SUPERIOR UNIVERSITY LAHORE

Faculty of Computer Science & IT

Final Year Project

PROJECT REPORT

[GHAR.COM]

Project ID: **[28]**

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Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
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			<Changes Based on Feedback from Supervisor>	

APPROVAL

PROJECT SUPERVISOR

Comments:

_____

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Name:_____

Date:_____ Signature:_____

PROJECT MANAGER

Comments:

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Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments:_____

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Date:_____ Signature:_____

Dedication

We are all team member dedicated this project to our Parents who have been a great source of inspiration and support. This project dedicated to Sir MUMTAZ ALI RAJPUT who encourages us.

Acknowledgements

I am really thankful to my supervisor SIR, MUMTAZ ALI RAJPUT. In the name of ALLAH who most merciful most beneficial. Praise be to Allah Almighty, to praises, Knowledge and Mutable, is a great deal. I would like to sincerely thank and refer to my supervisor, Sir MUMTAZALI RAJPUT for his helpful guidance, remark and support when he gave us the necessary direction to complete a project. The Special Thanks can be used as parents, teacher's friends whose precious prayers and support have encouraged me to lead diesel producer.

Executive Summary

We are going to develop a room house and building rent system. We will develop the system according to our customer requirements. The GHAR.COM system is a platform for buying and selling and renters services. They are also provides benefits student, passenger, tourist, who will desired the opportunity of benefits. GHAR.COM system is an online database with general buyers, sellers and renters in Pakistan. They provides facilities the seek room, apartment the people and student who within and outside the city within seconds. They faced the problem search room, apartment, etc. and wastage our time. The middleman dealer charge commission and our time wastage all the process. The GHAR.COM system reduces the visit dealer, save commission, time saving, escape visit location.

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Chapter 1

Introduction

1. Introduction

The overall goals of the system are to keep track of tenant maintenance requests, tenant record and contract management, to make easier to the tenant and controlling the rental payment. The client manually search the room, apartment, home, office, etc. This website is an Online GHAR.COM website through which a user can access its information and manage all the adding, updating, deleting the assets and some of its tasks. The Admin user can change the update the information regarding property rental, selling and buying and cancellation. The system is very useful for the tent easy to search apartments, hotels, villa, residential properties and commercial properties. Companies or individual agents can also advertise their property. This website is designed to attend to all your needs from buying property, selling property or renting/ leasing of property in Pakistan. Property Portal helps us to maintain the database of various property and tenant information .In older days when we want purchase a property we can't directly communicate with the owners. We have to contact with the help of mediators, but the mediators takes lot of amount and it is also time consuming process. In older days the property dealing procedure consist of many steps like finding agent, appoint correct meeting time, location and so on. Up till now there was no Security in Online GHAR.COM, Register take benefits. Guide buyers on how to buy property and who to meet Educate buyers on the type of

land to build in an area for proper estate planning. Handle details for rent and sale of property from clients. As the goal of this project is to develop an application to manage GHAR.COM system efficiently, this system will be designed keeping in mind the conditions user friendly. Automation is the user of various control systems for operating applications with minimal or reduced human intervention. This can be seen as the mapping of the properties and varieties of soil in a given area. It could also mean the locating of structures relative to a reference line, used in GHAR.COM system.

1.1. Background

People manually search the room, apartment, house, building, office, shop, etc. This is the time wastage, money wastage. Finding the agent and contact us than a long procedure. The totally manually system. Reduce the human effort easy to approach GHAR.COM system just within seconds.

They have no existing system in Pakistan and have no competitive against GHAR.COM system.

1.2. Motivations and Challenges

- **Motivations:**
- As it is our final year project so, we are really ambitious about this project.
- Our adviser is also a motivation for us. He helps us to clarify our idea and teaches us to tackle problems.
- **Challenges:**
- Most prominent challenge for our team is time management.
- We are students and without investment it is hard for us to manage it financial.

1.3. Goals and Objectives

- **Goals**
- Our goal is to bring a solution for this problem.

- **Objectives**
- Our objective is to complete this project.
- We start a business from this project.

1.4. Gap Analysis

- People manually search the room, apartment, house, building, office, shop, etc. This is the time wastage, money wastage. Finding the agent and contact us than a long procedure. The totally manually system. Reduce the human effort easy to approach GHAR.COM system just within

seconds. They have no existing system in Pakistan and have no competitive against GHAR.COM system. To seeing these problem we are going to develop a GHAR.COM that mange the all activities in property matter.

1.5. Proposed Solution

We will offer them a basic web solution. The system records all GHAR.COM data records and can generate reports. We will offer online bookings for the GHAR.COM system, where anyone who needs it can request it. We will provide a location, accurate information and real estate images to clients. We offer online reservation of GHAR.COM system property with online payment.

1.5.1 Work Breakdown Structure

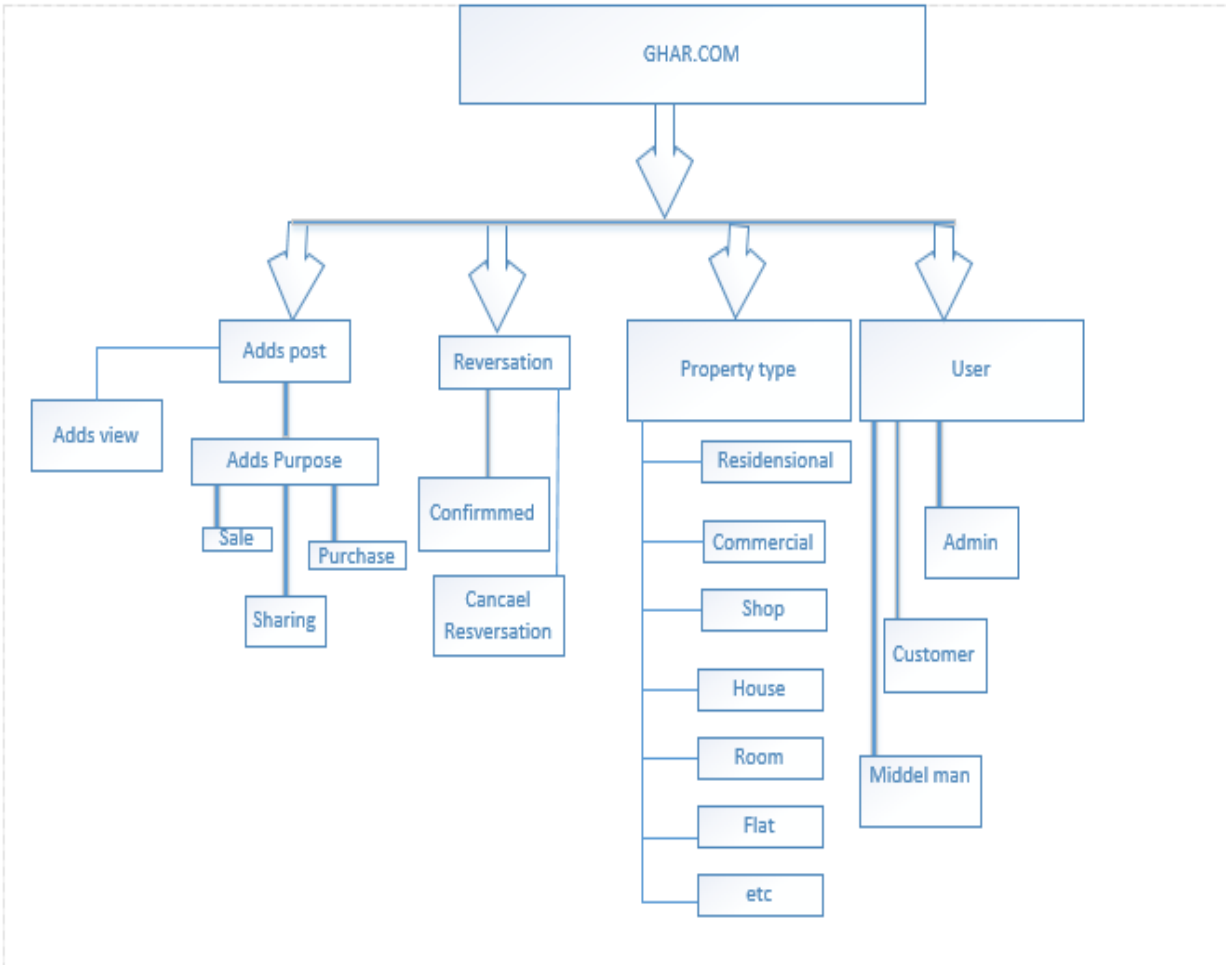

Figure 1 Work Break Structure

1.5.2. Roles & Responsibility Matrix

Wbs S.No	Wbs Deliverable	Activity .No	Activity Complete Deliverable	DUATION	Responsible Team Member
1	Team	1	Visit Market	5 DAYS	Team
2	Requirement Analysis	2	Team Meeting	3 DAYS	Team
		3	Requirement Analysis	8 DAYS	Jazib Ali Sufyan
3	System Design	4	Architecture Design	4 DAYS	Liaqat Ali Sufyan
		5	User Interface	30 DAYS	Sufyan Jazib Ali
4	Implementation	6	Customer/User/ Detail	80 DAYS	Jazib Ali Sufyan Liaqat Ali

Table 1 Roles & Responsibility Matrix

1.5.1. Gantt Chart

TASK NAME	START DATE	DURATION	END DATE
VIST MARKET	3-Aug	5	8-Aug
TEAM MEETING	9-Aug	3	12-Aug
REQUIREMENT ANALYSICS	13-Aug	8	21-Aug
ARCHITECTURE DESING	22-Aug	4	26-Aug
USER INTERFACE	27-Aug	30	26-Sep
CUSTOMER/USER/DEFINE	27-Sep	80	16-Dec

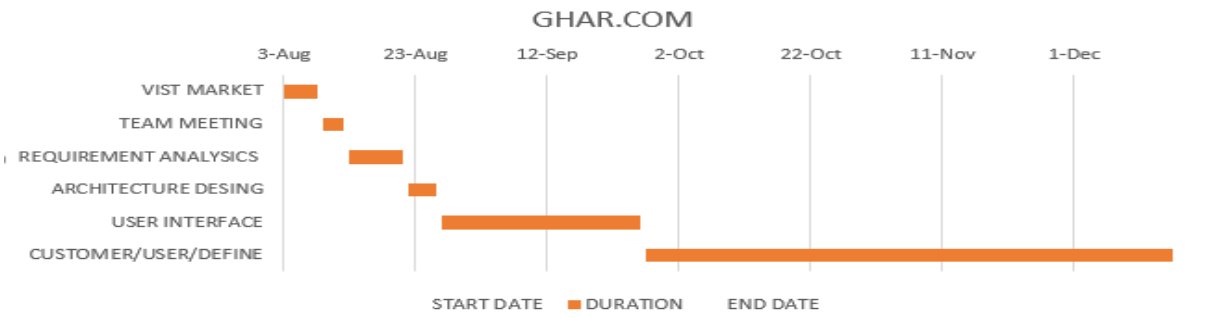

Figure 2 Gantt chart

1.6. Report Outline

- Summarized all project requirements in first part and mentioned all functional requirements. Briefly explained our product. All functional and non-functional requirements of product are described in 2nd part.
- Use case diagram is drawn in 3rd part of this document.
- UML diagrams are placed in 4th part of document.
- At the end there is implementation procedure described.

Chapter 2

Software Requirement Specifications

2.1. Introduction

2.1.1. Purpose

The purpose of this document is to describe the external behavior of the system. This document complements each type of request. It describes the non-functional requirement, the design requirements and also provides other details that will clarify the whole idea regarding the requirements of the GHAR.COM system. The overall objectives of the system are to track tenant servicing requests, tenant records, document and contract management to facilitate the tenant and control the rental payment.

Document contains headings and paragraphs.

First Heading: is bold, Font is Calibri and Size is 16.

Second Heading: is bold, Font is Calibri and Size is 14.

Paragraph: Font is Calibri, Size is 12 and line spacing is 1.5.

DB: Database.

ERD: Entity Relationship Diagram.

SRS: Software Requirement Specification.

API's: Application programming interface.

2.1.2. Document Convention

Document contains headings and paragraphs.

First Heading: is bold, Font is Calibri and Size is 16.

Second Heading: is bold, Font is Calibri and Size is 14.

Paragraph: Font is Calibri, Size is 12 and line spacing is 1.5.

DB: Database

ERD: Entity Relationship Diagram

SRS: Software Requirement Specification

API's: Application programming interface

2.1.3. Intended Audience and Reading Suggestions

The first section describes the purpose of the document, in which each reader can understand the purpose of the document. In the second section, we described the product area where stakeholders can understand the idea of the system. In the general description, participants can clarify the whole idea of systems. Developers can understand system requirements. Designers can understand the design requirements in the user interface request sections. The tester can prepare test cases to test system functionality. Customers can check their functional requirements.

2.1.4. Product Scope

Record Management

This module trades the GHAR.COM system records. User data is saved. The every user Sealer, buyer, tenant will systematically register. Empty house, room, shop, office, building etc. Will in the database GHAR.COM system database, whereby the data will be stored in the databases. The GHAR.COM system writes the data online and manages the entire data set. The backed-up information of all user data.

Booking online

There are already models and modular systems. Because there is a communication source between the GHAR.COM system and its customers. Customers can place orders for the reservation room and the apartment etc. Landlord also register with this system, which can rent the image for sale and rent freely. For more information please find your place and can reserve on line.

Online location

Online Rentals, sale, purchase in this module you can see their place as well as their visit. The user can see the location.

Goals of the system

The main objectives of the system are to track maintenance requests, maintain records, and manage documents and contracts to make them simpler and more efficient.

Importance of the system

It is important that each GHAR.COM rental system controls the costs of property management and monitors rental payments for tenants. Landlord complains that tenants often forget to pay the rent on time, and some of them are even difficult in terms of communication or location. An online system that improves communication between property managers and tenants will serve as a reminder of online payment obligations and in the event of delays, and will notify them immediately. Difficult to locate An online maintenance request system allows the GHAR.COM system to be more efficient, solve the problem and centralize management, plan expenses, contract certain services at the best price or rent and provide very Landlord that would help with the problem.

Objective

To develop a rental house management system that enables the user to "record data as well as homes". Development of a system that allows users to add, edit, search and delete data and database. Analysis and analysis of the basis of data on operating systems. Creation of the software requirements specification of system systems.

2.1.5. References

User Interface Requirements:

- ✓ **https://www.zameen.com**

2.2. Overall Description

2.2.1. Product Perspective

Basically, this product belongs to the sale of real estate, to the purchase, to the family of rental products. There are many types of software products in the property as like ghar.COM. They are the property of the property. Our system is an extensive system that includes buying and selling, Rental management and all the owners and tenants of transactions. They are tenants and owners of facilitate.

