

Global Distributed Software Development

Summer 2021

Milestone 1 - Project Team A



Under the guidance

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Team Members

Team Member Name	Role
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Revision History

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1. Executive Summary

Motivation & Importance

The real estate market is one of the most complex markets in the entire world since it is in a continuous change, thus making it a very dynamic market. The internet has a lot to offer consumers regarding real estate and as a result it is a great place to start shopping. The buyer and seller have direct access to information about the property in question. This makes other forms of communication between the buyer and the seller obsolete. The internet is easy in comparison to the old-fashioned method of answering dozens of phone calls or setting up numerous meetings.

There is no better, safe, and easier way to search for a home or to sell one than online as the internet has a lot to offer in the real estate market and it is rapidly developing, gaining more and more consumers every day and thus improving your chances for a profitable buy/sell.

Target Audience:

The target of our applications is the customers who cannot spend more time for buying and selling the housing property.

Online real estate has become popular and is consuming are looking to the internet more each day as an easy place to get good information. As a matter of fact, more than 5 million people use the internet for real estate issues every month. With numbers like this it is easy to see how the internet can improve your chances for selling or buying a home.

Another major advantage of real estate moving to the internet is that you won't need a real estate agent to start your search. This is very important because we all know that real estate agents are of value but sometimes you just want to look.

Reasons to use our HomeForMe application:

Using our HomeForMe application for real estate will make you your own real estate agent without having to pay a great sum of money to an agent and you will have full control. If you are a home buyer or seller, it is very easy to search for the perfect house as the online offers are endless.

Unique Selling Point:

There are several applications available in the market for real estate. But our HomeForMe application will allow users to calculate an avg price of a property by adding in their preferences like area, rooms beforehand so it makes the user and provide specific results which will reduces the time for the users. Also, we have made our application user friendly so that you need is very basic computer usage skill.

2. Personae and main Use Cases

Following summarizes the two main types of personae and describe the main use cases of HomeForMe system

2.1. Personae

Ali - A Student

Ali is a new student in Fulda University and coming to Fulda within 15 days from Pakistan. Unfortunately, he couldn't get any room in student hostel and he has to find a room outside of student dormitories. He doesn't know too much about Fulda city so he's looking for an online real estate site where he can search for a room near to his university which is not so costly and available him within 10 days so that he can reserve his accommodation before arrival.

What Ali loves:

1. Search through categories and find what he needs quickly.
2. Suggestions for related items based on his searches.
3. Simple and quick authorization methods without complex verifications.

Peter - A Real Estate Agent

Peter is a real estate agent in a well-known real estate company. He has a good understanding and knowledge on web applications and how to use them. He loves online buying and selling properties because it saves a lot of time and resources. Peter is a creative guy who likes to have everything in standards. He hates when users upload some unnecessary images and descriptions to their ads. He likes to see decent and professional colors on the website too. When he feels the website is not so professional, he tries to find better alternatives.

What Peter loves:

1. To have clear images and descriptive information on advertisements.
2. To see other user's reviews on properties.

Christina-A Buyer

Christina is an old lady. She wants to gift a little apartment to her granddaughter on her wedding. She is looking for a website where she can find the desired apartment. As she is too old and it's very difficult to go outside and see all the properties by visiting personally so she decides to search it online. She likes to have a simple user interface and a simple navigation method. She hates it when there are so many small text descriptions, and all the website's font is small. She prefers to have a high contrast version of a website or ability to have bigger images and texts.

What Christina love:

1. Read comments and reviews on a property.
2. Have a chat with the property owner for specific information. (she prefers a real time chat with them)
3. She loves to have nice and clear information about property images.

2.2. Use Cases



Image 2.1: Use case diagram

2.2.1. List of use cases

1. Register
2. Login
3. Chose profile type
4. Search catalogue
5. View property details
6. Browse catalogue
7. Get average price
8. Change data to see price effect
9. Manage properties
10. Add property
11. Edit property
12. Delete property
13. Agent dashboard
14. View sales
15. Cancel sales
16. Massaging
17. Create contract
18. Buyer dashboard
19. Cancel contract
20. Approval
21. Agent profile
22. Sales cancel by agent
23. Property operations
24. Admin dashboard
25. Property and sales reporting

2.2.2. Main use cases

- A. **Registration (1):** buyers sign up to be able to make contracts, and agent also to be able to be listed as an agent under their company and add new property and manage their sales. Admin also require to login to accessing to the website for approvals.
- B. **Search Catalogue (4):** The user who is interested to buy, sell or get tenant can search the property on the website where he/she can filter the records based on categories which include location, city, pricing range, property type (home, flat, studio, penthouse, room).
- C. **Get Average Price (7):** User will be able to enter the data of the property he is interested in for example (rooms, size, city, balcony, backyard) and the system will be able to give the use an average price of the property available on the website.
- D. **Manage Properties (9):** The agent will be able to add, edit and delete his property on the website but they will not be able to go live on the website without admin approval.
- E. **Massaging (16):** Buyers can message the Agents on the platform and ask them any question they want about the property and agent can see notification of the message and replay to the buyers.
- F. **Approvals (20):** Admin will have to review the new property that is created if it complies with the website policy before it goes live on the website and approve now agent profile and if he is requested to be listed on the correct company.

3. List of main data items and entities – data glossary/description

1. Administrator

A system administrator, or sysadmin, is a person who is responsible to manage user access for sellers and manages the dashboard for customers.

2. Authentication

The process of verifying the legitimacy of a user on a platform.

3. Approval

Confirm the inclusion of a post/content which is relevant for the application, product, service category, or the overall expectation of the platform.

