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Title : Online Real Estate Management System

Abstract

With thousands of property options to buy, people are not sure about where to invest. To provide the buyers with unbiased guidance we are developing a Real Estate Management System, which would give them the ability to select from the various options available at the best price. The main objective is to develop this real estate management system project to resolve the issue of both buyer and seller. The seller can submit the property what he wants to sale with a full house or flat detail such as location, area, hall, kitchen, furnished, semi furnished, price, and all amenities can list in the form. Buyer can search the property according to their budget, location and then directly contact to the seller. The software saves time for both buyers and sellers by providing them the most appropriate results for their searches and providing dealers a chance to show the property to various people, helping them to sell the property in a hazzle free manner. It will provide the customers the clear view about the area of the property and also the near-by locality and places making it easier for user to judge the place better and find the most appropriate place for them

Problem Statement

We have made a website where a user is allowed to register an account. After registering, you will be logged in. After Logging in, you will come to the front page where you will be able to see all the properties that you could buy. After buying properties, you can update these property information or keep them on for sale or remove/delete them if you don't wish to keep them in sale.
There shall be admin module. The admin will have superior authority. He can change all user-info, property-info of existing properties in a database. He will have the option to add users, properties or delete them as well. There is information about packers and movers with whom you could contact with via mail or phone number.

Technical Specifications

Software :

1. HTML
2. CSS
3. Java Script

Server/Database :

1. PHP
2. XAMPP server
3. MYSQL

User :

1. Internet Connection
2. Sign up page
3. Functionality for dealers to add or to update property data
4. Filters to search instead of going through all the properties
5. Data Consistency
6. Data Security
7. Data Accuracy

8. Removing Data Redundancy

Requirements

System Requirments:

- Functional Requirements:

  a. Manage Users

  - Add User
  - Modify User
  - Delete User

  b. Manage Payments

  - Mail on successful purchase of estate

  c. Manage Properties

  - Add Property
  - Modify Property
  - Delete Property

  d. Admin module

  - Add user
  - Modify User Details
  - Delete User
  - Add Property
  - Modify Property Details
  - Delete Property

- Non Functional Requirements:
  - Secure
  - Reliable
  - Accessible
  - Scalable

- Portable

Existing System Issues

As we were going through some existing sites, we found that there were some common issues with the design of many of them. They are as follows:

1) At times of fraud or payment failure, many of the websites do not keep any records of transactions. Due to this legal issues develop. The unhappy side in this situation always blame the company for not keeping any records. We have planned to keep a separate database table with all purchase records in order to prevent any situation like this.

2) Many of these Websites don't have an online buy option. Yes the cost of real estate's is not small but with payment transactions becoming more secure than ever we thought of introducing this option. On successful purchase of real estate you will get an email on your email Id with all the details like cost, rate per square foot, location details and description and amenities that are provided.

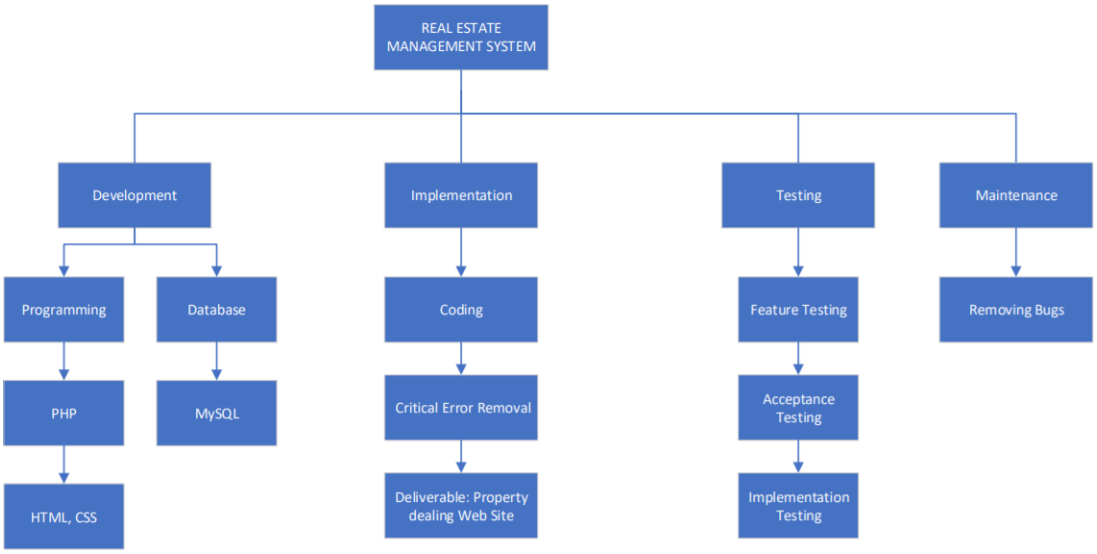
3) Though as the owner of an estate must have some updation power on his own estate, most websites provided an option to change any detail like city, location etc which is logically incorrect. You cannot imply that you had a real estate in one place and now it is in another place. You can change its description, area, amenities, rate. But not its location. That can be done by admin only

4) When most of the people purchase these real estates, some have a plan to move into them, but then comes the problem, how to move? We have come up with solution for this. We have some affiliated packers and movers that you can contact through our site. We have provided the details with which you can contact them with such as email id and phone number. If you have any info about any packers and movers, we will be happy if you can share them with us. These details will be displayed on the packers and movers page.

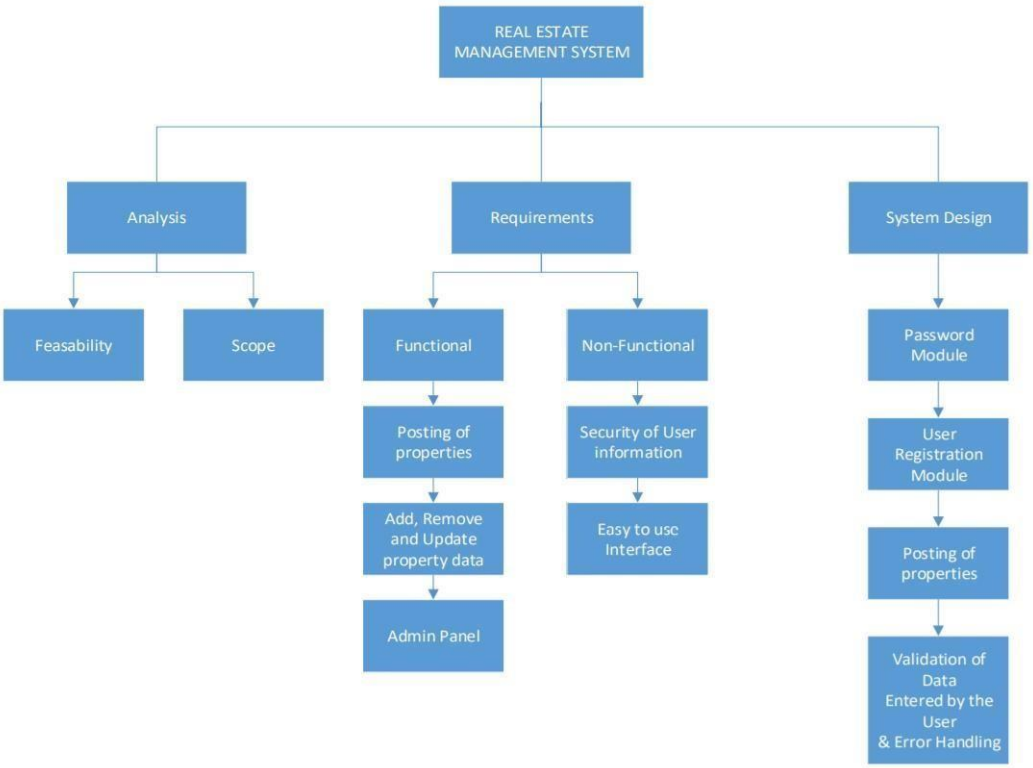
Proposed System Design

WBS

Verb Oriented:



Noun Oriented:



Process Model

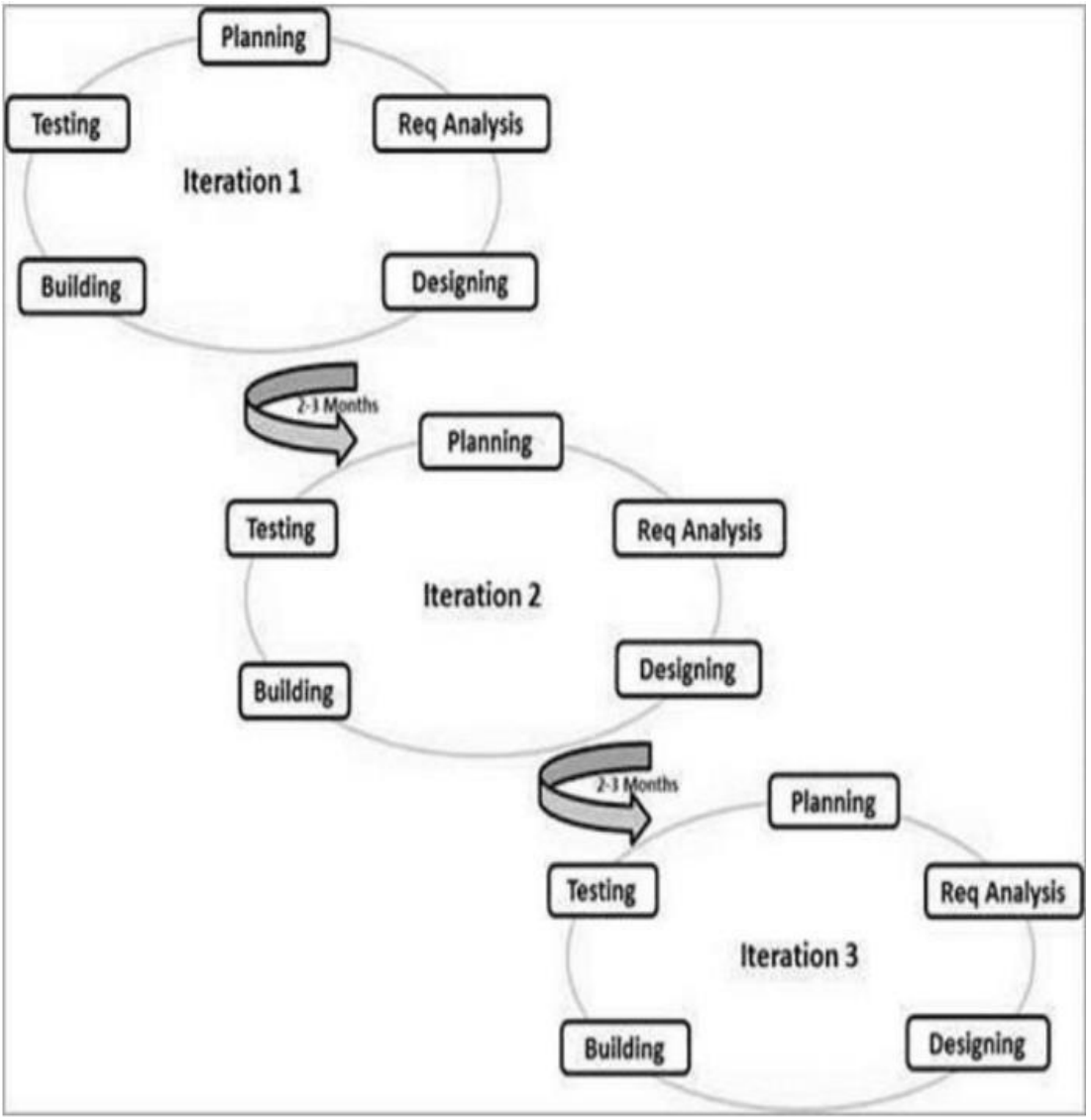
The process model implemented in the making of this project is **agile**

Why Agile Model?

Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release. Agile methods are being widely accepted in the software world recently as it provides a very realistic approach to software development. It promotes team work. Some advantages of considering this model are enlisted below.

- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed and/or changing requirements
- Delivers early partial working solutions.
- Good model for environments that change steadily.
- Minimal rules so documentation can be easily employed.
- Little or no planning required
- Gives flexibility to developers.

Agile started becoming popular with time due to its flexibility and adaptability. Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features. The final build holds all the features required by the customer.

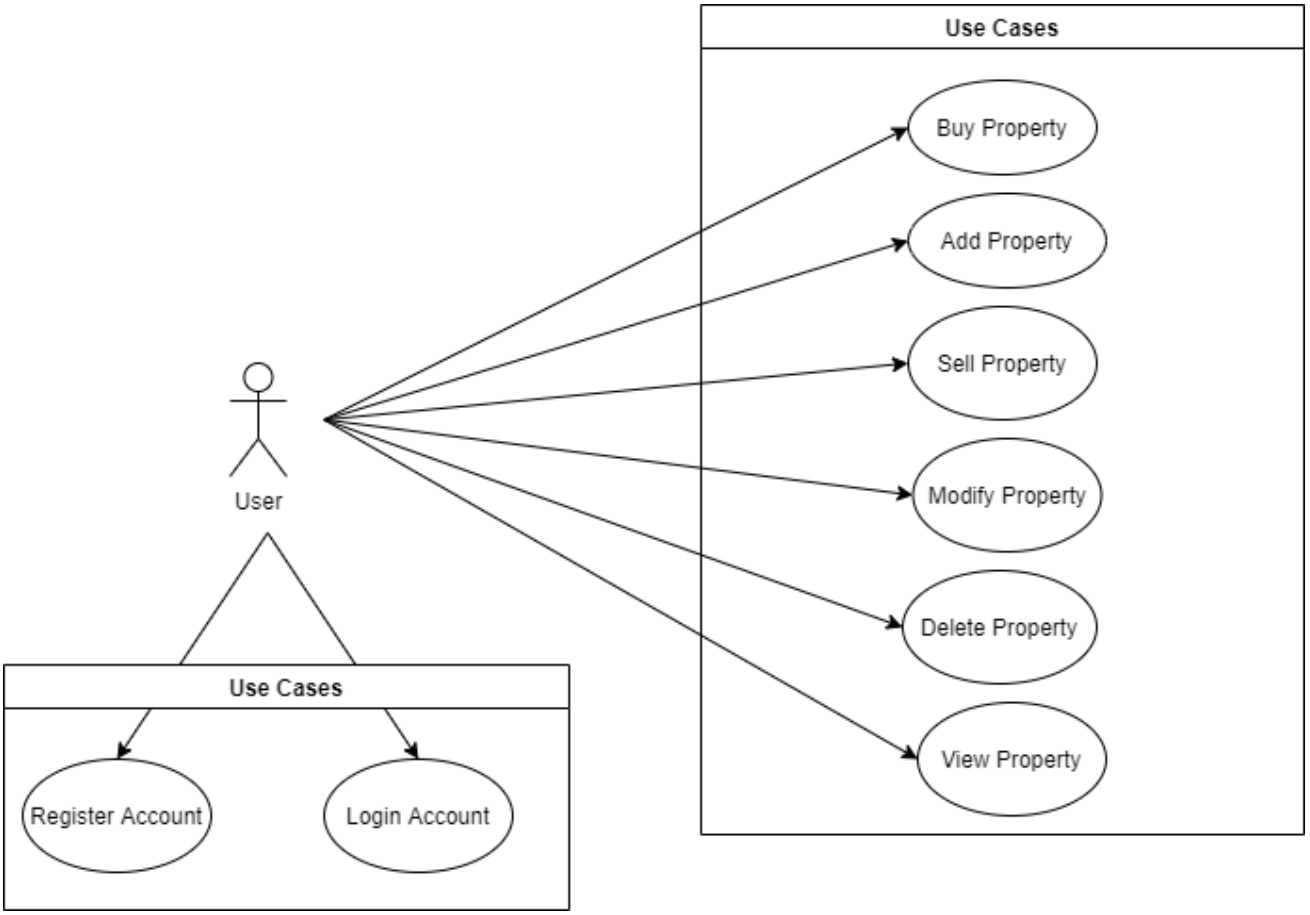

Planning
Testing
Req Analysis
Iteration 1
Building
Designing
2-3 Months
Planning
Testing
Req Analysis
Iteration 2
Designing
Building
2-3 Months
Planning
Testing
Req Analysis
Iteration 3
Building
Designing

Following are the Agile Manifesto principles −

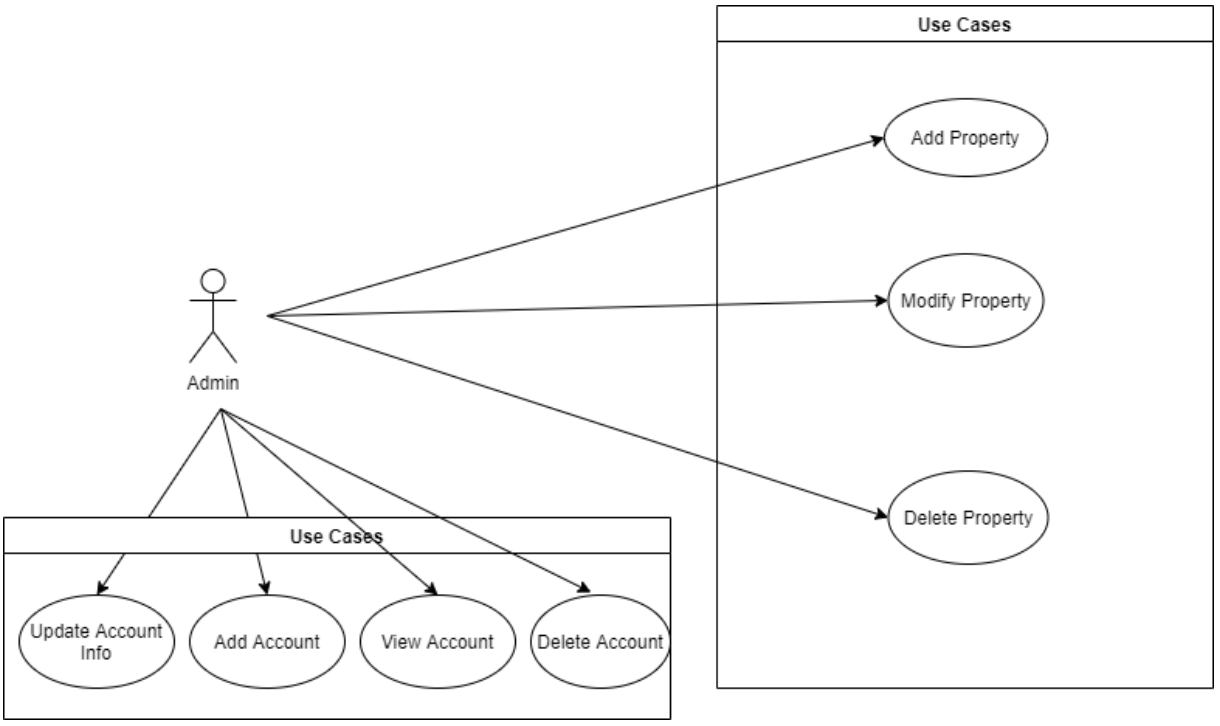
- **Individuals and interactions** − In Agile development, self-organization and motivation are important, as are interactions like co-location and pair programming.
- **Working software** − Demo working software is considered the best means of communication with the customers to understand their requirements, instead of just depending on documentation.
- **Customer collaboration** − As the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interaction is very important to get proper product requirements.
- **Responding to change** − Agile Development is focused on quick responses to change and continuous development.

Use Case Diagram:

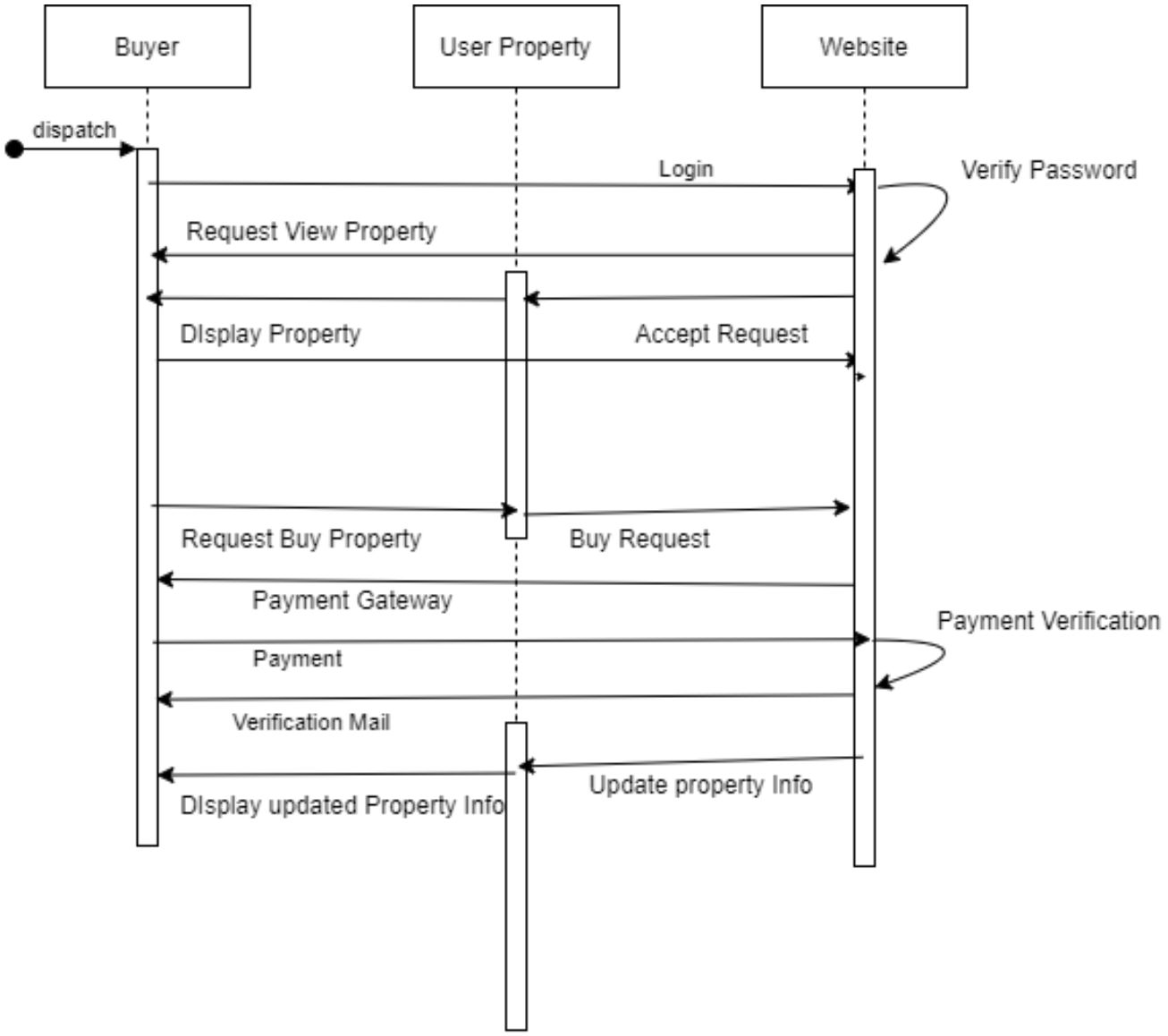
- **User**



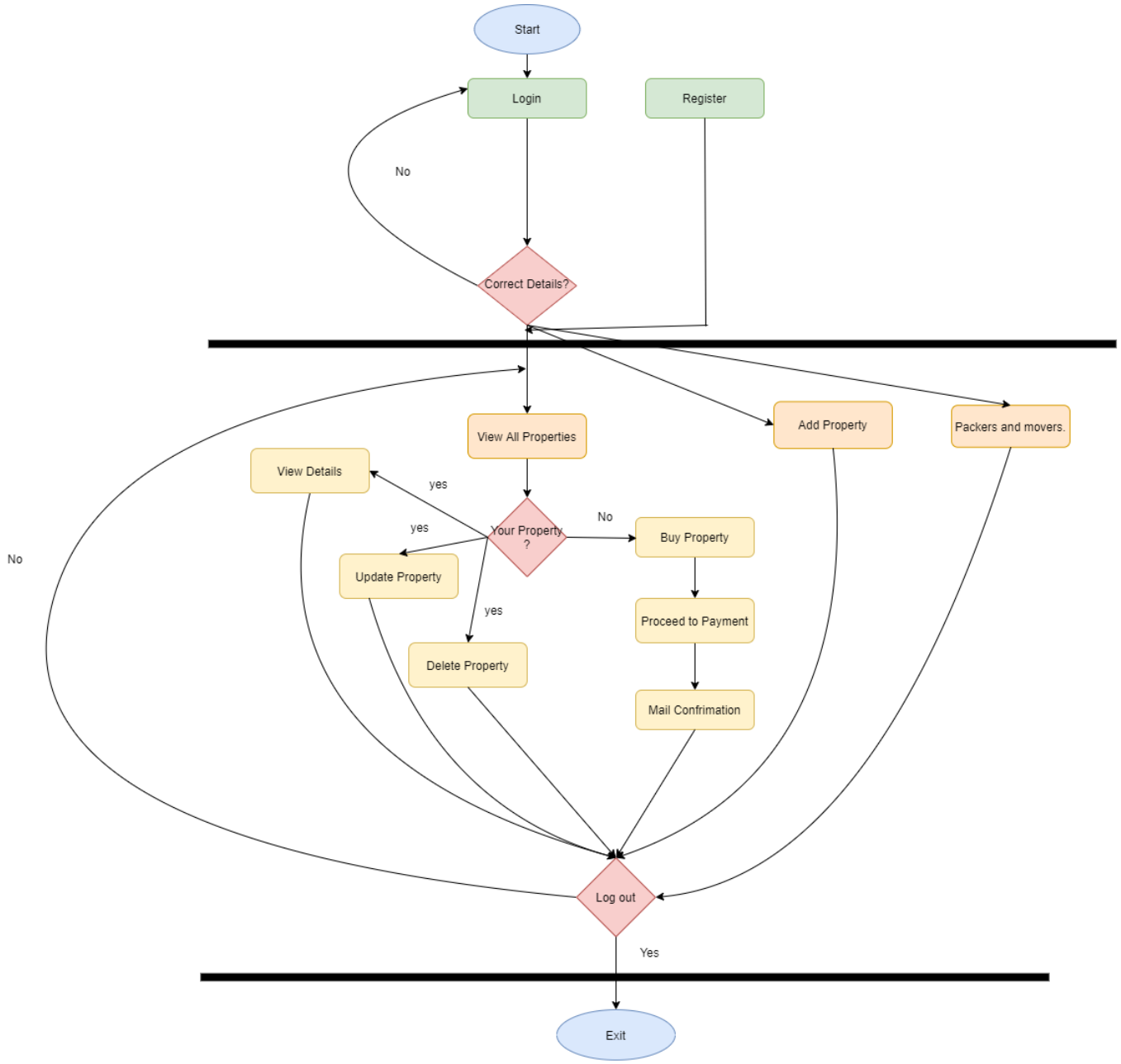
- **Admin**


Use Cases
Add Property
Modify Property
Delete Property
Admin
Use Cases
Update Account Info
Add Account
View Account
Delete Account

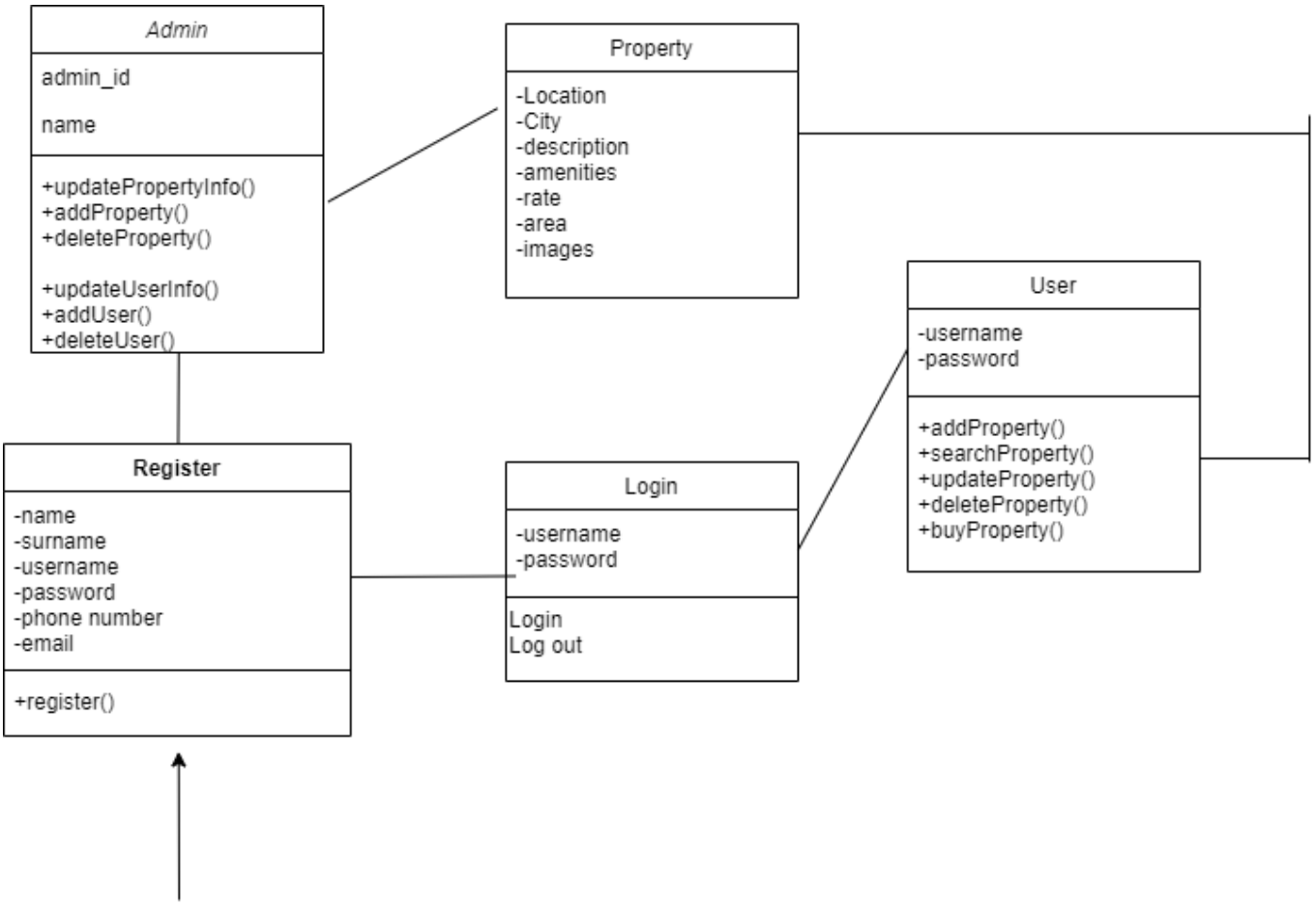
Sequence Diagram



Activity Diagram



Class Diagram



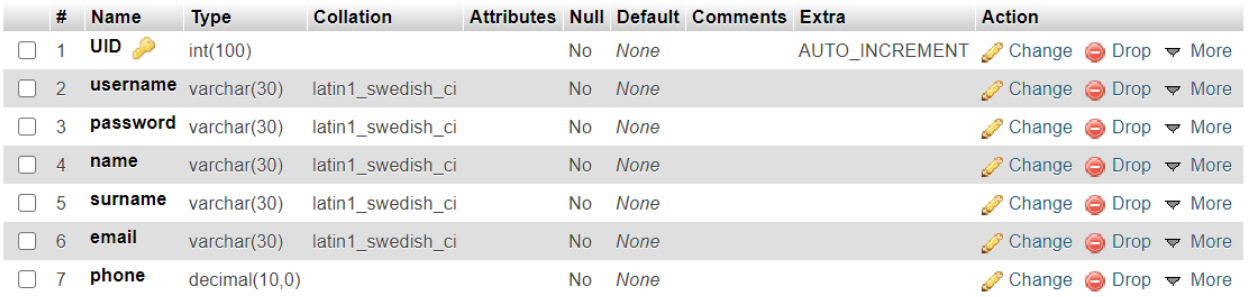
Results

Database Design

We have made use of 5 tables in total. They are as follows:

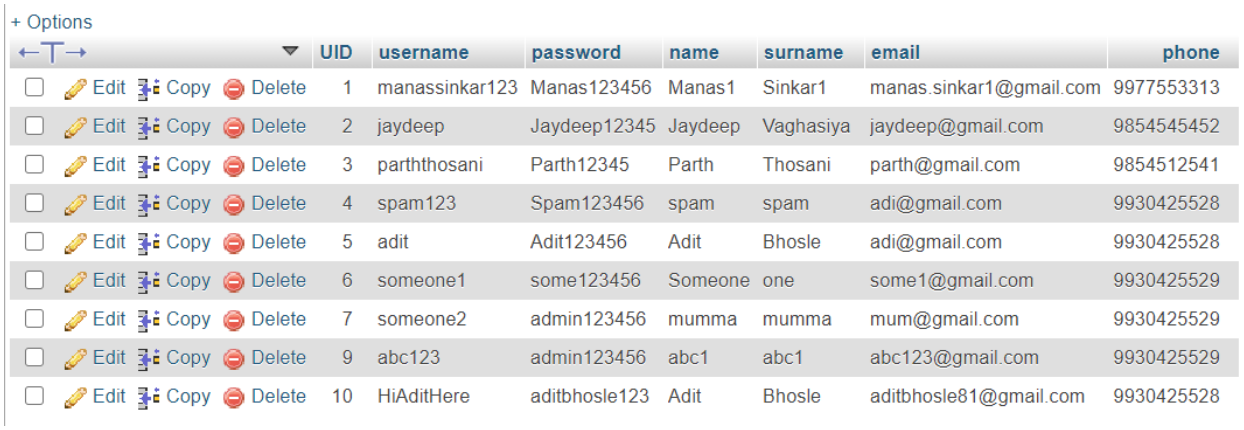
- Flat: This table stores the information of the real estate. It includes the user id, flat id, description of the flat, amenities, location, city, area and the path for images of the real Estate.

	flat_id	uid	bid	location	city	description	amenities	area	image	image1	image2	image3	time
Edit Copy Delete	3	1	NULL	Borivali	Mumbai	Awesome	Best parking	450	img/img16.jpg	img/img16.jpg	img/img16.jpg	img/img16.jpg	2019-04-15 09:03:16
Edit Copy Delete	4	1	NULL	Virar	Mumbai	Near station	Gym and pool	450	img/img18.jpg	img/img18.jpg	img/img18.jpg	img/img18.jpg	2019-04-15 09:04:39
Edit Copy Delete	6	1	NULL	Malad	Mumbai	Very awesome flat	Swimming Pool, Basket Ball Turf	700	img/img10.jpg	img/img10.jpg	img/img10.jpg	img/img10.jpg	2019-04-15 10:57:52
Edit Copy Delete	8	10	NULL	Majnu ka Tilla	Delhi	Scary	none	10000	img/img5.jpg	img/img5.jpg	img/img5.jpg	img/img5.jpg	2020-09-22 17:10:18
Edit Copy Delete	9	1	NULL	Kasol	kullu	Beautiful	Heli Pad	1235	img/img13.jpg	img/img13.jpg	img/img13.jpg	img/img13.jpg	2020-09-22 18:09:01
Edit Copy Delete	15	1	NULL	Andheri West	Mumbai	Flat, Near Andheri Station	none	500	img/img6.jpg	img/img1.jpg	img/img2.jpg	img/img5.jpg	2020-10-21 12:05:01



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	UID	int(100)			No	None		AUTO_INCREMENT	Change Drop More
2	username	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
3	password	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
4	name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
5	surname	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
6	email	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
7	phone	decimal(10,0)			No	None			Change Drop More

- Login: This table stores all the user info. It consist of user ID, name, surname, phone number, email, username and password. They have been validated.