2.2.2. User interface

LOG IN

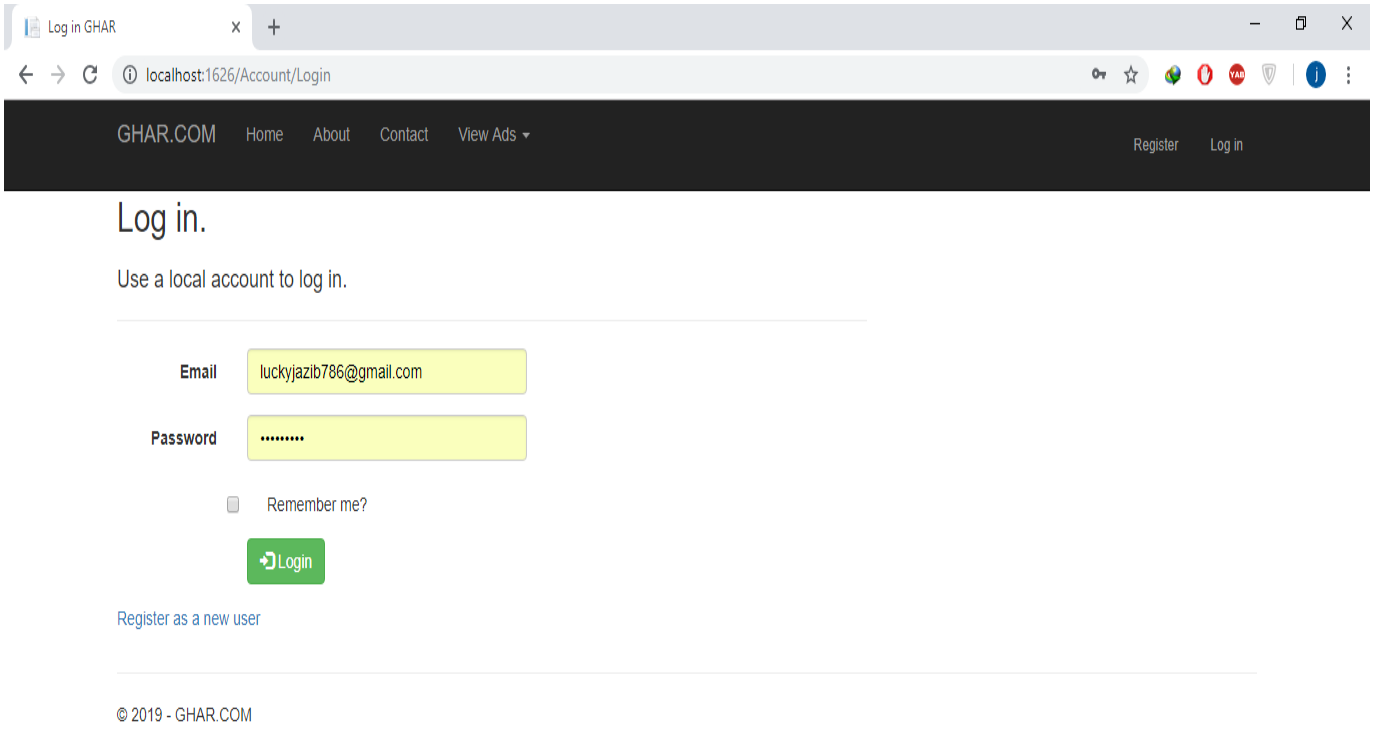

Figure user interface login page

After logged in home page display

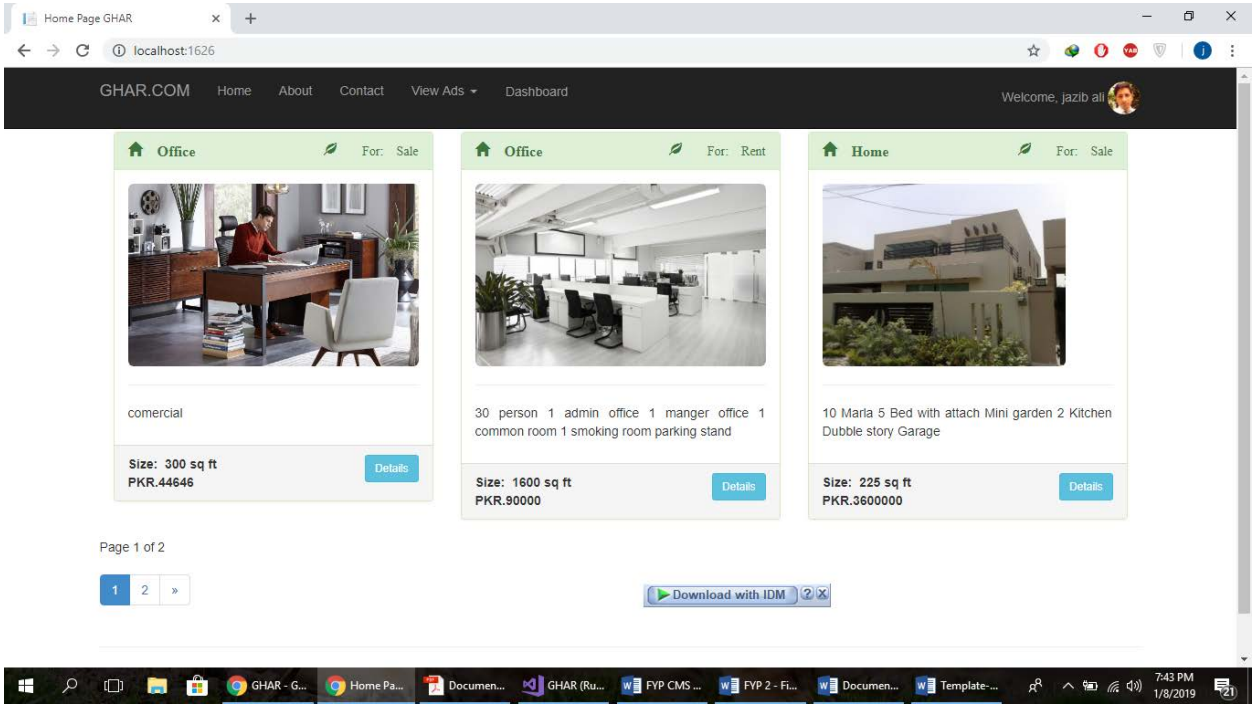

Figure 3 user after logged in

Admin add successfully and left side display Admin dashboard

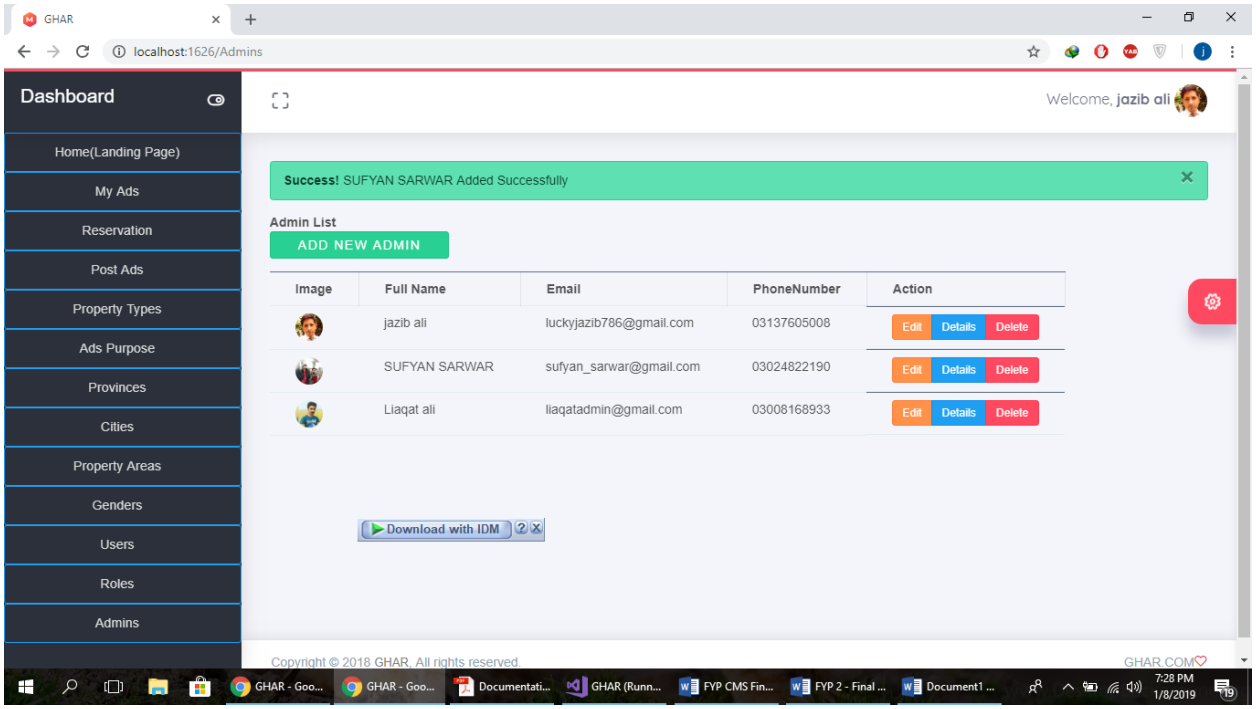

Figure 4 admin dashboard and add to admin

User registration form

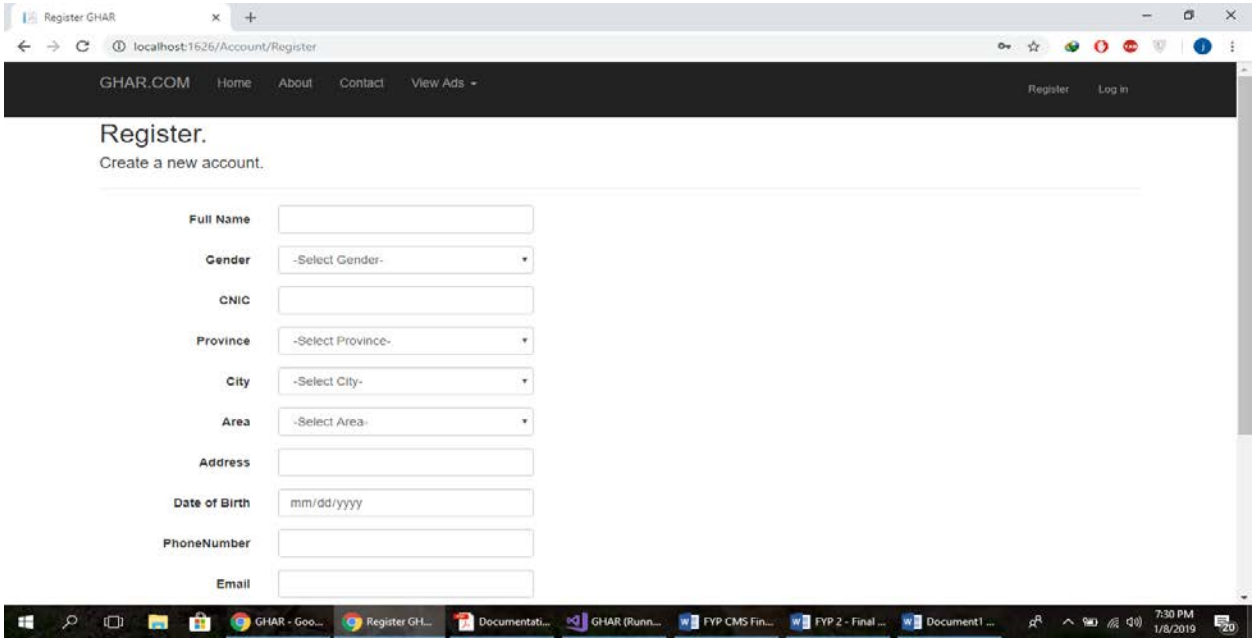

Figure 5 page for user registration

The page add property type

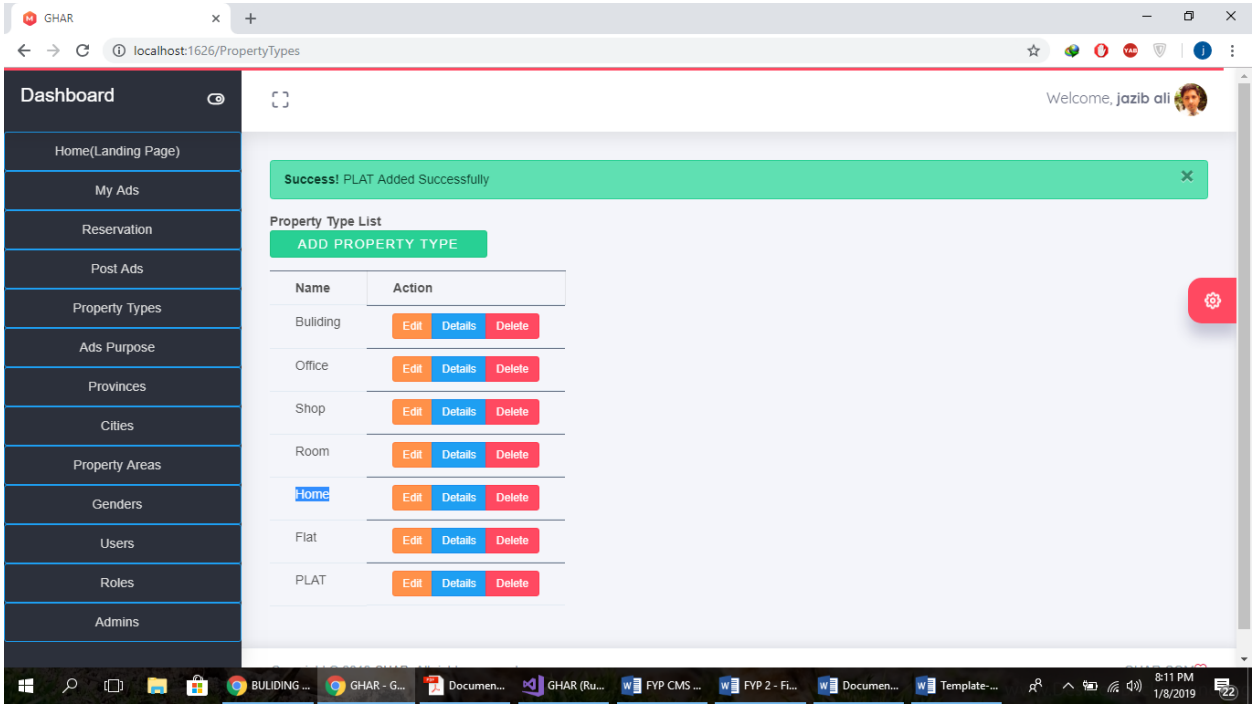

Figure 6 admin interface property type

2.2.2. Product Functions

Function must be formed by GHAR.COM system

- Record Entry (rental, sale, purchase and other).
- See their image property
- Confirm reservation
- View Online Fair info
- Add a new tenant and make and managing his/her contract.
- Warn and report any tenant about his/her rental payment.
- Manage the tenant maintenance request, and reporting about it.
- Image can view
- Location view
- Booking reservation
- Online Payment
- View Online Fair info.
- Customer sale and purchase property

2.2.3. User Classes and Characteristics

We have defined the user classes in the table below. The GHAR.COM system does not require much knowledge to interact with the system. The user must have technical knowledge to interact with the system. Users need to know how to communicate on the Internet or how to work with business applications. Users use the smartphone, they only need to open the mobile application.

Classes	Functionality Privilege	Technical/Non-Technical
GHAR.COM system Admin	Maintain the record property User(tenant sealer purchaser Rent)	Technical
User	Tenant, sealer, purchaser	Technical/ Non-technical
User View	Fair info/ image of property/ Location	Non-Technical
Booking	Online reservation	Technical or Non-Technical

Table 2 User Classes and Charteristics

2.2.4. Operating Environment

Our using CORE i3 System with 8GB RAM, 480 GB Hard Drive and 2.5 GHZs Processor. Window 10 pro is installed in System and Google Chrome Application also installed in system where our software will run. On the other side we will choose our specification where we will deploy our system on cloud.

2.2.5. Design and Implementation Constraints

- The users, connected with the server accessible through GHAR.COM system the website.
- The system operates 24 hours a day, 7 days a week.
- Current constraints on the project are related to the provision of material resources
- and software resources.
- The current system works HTML 5 / any browser running on windows/mac etc.
- Registration will be open for a short time.
- The user interface must be very simple, which can be understandable for a complete non-technical person.
- We need HTTPS for secure communication.
- We deal with SQL SERVER and MYSQL.
- The approach of the naming convention should be the same throughout the development.
- The MVC approach must be followed during programming, which is useful for efficient memory management.
- The data must be encrypted when it comes from the user in the databases.
- The customer must be verified with his e-mail address or his personal telephone number.

2.2.6. User Documentation

We will provide the user manuals instruction for the user. After reading manual instruction user will able to operate software easily. We will organize seminars and provide tutorials for system users learning

2.2.7. Assumptions and Dependencies

- The system that allows the user to quickly and easily search for a property to tenant, sell and buy.
- The registry user can upload his property for sale or rent.
- The system is designed and developed to try to solve the prescription problem.
- The system, which is an online system, will provide accurate information on the property that allows to see all the information on the substance directly from anywhere.
- Complaints and comments from users and other members of the organization considered reliable.
- We rely on the online payment API, which allows users to pay their fees online. If these APIs stop working in the future, we will need to modify this request or define a new payment method.
- We use the Google Maps APIs. If these APIs will not work with our system in the future, we will have to look for other features of the system.
- When new technologies or techniques arrive in the future and our user will require new technology, we will change the system requirements.
- Due to the large amount of data, we need an advanced database system to manage our data in the future.

2.3. External Interface Requirements

2.3.1. Hardware Interfaces

User Interfaces

- Processor 2.53 Ghz processor speed.
- Memory 8GB RAM.
- Operating System- windows 10 pro.

2.3.2. Software Interfaces

Software Used	Description
Operating System	We have chosen Windows Operating System for the best support and its friendliness.
Database	For storing database we choose Sql Server, MySQL Databases.
Tools	We will use visual studio, Sql Server and MVC for development.
Libraries	.NET Framework libraries, Google Map Libraries, Payment gateways Libraries.
Components	Payment verification alerts, map location notifications.

2.3.3. Communications Interfaces

Reservation notifications are sent to clients after verification using the smtp Gmail protocol. HTTPS is used by our web-based communication system for communication between clients and administrators. The HTTPS standard is used. AES encryption algorithms are used to encrypt user data. Our mobile application also uses the same HTTPS protocol that we use for our web application. The Internet data rate depends on the customer's Internet data rate.

2.4. System Features

- The allow administrator to add user, property details, tenant, fair info and defaulters details.
- The Allow the administrator to delete user, property details, tenant, fair. Info and defaulters details.
- The administrator allow to search data in the database.
- The administrator allow to edit, update remove data in the database.
- The allow user to add property details, vacant property fair info, sale property details.
- The tenant booking room/house/etc. by rent out.

2.4.1. System Feature

2.5. System Feature 1

To register-in into the System

Identifiers	**FR-001**
Title	To register-in into the System
Requirement	To enter required info
Rational	To make login into system
Restriction and risk	Valid information for registration
Dependency	None
Priority	High

Table 3 System Feature 1

System Feature 2

To logged system

Identifiers	**FR-002**
Title	To logged-in system
Requirement	To give required info
Rational	To login into the system and take advantage of the services provided it.
Restriction and risk	Valid user name and password
Dependency	FR-001
Priority	High

Table 4 System Feature 2

System Feature 3

The landlord property add/remove

Identifiers	**FR-003**
Title	To landlord add / remove property image
Requirement	Image must be less than or equal 24MB
Rational	To add /remove property image
Restriction and risk	To image should be clear view
Dependency	FR-002
Priority	High

Table 5 System Feature 3

System Feature 4

The landlord update/change property

Identifiers	**FR-004**
Title	To landlord update / change property
Requirement	The user must be signed-in
Rational	To update the record
Restriction and risk	The property info must have been already add in system.
Dependency	FR-003
Priority	High

Table 6 System Feature 4

System Feature 5

The landlord add/update rent

Identifiers	**FR-005**
Title	To landlord add / update rent info
Requirement	The user must be signed-in
Rational	To add/update the record
Restriction and risk	The property info must have been already add in system
Dependency	FR-003
Priority	High

Table 7 System Feature 5

System Feature 6

The user search property

Identifiers	**FR-006**
Title	The user search property
Requirement	To system must be search property record
Rational	To view property info
Restriction and risk	The property info must have been add add in system
Dependency	FR-003
Priority	High

Table 8 System Feature 6

System Feature 7

Booking/cancel

Identifiers	**FR-007**
Title	The user ads/ remove property
Requirement	To system be booking/remove the property record.
Rational	To record the remove the property on dash board
Restriction and risk	To vacant property show the other users.
Dependency	FR-003
Priority	Safety

Table 9 System Feature 7

System Feature 8

The user update profile info

Identifiers	**FR-008**
Title	The user update profile
Requirement	The user must be signed in
Rational	To must be update info
Restriction and risk	The user record must have been add before.
Dependency	FR-002
Priority	High

Table 10 System Feature 8

System Feature 9

User

Identifiers	**FR-009**
Title	User
Requirement	The user must be logged-in
Rational	To view details of fair info
Restriction and risk	None
Dependency	FR-002
Priority	High

Table 11 System Feature 9

System Feature 10

View property

Identifiers	FR-010
Title	To User view property
Requirement	The user must be signed-in
Rational	To view property location and image of property.
Restriction and risk	
Dependency	FR-002

Table 12 System Feature 10

System Feature 11

Check Rent info

Identifiers	**FR-011**
Title	To User fair rate/sale rate
Requirement	The user must be signed-in
Rational	To discuss the fair rate change up/down
Restriction and risk	No
Dependency	FR-002
Priority	Up to date

Table 13 System Feature 11

System Feature 12

Reservation /cancel order

Identifiers	**FR-012**
Title	To Reservation / cancel
Requirement	To user must be signed-in
Rational	The user booking vacant property according need and cancel any reason.
Restriction and risk	None
Dependency	FR-002,
Priority	High

Table 14 System Feature 12

System Feature 13

The user Buying / sale property

Identifiers	**FR-013**
Title	The user purchase / sale
Requirement	To must be signed-in
Rational	To buying and sale property
Restriction and risk	To provides description property
Dependency	FR-002
Priority	High

Table 15 System Feature 13

System Feature 14

Change password

Identifiers	**FR-014**
Title	To change password/Update
Requirement	The user must be signed-in
Rational	To change the password after logging into the system.
Restriction and risk	Remember the password
Dependency	FR-002
Priority	High, Safety

Table 16 System Feature 14

System Feature 15

Feedback

Identifiers	**FR-015**
Title	Feedback
Requirement	To must be signed-in
Rational	The user can get relieve from his/her problems without much effort or conflicts.
Restriction and risk	To give on view
Dependency	FR-002
Priority	High

Table 17 System Feature 15

2.6. Other Nonfunctional Requirements

2.6.1. Performance Requirements

- The software interface must follow design conventions, which allow for familiar location of menus, etc.
- Input errors returned with appropriate message box.
- More than three attempts at login and failure will produce a red flag to system administrator.
- Response Time Should be minimum.

2.6.2. Safety Requirements

- When a large part of the database is severely damaged due to a catastrophic failure such as an accident, the recovery process has been reduced to the state of the art.
- Reapplying or repeating validated transaction operations from the backup log to the point of failure.
- The data must be secure in the system. The data must be encrypted when transmitted on the network layer.
- User account information must remain secret when making payments for online booking and booking.

- Any type of data must be secret and must not be disclosed, because in the case of unmasked data, legal acts can be a burden on society.
- We need a database to store our application data. For security reasons, we must carefully select the partners of the database.

2.6.3. Security Requirements

The administrator and the user with valid credentials can log in to the portal. Administrator Access to database structures in the backend. The administrator has the rights to Modify and update the records and the site. A user login screen that requires a username and password protects access to different Subsystems. To be updated in the future.

2.6.4Software Quality Attributes

Availability:

All product features must be available if the user wishes. The system must book online if the user wishes. The system must make an online booking when customers request a reservation. The system must specify the locations of the vehicles during the booking period. The system must generate reports when the enterprise administrator generates the reports. Whenever the system has to entertain users, if users want it.

Correctness:

The system must perform all the tasks exactly. The system must provide customers and administrators with accurate and up-to-date information.

