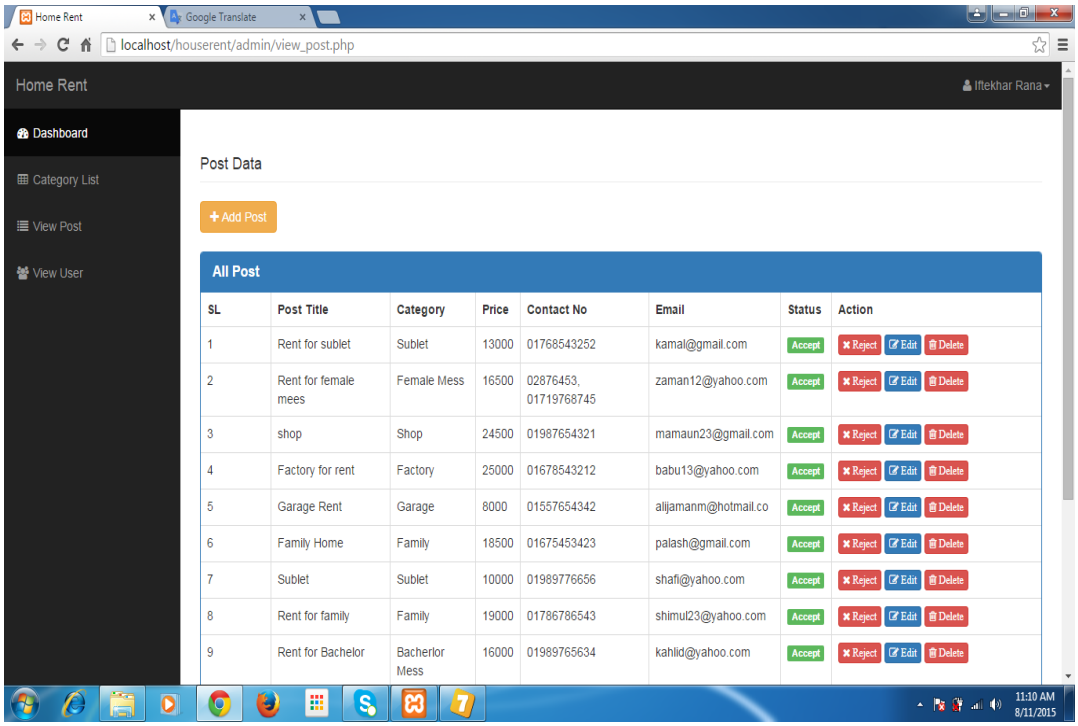

Figure 5.12: add new post screen shot

- **View / Accept / Edit / Delete Existing Posts**

  Admin can also view existing list of all posts and can add if required. The screen shown of [Fig 5.13] is provided below of this feature:

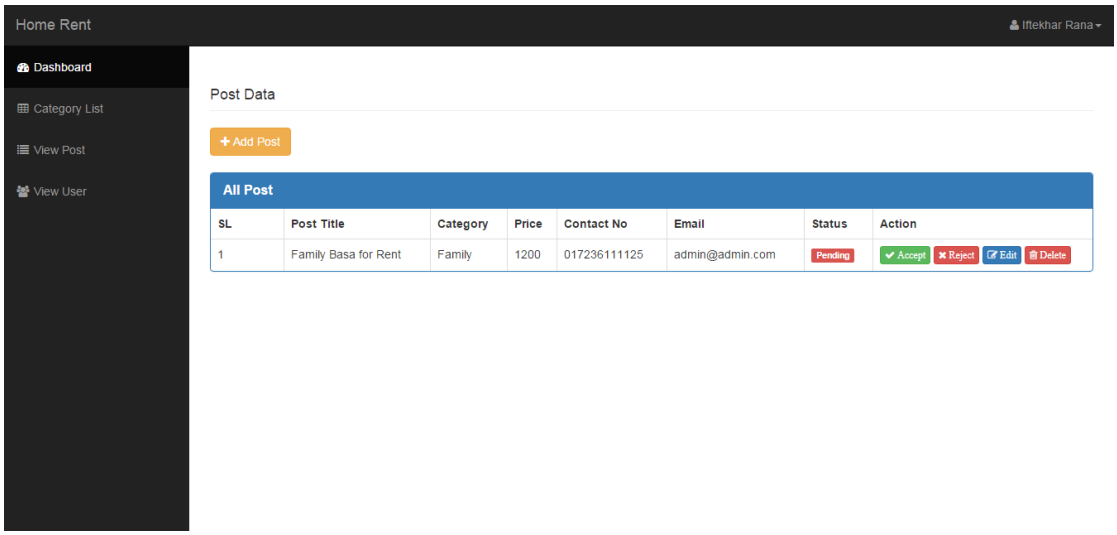

Figure 5.13: list of all posts screen shot

- **Add Users / Customers**

  Admin can create new user upon request. The user creation is very easy and users can also register from front end if desired. The screen shown of [Fig 5.14] below:

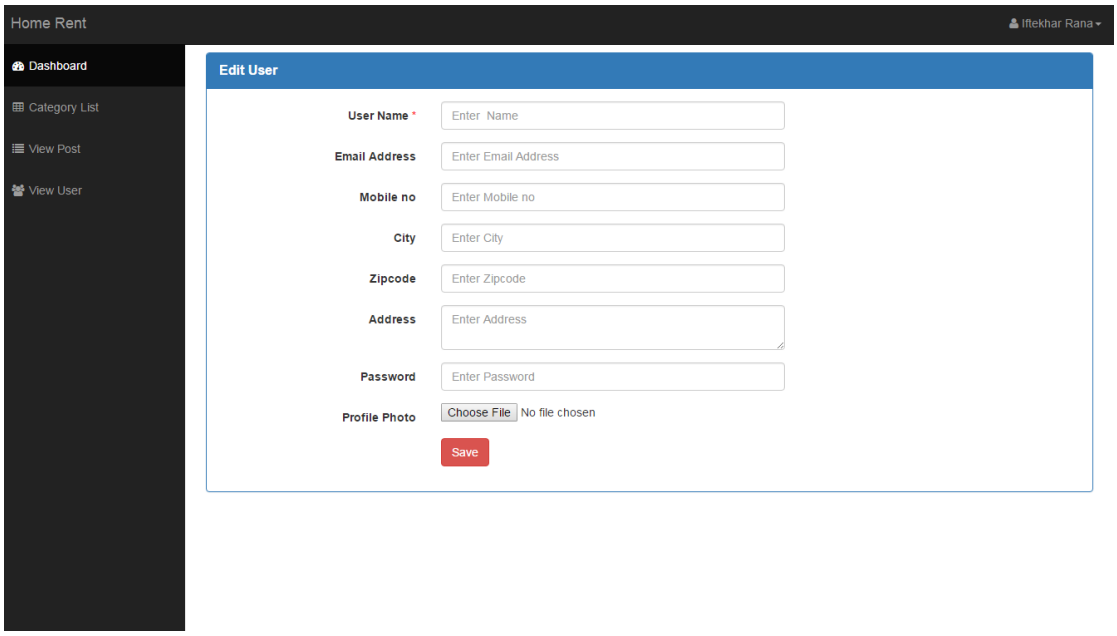

Figure 5.14: add new user screen shot

- **View User / Customers and Accept / Reject / Block Users.**

  If required – Admin can easily perform action on User. Admin can edit / block / reject users and cancel registration. The screen shown of [Fig 5.15]below:

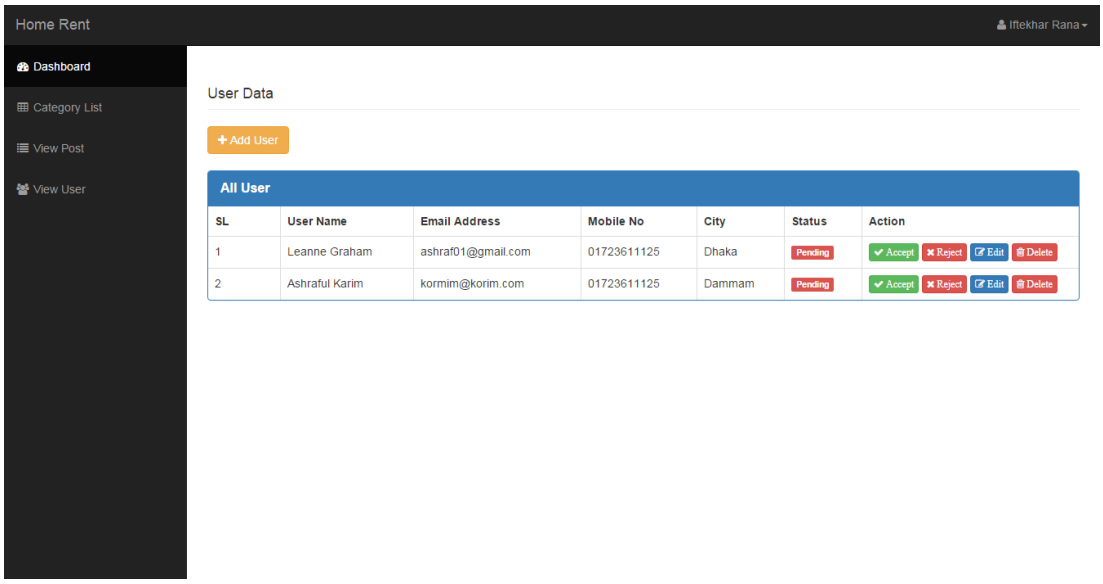

Figure 5.15: list of all user screen shot

CHAPTER SIX

REQUIREMENTS

Requirement Analysis

Requirement analysis is the study and analysis of the requirements that needs to be fulfilled in the project. The requirements are the main pillars of the project that make the project so robust and dynamic. Therefore studying each requirements and properly implementing this is very important. To accurately produce requirement analysis a set of tools / diagram representation can be used to make the scenario clear.

Technical Requirements

The system should be so designed as to ensure that they continue to work efficiency that they comply with relevant legislation and to check that they are safe guarded from threats such as hackers. The technical requirements are listed below:

- Execution time.
- Responsive and usable on any device and platform.
- Eliminate external threats from virus, hacker and cracker.
- Regular data backup facility.
- Protection from logical and physical threats.
- Provide good password protection

Requirements of Components

There are several things needed to make a paper base project to real life implement. To implement this project we need some hardware and software. Description of those hardware and software is given bellow:

Hardware Requirements:

Table 6.1: Hardware Requirements

Processor	Intel Pentium IV 2.0 GHz and above
RAM	1GB or more
Hard Disk	500 GB or above
LAN	Any
AGP card	Any
Sound Card	Any
Monitor	CRT or LCD monitor
Key Board and Mouse	Compatible mouse and key board
Cable	Twisted

Software Requirements:

To developing this social Network we need some software. The required software and their uses are given bellow:

Table 6.2: Software Requirements

Name of Software Item	Usages
Language	JavaScript,PHP
Operation System	Windows 7 or above
Browser	Any latest Browser

CHAPTER SEVEN

REQUIREMENT ANALYSIS

Modular design

The system House Rent has a lot of modules to work on. The renters, the house owners and the admin are the three basic users of the system. The key modules are listed and explained below:

Registration Module

This module provides features and functionality for registration. This is a key module of the system as it enables renters / visitors to get registered and then post their own add or contact house owners by seeing ads. Registration is very simple but dynamic. Admin can approve / reject registration – and users can securely use their panel once registered.

User Profile Module

This module provides functionality for users to view / edit and update their profile as necessary. User profile is only maintained for registered users and only registered users will get panel to work within the system. User profile is important to maintain and back up regularly. To produce a smooth service and to give users a good user experience the design patterns should be user friendly and responsive – so that from all platform or device the system can be used accurately.

Admin Module

This module is the key of all modules. Admin will control the system and will create, maintain and update the system as necessary. Without this module the system will not run accurately and everything will be out of place. Admin will hold the power to delete any post and user or any categories that exist in the system. Users will not get this permission in the system. Admin can produce information and perform to add new post, user, categories and much other information which will be represented and worked on form the front end by the users.

System Design

System design will let us now know and understand how the system is working internally and to estimate the gravity of the system. The system design should contain standard diagram to represent the usage and functions that are taking place underneath each event that is being triggered in the system. The system design contains use case diagram and entity relationship diagram.

Use case diagrams

Use case diagrams are employed in UML (Unified Modeling Language) and are an important tool to represent graphic depiction of the interactions among the elements of a system. It is commonly used in system analysis to identify, clarify, and organize developed or operated. System objectives can include planning overall requirements, validating a hardware design, testing and debugging a software product under development, creating an online help reference, or performing a consumer-service-oriented task. A Use Case diagram contains the three major aspects:

- One or multiple Actors, usually individuals involved with the system defined according to their system.
- The use cases, which the specific roles are played by the actors within and around the system.
- The relationships between and among the actors and the use cases.

To illustrate the system the components or the modules of the system has to be broken into smaller fractions and pieces and then the Use Case diagram should be implemented. Otherwise the scope of Use Case will not facilitate us to understand the functionality of the system if drawn for the total system at a time.

Below few key modules are broken down and identified. The Use Case diagram is then implemented to give us a clear idea how this module is working [Fig 7.1].

