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Daffodil International University
Department of Software Engineering SWE-431
Project Documentation

“HomeTechHub web application”

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This Project has been submitted in fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering.

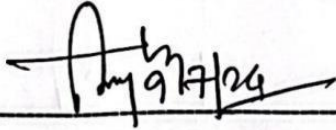
Spring 2024

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APPROVAL

This thesis titled on “HomeTechHub Web Application”, submitted by **Md. Mahrab Hossain Medul (ID: 201-35-3090)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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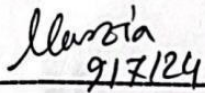
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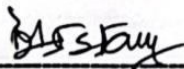
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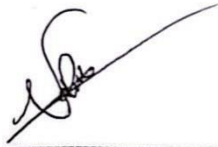
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DECLARATION

I made it clear that I had conducted my research at Daffodil International University's Department of Software Engineering under the direction of MS.NADIRA ISLAM ~~Senior~~. I added that this project had not been given to anybody else or any organization, in whole or in part, for consideration of a degree.

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I would also like to extend my gratitude to the faculty and staff of Daffodil International University, whose knowledge and resources were essential in the successful completion of this project. Special thanks to Dr. Imran Mahmud for providing the initial framework and critical inputs that helped refine my ideas.

I am deeply thankful to my classmates for their cheering and constructive criticism. Their perspectives and suggestions played a significant role in enhancing the functionality and user experience of the web application.

I would like to acknowledge the technical support team and IT staff who provided the necessary infrastructure and technical assistance. Their prompt responses and technical advice were crucial in resolving many challenges encountered during the development process.

Additionally, I would like to thank the beta testers and participants who provided valuable feedback during the testing phase. Their practical insights helped in identifying and addressing various issues, ensuring a more robust and user-friendly application.

Last but not least, I am profoundly thankful to my family and friends for their unwavering support, patience, and understanding throughout this journey. Their encouragement kept me motivated and focused on achieving my goals.

Thank you all for your contributions and support.

Sincerely,

MD. Mahrab Hossain Medul

ABSTRACT

The HomeTechHub Web Application project aims to streamline and enhance the process of recruiting skilled technicians for various service needs. This web-based platform provides an efficient and userfriendly interface for both employers seeking qualified technicians and technicians looking for job opportunities.

The application features a comprehensive database that allows technicians to create detailed profiles, including their skills, experience, certifications, and availability. Employers may post open positions, look for relevant applicants and orchestrate the whole recruitment process through a user-friendly dashboard. . The platform integrates advanced search and filter capabilities to match technicians with job postings based on specific criteria, ensuring a precise and efficient hiring process.

Key functionalities of the application include user authentication, profile management, job posting and browsing, application tracking, and real-time notifications. The system is designed to be scalable and secure, utilizing modern web development frameworks and best practices in software engineering.

During the development of this project, significant emphasis was placed on creating a seamless user experience, ensuring data security, and optimizing the platform for performance. User feedback was incorporated throughout the development cycle to refine features and address any usability issues.

The HomeTechHub Web Application not only simplifies the hiring process for employers but also empowers technicians by providing them with a platform to showcase their skills and find relevant job opportunities. This project demonstrates the potential of web technologies to solve real-world problems in the recruitment sector, ultimately contributing to more efficient and effective hiring practices.

CHAPTER 1: INTRODUCTION

1.1 Introduction

In today's tech-centric world, finding and hiring the right tech talent is critical. Our Tech Hiring Project is all about simplifying and improving this process. We are analyzing an online-based application, which is an online technician service. A well-designed business model and strategy are important to gain a competitive advantage in this competitive market. We're aiming to save time, enhance the quality of hires, and make it easier for both employers and candidates. It's a modern solution for a modern challenge

1.2 Motivation

This application is an online based technician hiring service. Through our application, customers can hire electricians, plumbers, computer technicians, mechanics, etc. This is a convenient way to dispose of unnecessary hassles of finding out about these workers around their areas.

This application has the first-mover advantages in the market. There are no similar applications in the market that are currently providing this service. Also, managing several stakeholders from the beginning can give this business a competitive advantage in the market.

Several technical difficulties include updating the codes, managing servers, and building a proper UX design to accumulate potential customers.

Through industry analysis and business model, this business is profitable through subscriptions from the workers, advertising revenue, and sponsorships from different related companies.

1.3 Objectives

- ❖ Develop a user-friendly online platform that connects customers with various technicians for their service needs.
- ❖ Implement a robust subscription-based model for technicians, generating recurring revenue.
- ❖ Enhance user experience through intuitive UX design and efficient service management features.
- ❖ Establish partnerships with relevant companies for advertising and sponsorship opportunities.
- ❖ Continuously update and maintain the application to ensure smooth operation and adaptability to market changes.

1.4 Expected Outcome

❖ User

- User search by name.
- User listing.
- Users' profile details.
- List details on user's publications.
- List details on publication.

❖ Manager

- Create personal account.
- Access personal account.

- Change password.
- Home.
- Change profile details.
- Change display name.
- Update/Remove Employment details.
- Update/Remove External profile.
- Publication list, Add publication, Delete publication.
- Logout from profile.

❖ Administrator

- Sign in account
- Change password.
- Home.
- Category add, modify, discard.
- List of users/managers, expand full profile.
- Super Admin.
- All things inside for all my accounts.

1.5 Goals

- ❖ Achieve a significant market share within the first year of launch.
- ❖ Increase user engagement by 30% within six months of operation.
- ❖ Generate \$X in revenue from subscriptions, advertising, and sponsorships by the end of the first fiscal year.
- ❖ Maintain a customer satisfaction rating of 4 out of 5 stars based on user feedback.
- ❖ Expand the technician database to cover a wider range of services and geographical locations within two years.

1.6 Project Scope

- ❖ Develop an online platform accessible via web and mobile devices.
- ❖ Implement user registration and authentication systems for both customers and technicians.
- ❖ Create a database for technicians with profiles showcasing their expertise, availability, and customer reviews.
- ❖ Design a user-friendly interface for customers to request services, track appointments, and provide feedback.
- ❖ Incorporate a subscription management system for technicians to access the platform and receive service requests.
- ❖ Integrate advertising spaces within the platform for additional revenue streams.
- ❖ Conduct regular maintenance and updates to ensure functionality and security.

1.7 Stakeholders

- ❖ Customers (registered).
- ❖ Managers.
- ❖ Administrators.