Flexibility:

The system must be flexible, if the user wants future changes or extensions of the system, the system must allow developers to extend the system.

Maintainability:

The system must be maintainable, if we want to retain any functionality, the system must allow it to modify or review the features.

Portability:

The system must be portable. The system must be functional on all operating systems, hardware configurations, and environments.

Reliability:

The system must be reliable. The system continues to operate even under critical conditions. The system should not fail if the user is triggered or the request is triggered.

Reusability:

The system function must be reusable if the same function is needed for another project in the future, the system must be reused.

Robustness:

Each system crashes, but crashes must be correct. Thus, our system should generate hazard warnings before accidents or in non-working conditions.

Testability:

All system functions must be testable.

Usability:

All system functions must be usable and user-friendly. The function of the system must be executed efficiently. The user interface of the system should be understandable to the user and help the user to perform the tasks related to the user.

2.6.4. Business Rules

- The unpaid balance of a customer reservation always cancel of the policy of the company.
- When a sublease request is sent, the system will process the request. Regarding the information, the system will approve or reject the request.
- The GHAR.COM system is used by several accountants. As a result, some important activities must be recorded in the log that saved or modified the record with the most recent update date.
- The total invoice amount results from the summation of the current unpaid invoice amounts.

- If the item is only partially paid, the status becomes partial. Status changes must be automatic. An item eligible for the invoice may also be reduced or canceled.

Admin:

- Record Management, Confirm Booking, Reports Generation, and view property image

Owner:

- Check details tenant, sealer, purchaser

Customer:

- Online booking reservation, sealer, purchaser, rental Request Booking, View property image, and view fair info. Work should be done according to all standard methods and rules. No industry rule should violate.

Chapter 3

Use Case Analysis

Chapter 3: System Analysis

3.1. Use Case full Model

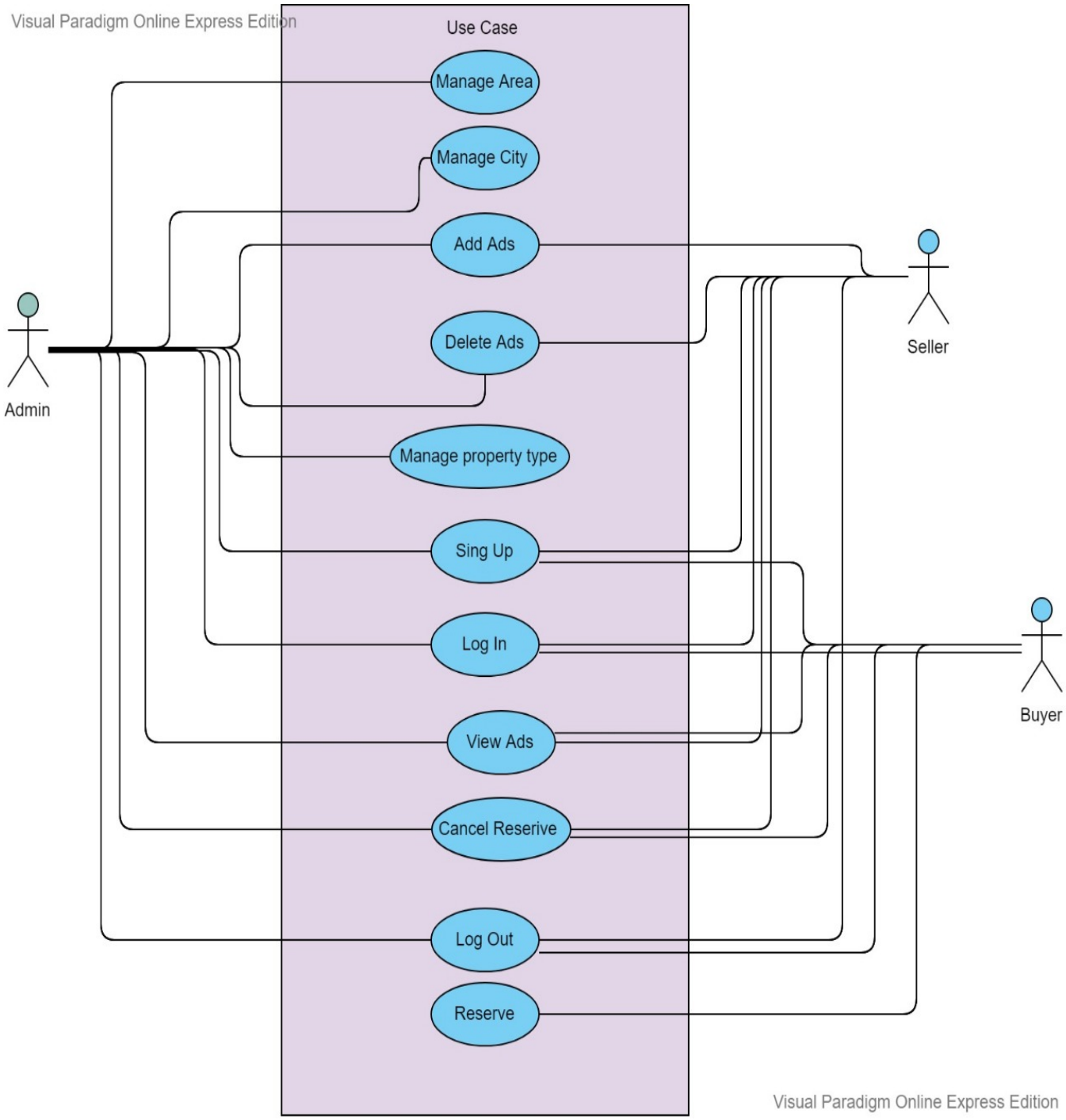

Figure 7 use case fully model

3.1.2 Use Case Buyer

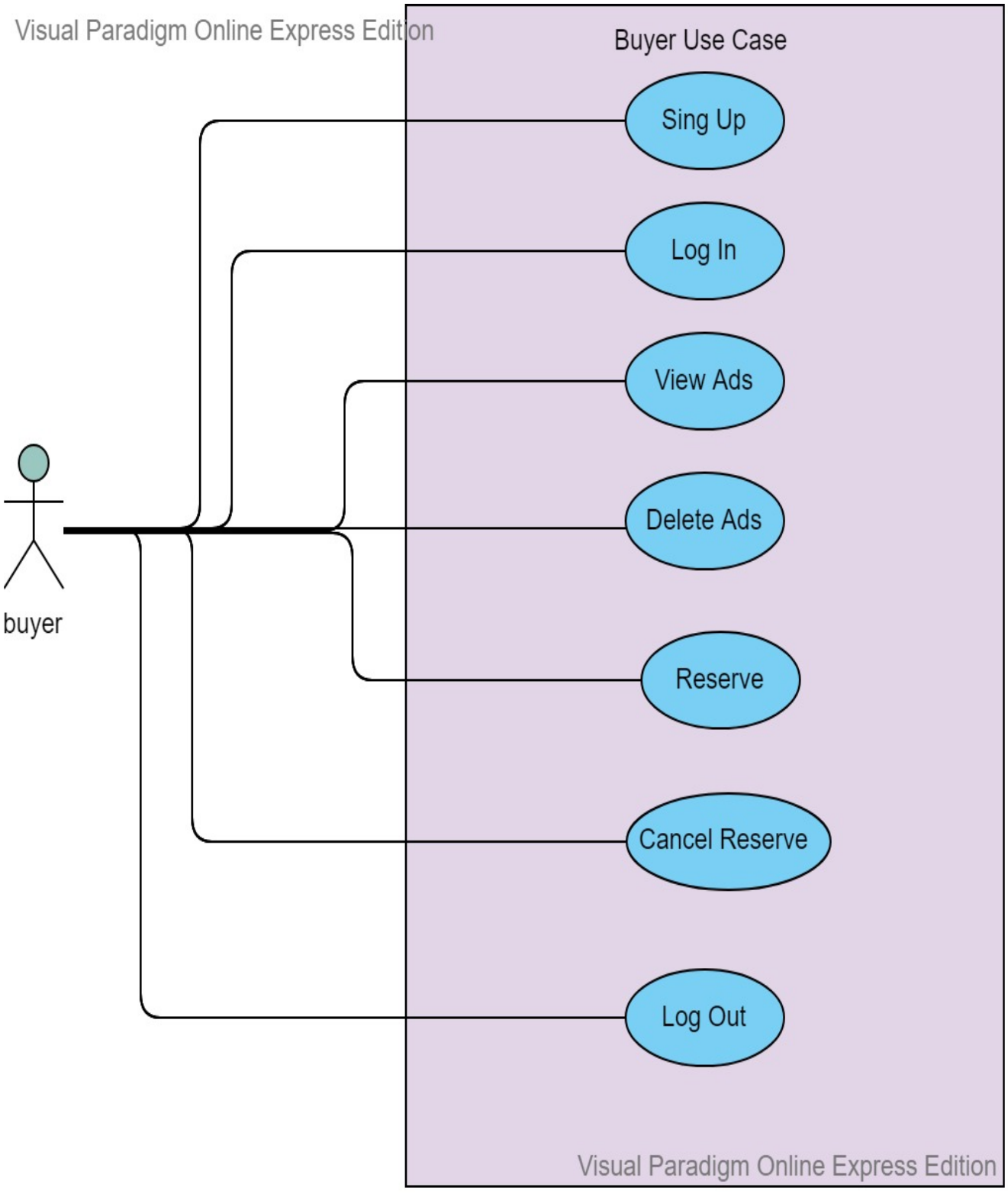

Figure 8 use case buyer

3.1.3 Use Case Sale

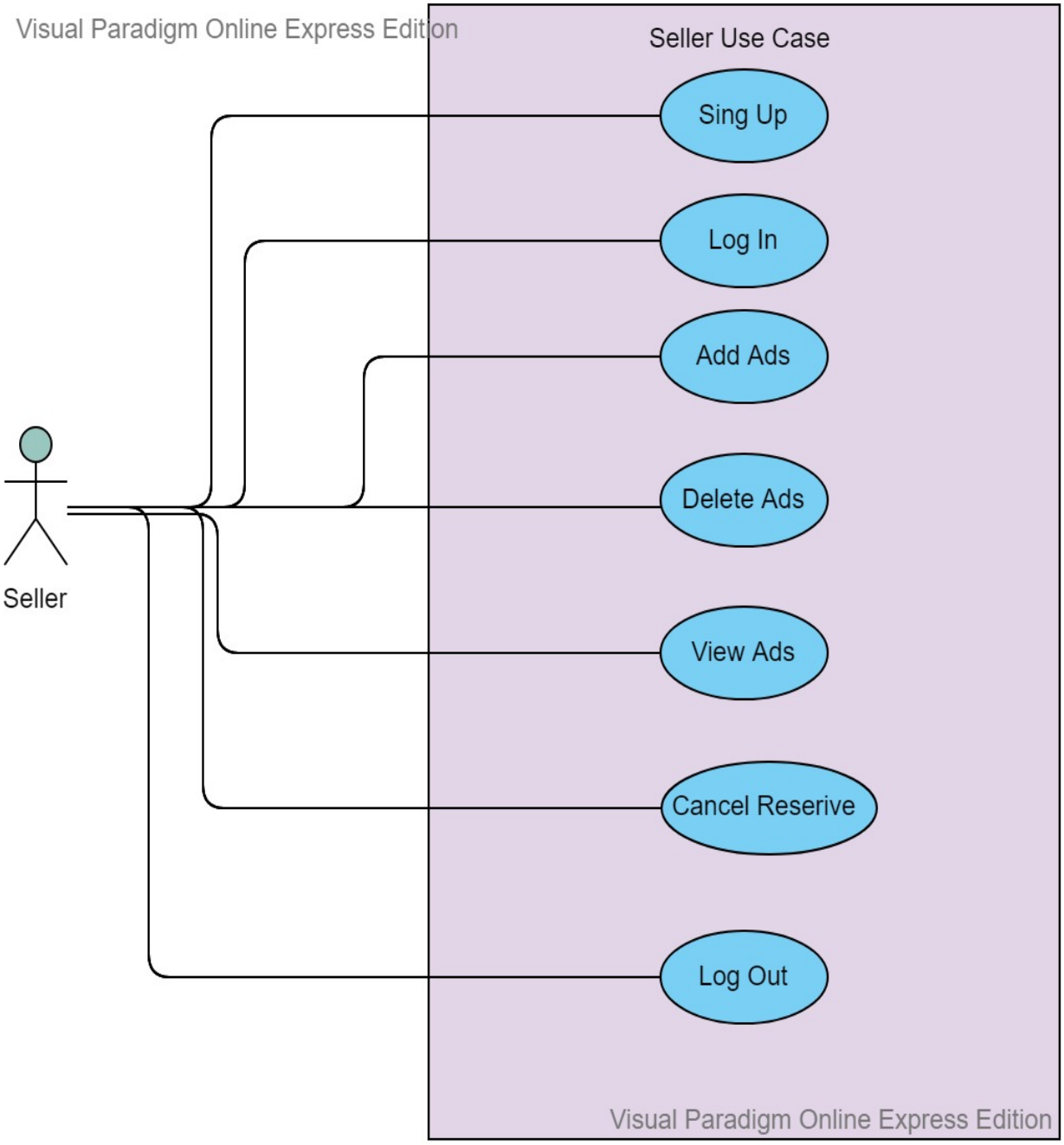

Figure 9 User Use case Sale

3.1.4 Use Case Admin

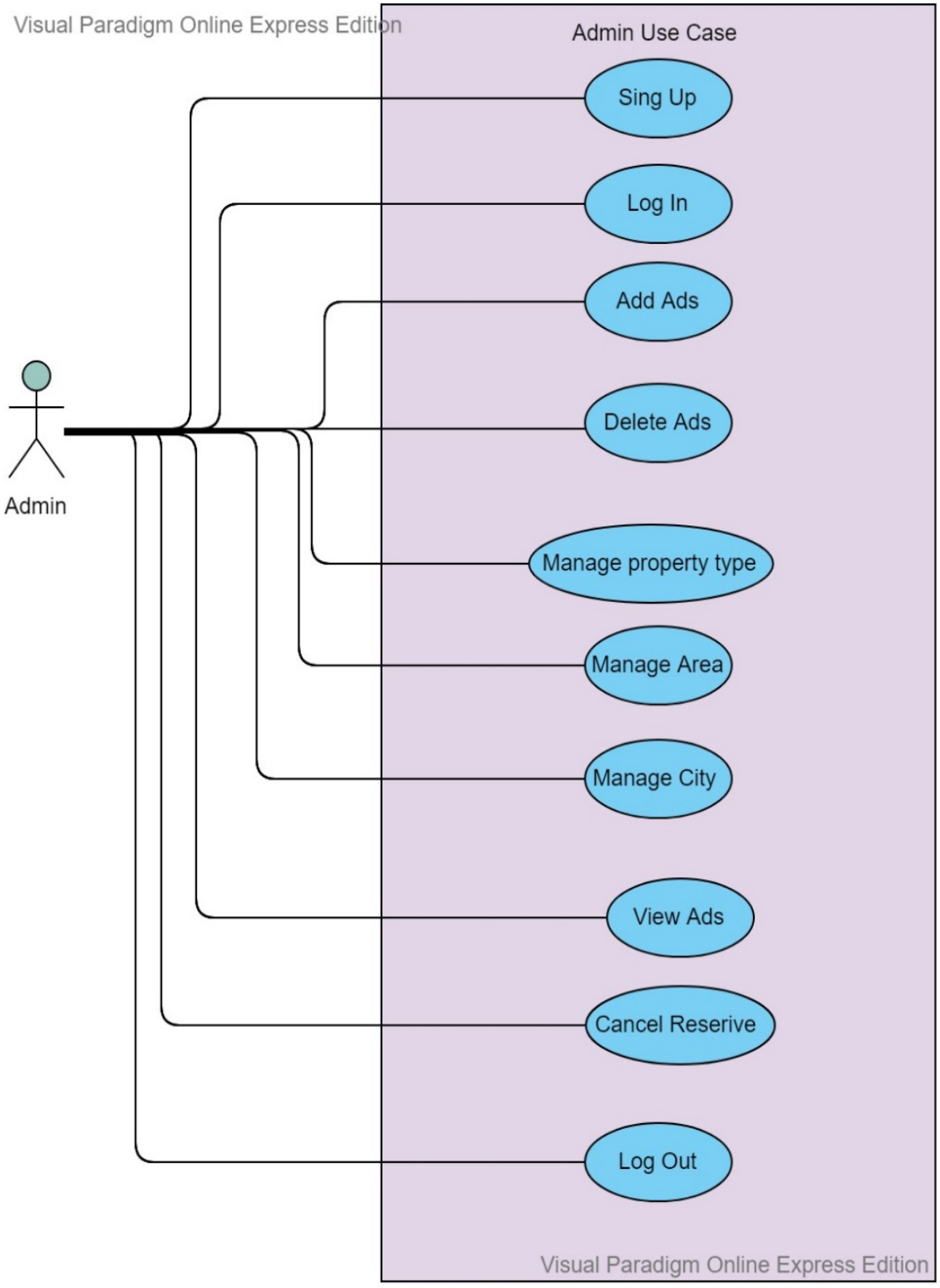

Figure 10 Use Case Admin

Chapter 4

System Design

4.0. Introduction

GHAR.COM is web based application and user service. The web Browser work as a use interface for the system. The web browser communicates with the server using HTTP as transport protocol. Web browser sends request to the server and server respond to web in HTML format, web browser then display the information to the user. WIFI or ETHERNET is used and it needs a proper network. MYSQL Database resides on the server when the user data is stored and managed.