UID	username	password	name	surname	email	phone
Edit Copy Delete	1	manassinkar123	Manas123456	Manas1	Sinkar1	manas.sinkar1@gmail.com	9977553313
Edit Copy Delete	2	jaydeep	Jaydeep12345	Jaydeep	Vaghasiya	jaydeep@gmail.com	9854545452
Edit Copy Delete	3	parththosani	Parth12345	Parth	Thosani	parth@gmail.com	9854512541
Edit Copy Delete	4	spam123	Spam123456	spam	spam	adi@gmail.com	9930425528
Edit Copy Delete	5	adit	Adit123456	Adit	Bhosle	adi@gmail.com	9930425528
Edit Copy Delete	6	someone1	some123456	Someone	one	some1@gmail.com	9930425529
Edit Copy Delete	7	someone2	admin123456	mumma	mumma	mum@gmail.com	9930425529
Edit Copy Delete	9	abc123	admin123456	abc1	abc1	abc123@gmail.com	9930425529
Edit Copy Delete	10	HiAditHere	aditbhosle123	Adit	Bhosle	aditbhosle81@gmail.com	9930425528

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	flat_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	uid	int(11)			Yes	NULL			Change Drop More
3	bid	int(11)			Yes	NULL			Change Drop More
4	location	varchar(100)	latin1_swedish_ci		No	None			Change Drop More
5	city	varchar(100)	latin1_swedish_ci		No	None			Change Drop More
6	description	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
7	amenities	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
8	area	double			No	None			Change Drop More
9	image	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
10	image1	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
11	image2	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
12	image3	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
13	time	timestamp			Yes	current_timestamp()			Change Drop More

- Packers_movers: This table stores the info of packers and movers affiliated with the company. If you wish to extend your services, you may do so.

	pid	name_org	contact_no	email_id
Edit Copy Delete	1	abcd	9022942188	manas.sinkar@gmail.com
Edit Copy Delete	2	pqrs	7977261097	manas.sinkar@spit.ac.in
Edit Copy Delete	3	Manas	6846565465	manas@gmail.com
Edit Copy Delete	4	parth	7208201778	thosaniparth@gmail.com

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	pid	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	name_org	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
3	contact_no	decimal(11,0)			No	None			Change Drop More
4	email_id	varchar(50)	latin1_swedish_ci		No	None			Change Drop More

- Payment: This table consist of the records of all the payments/transactions that are made.

UID	buyer	Bank_name	amount	Loan_details	cheque_number	payment_opt
9	aie1	ICICI	100000	None	1234	cheque
1	Manas1	HSBC	135000	None	2147483647	cheque
5	Adit	Canara Bank	180000	None	1782920830	cheque
5	Adit	Canara Bank	180000	None	7890123456	cheque
1	Adit	Canara Bank	180000	None	7890123456	cheque
9	abc1	ICICI	100000	None	7890123456	cheque
9	abc1	HSBC	1525225	None	7890123456	cheque
1	Manas1	Canara Bank	100000	None	7890123456	cheque

- Sale: This table consist of rate, total-cost and flat id of each flat. It uses the area stored in table 'Flat' that corresponds to the same flat id to calculate the total cost. We use total cost from this table for displaying the Payment amount while buying the property.

+ Options

	flat_id	totalcost	rate
Edit Copy Delete	6	315000	450
Edit Copy Delete	8	100000	100
Edit Copy Delete	9	1525225	1235
Edit Copy Delete	15	350000	700

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	flat_id	int(11)			No	*None*			Change Drop More
2	totalcost	double			No	*None*			Change Drop More
3	rate	double			No	*None*			Change Drop More

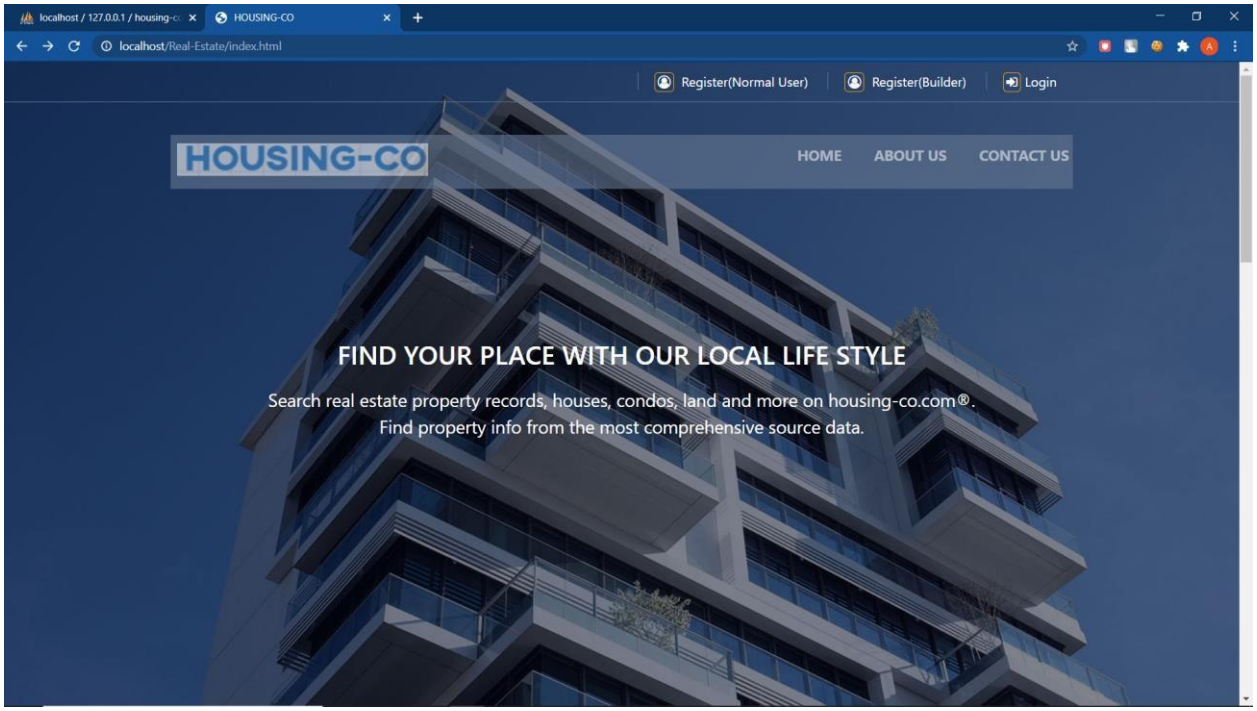
- In terms of schema, the tables are not very complicated. Only table 'Sale' consist of a foreign key flat_id from table 'flat' and every table except Payment can be modified, updated. All tables have except Payment have one primary key.

Foreign key constraints

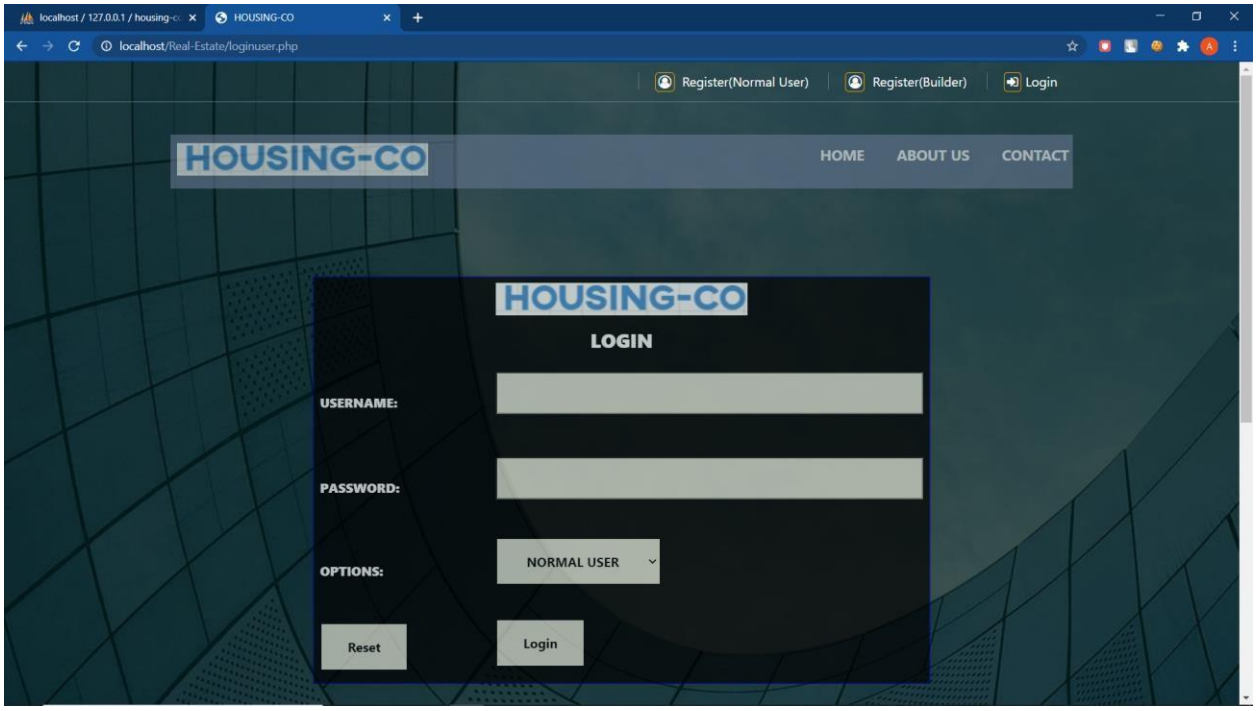
Actions	Constraint properties	Column	Foreign key constraint (INNODB)		
			Database	Table	Column
Drop	sale_ibfk_1	flat_id	housing-co	flat	flat_id
	ON DELETE CASCADE ON UPDATE CASCADE	+ Add column			