1.8 Project Schedule

Considering the time constraints given, I have to draw up the schedule such that the project is finished within the deadlines that are set. On top of that, the focus is on the need to emphasize the time pressure for the task at hand.

1.8.1 Ghant Chart

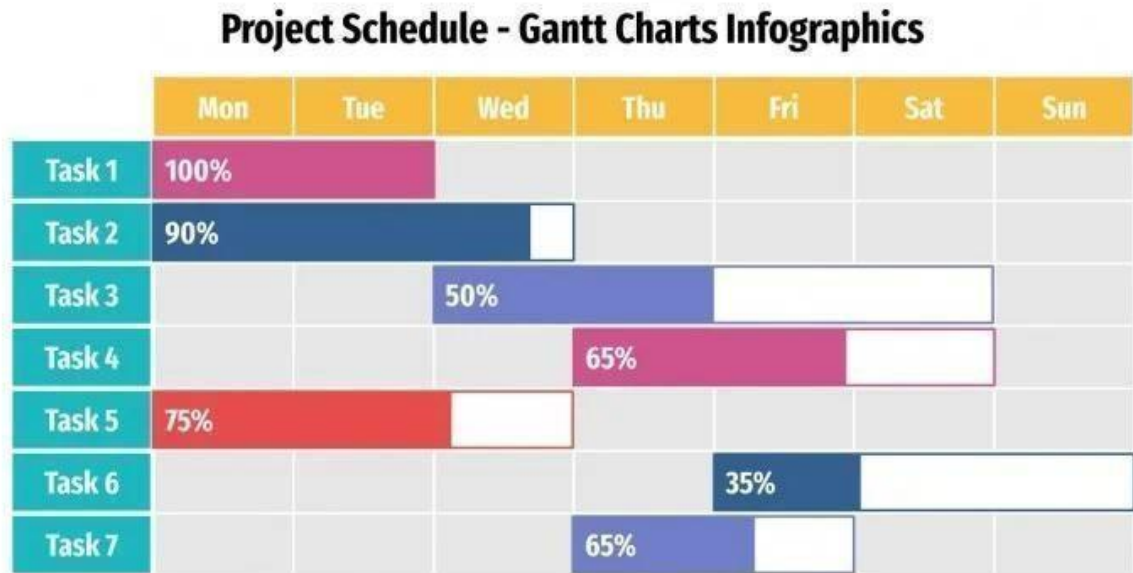


Table 1.1: chart

1.8.2 Release Plan and Milestone

Given below:

activities	duration in week Total week
research	Weekly 1,Weekly2

specifications	Weekly 2,Weekly 3,Weekly 4
planning	Weekly 3,Weekly 4
design	Weekly 4, Weekly 5
development	Weekly 4, Weekly 5,Weely k6,Weekly 7
testing assessment	Weekly 7,Weekly 8, Weekly 9
documentation	Weekly 10,Weekly 11,Weekly 12
software release	Weekly 12

Table 1.2: release plan

CHAPTER 2: REQUIREMENTS

2.1 functional requirements

- ❖ allow to login.
- ❖ system will be able to remember email and password.
- ❖ system will to create accounts.
- ❖ allow to reset password.
- ❖ allow to update personal information.
- ❖ add work, education and public or social profiles links.
- ❖ system will allow to add, update and delete publications.
- ❖ system will allow to update his/her unique username.
- ❖ system will allow users to search that are available to the application.
- ❖ system shall display the search results.
- ❖ system will allow users to view profiles.
- ❖ system will allow the administrator to login.
- ❖ not allow the administrator to login with invalid email or password.
- ❖ allow administrators to create, update and delete research fields.
- ❖ system will not allow administrators to delete categories which have publications.
- ❖ system will allow administrators to show all researcher lists.
- ❖ system will allow administrators to show specific researcher full profile information with publications.
- ❖ system will allow administrators to show specific publication details.

- ❖ system will allow administrators to accept/deny specific publication to publish the website.
- ❖ system will allow administrators to create, show and delete others' admin.
- ❖ system will allow the administrator to show his/her own account details.

2.2 non-functional requirements

- ❖ The responsiveness of the website shall be high and the website shall behave as per the user action.
- ❖ The user shall be acknowledged in the form of visual changes or feedback on the site to enhance the interaction.
- ❖ The response time and throughput time on the site shall be minimal.
- ❖ Consistency on the website shall be maintained across all the web pages.
- ❖ The website shall offer a secure login option to the users to avoid unauthorized access to the system and the information.
- ❖ Advanced access control shall be included in the site.
- ❖ Advanced encryption algorithms must be integrated in the site to avoid misuse of the data sets.
- ❖ Technical controls, such as anti-malware, anti-denial, and intrusion detection tools shall be integrated with the site.

CHAPTER 3: System analysis design and specifications

3.1 Development Model

An incremental approach is being adopted in the development of the “Home techHub” web project. This method addresses the common challenges of the waterfall model. These models operate quite well when a project has various distinct components that are self sufficient. Both iterative enhancement, and rapid application, belong to incremental process models. Iterative enhancement resembles the waterfall approach in that it deals with all aspects of the life cycle. However, it offers room for a number of revisiting the design. Each cycle ends with the launch of a new product that gives way to another cycle incorporating the lessons learnt from the one prior.