4.1. Architecture Diagram

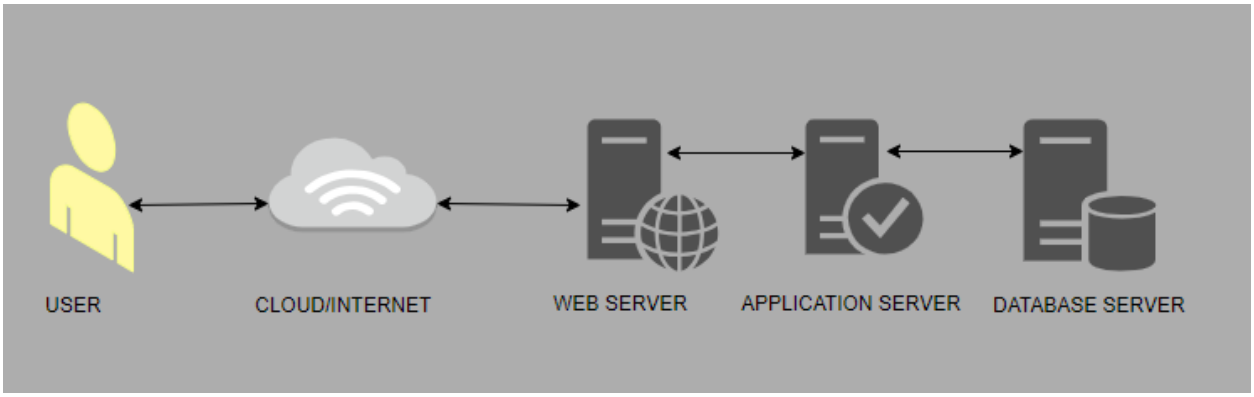

Figure 11 Architecture Diagram

4.2. Domain Model

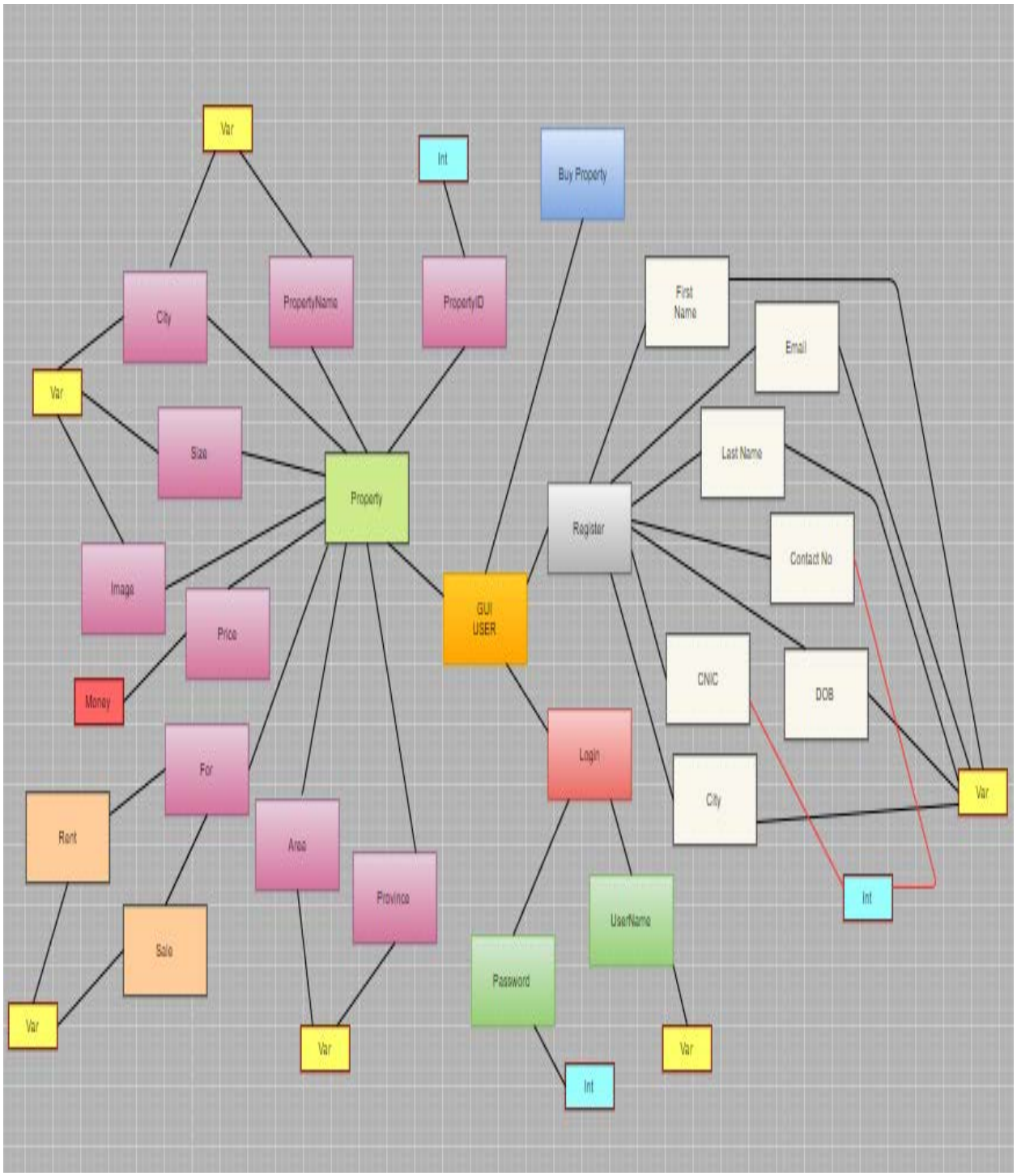

Figure 12 Domain Model

4.3. Entity Relationship Diagram with data dictionary

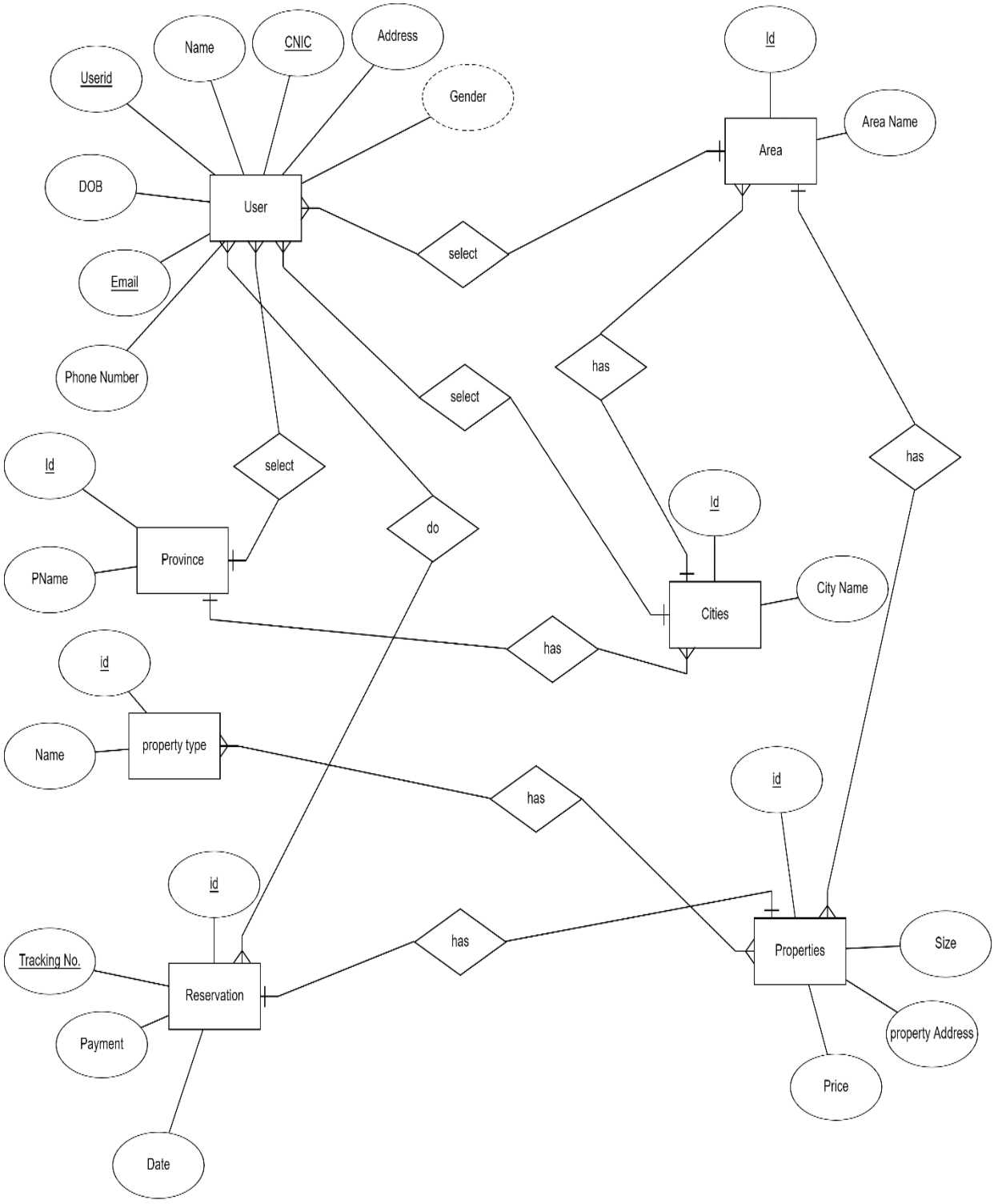

Figure 13 ERD GHAR.COM

4.4. Class Diagram

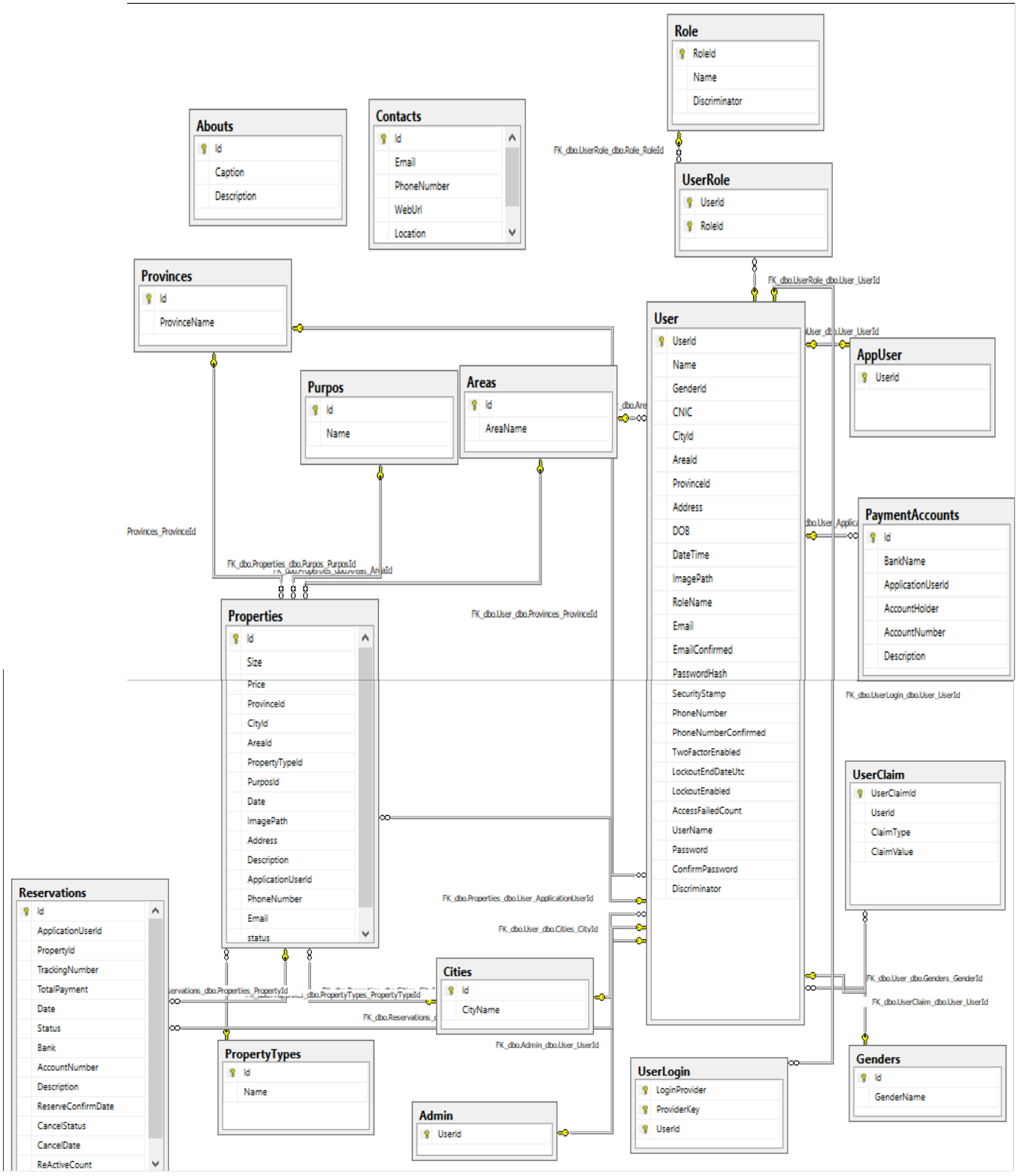

Figure 14 Class Diagram

4.5. Sequence / Collaboration Diagram

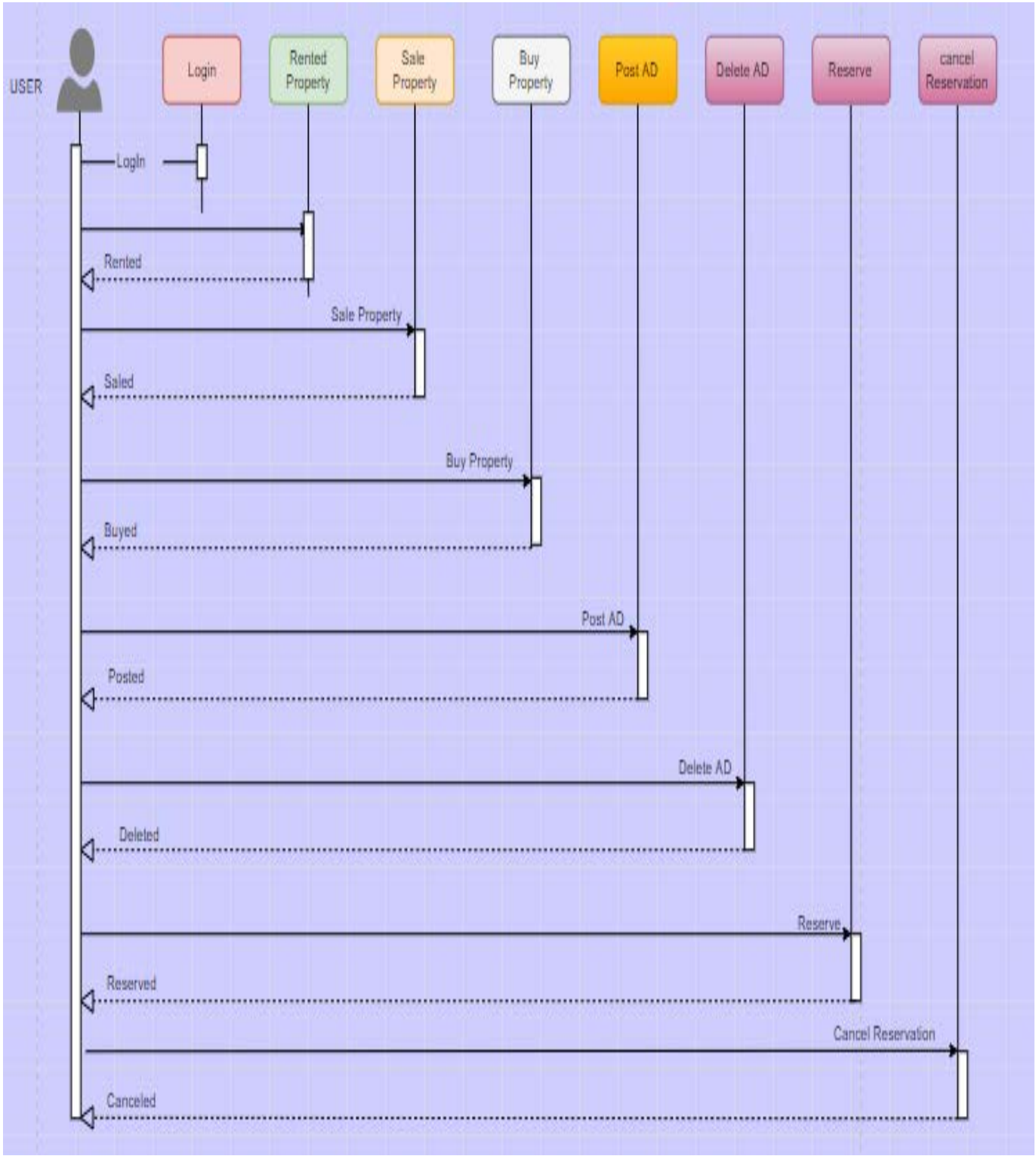

Figure 15 Sequence / Collaboration Diagram

4.6. Activity Diagram

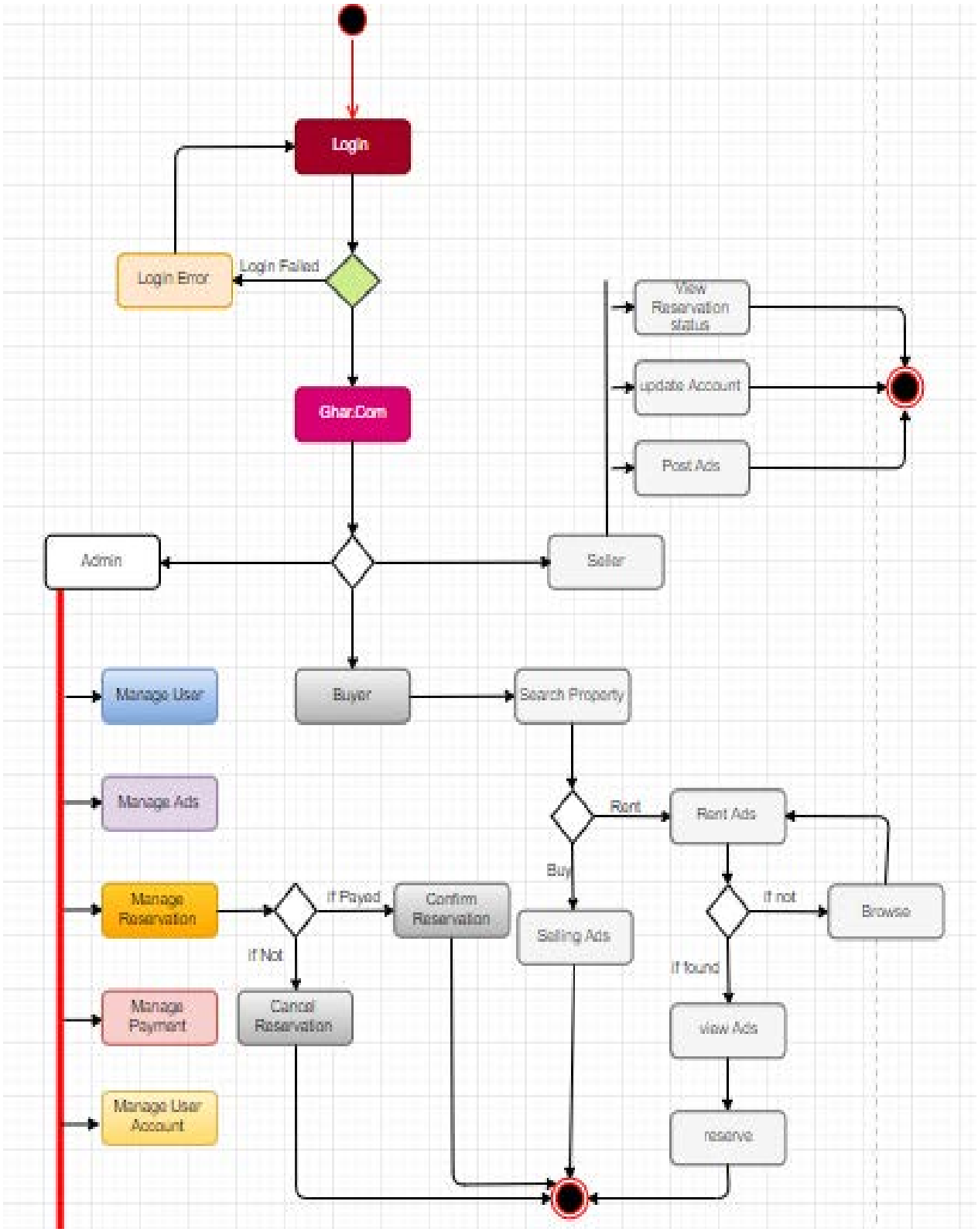

Figure 16 Activity Diagram

4.7. State Transition Diagram

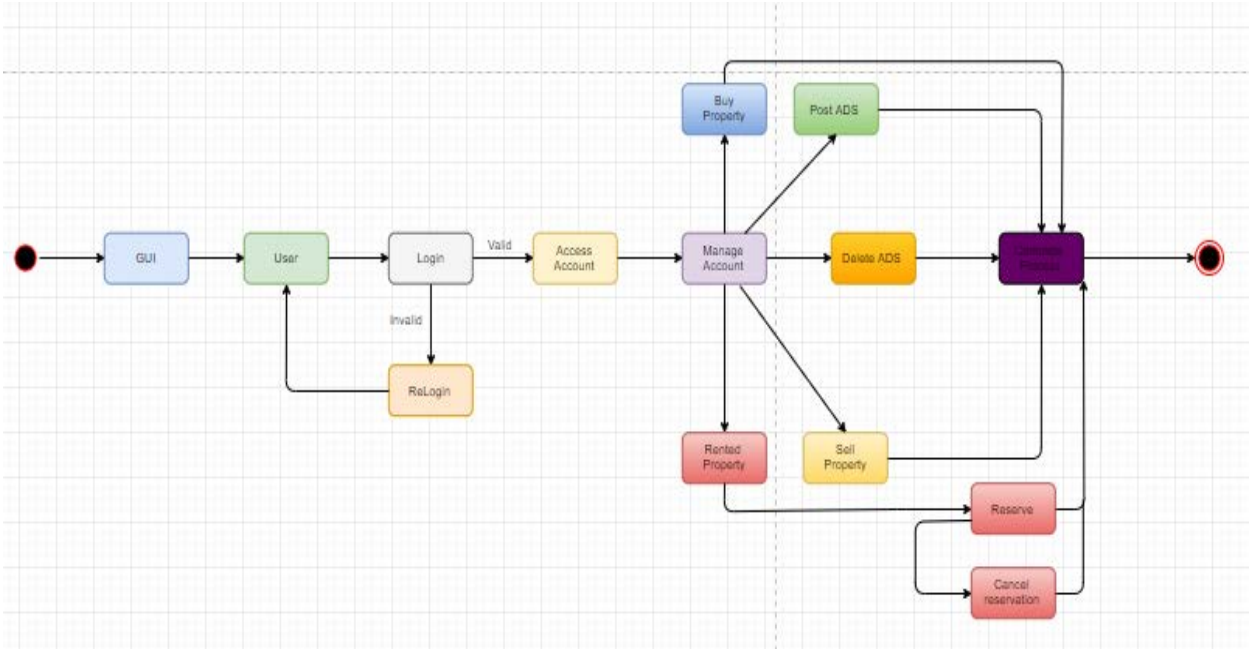

Figure 17 State Transition Diagram

4.8. Component Diagram

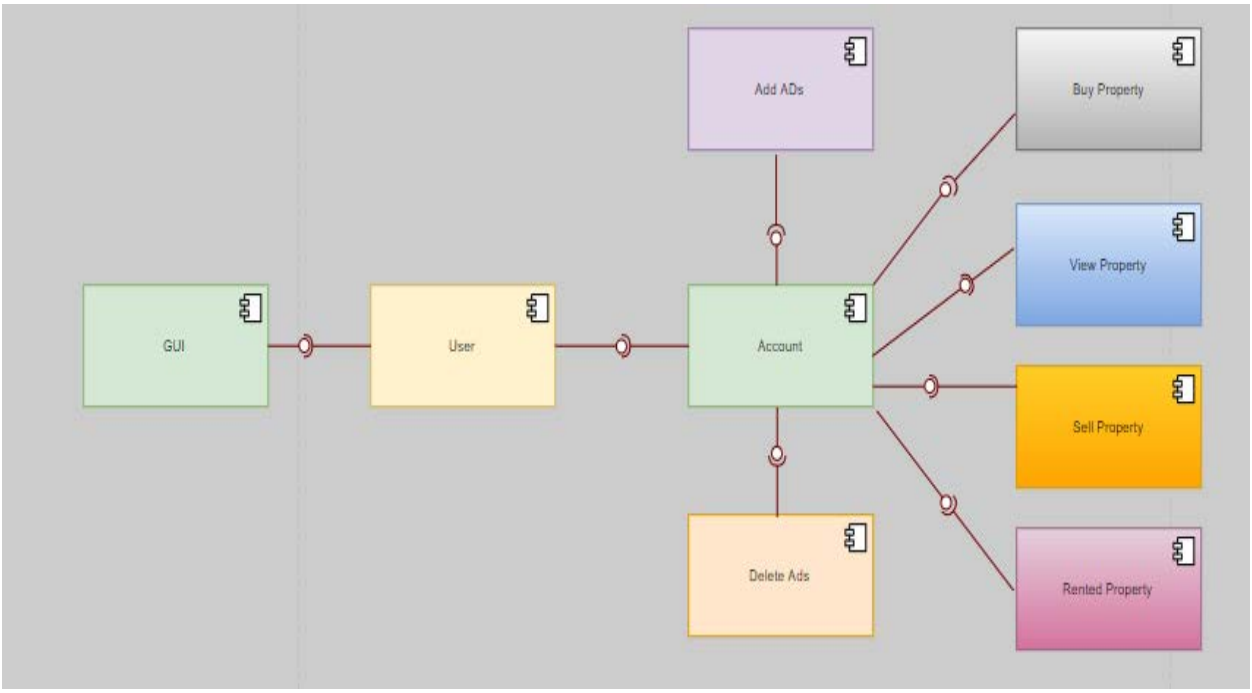

Figure 18 Component Diagram