Front-End

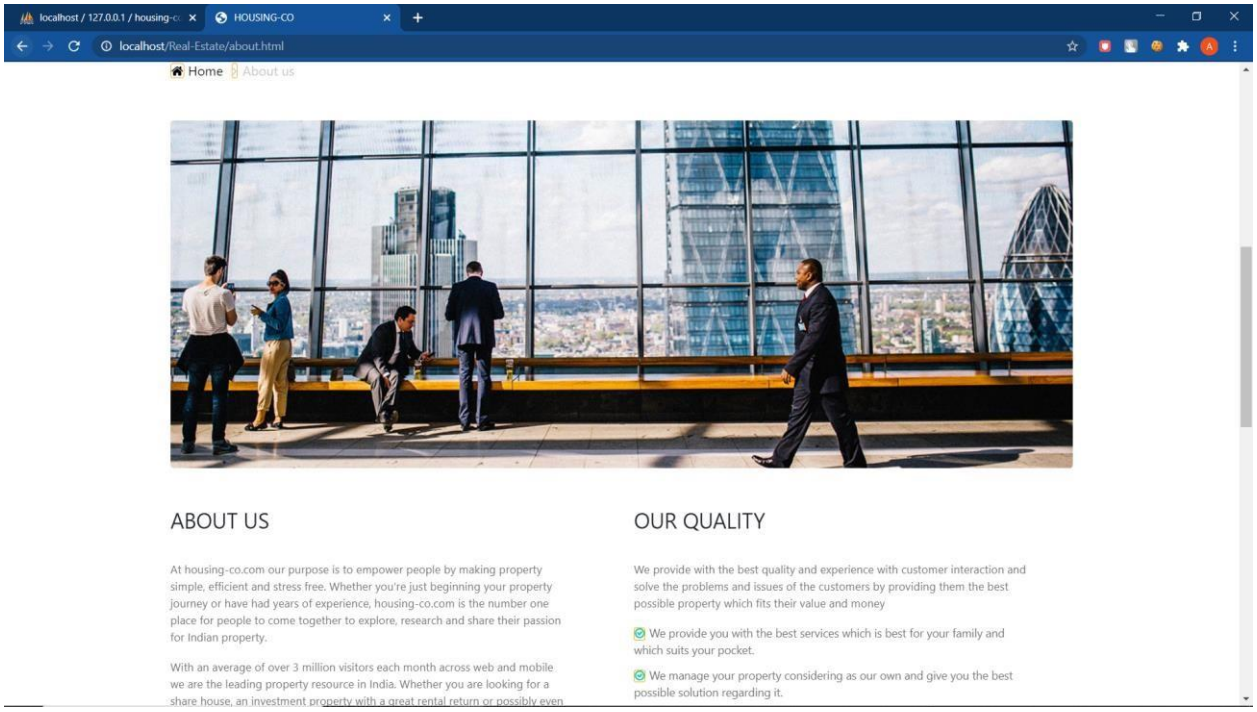
Home Page



Login Page

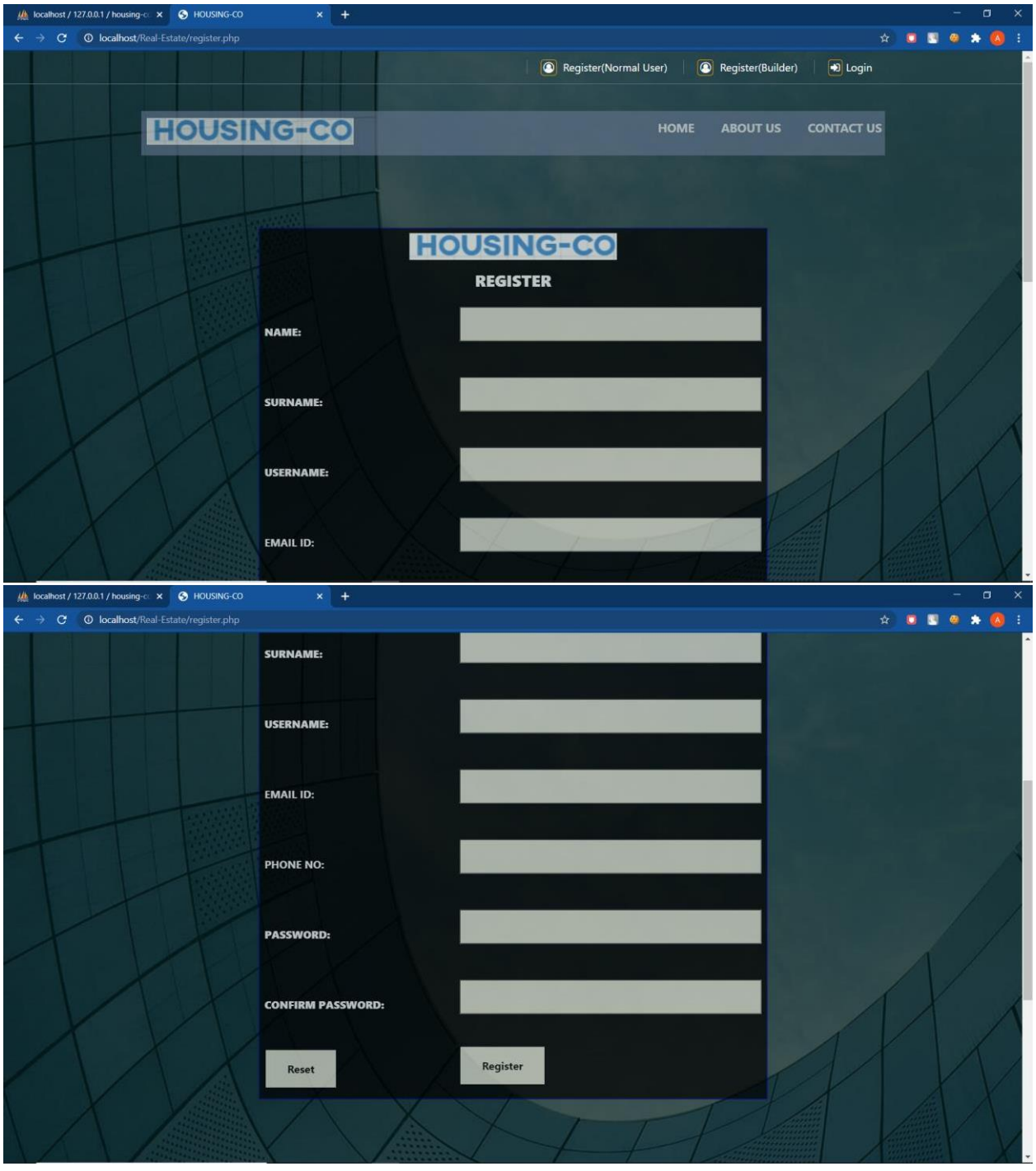


About Us Page

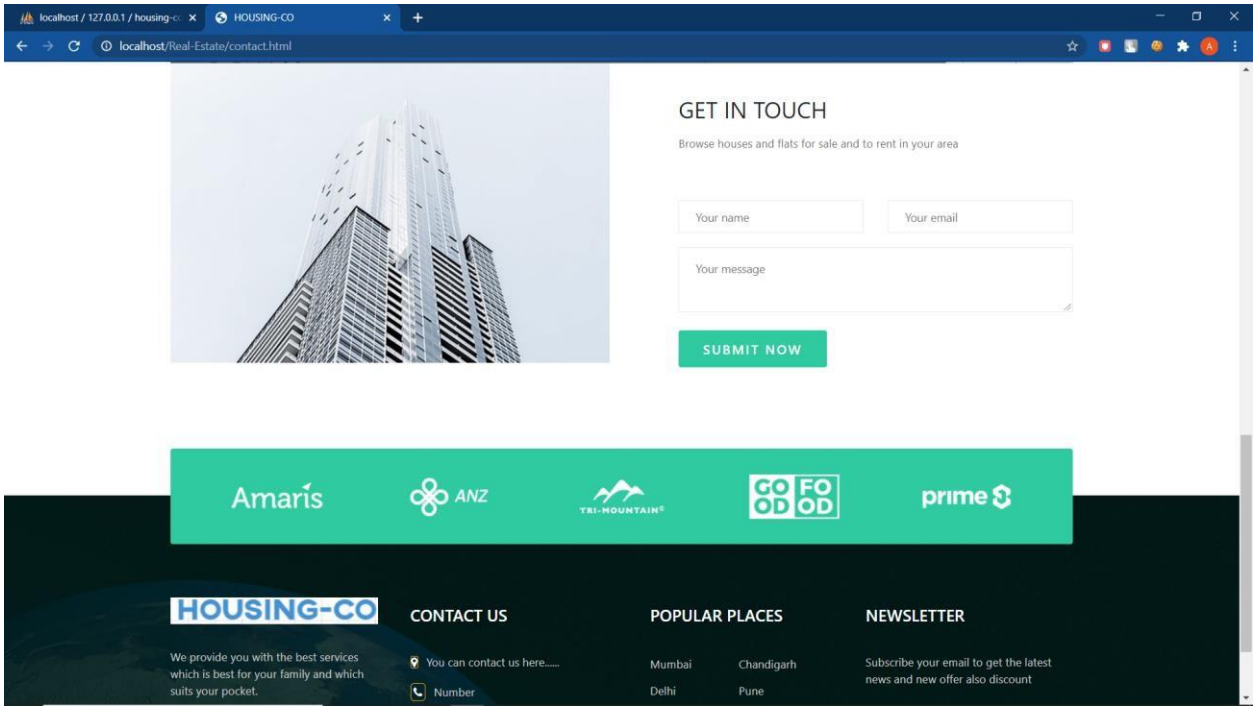


Registration Page

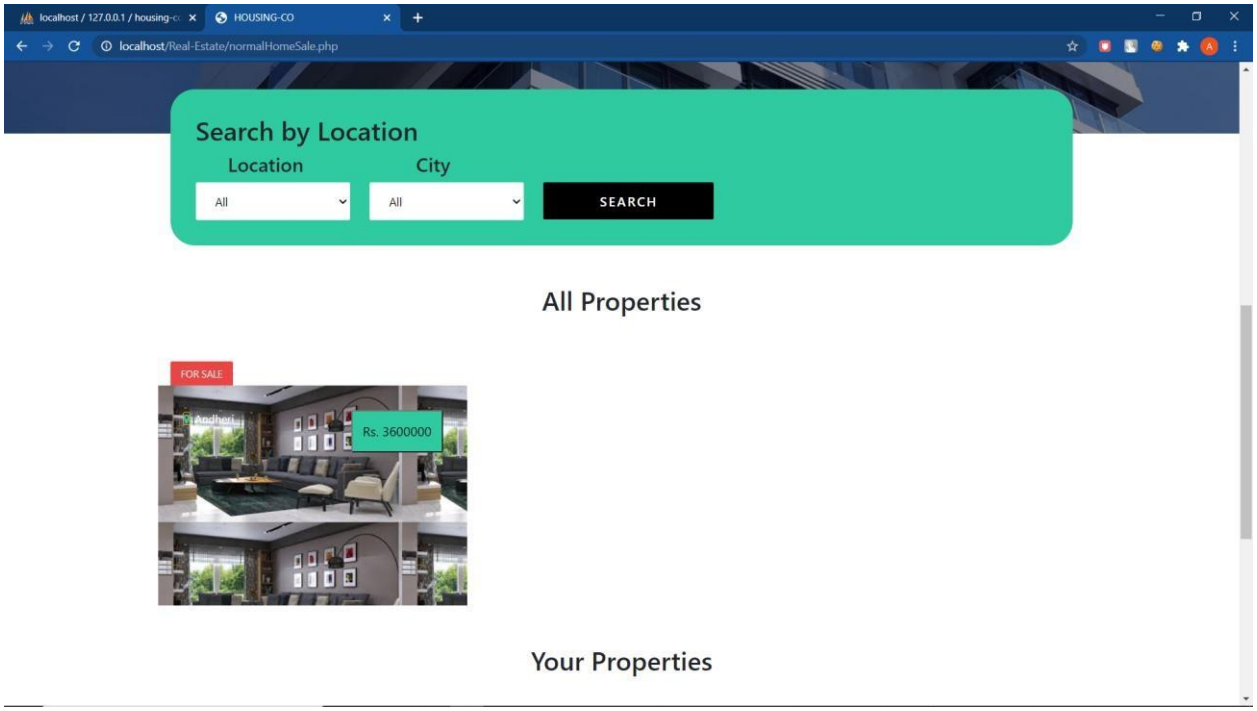
You have to enter your name, surname, username, password, phone, and email for registering an account.