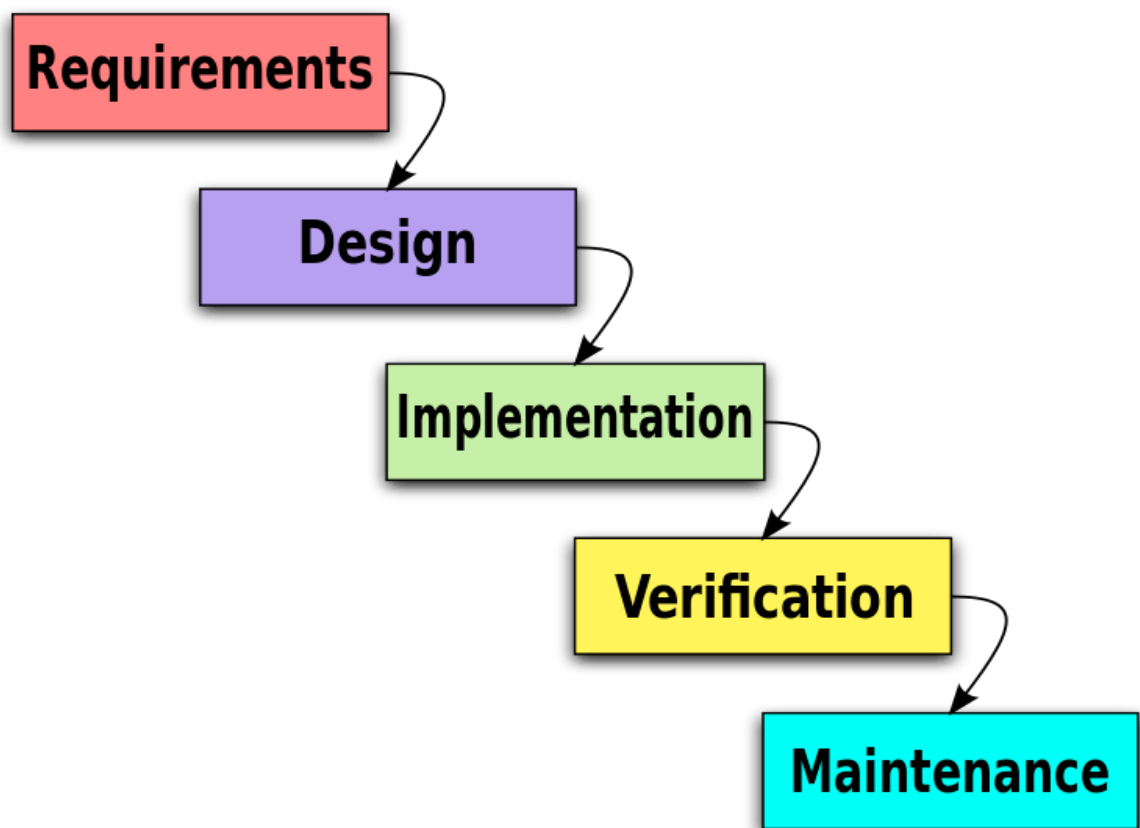


Figure 3.1: Waterfall Model

3.2 use case diagram

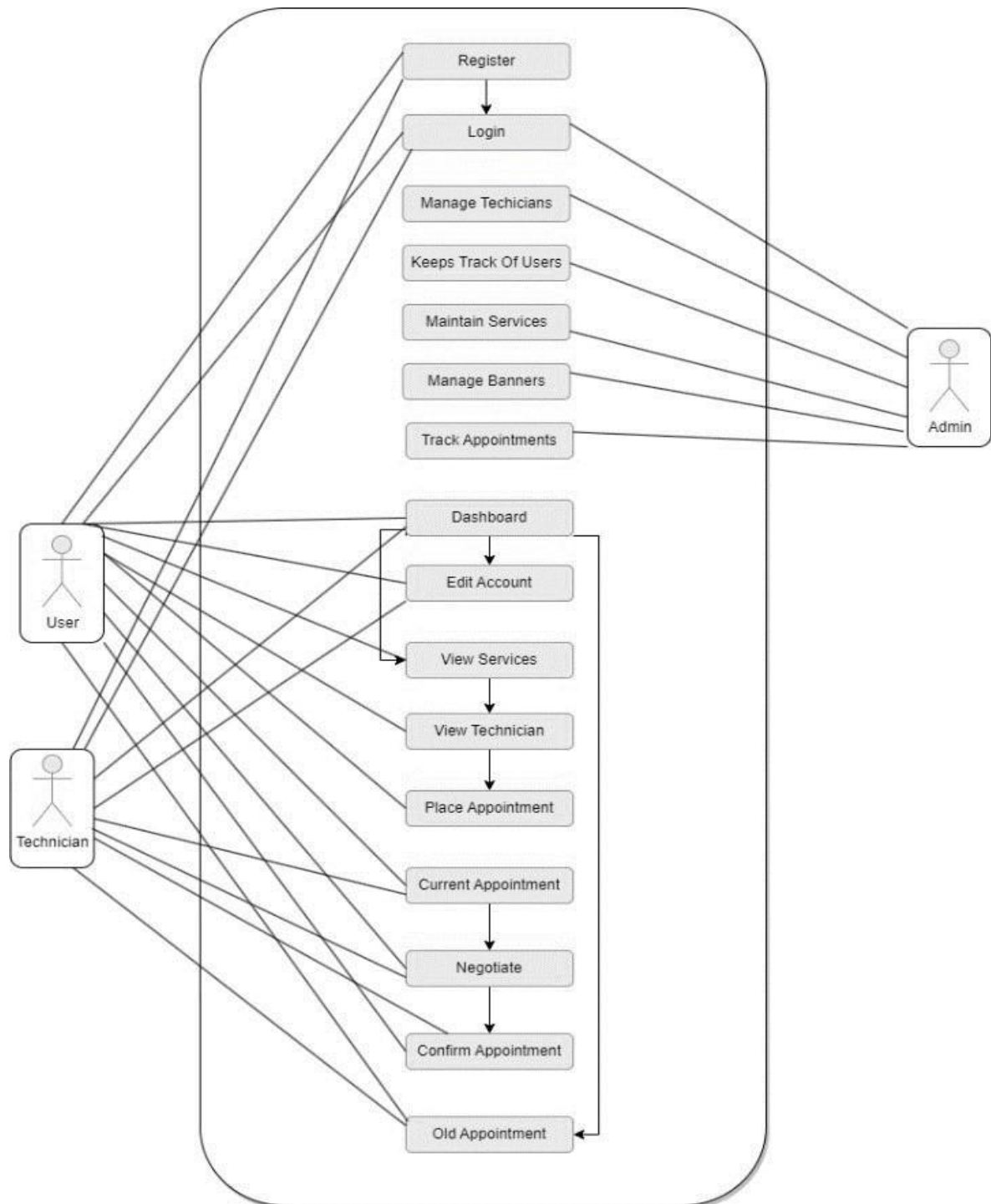


Figure 3.2: use case diagram.

3.2.1 use case description (Technician)

- ❖ Administrator views a list of registered technicians.
- ❖ Administrator can add new technicians by providing necessary information.
- ❖ Administrator can edit technician profiles to update information or verify certifications.
- ❖ Administrator can deactivate or remove technicians who violate policies or are inactive.

3.2.1 Use Case Description (User)

- ❖ Administrator views a list of registered customers.
- ❖ Administrator can add new customers by providing necessary information.
- ❖ Administrator can edit customer profiles to update information or address inquiries.
- ❖ Administrator can deactivate or remove customer accounts for policy violations or inactive status.