4.9. Deployment Diagram

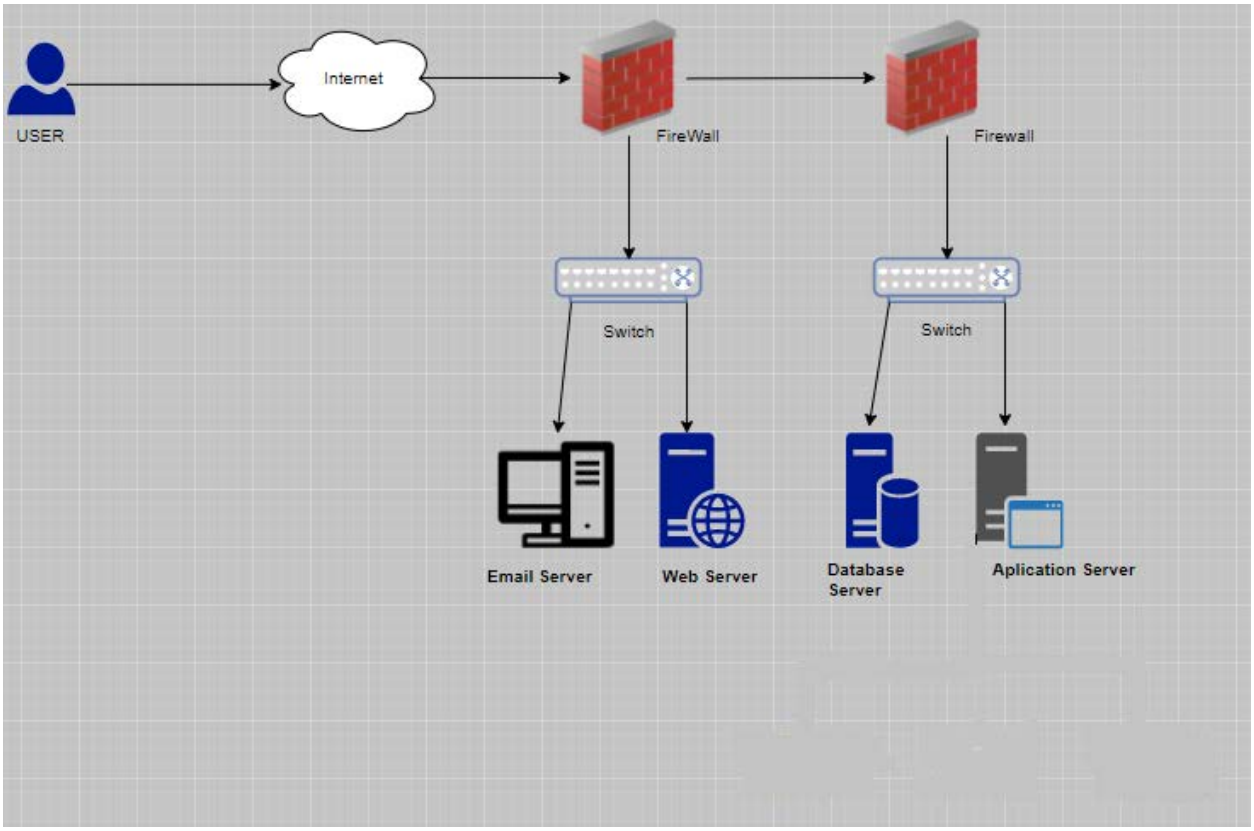

Figure 19 Deployment Diagram

4.10. Data Flow diagram

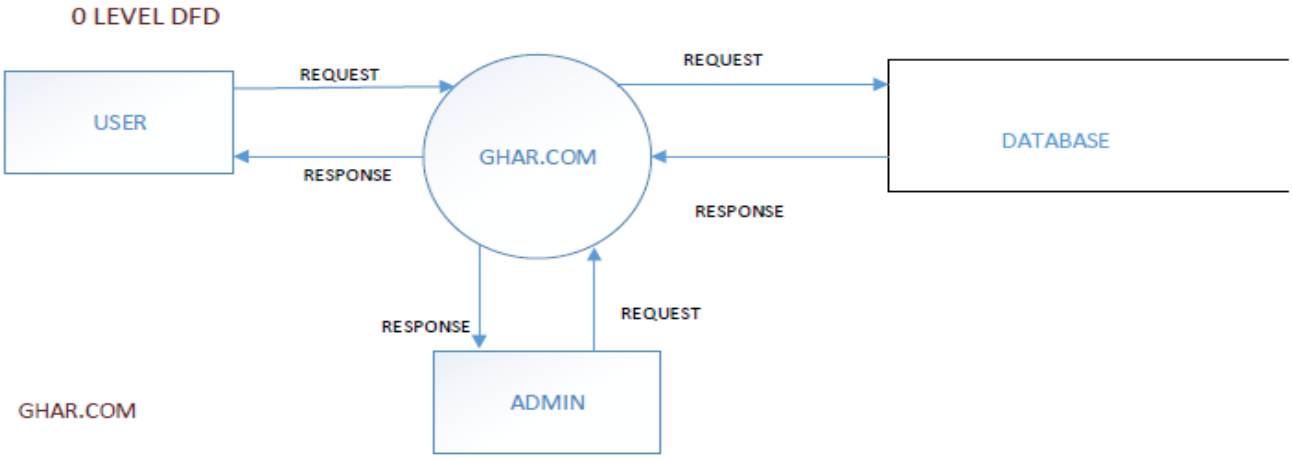

Figure 20 DFD 0level

DFD User

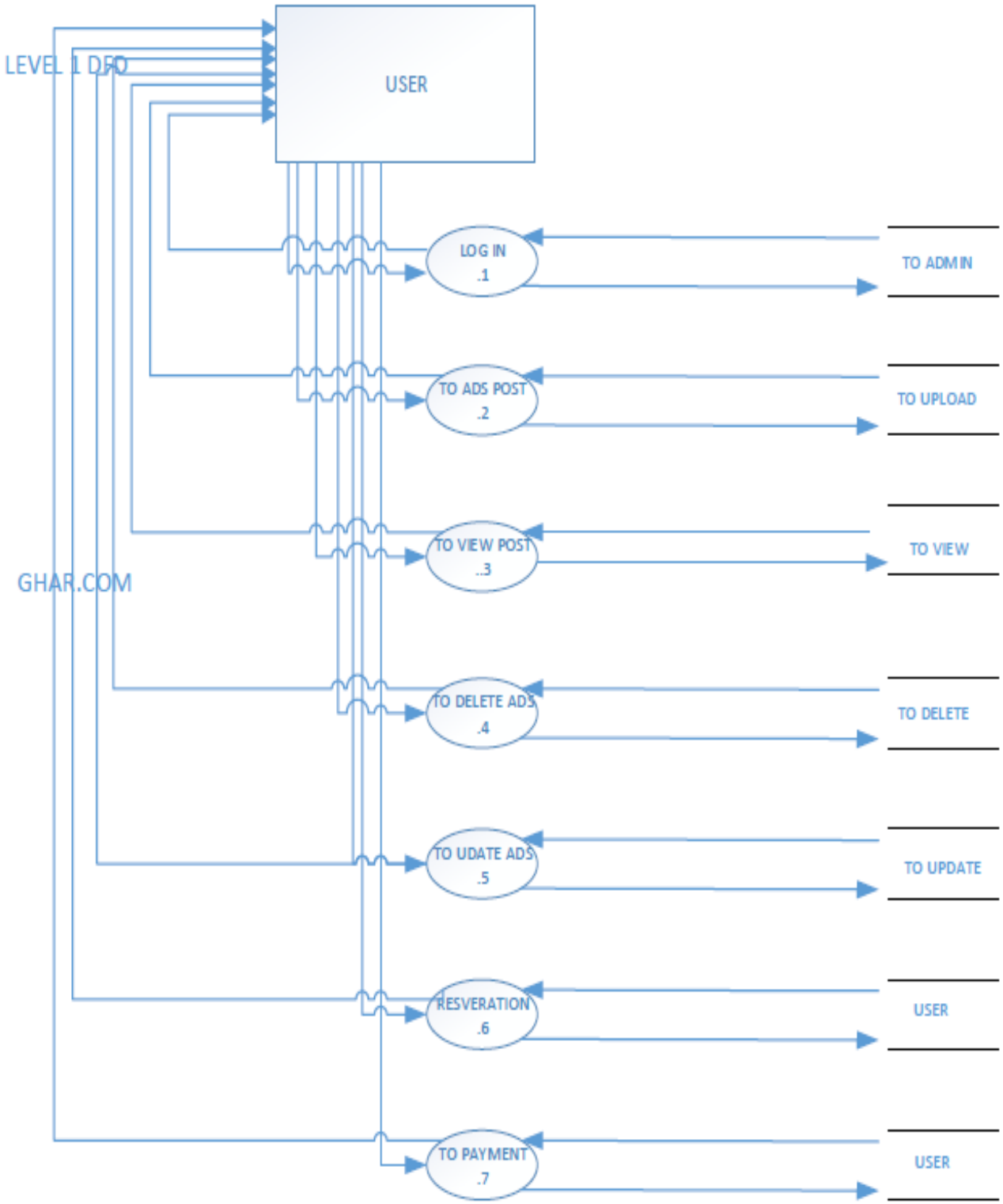

Figure 21 DFD 1 level

DFD Admin level

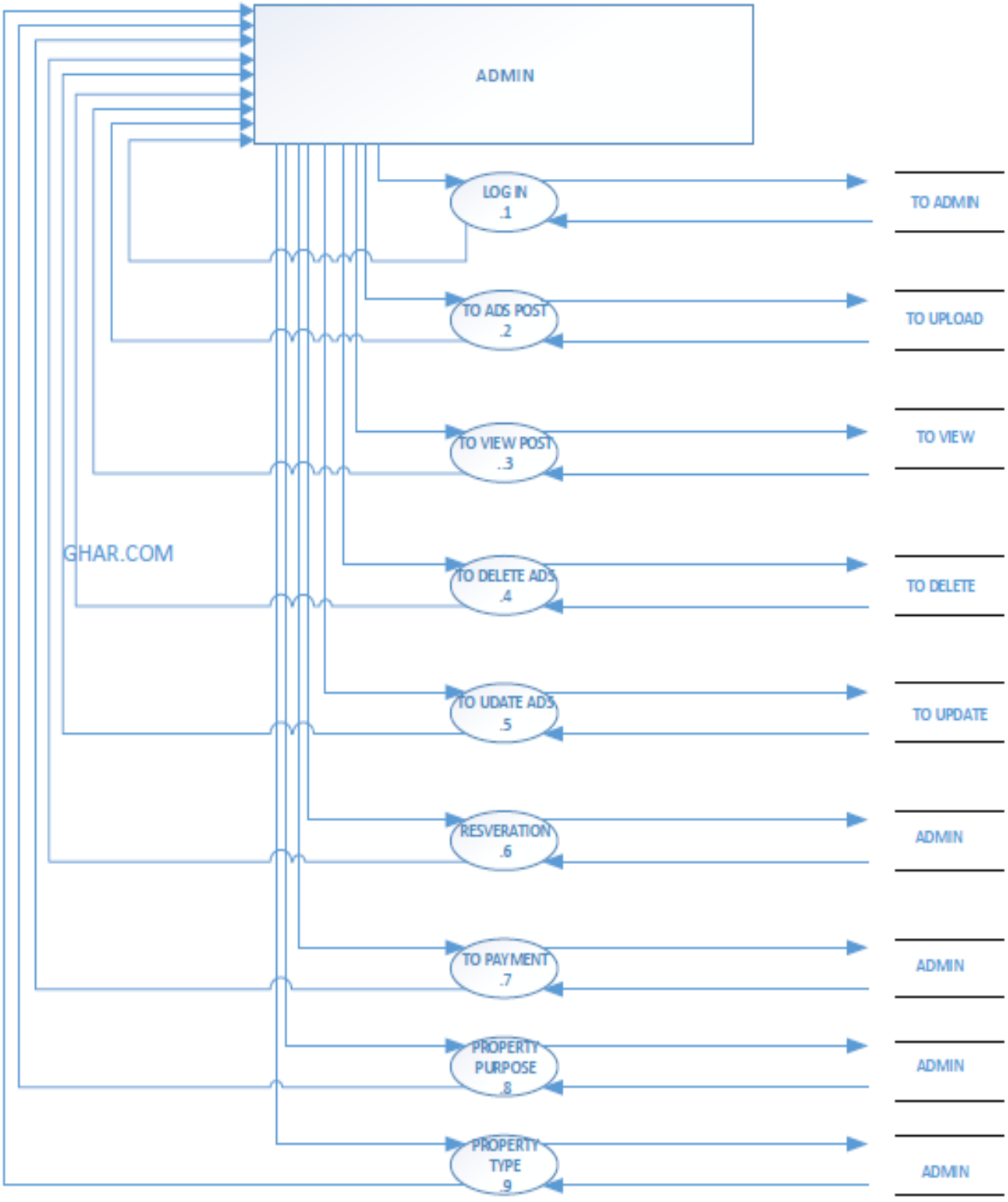

Figure 22 DFD 2 Level

Chapter 5

Implementation

Implementation

The describes the tools and techniques associated with the project. This chapter presents the overall implementation strategy, for example: Standards and implementation rules that can be useful in developing the flow of all logical and business data. Describes libraries, web services, and project components with the development environment that they can use with the best development methods and version control policies.