Frontend / Home Module

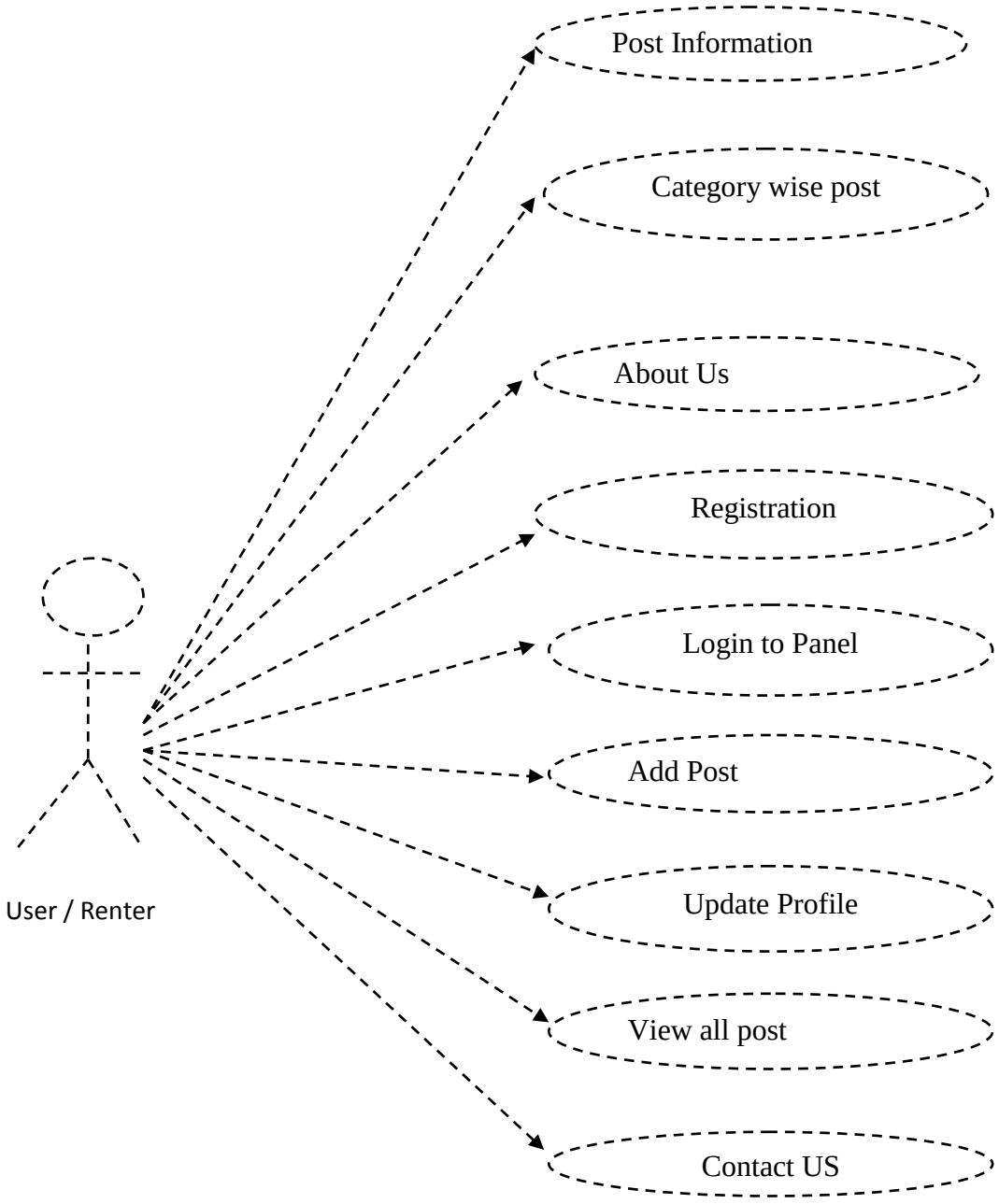

Figure 7.1: Use case diagram front end module

Registration / Login Module:

This module is focused on registration for new users and their login patterns. After successful registration and approval from admin – users can use their panel and perform other tasks[Fig 7.2].

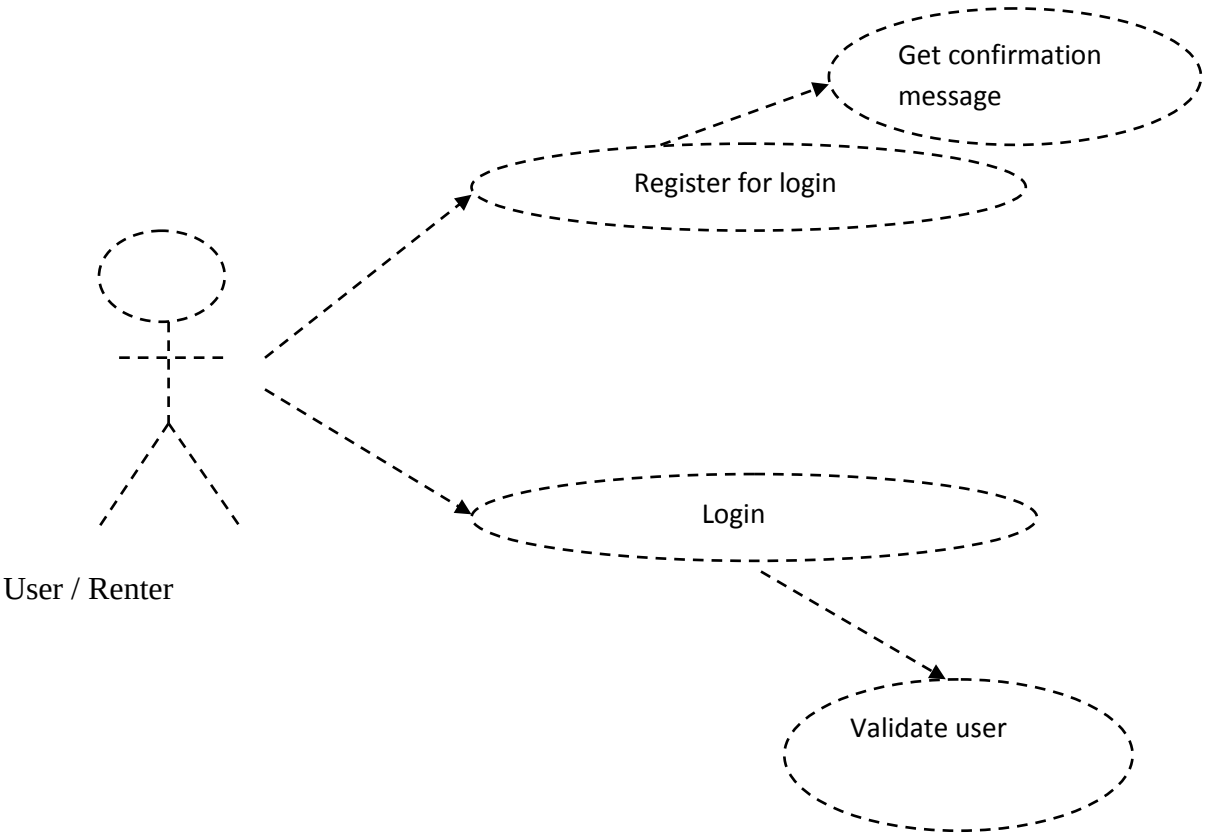

Figure 7.2: Use case diagram for registration and login module

Add New Post Module:

To add new post – yours have to login and then post the advertisement. Admin have to accept and approve the advertisement to be shown of [Fig 7.3] in the front end.