3.2.1 Use Case Description (Administration)

- ❖ Manage Users: The admin has the authority to monitor and manage user accounts. This involves things like authorizing new user registrations, validating user identities, and dealing with user account issues.
- ❖ Add Service: Admin can add new service categories. This feature allows them to expand the range of services available to users when scheduling appointments with technicians.
- ❖ Remove Existing Service: Admins can remove service categories from the platform that are no longer relevant or required. This aids in the maintenance of a simplified and up-to-date list of services.
- ❖ Alter and Update Existing Service Categories: Admins can alter and update the data of existing service categories. Changes to service descriptions, pricing, or other service-related information may be made.

- ❖ **Banner Management:** The admin can monitor and manage banners in the app. This includes operations like adding a new banner type and adding banner images to a certain banner type.
- ❖ **Track Appointments:** The admin can track all the appointments placed in the application. This includes operations viewing full appointment details, for example user and technician details, appointment status, price, etc.

3.3 Activity Diagram

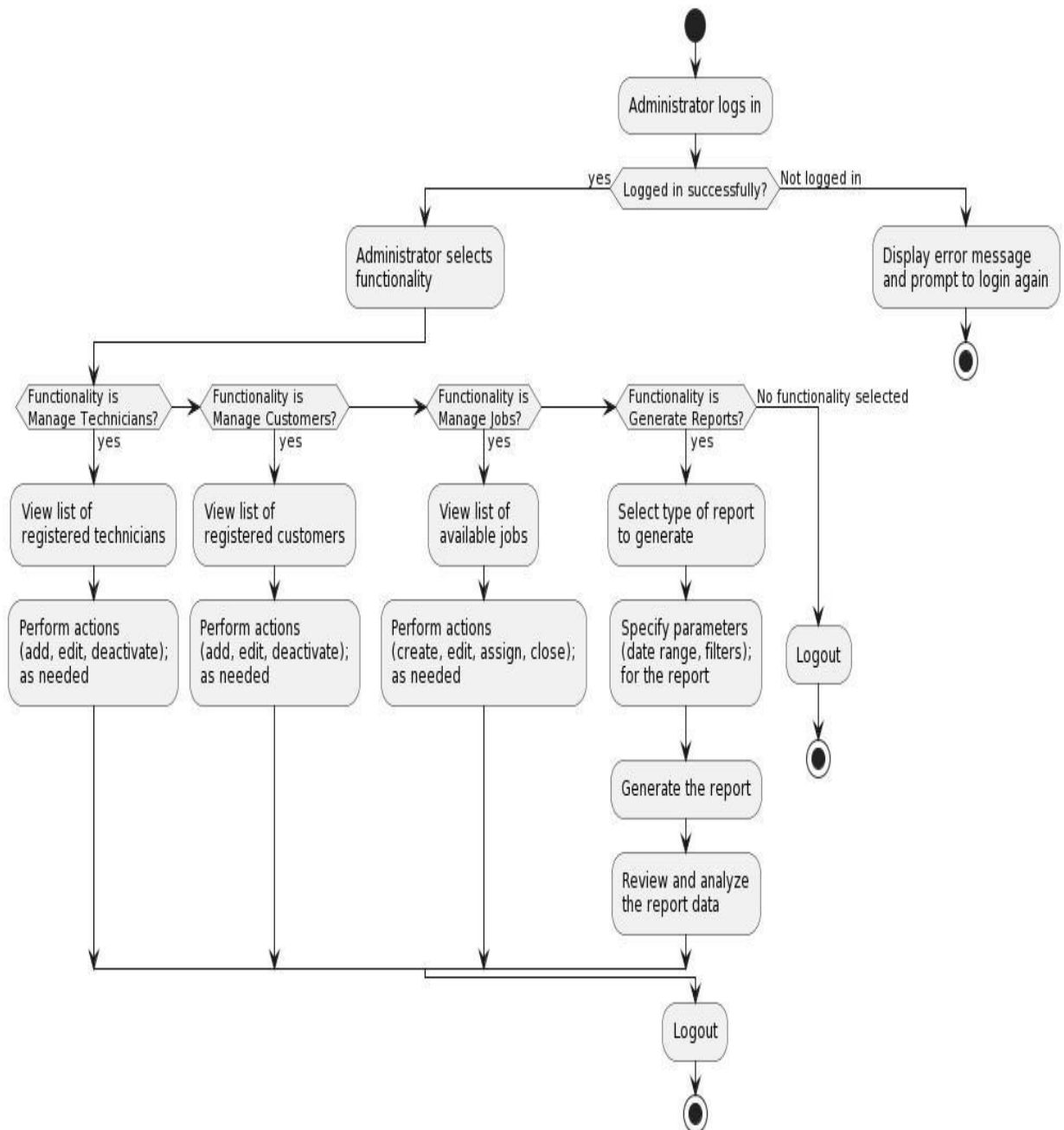


Figure 3.3: Adminstator Diagram

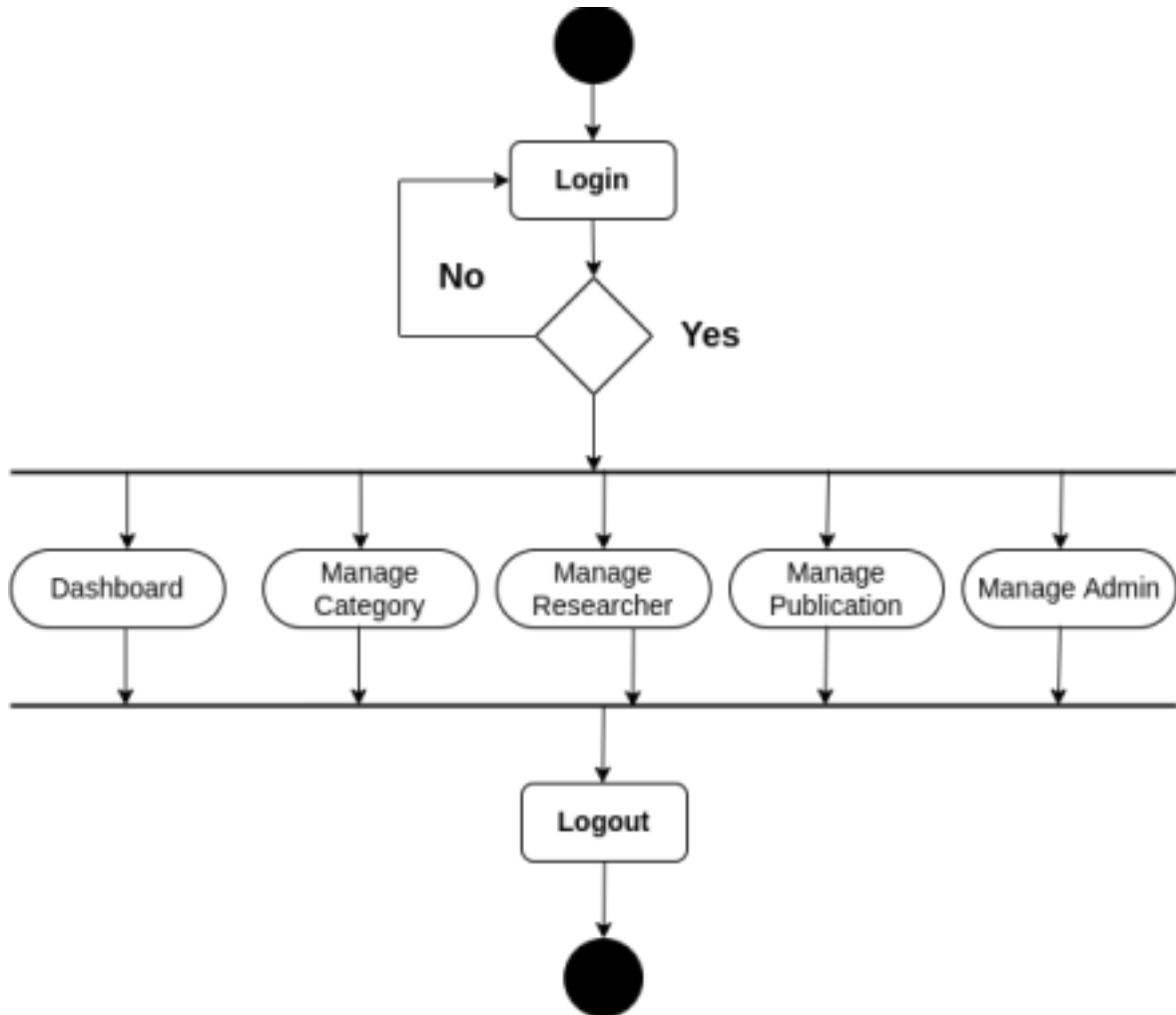


Figure 3.4: Admin Diagram

3.4 Sequence Diagram

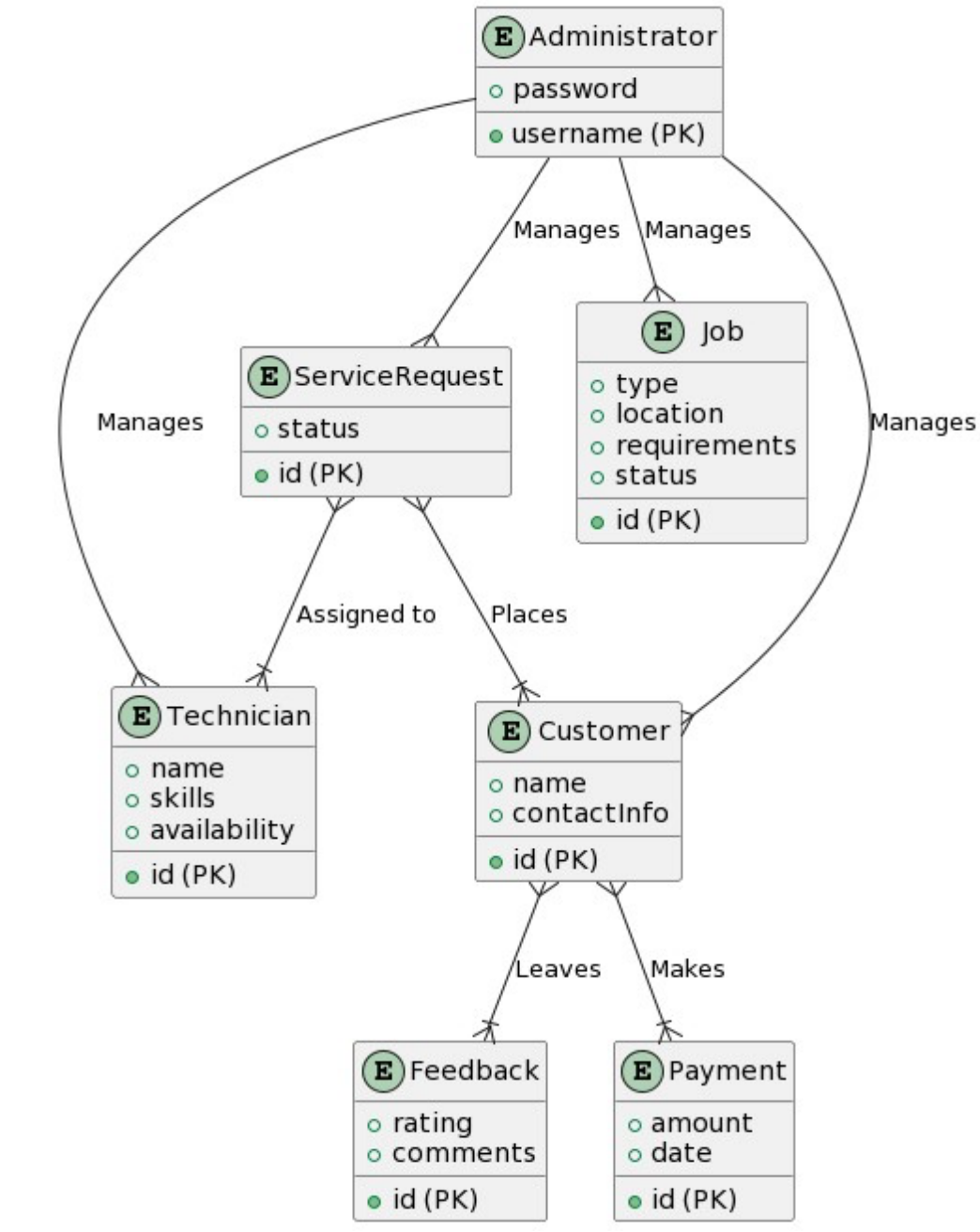


Figure 3.4: Login Sequence Diagram

3.5 Entity Relationship Diagram

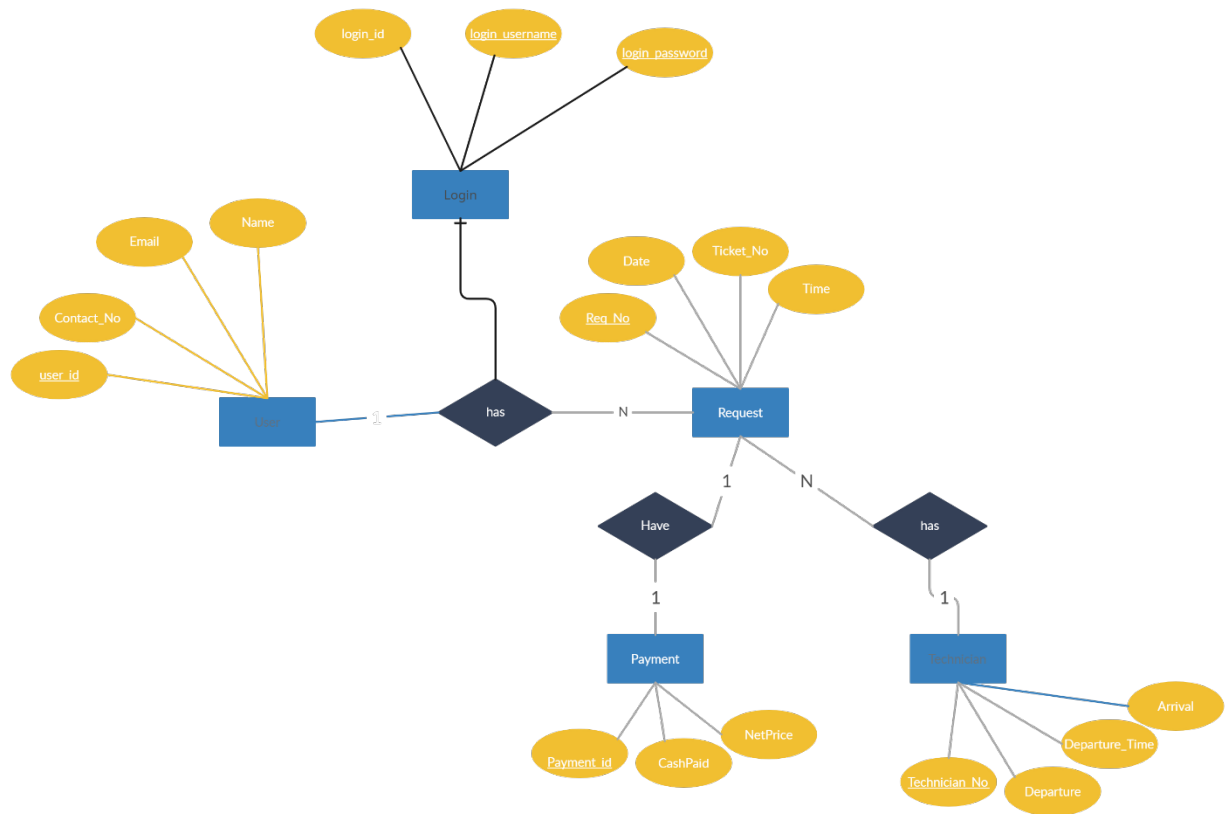


Figure 3.5: entity diagram

CHAPTER 4: system testing

4.1 Feature testing

Exploring new features is considered an opportunity to advance and enhance the existing feature system. By utilizing the best system, we can expand the existing functions. The primary objective is to enhance, and optimize performance, reliability, efficiency, and security of web applications.

4.1.1 features to be tested