5.1. Important Flow Control/Pseudo codes

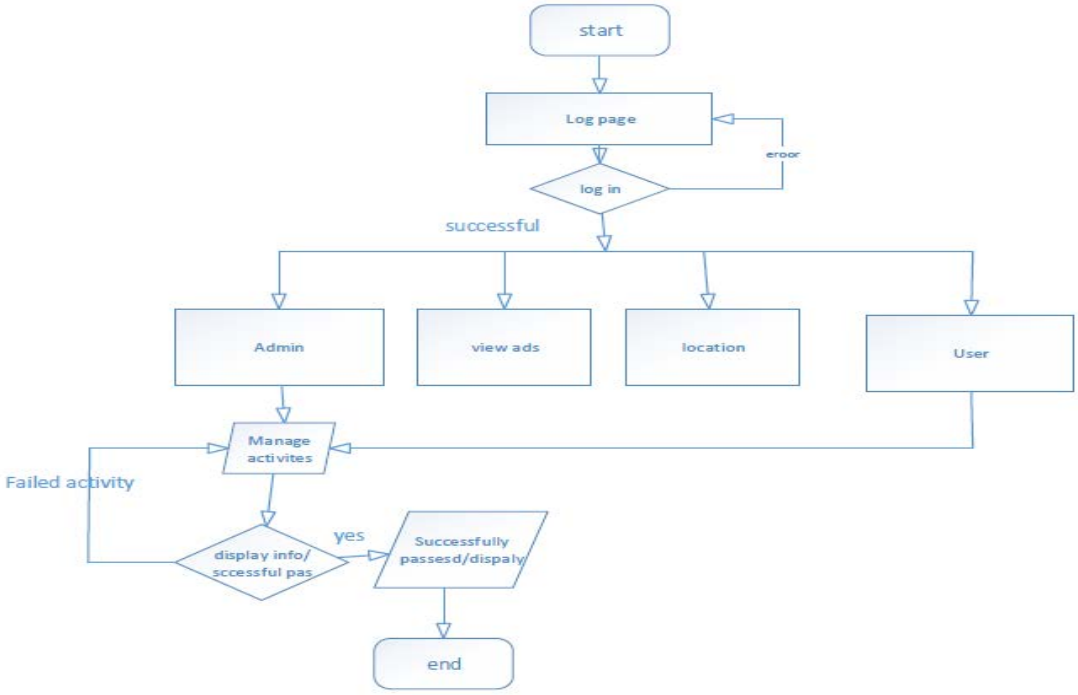

Figure 23 Important Flow Control/Pseudo codes

5.2.0 Components, Libraries, Web Services and stubs

5.2.1. Components

- The balance between Admin, Process, and Technology
- Framework
- Adaptive
- We use agile SDL'S model that is change oriented at any stage of development
- Wants versus Needs
- We or especially focused on client satisfaction we are should fulfill we our project is designed for current requirements

5.2.2 Web services

Updates/Notification

- In our application, we can share information with users using .NET client service with SOAP protocols and Gmail services

5.2.3. Libraries

- We can use many libraries and namespaces in our ASP.NET MVC 5 web application like as.
- Different c# Sharp is an automatic differentiation library for exact and efficient calculation of derivatives. It includes symbolic and numerical differentiation
- System.Collections
- System.Data
- System.Drawing
- System.IO
- System.Text
- System.Threading
- System.Timers
- System.Web.Services

5.2.4. Deployment Environment

We click on the following link to access the Live-Hosting website on your server. Click on the link below to test the location of the local hosts of staff and experienced experts for SQA. Use

different methods and test tools, a software test strategy analysis, is software quality software.

Click here to download the beta version of the Android app from the Google Play Store.

5.2.5. Tools and Techniques

Tools

Development Tools

- Visual Studio 2017
- .NETFRAMEWOROK 4.7.2
- ASP.NET MVC 5

Best Practices / Coding Standards

Developing Language

- C#
- JQuery
- AJAX
- Bootstrap 4
- CSS

Database server

- SQL Server Management Studio 2014

Documentation Tools

- MS Office Pro 2016

UML Tools

- MS Visio 2016
- Draw.io

Designing Tools

- Adobe Photoshop cs 2017

Server (Web Hoisting)

- Localhost

Techniques

Responsive Web Design Strategy

- Surfing the Internet with mobile devices has grown astronomically. On tablets, smartphones and desktops, we are faced with different screen sizes. Since the size of the screen is constantly changing, we should optimize our website for all these mobile devices. Our website must be designed to fit any screen size.

Maintaining Consistency

- We may retain items such as color, layout or font in your site. Our website should have a steady stream from one side to the other. This means that the font, color, and layout must be identical across the site to ensure consistency. It is important to keep the elements constant on all pages so that the viewer does not feel lost.

Using Responsive Data Tables

- Data tables are generally broad. We can see the entire array with the zoom, but in this case we should scroll horizontally and vertically to navigate the table. Another problem is to display a pie chart based on the data.

Design a Great Navigation System

- The best way to attract visitors to our website is to develop a robust and impressive navigation system that effectively supports all search preferences. The most important factor in web design is the ease with which information can be found. The navigation system must be intuitive and explicit.

Make Site Accessible

- Due to the search for overwhelming traffic, we make our website compatible with various devices and browsers. We must ensure that the authorized user can access and visit our website, regardless of the application or browser used.

Usability

- It is important that the success of a website depends on its usability, because its presence makes no sense if users cannot use it and not in their visual design. It is best to use a user-centric design. The user must clearly display all available functions. The representation of the functions contributes to a good design of the user interface. Visitors should be able to easily interact with the system.

Minimize User Workload

- I minimize the cognitive load so that the user can more easily understand the idea of our system. In addition, it takes fewer user actions to try a service.

5.2.6 Best Practices / Coding Standards

Introduction

- Coding techniques and superior programming practices are trademarks of a professional programmer. With most programs, many small decisions need to be made to try to solve more problems. The wisdom of these decisions depends largely on the skills and experience of the programmer.

File and Folder Organization

- One of the best methods is to use a structure.

Commenting & Documentation

- The comments on the code are more useful than ever. If you follow certain patterns in comments, IDE and other tools can use them in different ways.

Consistent Naming Scheme

- Names must have word limits. There are two popular options:
- Camel Case: First letter of each word in upper case, except the first word.
- Underlined: underline between words.
- Special SQL words and function names are not case-sensitive. It is common to use them to distinguish them from the names of your table and column.

Read Open Source Code:

- Projects created with many developers. These projects must ensure a high readability of the code so that the team can work together as efficiently as possible.

Avoid Deep Nesting:

- Many nesting levels can make it difficult to read the code. For ease of reading, it is often possible to make changes to the code to reduce nesting.

Programming Practices

- To save resources, select the data type selectively to make sure the size of a variable is not too large.
- Keep the life of the variable as short as possible if they represent a limited, potentially conflicting resource, such as a database connection.

- Keep the size of the variables as small as possible to avoid confusion and maintenance. Retaining the old source code also minimizes the risk of inadvertently breaking other parts of the code if the scope of the variable is limited.
- Use variables and routines for one purpose only. Also avoid creating multipurpose routines that perform various non-contiguous functions.
- When writing classes, avoid using public variables. Instead, use procedures to provide an encapsulation layer and validate value changes.

5.2.7 Version Control

- We have used Google drive where we handled our project with speed and efficiency. We can easily manage and share our code with other team members by using Google Drive.

Chapter 6

Testing and Evaluation

6.1. Use Case Test 1

Use Case Name	**Sign Up**
Use case Description	User registration for using the system.
Actors	Admin, User
Pre-Condition	System must be connected to network.
Post-condition	After successful registration user can registered with system.

Main Scenario	**Serial Number**	**Steps**
A:Actors **S:System**	1	User Should be Register via Full name, Gender, CNIC, province, City, Area, Address, DOB, Phone number, E-mail, Password, Confirm Password, Image.
	2	S: Validate All input fields.
	3	S:Registered with System
Extensions	2a	If any input has validation error then system generates error message.

Table 18 Use Case Test 1

6.1.2 Use case test 2

Use Case Name	**Login**
Use case Description	A user Login to access the system features.
Actors	Admin, User
Pre-Condition	System must be connected to network.
Post-condition	After successful login user can login to system Dashboard.

Main Scenario	**Serial Number**	**Steps**
A:Actors	1	A: Enter Email and Password.
S:System	2	S: Validate Email and Password.
	3	Allow Access to System Dashboard
Extensions	2a	Invalid Password and Username Then System show error message.

Table 19 Use Case Test

6.1.3 Use case test 3

Use Case Name	**To add ads**
Use case Description	To add in System.
Actors	Admin
Pre-Condition	System must be connected to network. Admin must be login to system.
Post-condition	Post adds Successfully in the system.

Main Scenario	**Serial Number**	**Steps**
A:Actors **S:System**	1	A: Upload property image.
	2	S: Validate input fields.
	3	S: Register vehicle into system. Admin can update and delete the ads.
Extensions	2a	Invalid input fields. Then System show error message.

Table 20 Use Case Test 3

6.1.4 Use case test 4

Use Case Name	**To reservation**
Use case Description	To reservation online home, flat, room etc.
Actors	Admin, User.
Pre-Condition	System must be connected to network. Users must be registered and login to system.
Post-condition	Reservation successfully.

Main Scenario	**Serial Number**	**Steps**
A:Actors **S:System**	1	A: Reservation confirm or cancel
	2	S: Validate input fields.
	3	S: Reservation Request created by User and verify by Admin after payment .
Extensions	2a	Invalid input fields. Then System show error message.

Table 21 Use Case Test 4

6.1.5 Use case test 5

Use Case Name	**Add user**
Use case Description	To add driver in system.
Actors	Admin
Pre-Condition	System must be connected to network. Admin must be login to system.
Post-condition	User successfully added in the system.

Main Scenario	**Serial Number**	**Steps**
A:Actors **S:System**	1	A: Upload Image.jpg.
	2	S: Validate input fields.
	3	S: Register User into system. User can update, and delete.
Extensions	2a	Invalid input fields. Then System show error message.

Table 22 Use Case Test 5

6.1.5 Use test case 6

Use Case Name	**To edit post**
Use case Description	Admin can view, insert, update and delete ads. Customer can view other ads.
Actors	Admin, Customer.
Pre-Condition	System must be connected to network. Admin must be registered and login to system.
Post-condition	Ads added, view, updated and deleted.

Main Scenario	**Serial Number**	**Steps**
A:Actors **S:System**	1	A: update, delete, view, check details.
	2	S: Validate input fields.
	3	S: Update, view and Delete.
Extensions	2a	**Invalid input fields.** Then System show error message.
	3a	**Terminal already exist.** Then System show error messages.

Table 23 Use Case Test 6

Use case test 7

Use Case Name	**Fare**
Use case Description	Customer can view Fares.
Actors	Customer.
Pre-Condition	System must be connected to network.
Post-condition	Fare visible to customer.

Main Scenario	**Serial Number**	**Steps**
A:Actors	1	A: Enter Departure.
S:System	2	S: Validate input fields.
Extensions	2a	**Invalid input fields.** Then System show error message.

Table 24 Use Case Test 7

6.2. Equivalence partitioning

Test Case 1

Test Case Suite	**TS001**
Test Case Id	**TC001**
Test case summary	To verify that User Registration
Related Requirement	User Should be Register via Full name, Gender, CNIC, province, City, Area, Address DOB, Phone number, E-mail, Password, Confirm Password, Image.
Prerequisites	None
Test procedure	1. Enter Full Name in Full Name field. 2. Enter Gender in Gender field. 3. Enter CNIC in CNIC field. 4. Enter province Name in province Name field. 5. Enter City Name in City Name field. 6. Enter Area Name in Area Name field. 7. Enter Address in Address field. 8. Enter DOB year in DOB year field. 9. Enter Phone number Phone number field. 10. Enter Email into Email field. 11. Enter Password in Password field. 12. Enter Confirm Password in Confirm Password field. 13. Choose Image from Image upload Control. 14. Enter Register Button
Test Data	1. Full Name 2. Gender 3. CNIC Number 4. Province Name 5. City Name 6. Area Name 7. Address 8. DOB year 9. Phone number 10. Email 11. Password 12. Confirm Password

	13. Choose Image .jpg 14. Enter Register Button
Expected Result	1. System should register user if user enter valid fields. 2. System should generate error if the all inputs are not valid. 3. System should generate error if fields are empty.
Actual Result	1. If we entered valid inputs then system logging in the user. 2. If we entered invalid inputs then system generate error message. 3. If we lefts fields empty then system generate error Required Field.
Status	Pass
Remarks	This is Registration Process test case.
Created By	Jazib ali
Date of Creation	6/Dec/2018
Test Environment	OS: Windows 10 pro Google Chrome UC browser

Table 25 Test Case 1

Test Case 2

Test Case Suite	**TS002**
Test Case Id	TC002

Test case Summary	To verify that user Login.
Related Requirement	User should be able to login to Email and Password.
Prerequisites	TC001 User Registration: User must Registered.
Test procedure	1. Enter the Email into Email Field. 2. Enter Password in Password field. 3. Press Login button.
Test Data	Email: ABC@examole.com Password: User123
Expected Result	1. System should Login user if user enters valid Email and Password. 2. System should generate Error if the Email and Password is invalid. 3. System should generate Error if the Email and Password field is empty.
Actual Result	1. If we enter valid Email and Password then system logging in the User. 2. If we entered invalid Email and Password then system generate Error message. 3. If we lefts fields empty then system alerts to enter Email and Password.
Status	Pass
Remarks	This is Login Module test case.
Created By	Jazib Ali
Date of Creation	6/DEC/2018
Test Environment	OS: Windows 10 pro Google Chrome

	UC browser

Table 26 Test Case 2

Test Case 3

Test Case Suite	**TS003**
Test Case Id	TC003
Test case Summary	To verify that Admin responsibilities.
Related Requirement	Click on Admin dashboard.
Prerequisites	TC002 Login: Admin should be Login.
Test procedure	1. My Ads. 2. Reservation 3. Post Ads 4. Property Type 5. Ads purpose 6. Province 7. City 8. property Area 9. Gender 10. Upload Image 11. Role 12. Ads post 13. Ads edit 14. Payment
Test Data	1. View user ads 2. Confirm / cancel reservation 3. View user ads

	4. Property type: building, office, flat, room, commercial plat, shop, home. 5. Rent, sale, Sharing. 6. Province: Punjab, KPK, Sind, Balochistan, Gilgit Baltistan, Fata, Azad Kashmir. 7. City: Lahore, Peshawar, Karachi, Quetta, etc. 8. Property Area: Town name i.e. model town, Township etc. 9. Gender: Male/Female 10. Upload image:. Jpg 11. Role: Admin , User 12. Ads post: upload image.jpg 13. Ads edit: delete, update 14. Bank Name, Account Number, description, (UBL, 03214523652896, Transactions complete.)
Expected Result	1. System should view/edit the data given input is valid. 2. System should store the data given input is valid. 3. System Generate error if the required information is not valid.
Actual result	1. If we enter valid Inputs then system store/view data. 2. If we entered invalid Inputs then system generate Error message. 3. If we lefts fields empty then system error to enter all fields
Status	Pass
Remarks	This is check admin responsibilities data entry test case.
Created By	Jazib Ali
Date of Creation	6/0DEC/2018
Test Environment	OS: Windows 10 pro Google Chrome

	UC browser

Table 27 Test Case 3

Test case 4

Test Case Suite	**TS004**
Test Case Id	TC004
Test case summary	To verify that User responsibilities.
Related Requirement	Click on User dashboard.
Prerequisites	TC002: User must be logged-in.
Test procedure	1. Post ads 2. Edit ads: (Update, delete ,details) 3. Reservation: confirm, cancel. 4. Payment.
Test Data	1. Post ads: upload image .jpg 2. Edit ads: update info, delete post, check details, and view post. 3. Request for reservation. 4. Bank Name, Account Number, Description. (i.e. HBL, 05094785234521, Transactions complete)
Expected Result	1. System should upload the data of ads if given valid inputs. 2. System should Update the data if given input is valid and unique.

	3. System Generate error if the required info is not valid.
Actual Result	If I enter valid info to system then system update data otherwise shows the warning message to add valid.
Status	Pass
Remarks	The Update data test case.
Created By	Jazib Ali
Date of creation	06/Dec/2018
Test Environment	OS: Windows 10 pro Google Chrome UC browser

Table 28 Test Case 4

6.3. Boundary value analysis

Threshold analysis simply means selecting values close to the limits of the class. We have these input classes.

- Less than and equal to 5.
- Greater than 5.

6.4. Data flow testing

This is one of the test strategies focused on the data variables and their values used in software product programming logic, using the control flow diagram. The data flow test is in the form of a white box test and a texture test, which usually continues at the points where the data values are received from the variables and at the points where they are called to be used is checked. It is used to fill the gap between the routing test and the branch test.

The basic idea of this form of testing is the detection of errors and coding errors that can lead to erroneous implementation and use of data variables or data values in the programming code, that is to say data anomalies such as data corruption

Check if all the data variables present in the programming code have been initialized

- Make sure all conditions are working properly.
- Make sure all conditions are met in a defined state.
- Check all types and sizes of variable data correctly.
- Delete this line code that is not used in this project.
- If the initialized data variables have been used at least once in the program code.

6.5. Unit testing

- When I design my project, I split it into a module, then start as in the GHAR.COM system, then code a function and test it to see if it is correct, code another and apply the test.
- Toll use it: JIRA

6.6. Integration testing

- The integration test is performed to determine if the components interact with each other.
- Integration can be done after component testing. Check the module to interact with other modules. The integration test is applied when creating modules, such as For example, if I encoded the module. Then I plug in the module and apply the test. I would like to combine to add a car and then see that it works correctly if I check a wrong result and find errors. When should you use GHAR.COM one by one during the combination? Always add the project (GHAR.COM).
- In this test technique, we tested the work of combining different modules. After the development of the modules, we integrate them and check the behavior of the modules during the execution.
- We check if all modules work properly if we integrate another module in which we integrate modules.

- We have tested the operation of the module, it works after the integration of the system as before the integration.

6.7. Performance testing

- Performance testing is done by manually. The main purpose of load testing is to monitor the response time and staying power of application when system is performing well under heavy load. Performance testing is done by performing multiple task at same time.

6.8. Stress Testing

- Stress testing is to check the stability of the software. Stress testing is also done by manually. In stress testing we done testing by different way just like unlimited add product in database add many kind of supplier. By fetching many type of data from database

Chapter 7

Summary, Conclusion and Future Enhancements

7.1. Project Summary

- A project called GHAR.COM has been completed and successfully implemented. It was complex, but concerned about the effective principles of software engineering. The collection of requirements was impressive. The requirements engineer visits the customer's environment and collects his needs in interviews and questionnaires. The requirement thus refined by the feasibility study, the critical analysis, made it a final requirement.
- The main objective of this project is to give an overview of the project. Readers can learn the project by reading this document. Stakeholders can get a complete picture of the project. The other purpose of this document is that it can be used for future systems. The ultimate goal of this document is to officially close this project in order to gather all the necessary information.

7.2. Achievements and Improvements

- To manage the GHAR. COM is an achievement for us. It is a software that manage the all activities in GHAR.COM. But the area of on payment.

7.3. Critical Review

- Are you satisfied with the usability of the system?

- Answer: Yes, I am satisfied, but it should be more attractive. We will use the functions of the system, then give some information about how it works.
- Does the system meet your expectations?
- Answer: Yes, for the moment, the system is meeting our expectations, but we will be using the cloud system for the first time. Therefore, changes will be necessary if this system does not work in our business strategy.
- Is your data protected in the system?

  Answer: yes
- Does this system add value to your business?
- Answer: Yes, it helps us grow our business in Pakistan and we can keep our customers online and manage the online. System given lots benefits for economically.

7.4. Lessons Learnt

- We learn to collect requests from different people, such as: For example, ask me for interviews and various talents, owners, users, etc., from the system that performs the storage function.
- When creating the database on the SQL Server, the relationship between the different modules becomes confusing. In addition, how are these modules integrated and how is the database implemented? In the implementation, things are different from what we understand.
- Language selection is the main subject of this project. Usually, in the organization and experience of the domestic software and experienced programmers working on the project, but this is the FYP, a small number of employees are involved in this project. I choose the language of the network of points in which this project can be covered. I am also using SQL Server for the database.
- I also understand that the user without his permission is all in the project, we do not do anything. Students or teachers will not do any offline activity when they try to access the login page and redirect it to the login page.
- GHAR.COM I also generate a prototype to understand this system with precision.

- I also understand how modules are connected and how they are connected. This reduces the error because all the data has been collected in one place and fewer errors have occurred.
- Less text field needed to edit pages. This makes the job easier and takes less time. In addition, the system requirements remain static.
- Meet with clients who help us understand the requirements clearly. GHAR.COM is the need of the population that reduces the facilitator and facilitates the search for people, buyers and sellers.

7.5. Future Enhancements/Recommendations

- I will develop an Android application. Currently we are using web-based tracking and its good, but we want improve more location accuracy that's why we will use trackers to improve location accuracy. Currently we have only demo payments in our project but in future we want online payments in real environment that's will allow the users to pay fares online with help of jazz cash and visa card.