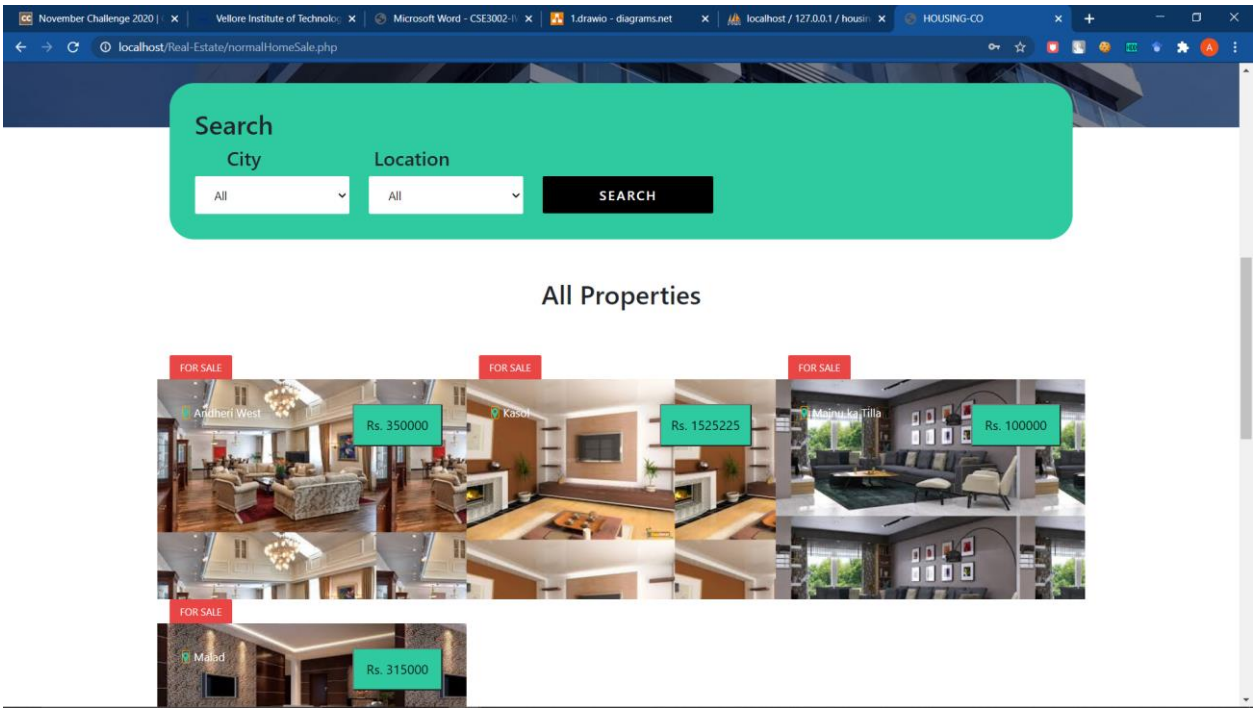


Contact Us Page

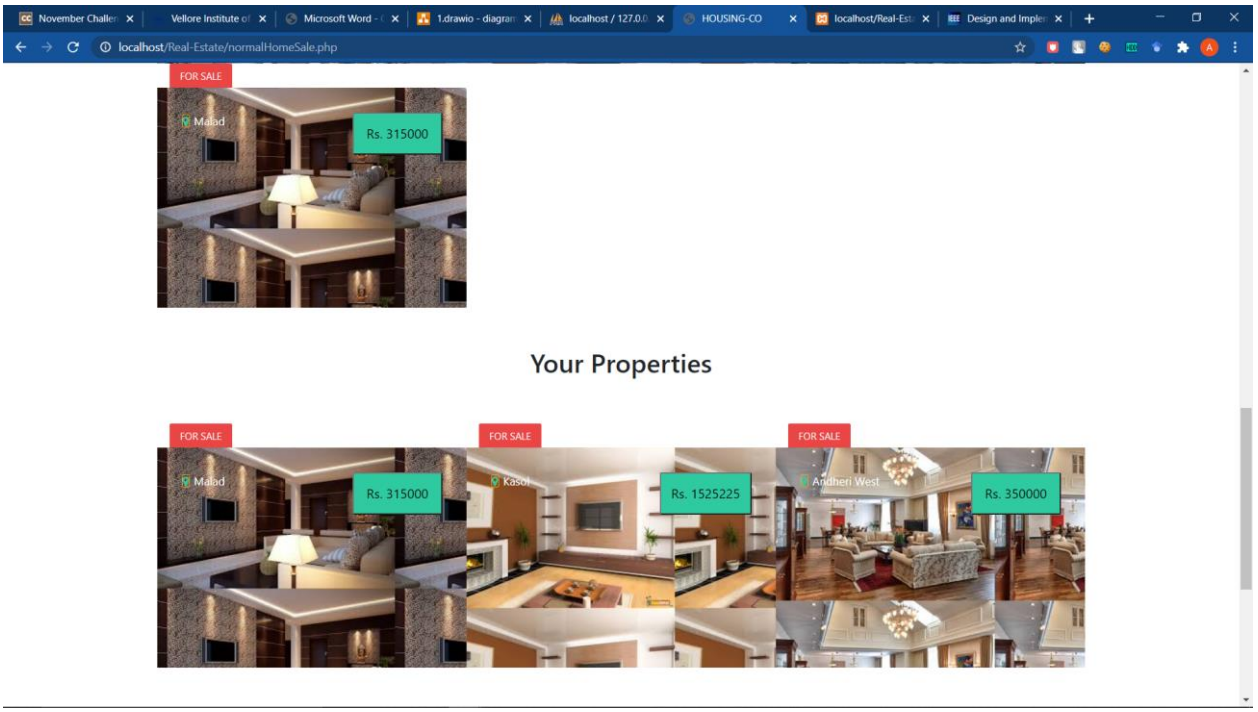


Login Home Page

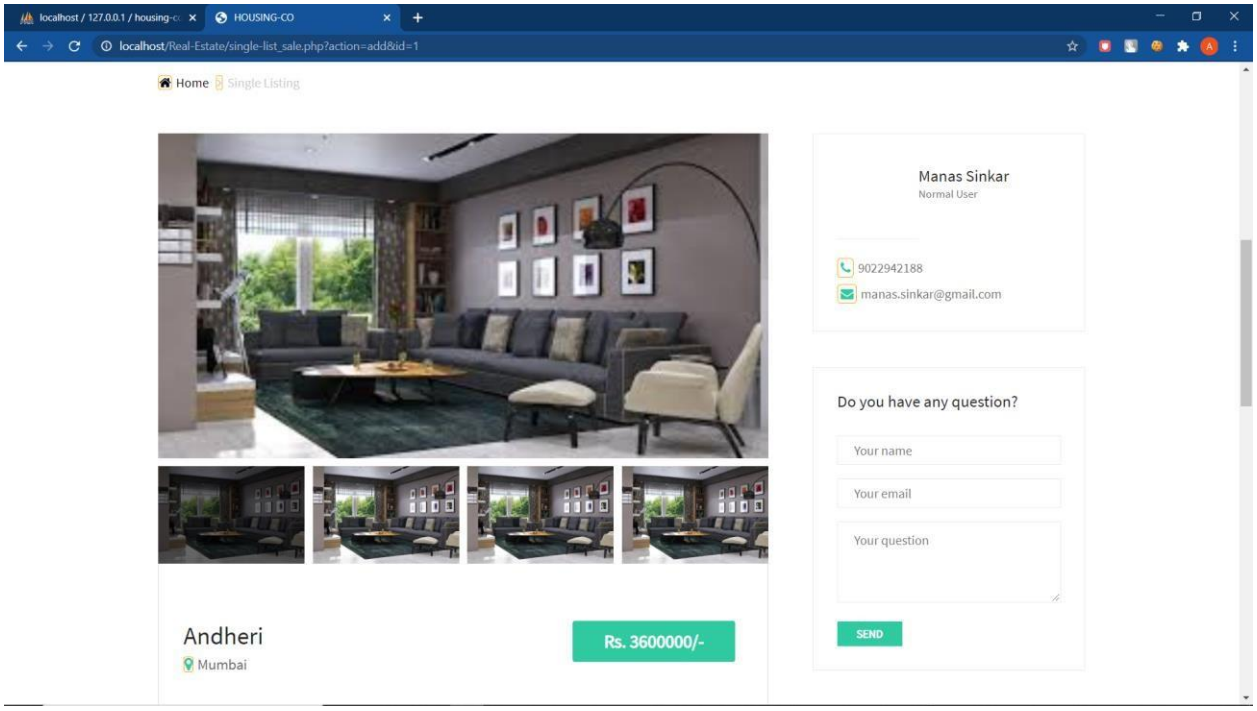




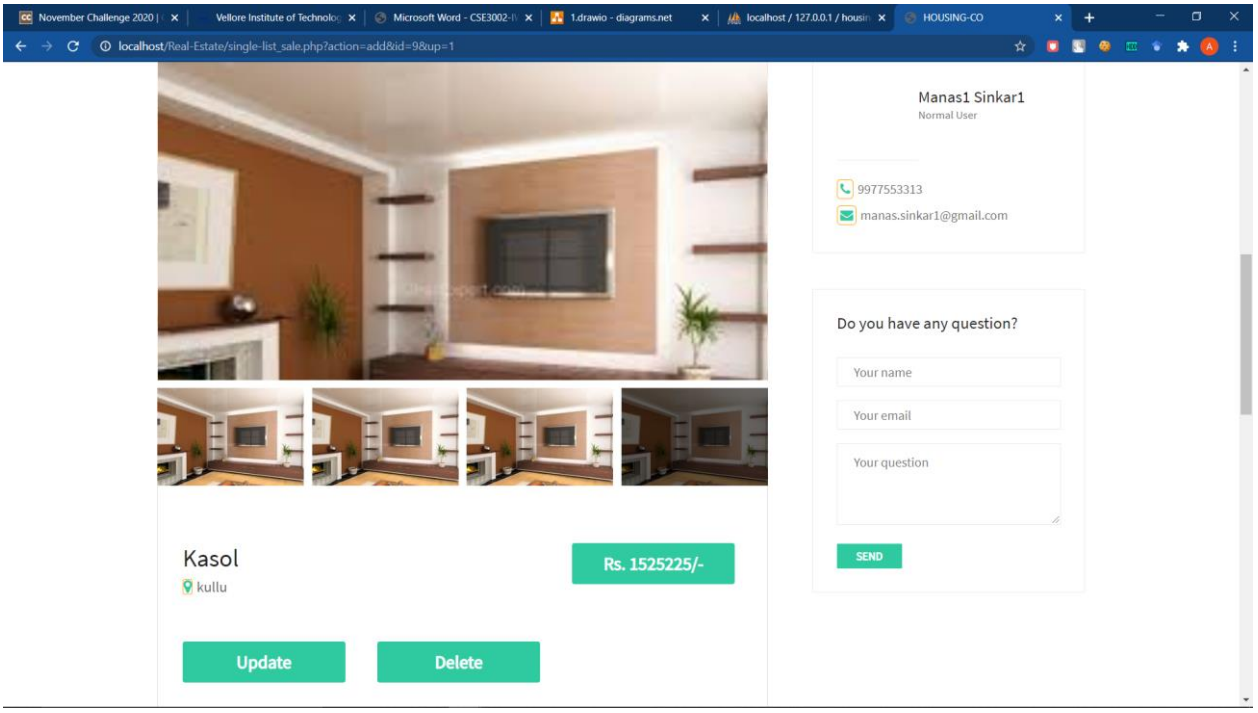
You can view all the properties that you own at the bottom part of the page.