The following topics will be covered throughout the testing:

User Management:

1. The registration process
2. Login and authentication
3. Administration of user profiles

Technician Profiles

1. Technician profile creation and editing
2. Display of abilities, skills, and experience

Appointment System:

1. Making appointments with technicians
2. Managing and viewing appointment history

Negotiation Feature:

1. Customers and technicians both can negotiate and discuss service details.

Admin Panel:

1. Monitoring app performance
2. Monitoring placed appointments
3. User and service management
4. App banners management
5. App services management

4.2 test strategies

4.2.1 test approach

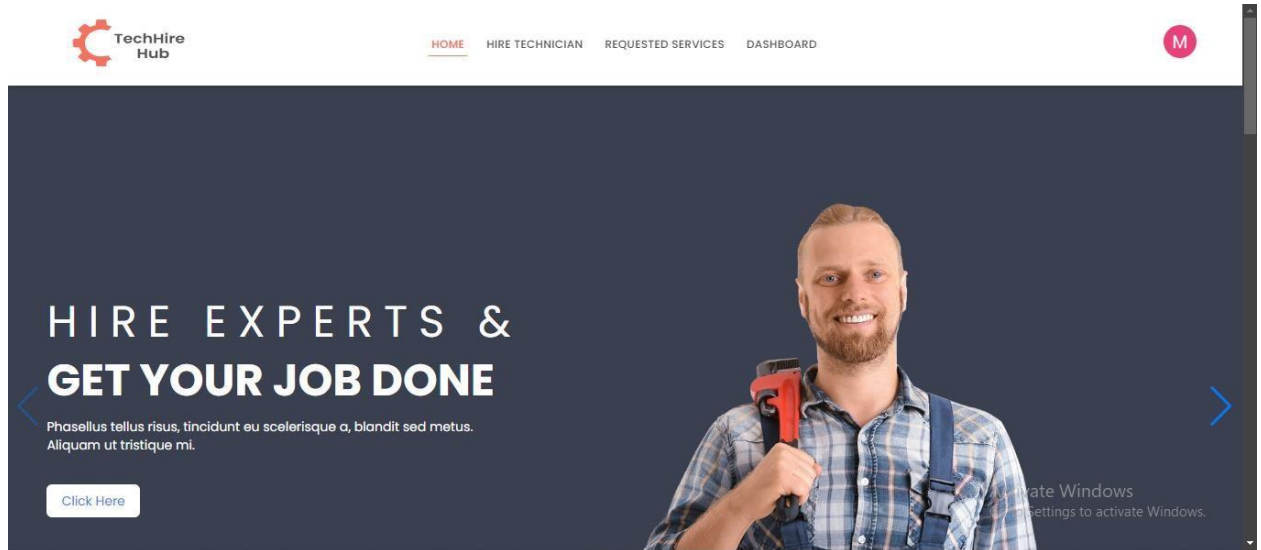
Experimentation of new features is viewed as a method of enhancing and fine-tuning the existing feature system. With the best system, some additional functions can be incorporated. The objective here is to enhance the performance, reliability, capabilities, security of the web application.