Appendices

Appendix A: User Manual

The login page

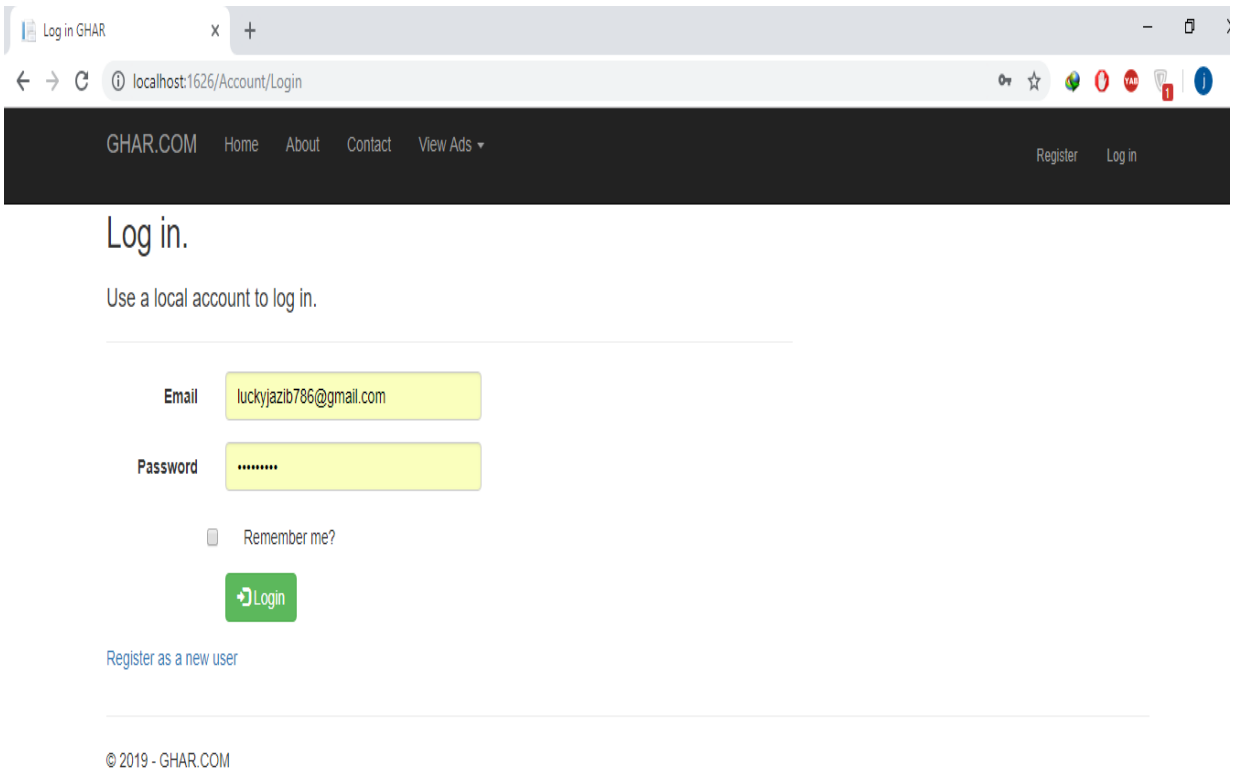

Figure 24 log in page GHAR.COM

- Enter Correct Admin/user Email/Password
- Press Login Button
- Admin Dashboard opened

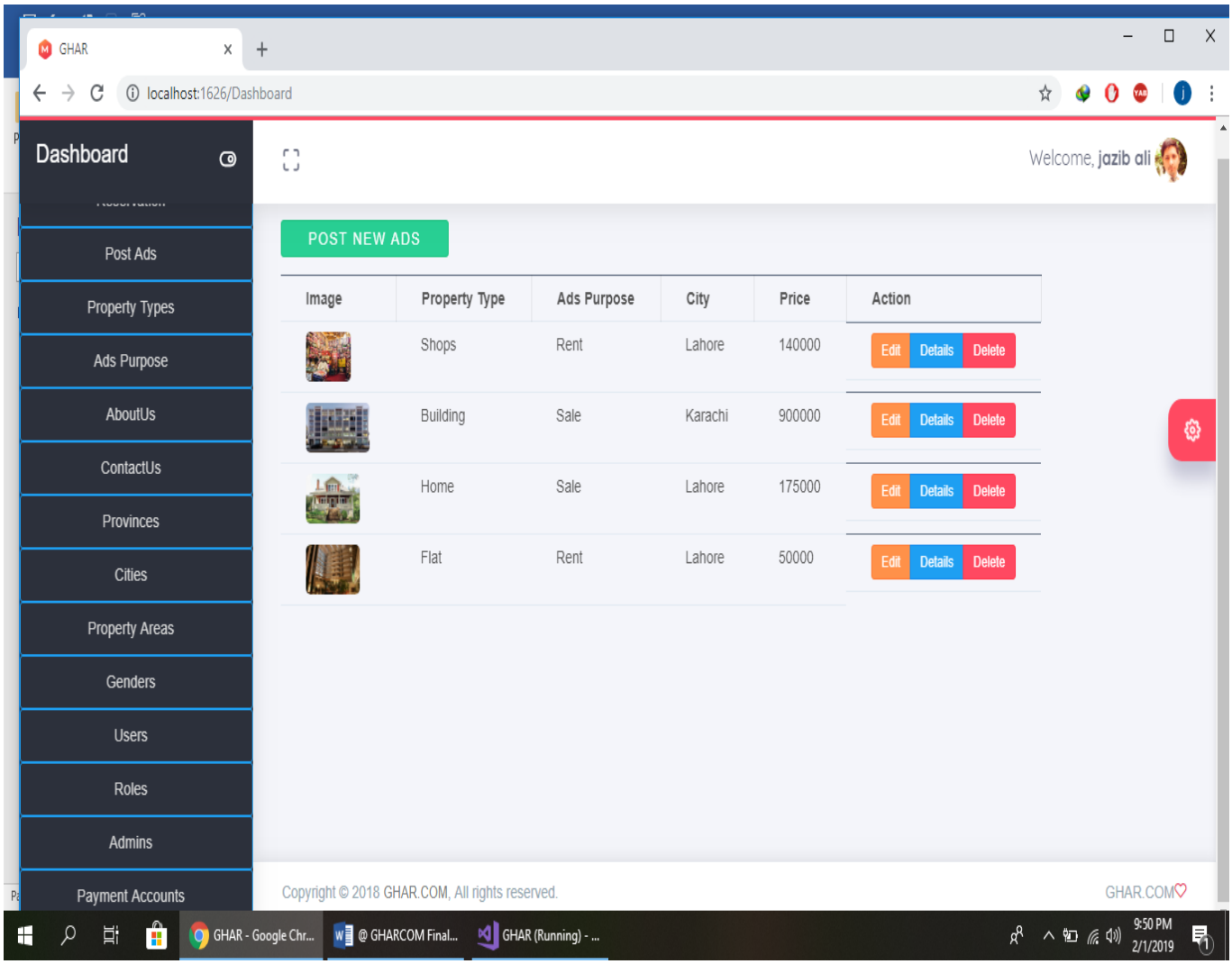

Figure 25 Admin dashboard

- Select press any button from the sidebar and select users.

- I.e. User registration.