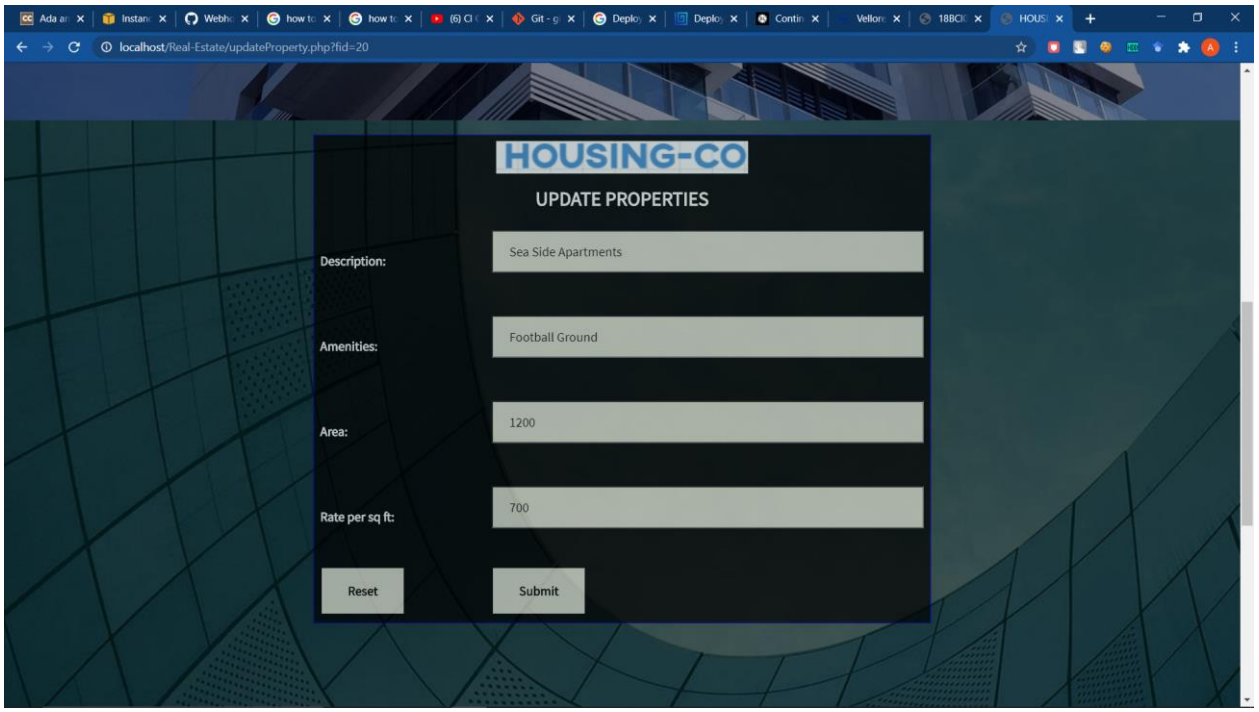
Property View Page



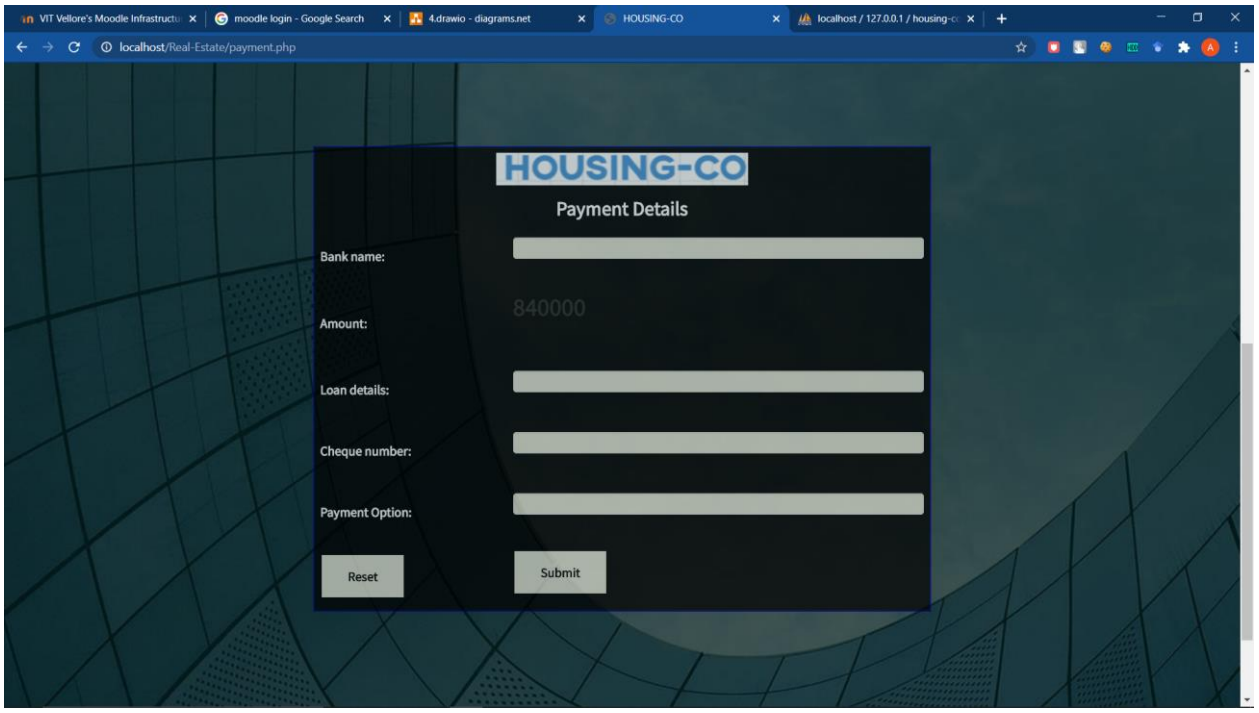
If you own the property then you will have the option to update or delete the property.