4.2.2 Test schedule

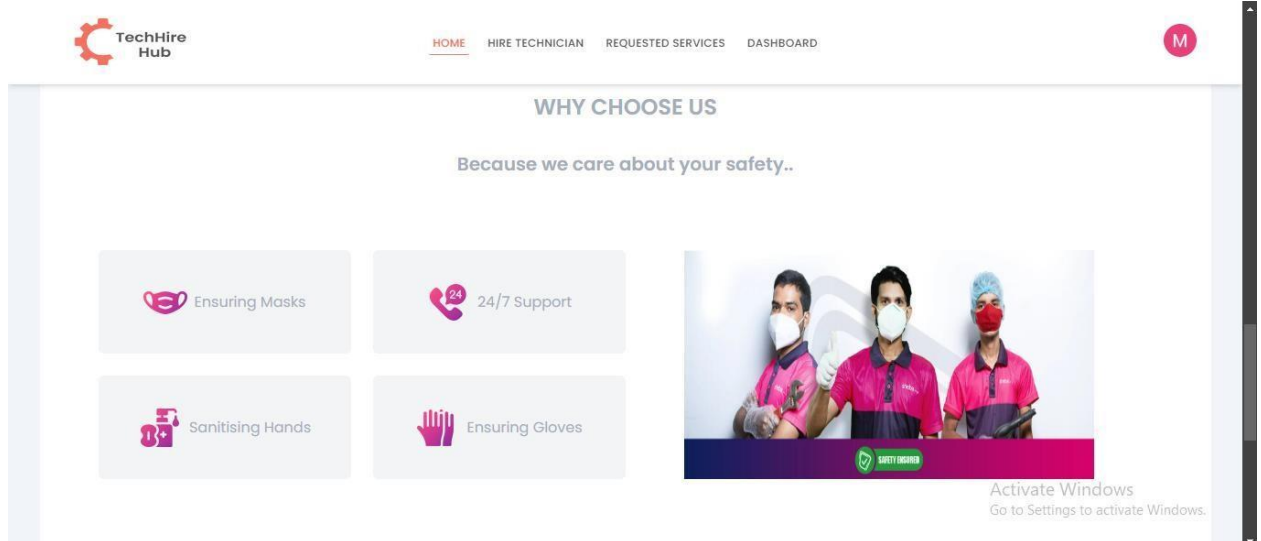
Test schedule Time
1 Week test planning creates
During development time.
components test development time.
users interfaces 1 Week
Working test 1 Week
Will take 1 week accessibility testing

CHAPTER 5: USER

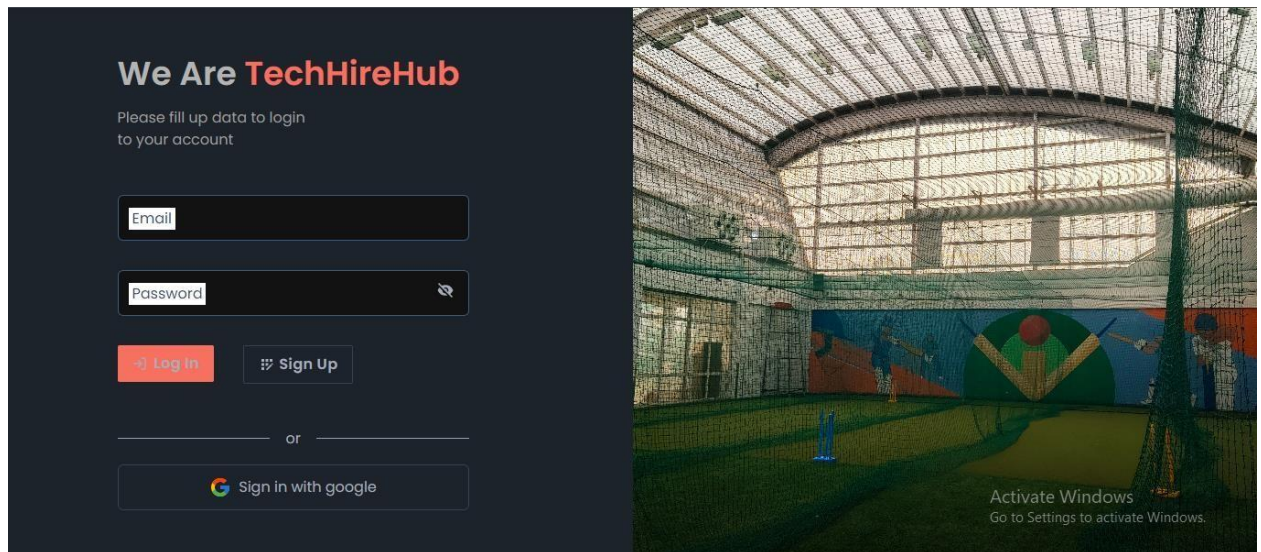
5.1 Homepage (Header section)