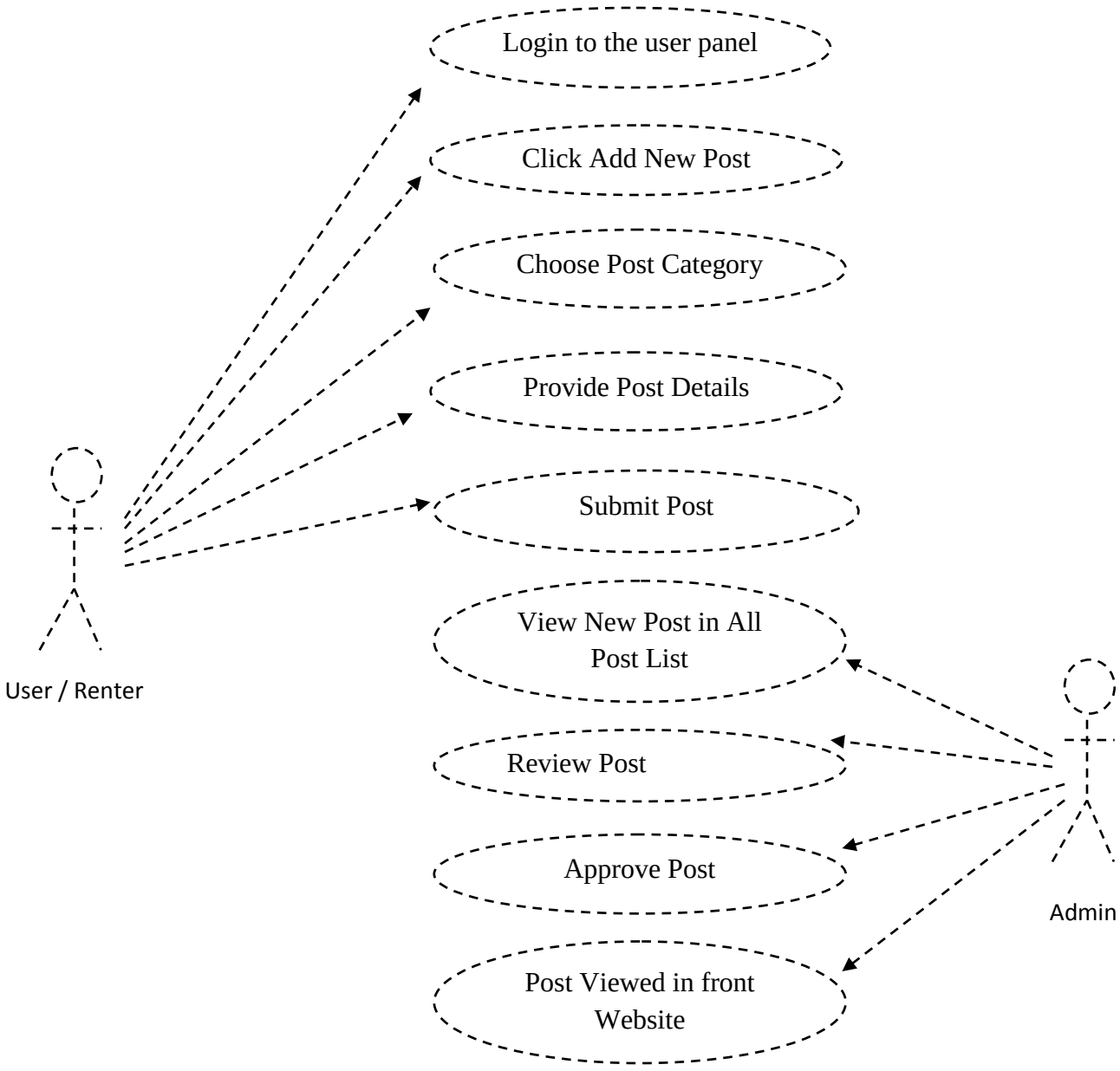

Figure 7.3: Use case diagram for publishing a new post

Entity Relationship Diagram

The entity relationship model is a high level data model. It is based on a perception of a real world that consists of a collection of basic objects, called entities, and of relationship among these objects. It was developed to facilitate database design by allowing specification of an enterprise schema, which represent the overall logical structure of a database.

Entity: An entity is an object that has its existence in the real world. It includes all those things about which data is collected. An entity may be a tangible object such as a student, a place or a part. It may also be non-tangible such as an event, a job title or a customer account. For example, if we say that a customer buys goods, it means customer and goods are entities. Diagrammatically, entities are represented in rectangles.

Attributes: Attributes are unites that describe the characteristics or properties of entities. In a database, entities are represented by tables and attributes by columns. For example, a customer entity might have numerous attribute such as code, name and addresses, similarly the goods entity may have attribute like code and price. They are drawn in elliptical shapes along with the entity rectangles

An Entity Set: It is a set of entities of the same type that share the same properties, or attributes. The set of all persons who are customers at a given bank, example can be defined as the entity set customer.

CHAPTER EIGHT

DATABASE DESIGN

Database Definition

Database is used to store the relevant information of the individuals. A database is a collection of rows and columns in which rows indicate the upland columns indicates the domain of table. Database design is the process of producing a detailed data model of a database. The logical data model contains all the needed logical and physical design choices and physical storage parameters. Need to generate a design in a data definition language, which can then be used to create a database. [8][9]

A filly attributed data model contains detail attributes for each entity. The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of the logical design of the relation of the base data structures used to store the data. In the relational model these are the classes and named relationships [8]. However, the term database design could also be used to apply to overall process of designing, not just the base data structure, but also the forms and quires use as part of the overall database application within the database management system (DBMS).

Database Languages

A database system provides a data definition language to specify the database schema and a data manipulation language to express database queries and updates. In practices the data definition and manipulation language, such as the widely used SQL language [11]. In our project House Rent we used a more native version of SQL database language commonly known as MySQL.

Normalization Process

We can use a given set of functional dependencies in designing a relational database in which most of the undesirable properties (repetition and information inability to represent certain information) do not occur. When we design such systems, it may become necessary to decompose a relation into several smaller relations. Using functional dependencies, we can define several normal forms that represent good database design. [12][13] There are many normal forms.

- First normal form
- Second normal form
- Third normal form

Database Samples:

In this section – the databases we created to implement the system House Rent is shown step by step and with explanation. Screen shot is used to accurately show how the database and is structural implemented.

Table Category:

Table category is used to store categories that are used later to categorize all posts. The screen shown of [Fig 8.1] showing structure of table category:

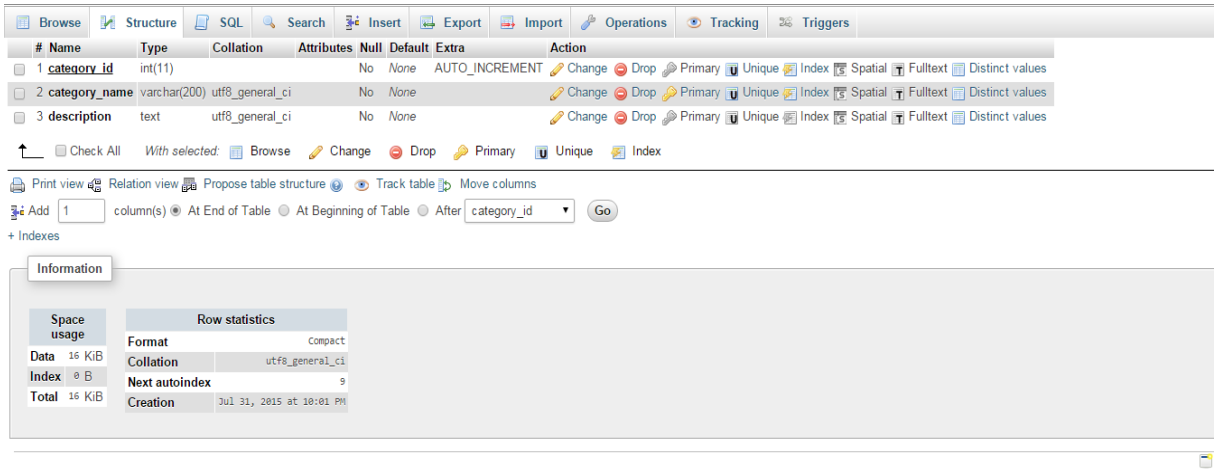

Figure 8.1: database design of tbl_category

Table Post:

Table post is used to store all posts that admin or users create. The screen showing of [Fig 8.2] structure of table post:

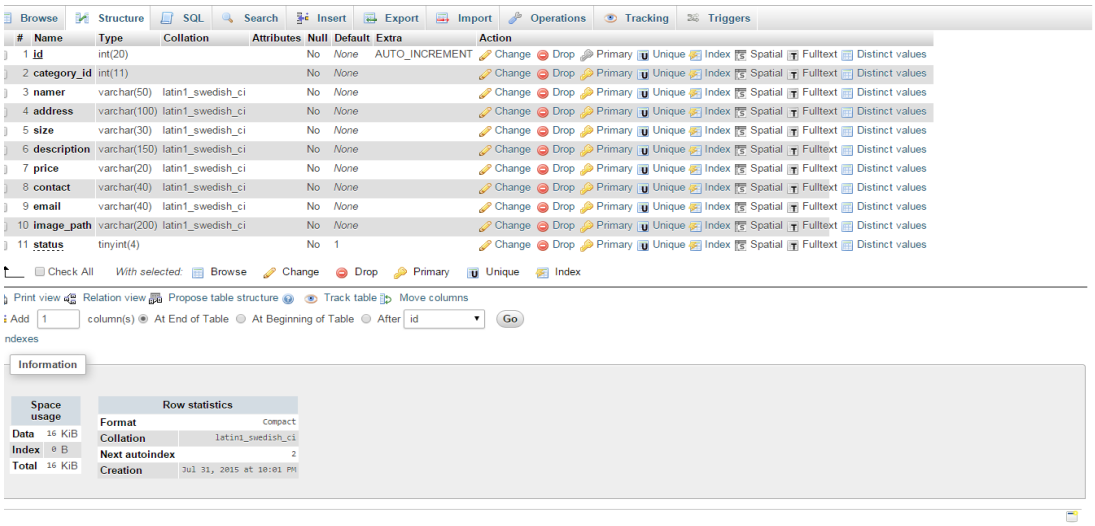

Figure 8.2: database design of tbl_post

Table Registration:

Table registration is used to store all user information who registers from the front end. This table is important and will serve as the main user table for all general users. The screen showing of [Fig 8.3]structure of table registration:

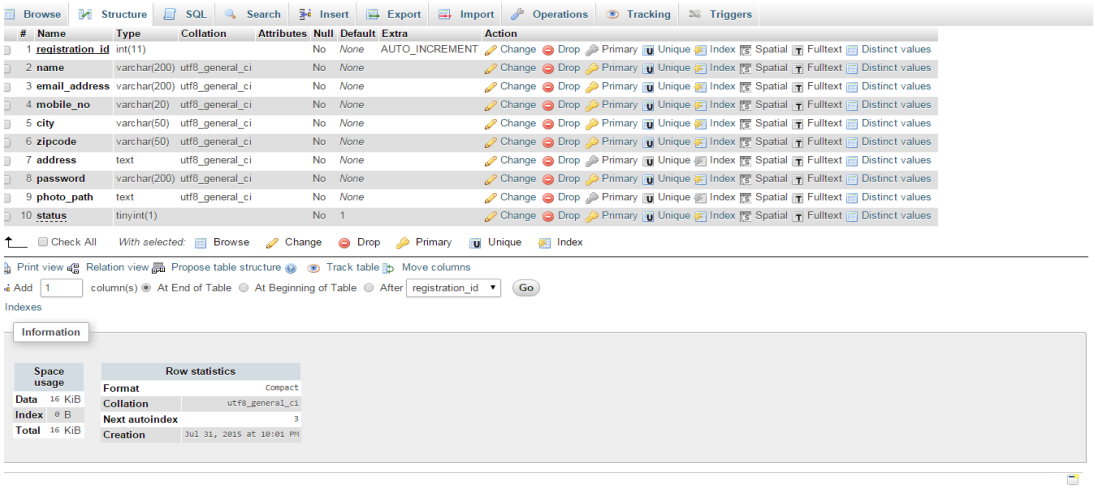

Figure 8.3: database design of tbl_registration

Table User:

Table user is used to store all admin information. This table is important for admin and will serve as the main admin table for admin. The screen showing of [Fig 8.4]structure of table registration:

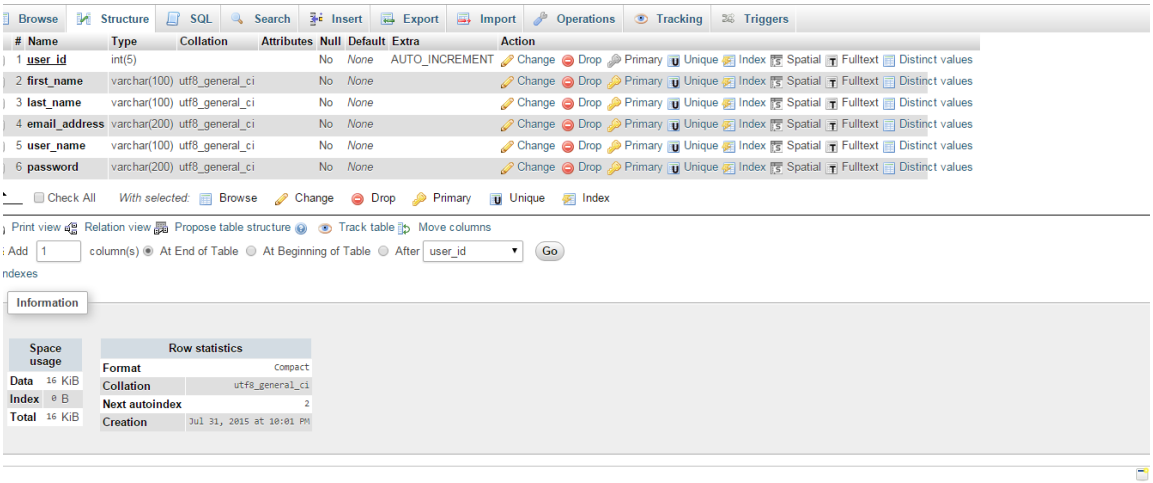

Figure 8.4: database design of tbl_user

CHAPTER NINE

SYSTEM TESTING

What Is Testing

Plugin testing is a specialized discipline in the process of software development.

- Testing is the process of demonstrating that errors are not present.
- The purpose of testing is to show that a program performs its intended functions correctly.
- Testing is the process of establishing confidence that a program does what it is supposed to do.

Levels of Testing

There are three levels of testing:

Unit Testing

Unit testing is the process of taking a module and running it in isolation from the rest of the software product by using prepared test cases and comparing actual results with the results predicted by the specifications and design of the Module. [6]

Integration Testing

We perform integration testing using bottom up integration and we get positive Results in test.