4. Buyer

A buyer is a person or entity who is potential player to acquire or view the property.

5. Seller

A Seller is a person or entity who owns the existing property.

6. Categories

Distribution of product items or services into different groups based on their properties or attributes.

7. Database

A database is a collection of information that is organized so that it can be easily accessed, managed, and updated. Computer databases typically contain aggregations of data records or files, containing information about transactions or interactions of specific customers.

8. In-app message

In-app messages are messages delivered to the application users within the platform. This type of messaging does not include any other platform.

9. Object

Software objects are conceptually like real-world objects: they too consist of state and related behavior. An object stores its state in fields and exposes its behavior through methods or procedures.

10. Profile

A description of an individuals' social characteristics that identify him/her on media platforms.

11. Record

A record is simply a set of data stored in a table, for example, a customer or property record. A record in a database is an object that can contain one or more values.

12. Service

A service is an intangible process. This means it does not have physical dimensions to it; it cannot be measured or weighed. Services usually provide tangible product in the end. For example, a tutor providing language lectures on the internet.

13. Web application

It is a computer program that utilizes web browsers and web technology to perform tasks over the Internet.

4. Initial list of functional requirements

Functional Requirements

New user:

- **Listings:** Buyers should be able to browse the app for property listings
- **Searching:** Buyers should be able to search by providing keywords
- **Filtering:** Buyers can enhance their searches by different filters (price range, location, city, property type, number of rooms, etc.)
- **Viewing:** Buyers should be able to view list of property and property details on website
- **Sorting:** Buyers should be able to sort the property by ascending or descending order.

- **Registration:** Sellers/buyer should be able to upload property or make contracts.
- Buyers:**
- **Messaging:** Buyers should be able to contact the sellers via a simple messenger and enquiry about the property.
 - **Dashboard:** Buyers should have a dashboard to manage their contacts, properties they have applied to and wish list.
- Agent/Sellers:**
- **Management:** Sellers should be able to register and manage the status of property sold, unavailable or available.
 - **Listings:** Sellers can post available properties.
 - **Dashboard:** Sellers should be able to view a dashboard to be able to manage their sales, mark properties available, sold, reserved etc.
 - **Messaging:** Sellers should be able to reply to the buyers via a simple messenger.
- Admin:**
- **Approvals:** Admin should be able to review before publishing property going live on the website.
 - **Dashboard:** Admin should have a reporting of selling and buying property.
 - **Registration:** Admin should be able to manage user registration and approve new agent listing under the correct company.

5. List of non-functional requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
3. All or selected application functions must render well on mobile devices
4. Data shall be stored in the database on the team's deployment server.
5. No more than 50 concurrent users shall be accessing the application at any time
6. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
7. The language used shall be English (no localization needed)
8. Application shall be very easy to use and intuitive
9. Application should follow established architecture patterns
10. Application code and its repository shall be easy to inspect and maintain
11. Google analytics shall be used (optional)
12. No e-mail clients shall be allowed. Interested users can only message to sellers via in-site messaging.
13. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
14. Site security: basic best practices shall be applied (as covered in the class) for main data items
15. Media formats shall be standard as used in the market today
16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development

17. The application UI (WWW and mobile) shall prominently display the following exact text on all pages "Fulda University Software Engineering Fall 2020. For Demonstration Only" at the top of the WWW page. (Important to not confuse this with a real application).

6. Competitive analysis

				
Advertising per page	1 Ad	1 video, 1 popup and 3 Ads	Big Ad	3 Ads
Browse all property	Yes	Yes	Yes	Yes
All house data Mandatory to input	Yes	No	No	No
Massaging in the platform	Yes	Yes	Yes	Yes
Give average cost of the needed specification	Yes	No	No	No
Offer Agent/Seller Review and rating	Yes	No	No	Yes

The web application HomeForMe will be the best gateway for new families, students in renting or buying a house. And agents who want to offer property for renting, We will focus on providing a clean interface and a chat service to make communication between sellers and buyer very easy and smooth. Especially by making all data on the property mandatory we will save much time for enquires submitted to agents. we will distinct our platform from the competition by placing the buyer first and protect him with our special feature which will give the average price for any arrangement the buyer is looking for, which will be very informative for the new buyer in the market. And we will attract agent by allowing them to build a portfolio by the reviews and rating provided by the customer who made contracts with them.

7. High-level system architecture and technologies used

Our project will be built up using the latest technologies to provide the best performance to our clients

- Sever Host: AWS Amazon EC2 1vCPU 1 GB RAM
- Operating System: Ubuntu Server 20.04 Server
- Database: MySQL v 8.0.X
- Web Server: NGINX 1.2
- Server-Side Language: Node.JS
- Front-End Language: React (TypeScript)
- Framework: Express (JavaScript/TypeScript)
- SSL Cert: Lets Encrypt (Cert Bot)

8. Team and roles

Team Member Name	Role
Jagadesh Devan	Team Lead and Frontend Developer
Ahmad Yar Khan	Frontend Lead & GitHub Master
Taha Bin Aziz	Backend lead
Obada Altnawi	Frontend / Backend Developer
Rabia Hafeez	Frontend Developer

9. Checklist

Task	Status (Done/ On Track/ Issue)
• Team found a time slot to meet outside of the class	Done
• Back end, Front end leads, and GitHub master chosen	Done
• Team decided and agreed together on using the listed SW tools and deployment server	Done
• Team ready and able to use the chosen back and frontend frameworks and those who need to learn are working on learning and practicing	On Track
• Team lead ensured that all team members read the final M1 and agree/understand it before submission	On Track
• GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	Done