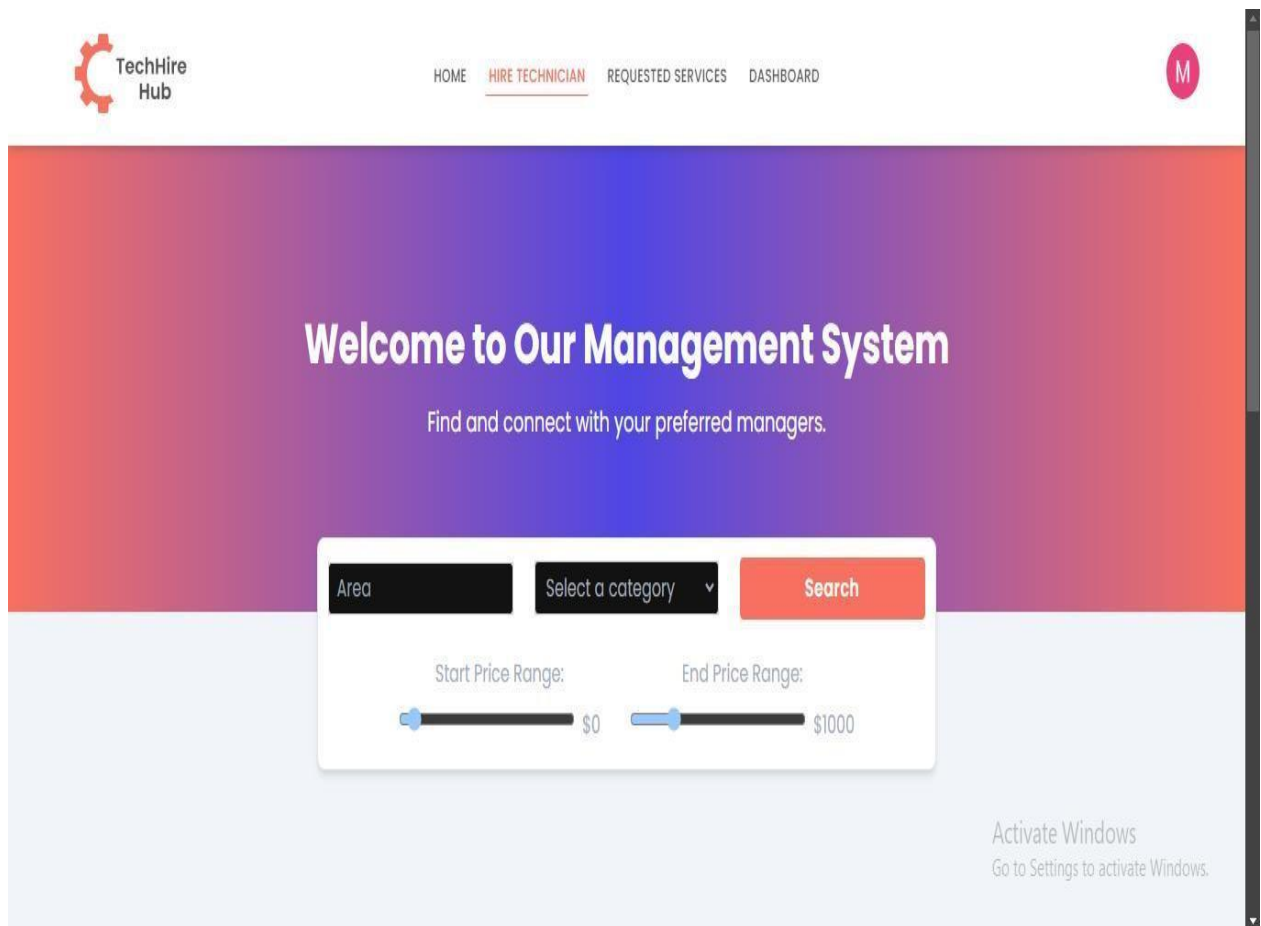
5.2 Homepage (Read section)



5.3 Login page



5.4 Technician Hiring



5.5 user request to manager



[Home](#)

[My Category](#)

[Create Category](#)

[Service Request](#)

My Categories

Electrical Technicians

Pending

Bashundhara Residential (\$250)

 mehrab mridul  1328886012

sdgskjahjkasgczvghsav ghksvwhjsbx ghsgzrhjsb ghsgxchjb x
tysgfbx xghv ghjcgghj shjchjsav ghhsvxghvsaxb ghhsxvg ghsvxgv

accept

reject

Electrical Technicians

Completed

Bashundhara Residential (\$250)

 mehrab mridul  98712365400

I need a electrician.its very emergency.location:bashundhara A
block,4 number road,number:778932145600.call me
emergency.thanks

You Successfully Finish The Service.

Plumbing Technicians

Completed

Airport (\$200)

 mehrab mridul  12345678912

gdjhhjh jhdhchjh jdhjdj h jhdjohkaj k hjh j j djdudshjhjd hjsbjh
b bhjs bjs jkh jhbnd jh hbdh jk u dudi hjkdj jid h

Activate Windows

Go to Settings to activate Windows.

5.6 Manager create to catagory



[Home](#)

[My Category](#)

[Create Category](#)

[Service Request](#)

Create New Category

Area Name

Category

Select a category

Entry Fee

Your Number

Submit

Activate Windows

Go to Settings to activate Windows.

5.7 Create service list

TechHire Hub

Home

My Category

Create Category

Service Request

Mridul Mehrab ▢ 1 Services Done

Area: Airport

Category: Plumbing Technicians

Service Charge: \$200

EditDelete

Mridul Mehrab ▢ 1 Services Done

Area: Bashundhara Residential

Category: Electrical Technicians

Service Charge: \$250

EditDelete

Mridul Mehrab ▢ 0 Services Done

Area: Badda

Category: Electrical Technicians

Service Charge: \$200

EditDelete

Mridul Mehrab ▢ 0 Services Done

Area: Ashulia

Category: Electrical Technicians

Service Charge: \$350

EditDelete

Activate Windows
Go to Settings to activate Windows.

5.8 Registration page

We Are TechHireHub

Please Registration first for log in
to your account



 Sing Up

 Log In

CHAPTER 6: Conclusion

6.1 Summary

In summary, technician hiring website offers a streamlined platform connecting customers with skilled technicians. Administrators oversee the system, managing technicians, customers, jobs, and service requests. Technicians browse and apply for jobs, while customers place requests, leave feedback, and make payments. The system ensures efficient workflows, comprehensive data management, and enhanced user experiences, facilitating hassle-free hiring processes for all parties involved.

I'm completed this project from start to finish in a limited amount of time, and now the system is ready for use. As the project progresses, it will need regular updates..

6.2 Tools and platform

Specifications:

Operation System	Web browser
frontend	HTML, TailwindCSS, JS
Frontend Javascript	React.js
backend	Node.js, REST API
Backend Javascript library/framework	Express.js
Code edit	Visual studio code
database	MongoDB
web browser	any kind of browser
web Ssrver	Node server
drawing tools	draw.io

6.3 Future Scope

The project's long-term goal is to improve the platform for both users and technicians. Using advanced technologies such as artificial intelligence (AI) attempts to deliver more accurate technician advice. The expansion of the platform to additional places allows technicians to reach more clients and earn more money. The addition of new service categories offers technicians with new revenue streams. Smart contracts enabling faster and safer payments are on the horizon. The platform will also be improved in the future depending on user feedback, ensuring continual progress. Technician Hiring System - Fixify's aim is to help technicians succeed while providing a simple experience for all users.

References:

- <https://www.javascript.com>
- <https://nodejs.org>
- <https://mongoosejs.com>
- <https://www.mongodb.com>



MD. MAHRAB
HOSSAIN MEDUL

Logout

Student Dashboard