System Testing

System testing is done on the system to test that every unit or module of the system is working accurately as desired. System testing provides insights about the system flaws and features that are not visible to normal users at the beginning. [5] System testing is basically focused on testing the total system whether or not it is performing as expected.

Functional Testing

Functional testing is also known as black box testing. This type of testing is also performed in this project. Here we test the functionality of our program. Each function is identified and listed and then tested to see whether they produce the desired output. [10]

System Testing Screen Shots

Testing the system thoroughly and taking screen shot to prove that the system is working as expected and producing output as it was supposed to.

- **Running the system:**

  The test is a success and the system runs accurately in localhost. The screen showing of [Fig 9.1] below:

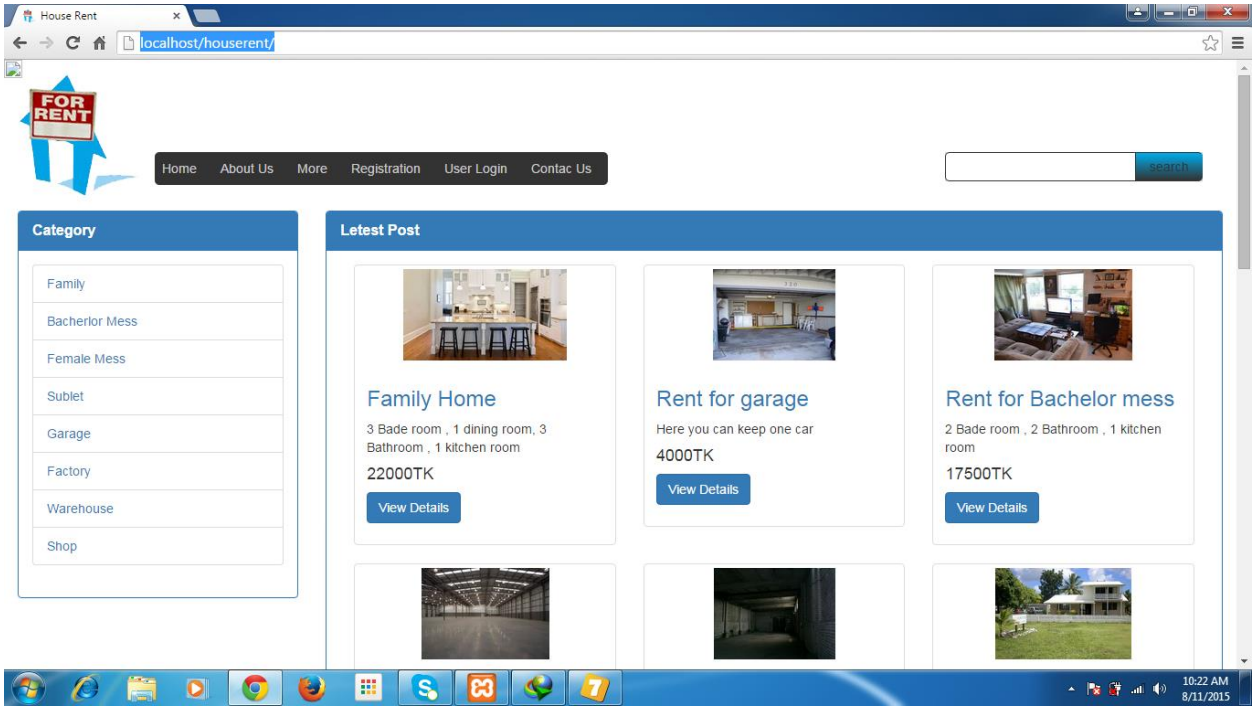

Figure 9.1: system runs accurately – test screen shot

- **Viewing Post Details**

This test is to show that post details are viewable and can be viewed accurately. The test is a success and the screen shown of [Fig 9.2]showing that the module is working accurately:

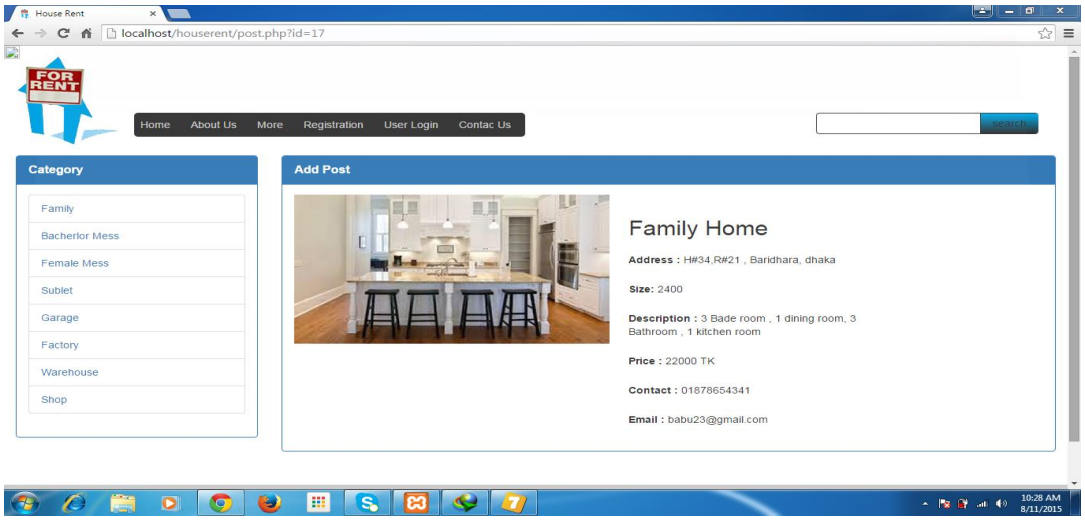

Figure 9.2: post details runs accurately – test screen shot

- **Registration as New User**

The registration form comes up accurately. We are testing now that the registration form is working as it should. The first screen showing of [Fig 9.3] the registration form is filed and submitted:

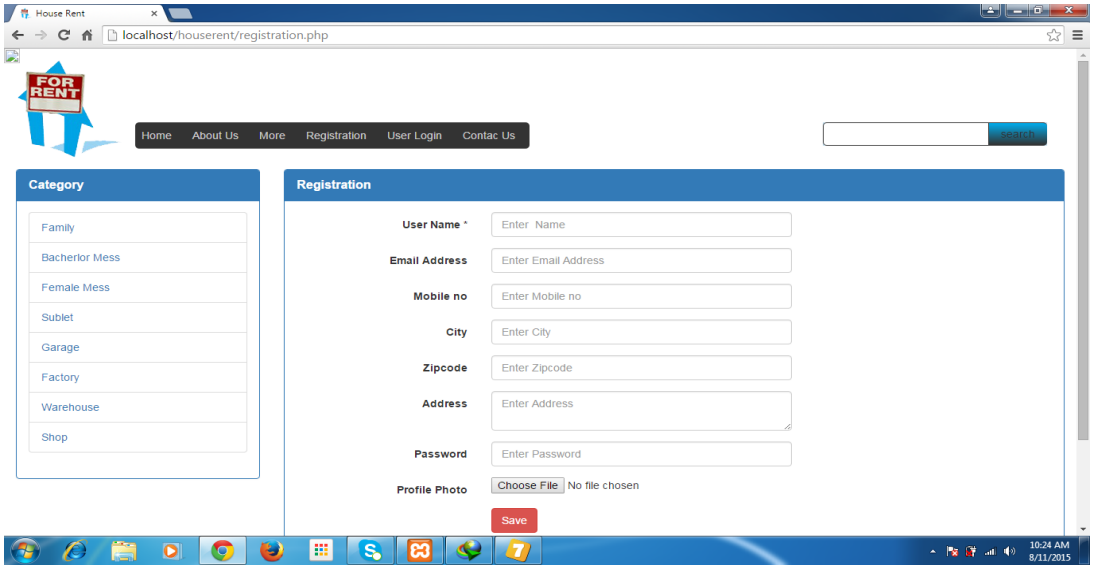

Figure 9.3: registration of new users – test screen shot

The new user information is received from the Admin panel and admin have to approve the new registered user – only after that the user can login using his login credentials. The new registration is listed and showed in the screen shown of [Fig 9.4]:

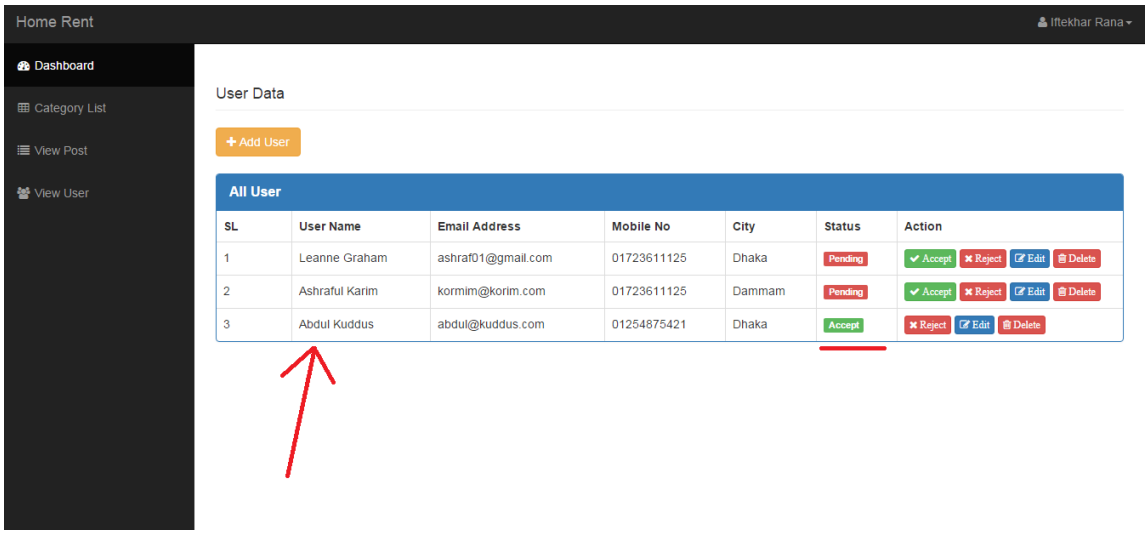

Figure 9.4: registration of new users from admin panel – test screen shot

- **Admin Panel login**

Login to admin panel is tested. Admin should be able to login accurately and see admin panel. The test screen showing of [Fig 9.5] below:

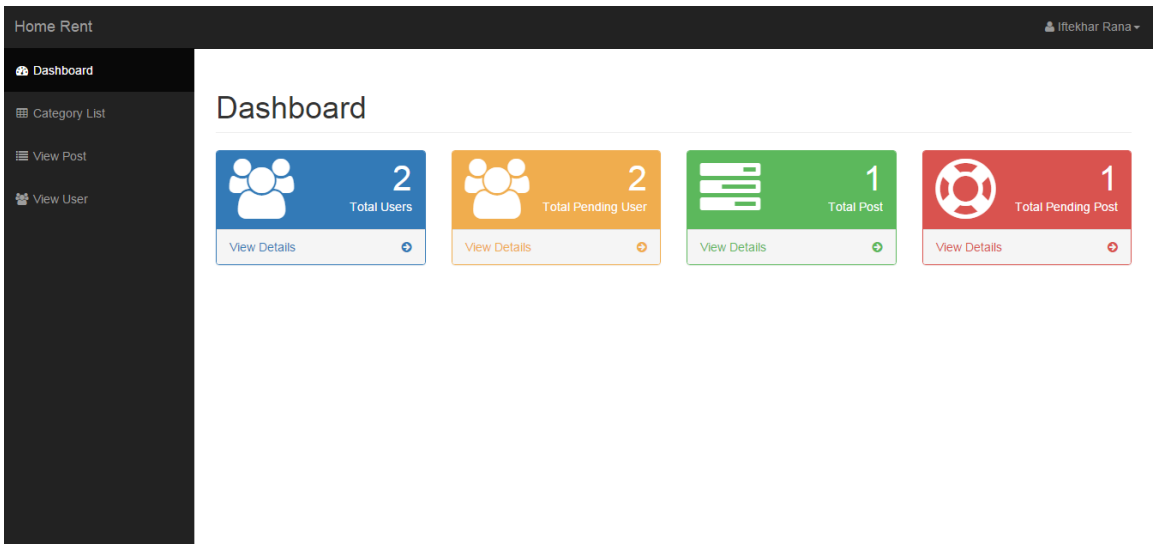

Figure 9.5: login to admin panel – test screen shot

- **Creating a New Category**

  Creating a new category is important. So this module is tested and the screen showing of [Fig 9.6]:

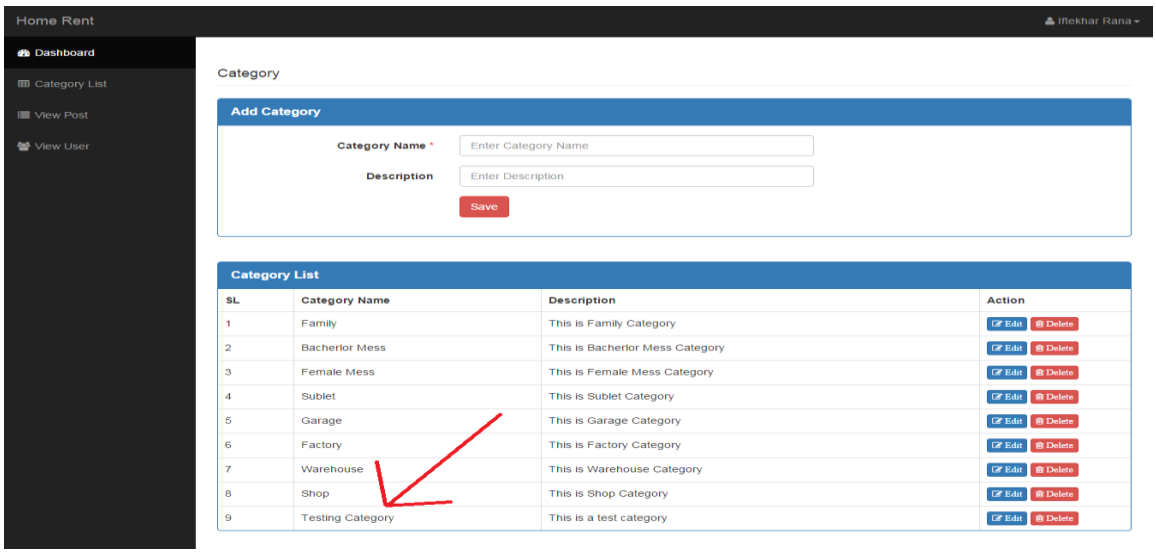

Figure 9.6: category created from admin panel – test screen shot

- Posting a new Post

  To post a new post – Admin will create a new post and then accept the post to make it available in the front end. The screen showing of [Fig 9.7]the post is successfully created and published:

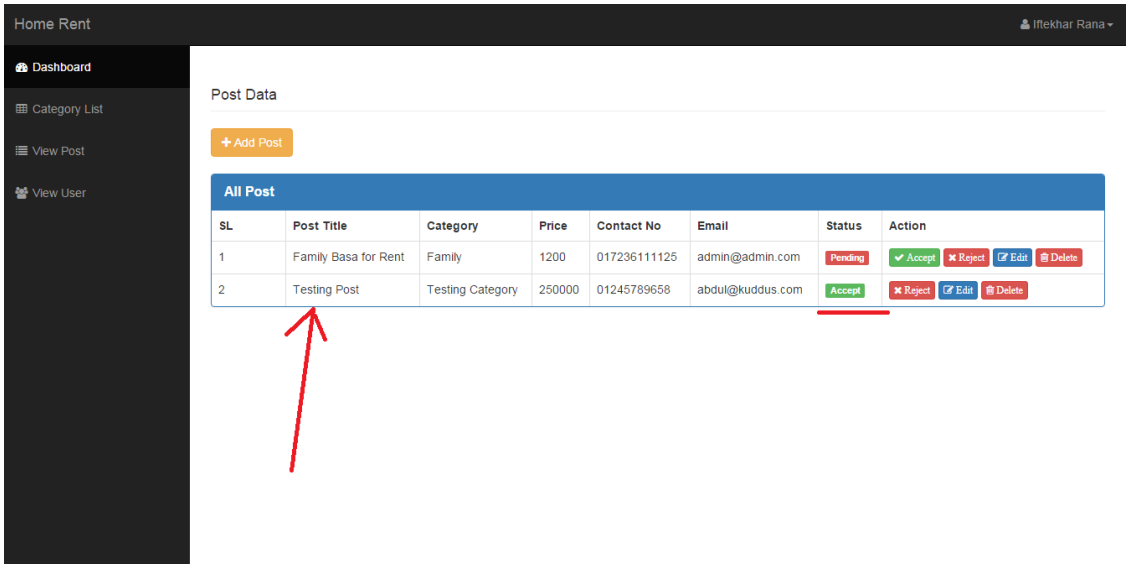

Figure 9.7: new post created from admin panel – test screen shot

The post is successfully shown in the front end. The screen showing of [Fig 9.8]the system is working accurately:

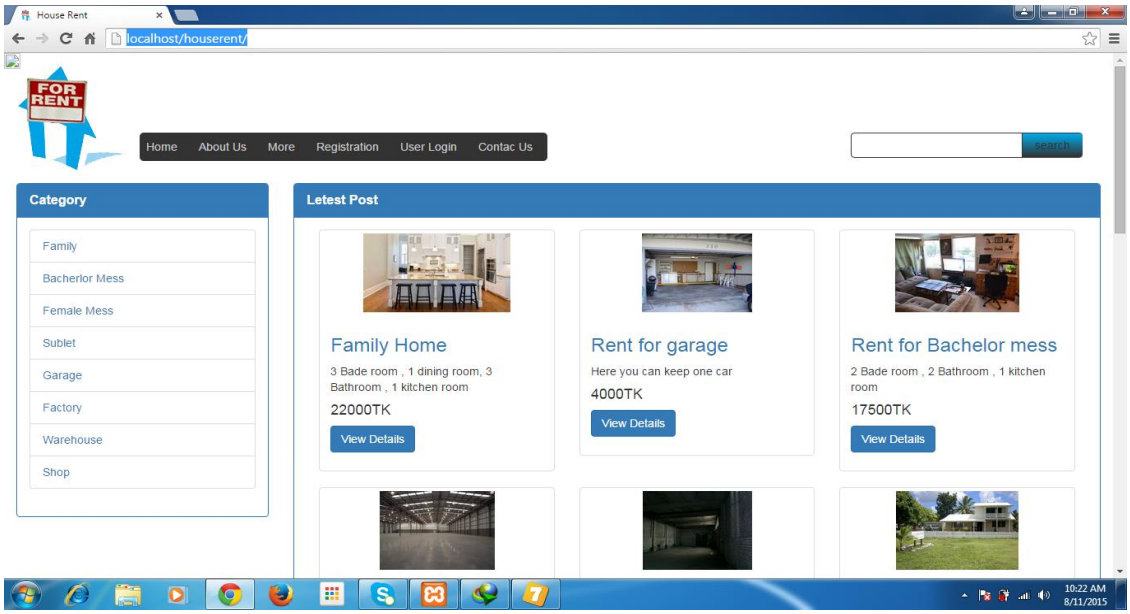

Figure 9.8: post shown in front end – test screen shot

CHAPTER TEN

CONCLUSION

The project has been an opportunity to learn and implement new ideas about dress making and customer service. To work in this project – we have to go through many websites, learn new things – talk and take review of many different people and to bring all this together and to work for a project so dynamic – it was a very learning experience for both of us. I specially thank my supervisor for his kind patience and for his ability to explain complex issues so easily for mediocre students like us to grab and work as he planned.

Limitation of the Project:

The project House Rent is designed and developed under academic excellence and due to the fact it has some advantages as well as some limitations. The key limitations of the project are listed and explained below:

- Real Life Implementation – the project is planned, developed and tested under the scope and boundary of academic excellence. The implementation of this project in real life to collect and facilitate house owners and renters thus is not possible.
- Interactions – the interaction between house owners and renters is via direct phone / email communication. This are a bit backward and less facilitated for any users.

Future Development Scopes:

As mentioned earlier that House Rent Project is unique for Bangladesh and has not been introduced to local house owners and renters. Therefore a lot of future development and improvements can be brought into the project to serve both parties accurately and to make the system and the project a success:

- Implementation – the project is now under academic scope, but if planned and handled with experience and expertise – it can be implemented nationally in real life for every district and city. Therefore a huge national wide profit margin can be drawn from this

unique project in future.

- Live Chat – to improve communication between both parties, live chat can be implemented via which both house owners and renters can chat freely and view / share their decision and thus getting rented easily and by much efficient rate.
- Integrate Other Services – this project is mainly focused about providing easy solution for house owners and renters to rent a house. But renting a house is not the end here – after anyone rent a house – they have to shirt their old home / office appliances to the new one. In the scope of this project – other facilities like hiring people, cabs, transporters can be provided. Other third party services can also be integrated within this project.
- Video and Review System – in future the project can facilitate video upload by house owners. This will make more easy for renters to understand about the house they are interested to rent. Also house owners can collect reviews / good comments from previous people who stayed in the house to make the house more popular and attractive for new interested renters.

CHAPTER ELEVEN

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