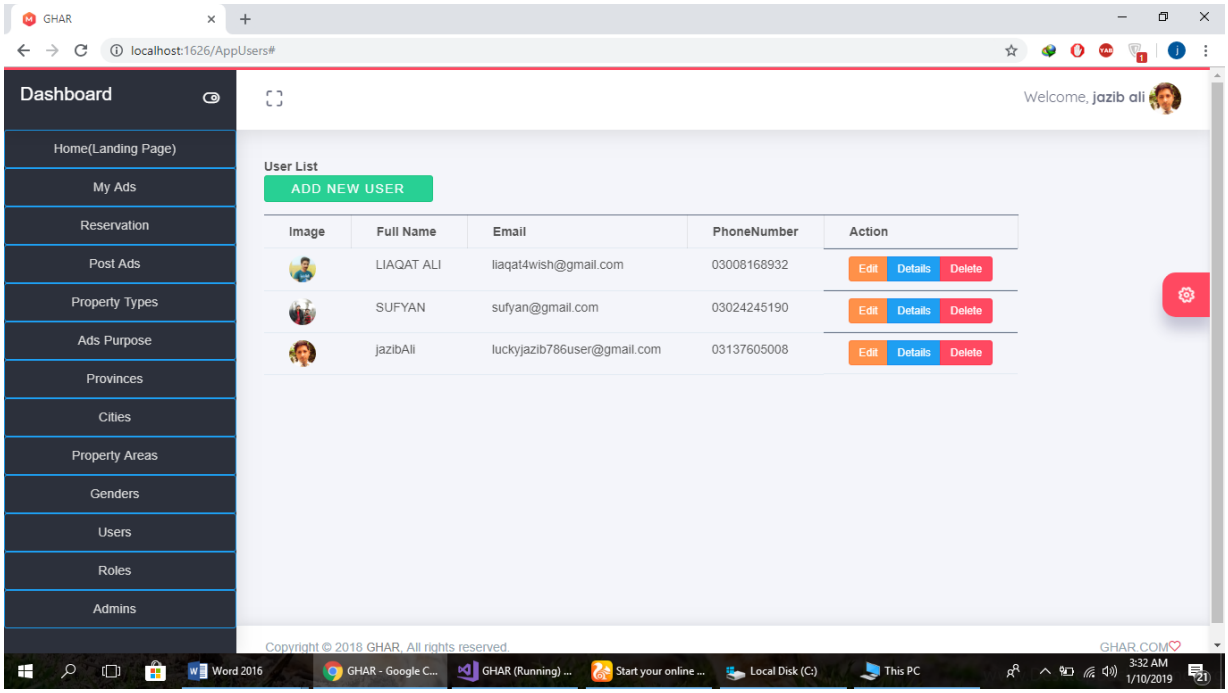

Figure 26 add new user BY Admin

- Purpose Manage of property selected

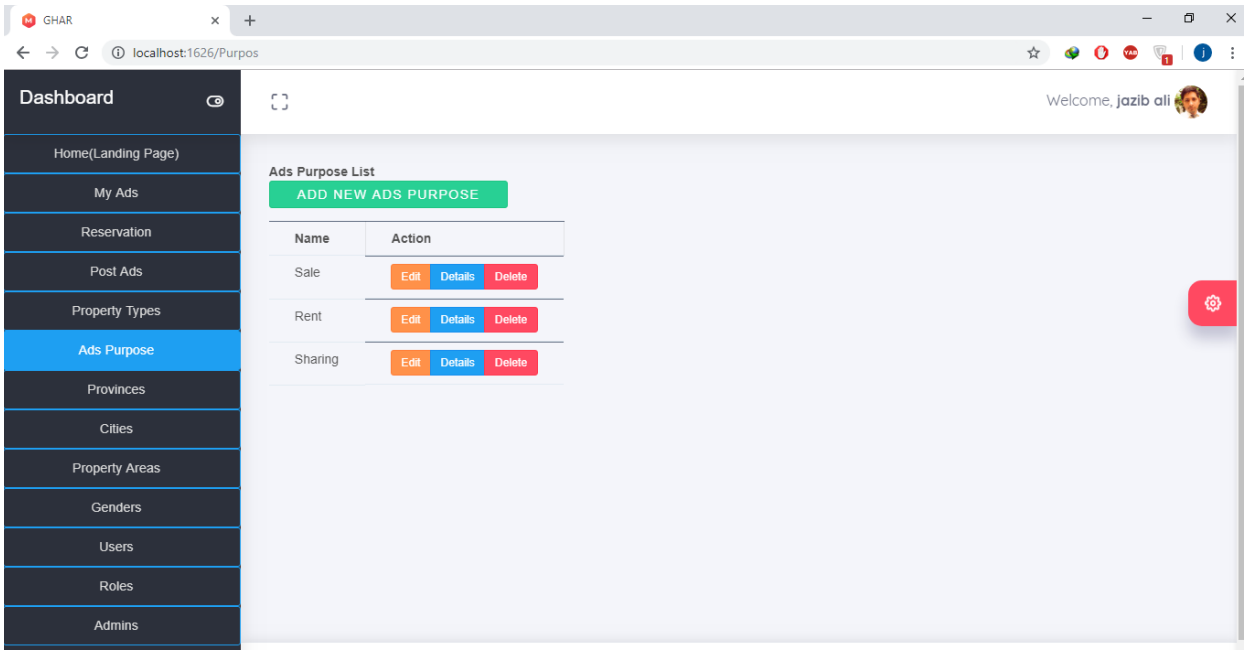

Figure 27 Ads Purpose

- Add post

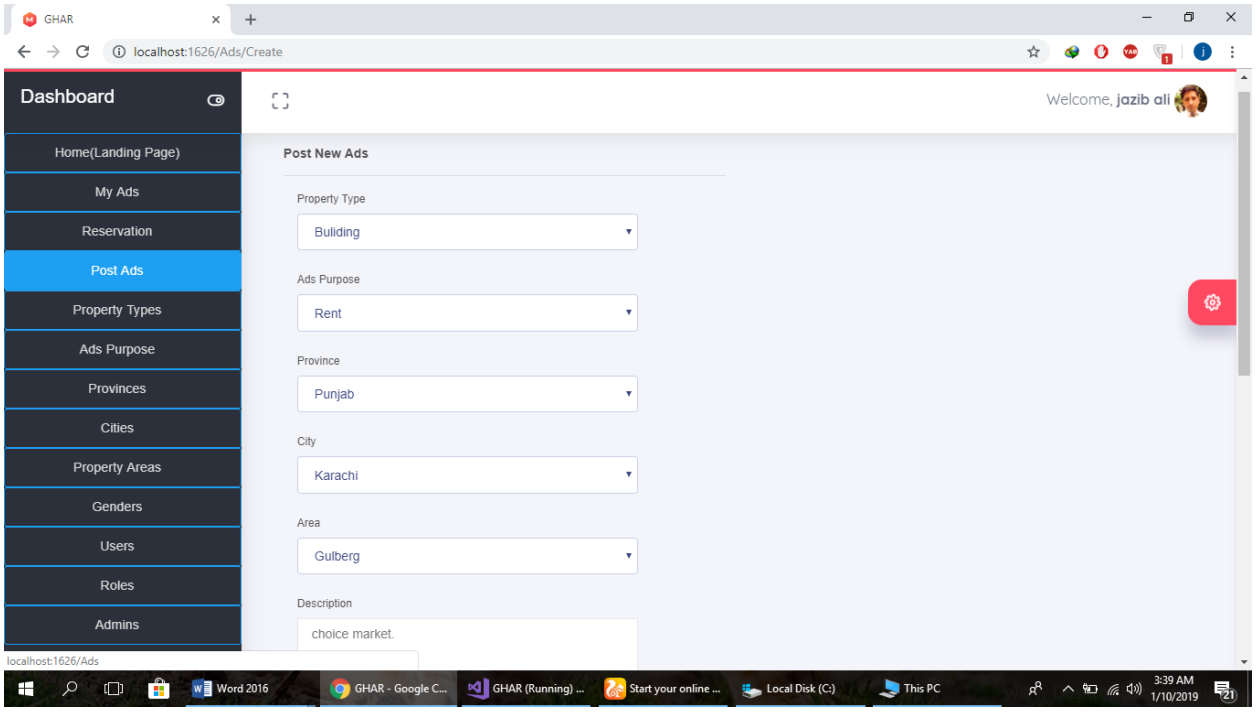

Figure 28 post ads filled data form

- Property type

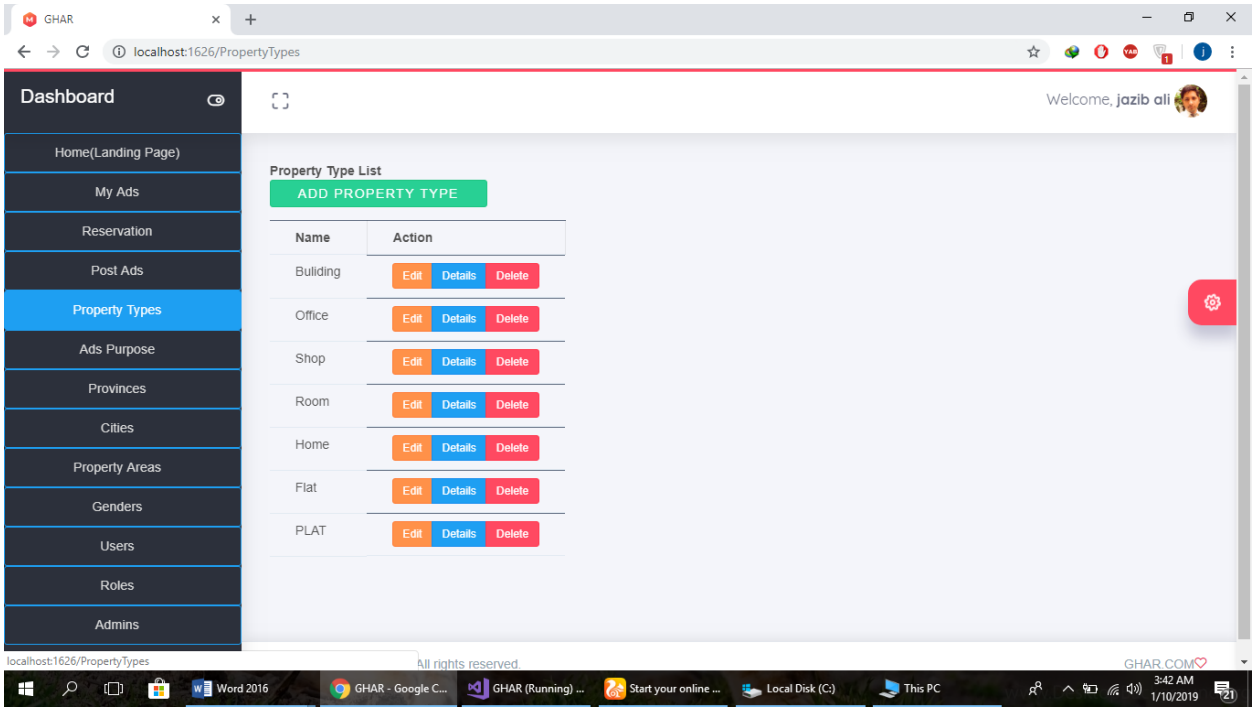

Figure 29 property type

- Add province

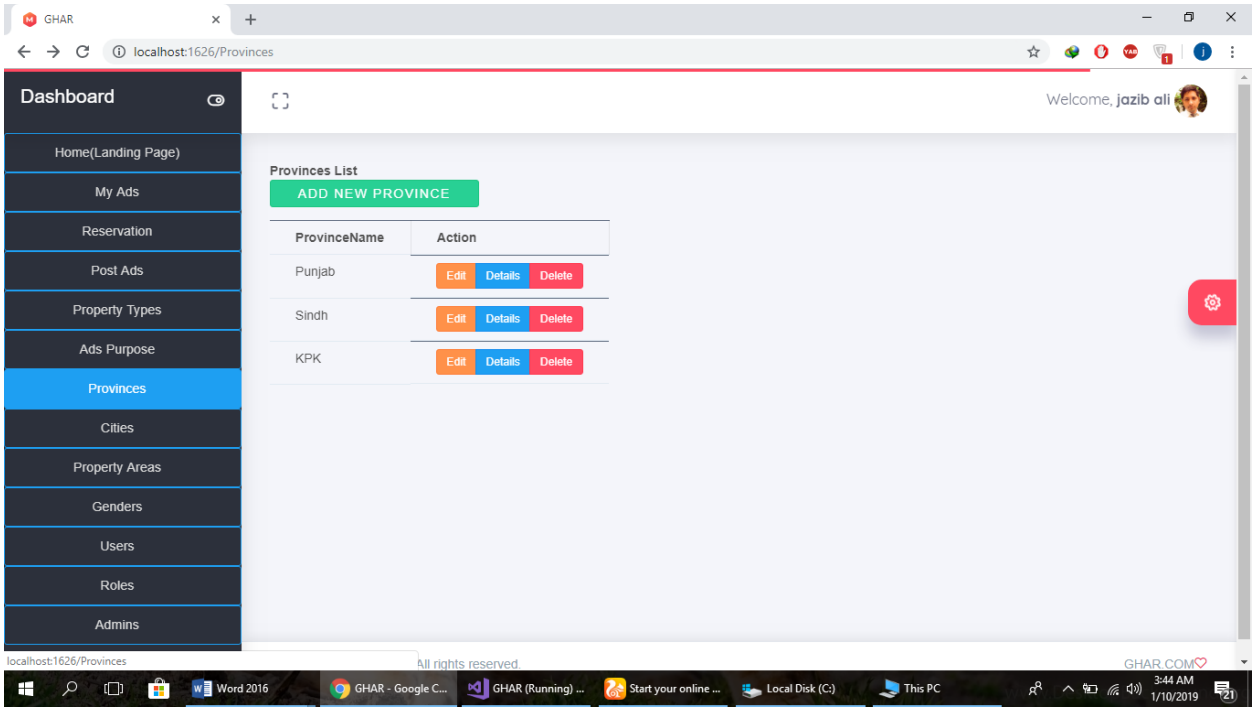

Figure 30 Add province

- Filled the fied add province and prss Save button

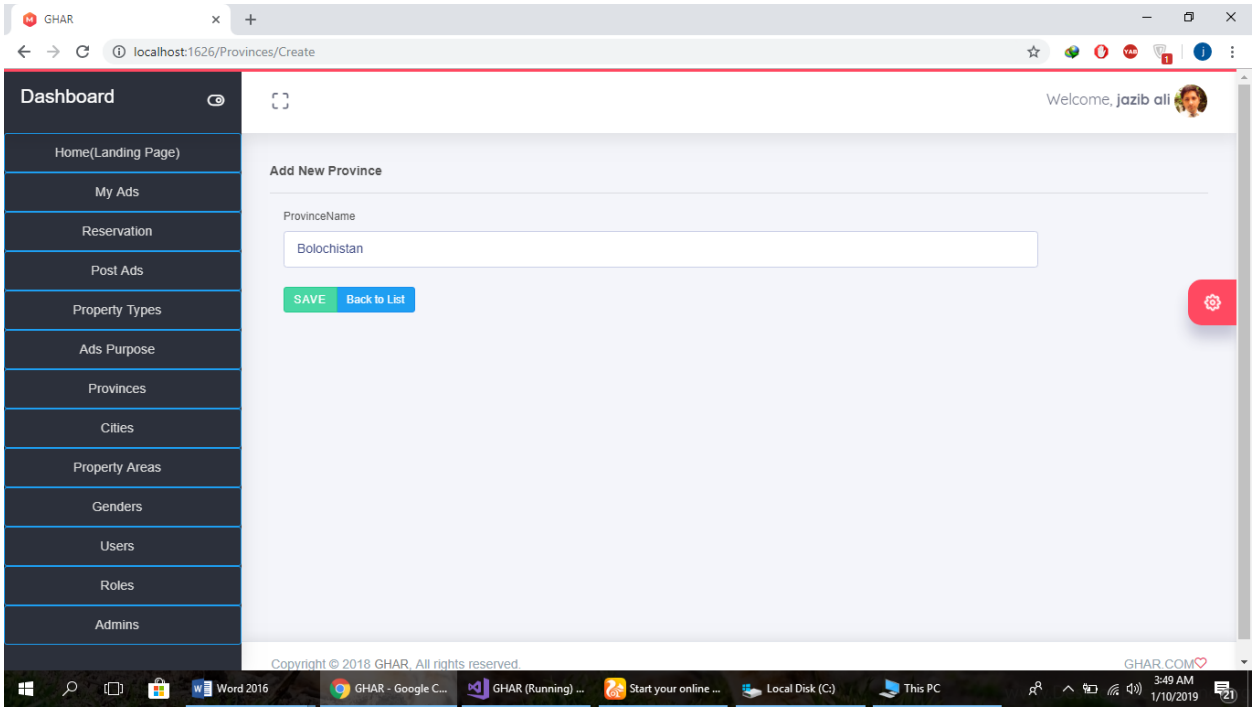

Figure 31 Filled the fied add province and prss Save button

- Pending request or confirm

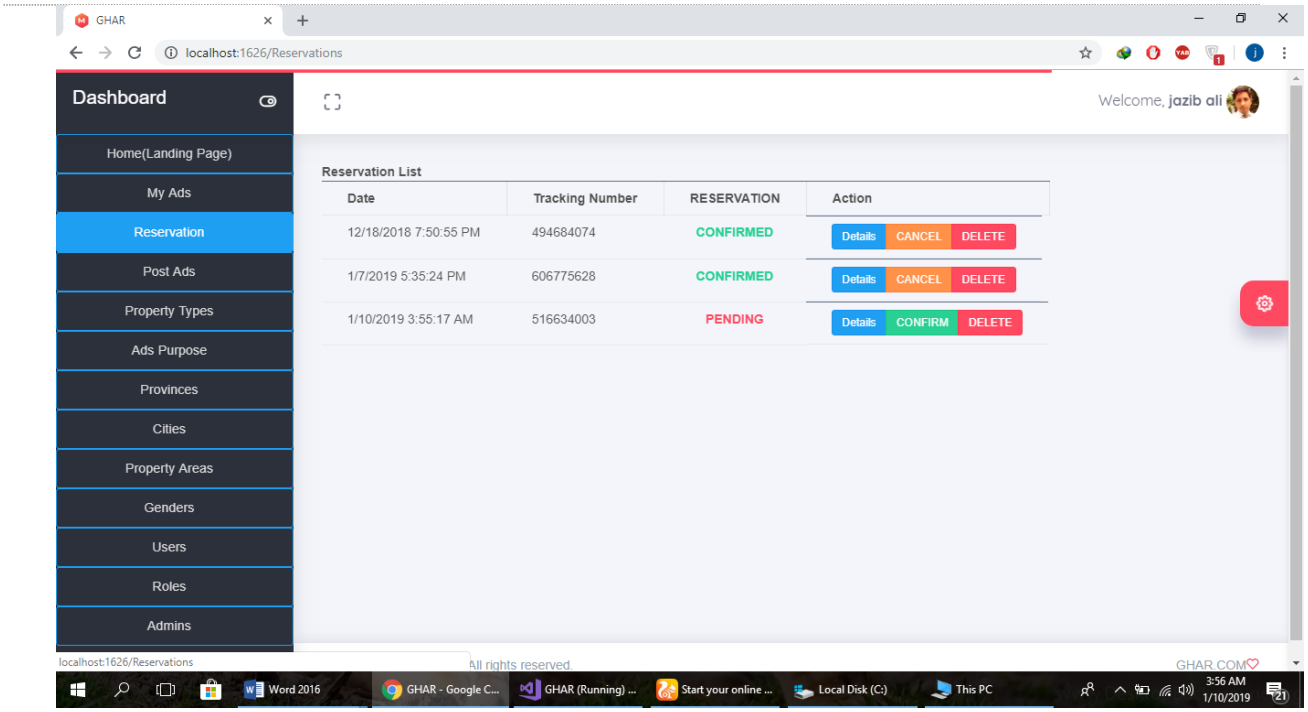

Figure 32 Confirm/ cancellation reservation

- New user register than open log in page and than clik registratin
- Fill the all Field

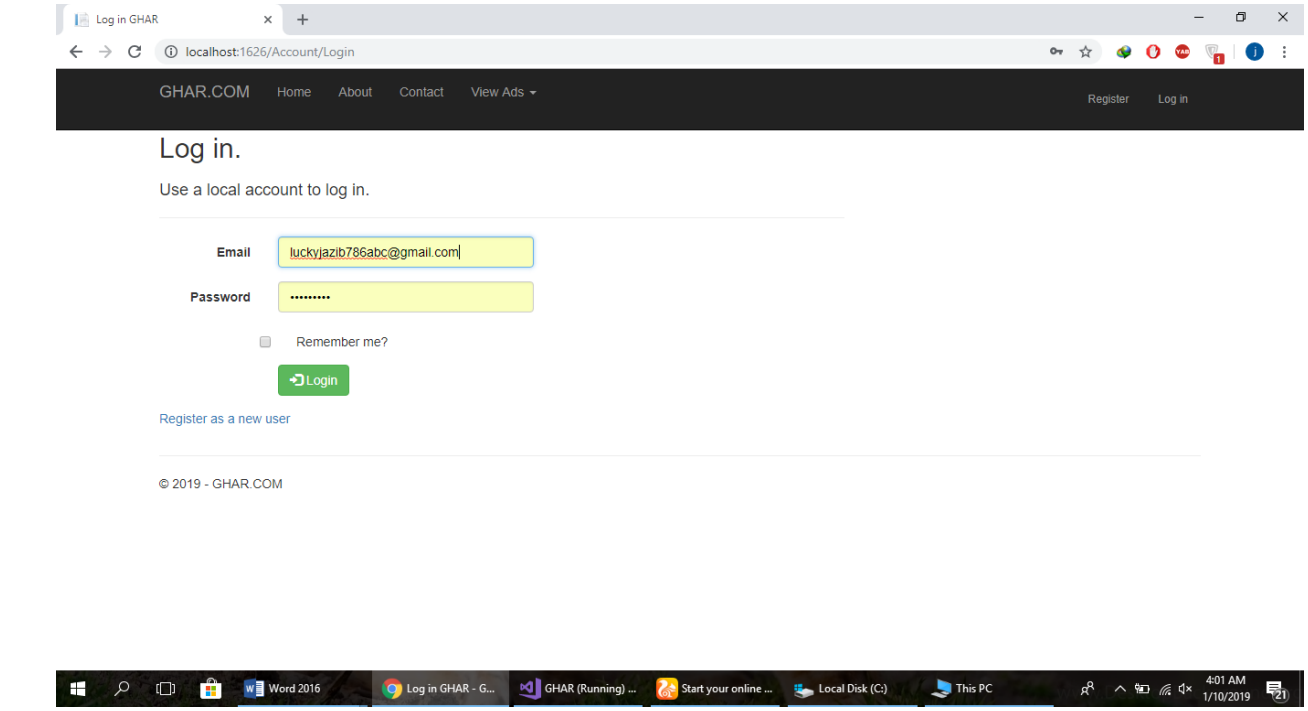

Figure 33 Login page

User registration page

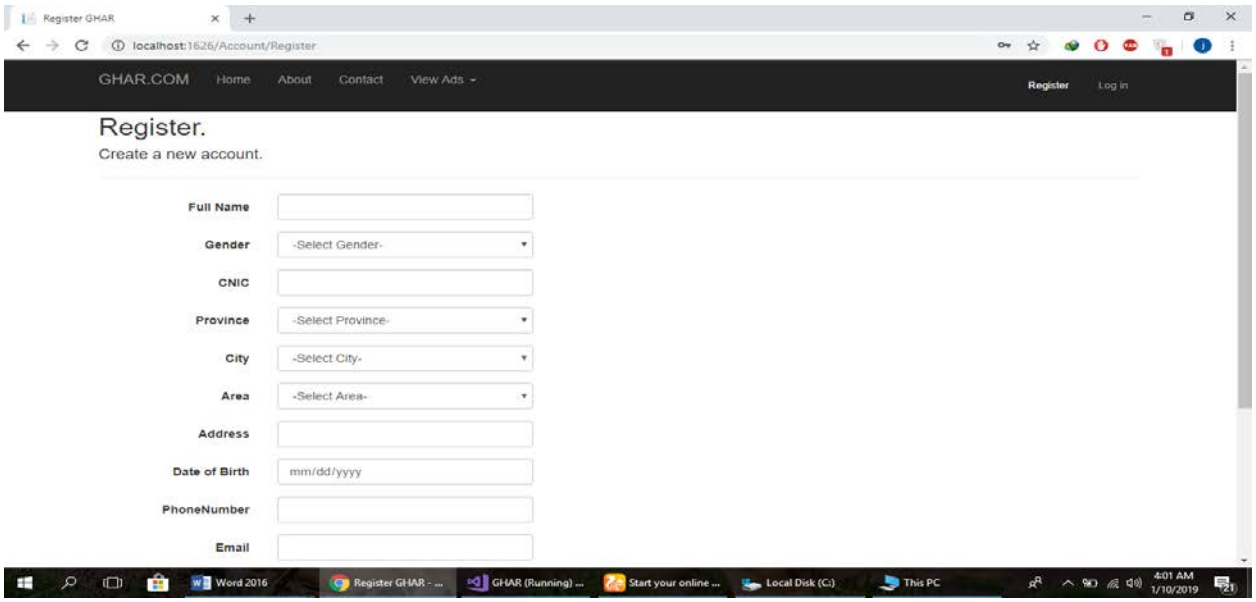

Figure 34 New user registration page

- Open dashboard
- User post ads click.
- Fill the all ffilled and save it.

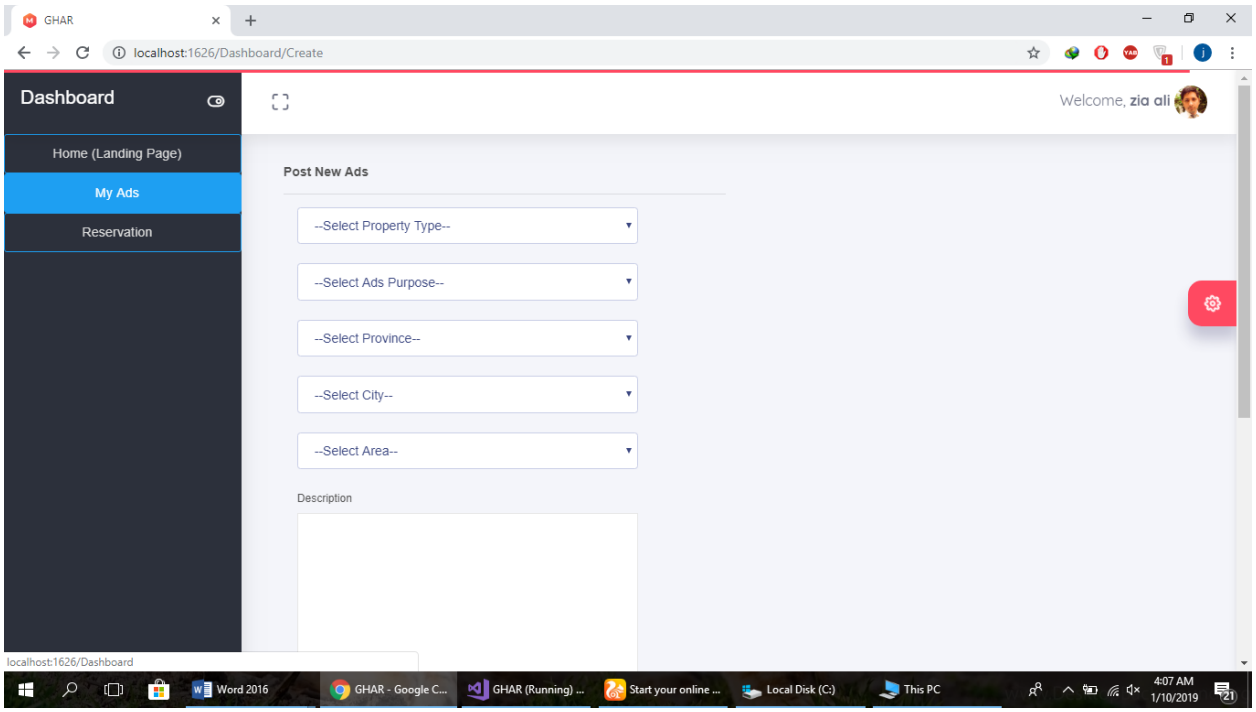

Figure 35 User dashboard, user post ads

- Resveration confirm

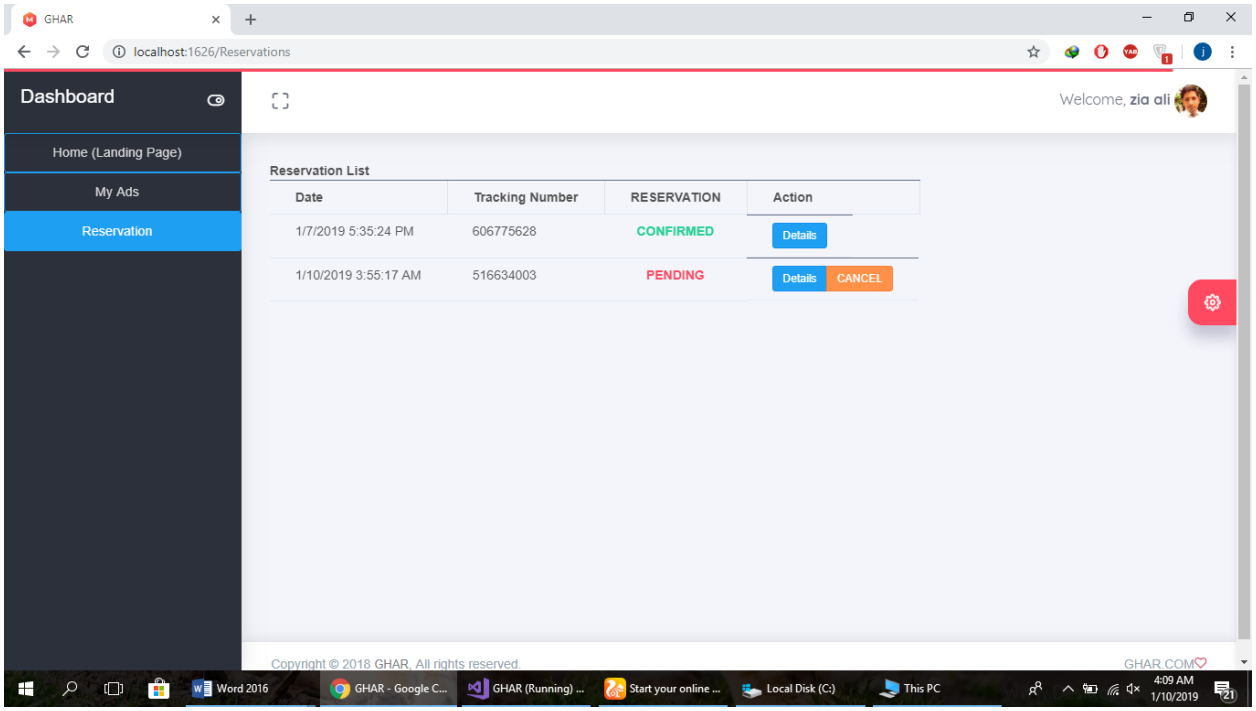

Figure 36 User check confirm/cancellation reservation

Reference and Bibliography

[1] M. Sher, M. Rehman, "*Title of the Paper*" Conference name/Journal Name, Edition, Volume, Issue, ISBN/ISSN, PP, Publisher/City-Country, Year.

[2] Kai Qian, C.-w. X.-H. (Copyright © 2010). *02 - Software-Architecture-Design-Illuminated.* Mississauga, Ontario : JONES AND BARTLETT PUBLISHER