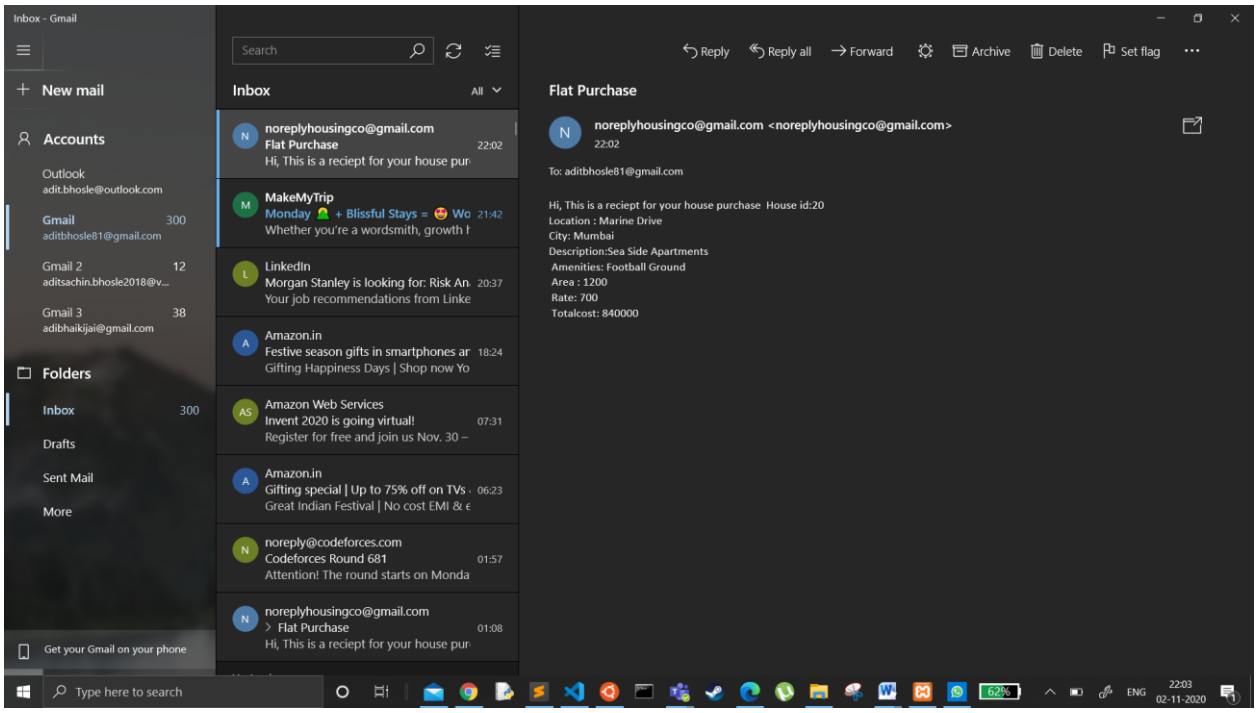
Update Property Info



Payment Gateway

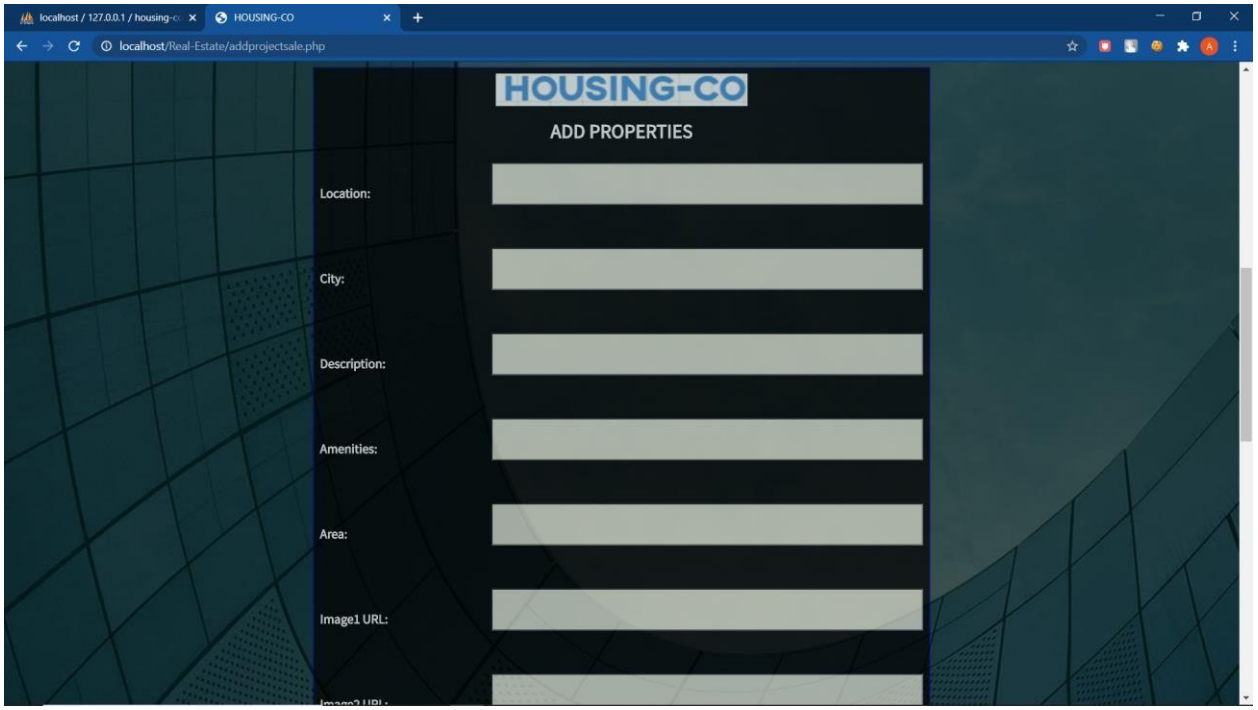


After successful payment, you will receive a mail regarding your purchase

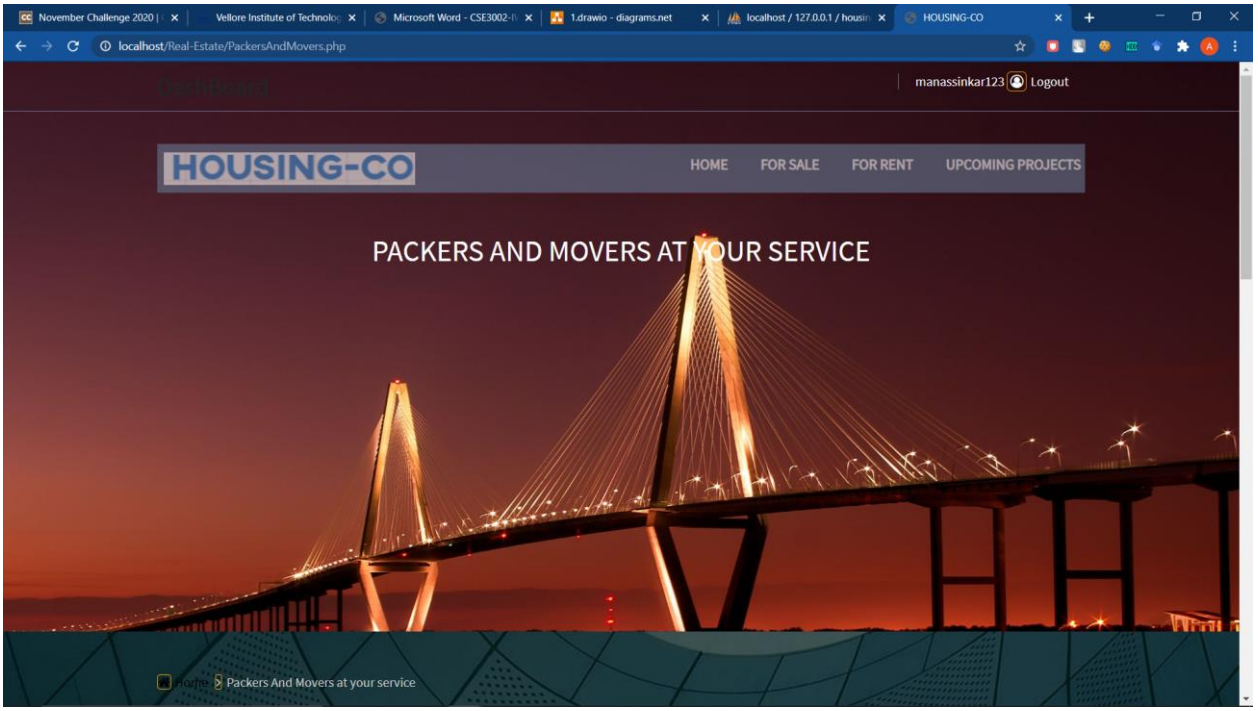


Add Property Page

You have to enter location, city, description, amenities, Area and images

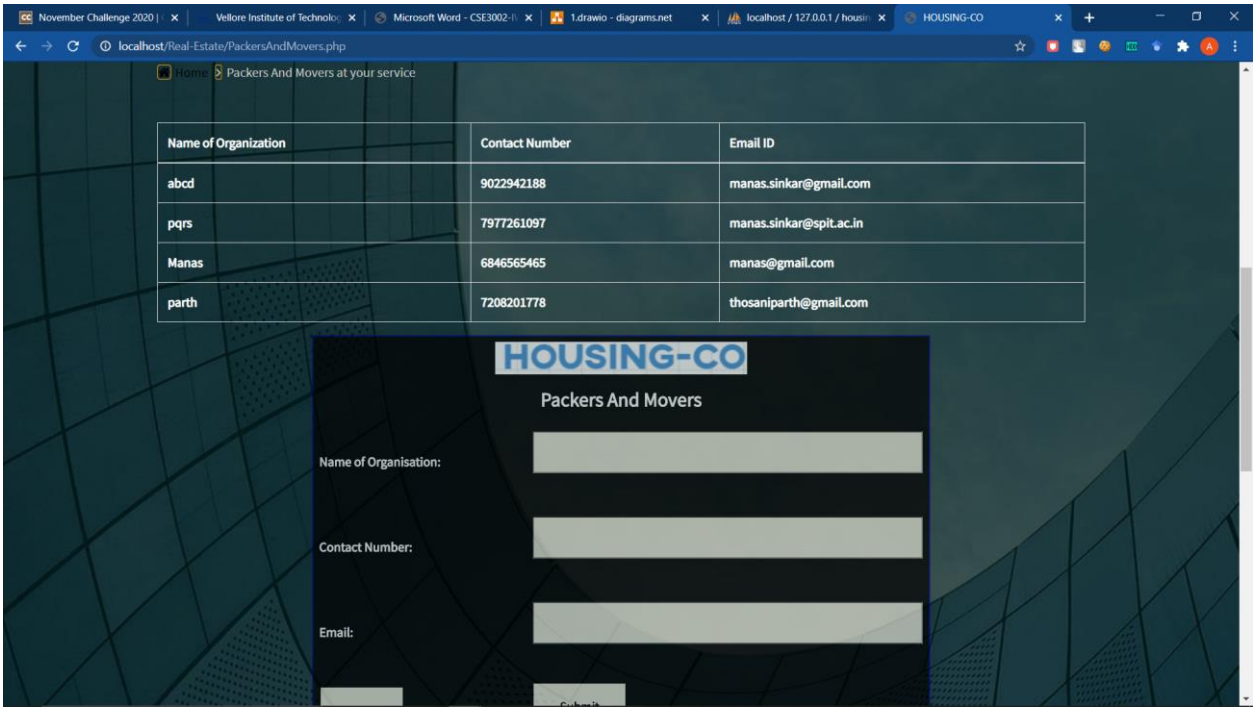


Packers and Movers



You can see the names of all the buyers and movers with their contact details and email id.

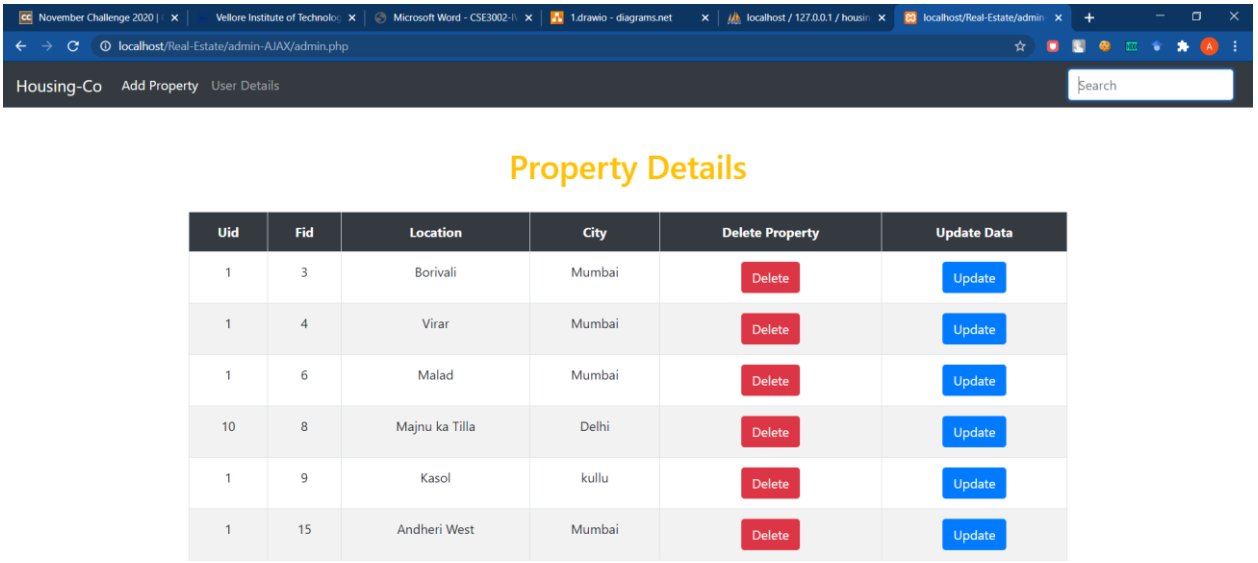
If you have some affiliations with some packers and movers then you can give the details as well. These details will be added on to the table



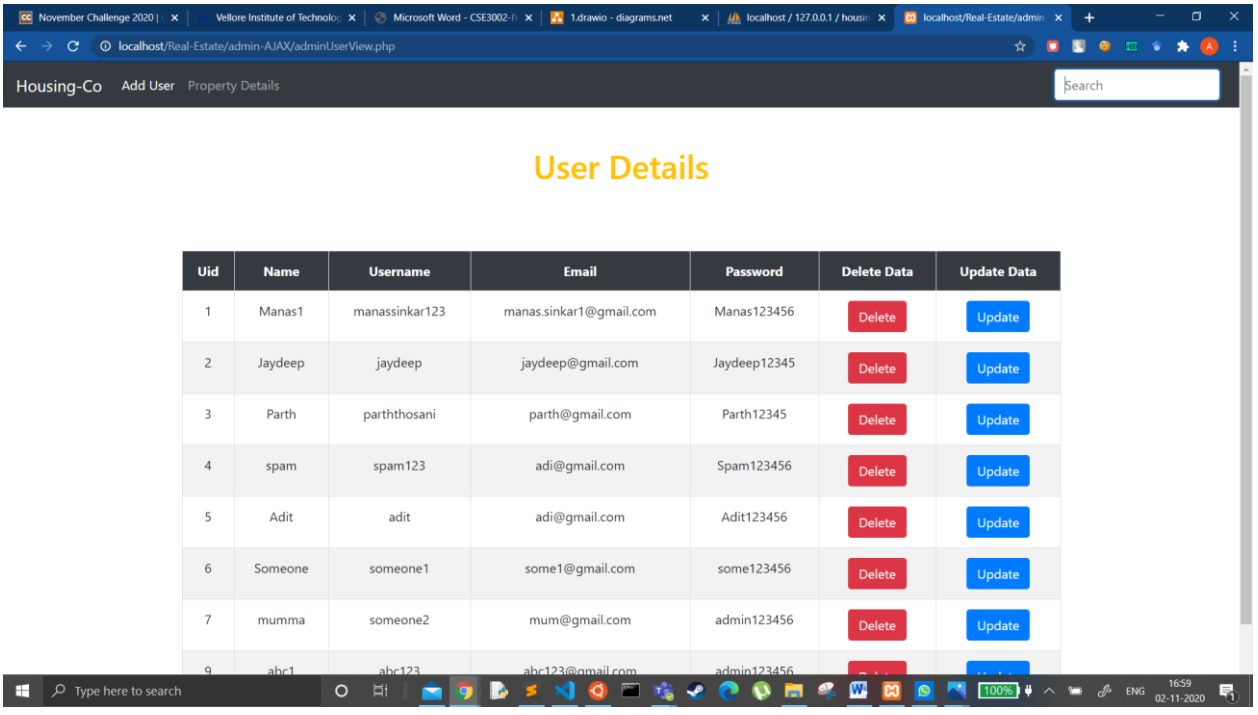
Admin Module

Admin can search very efficiently in the admin module as it makes use of **AJAX search engine.** Also no need for entering all details again while **updating** user-info/property-info, just change the values that you need so.

Property Details



User Details



Update User-Data

Username:

manassinkar123

Password:

Manas123456

Name:

Manas1

Surname:

Sinkar1

Email:

manas.sinkar1@gmail.com

Ph no:

9977553313

Submit

Insert User

Username:

Password:

Name:

Surname:

Email:

Ph no:

Submit

Conclusion

Housing Co. is an Online Real Estate Management System. It meets all the basic functional requirements for buying and selling real estate along with an elegant and friendly user-interface. Along with its functional requirements, it satisfies all other categories such as reliability, security of data and scalability. Its architecture is easy to understand and any changes on this site can be implemented with ease. As it makes use of AMP stack, almost any web developer could work on it and improve in the future. With functionality such as mailing etc, this website can be a perfect model for any online real estate management system in the future.

References

Some websites that we referred :

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- Apartments.com: Best for Renting
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- Establishment of commercial real estate placement and management system in the city, Boris Khrustalev, Tatyana Chudaykina, Zarema Ayupova and Denis Zhelihovsky

- Proceedings of the Third Workshop on Computer Modelling in Decision Making (CMDM 2018), Varvara Spirina, Alexander Alekseev, Alexandra Andronova,

- Real estate management system, method, and program, Hayato Kameta, Google Patents 2019.

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