American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

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Call for Help

Software Requirement Engineering

Sec: **B**

Project submitted

By

SHEK IFTIER ISLAM (20-43757-2)
SUJOY KUMAR DAS (20-43775-2)
MD. AMINUL ISLAM (20-43854-2)

Checked By Industry Personnel

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Date:

1. PROBLEM DOMAIN

1.1 Background to the Problem

In modern urban environments, the demand for various types of service workers is high due to the fast-paced nature of city life. However, city dwellers often struggle to locate these workers efficiently due to their busy schedules. This situation is exacerbated by the rapid pace of urbanization and the resulting complexity of finding reliable service providers.

The root cause of this problem lies in the bustling nature of city life, where individuals juggle multiple responsibilities and lack the time to search for and vet service workers. This issue is particularly pertinent in cities like Dhaka, where there is a constant need for temporary workers such as plumbers, AC mechanics, car maintenance personnel, and maids. Addressing this problem is crucial as it directly impacts the daily functioning and convenience of homeowners and renters in urban areas.

1.2 Solution to the Problem

The proposed solution involves creating a database of service workers and connecting them with busy urban residents who require their assistance. This solution is particularly appropriate as it leverages technology to streamline the process of finding and hiring temporary workers. By allowing users to search for workers based on the type of service needed and location, the solution increases efficiency and convenience. Furthermore, the inclusion of worker verification by a dedicated team enhances trust and reliability for clients. The business model of charging a tariff as a mediator ensures sustainability and feasibility in meeting the business objective of facilitating connections between service providers and clients.

The specified software is a web-based application designed to bridge the gap between household workers and homeowners or renters in urban areas like Dhaka. Its purpose is to provide a platform where users can easily find and hire skilled workers for various tasks, ranging from plumbing to maid services. The key benefits include increased accessibility to service providers, enhanced reliability through worker verification, and improved efficiency in the hiring process. The objectives and goals of the software revolve around facilitating seamless connections between service seekers and providers, ultimately improving the overall experience for both parties involved.

Existing studies in this problem area indicate a lack of comprehensive software solutions tailored specifically to the needs of urban residents in Bangladesh. While there may be general job search platforms or directories available, there is a gap in the market for a specialized web-based application focusing on connecting temporary household workers with clients. This presents a

significant opportunity to fill a niche in the market and contribute to economic growth by providing independent workers with opportunities to earn income.

2. SOLUTION DESCRIPTION

2.1 System Features

The features of this web-based software application is given below:

User type “Users” -

1. Can register with a valid phone number or email.
2. Log in to the system with a valid username and password.
3. Search the helpers with area and type.
4. Choice from the list and can get contact details.
5. Can massage the helpers.
6. Can call over the application or website.
7. Can payment by digital or cash.
8. Can report on the helper by photo and video evidence.
9. Can rating the person.

User type “Helpers” -

1. Can register with a valid phone number and NID number.
2. Log in to the system with a valid username and password.
3. Can accept the user request.
4. Can communicate with the user over the application.
5. Can take the payment by digital or cash.
6. Can see the rating but not the comment.

User type “Admin” -

1. Response with the users report and warning the helpers.
2. Make the list with area of users.
3. Maintenance of the site.
4. Verifying the information in database.
5. Manage the account.

2.2 UML Diagrams

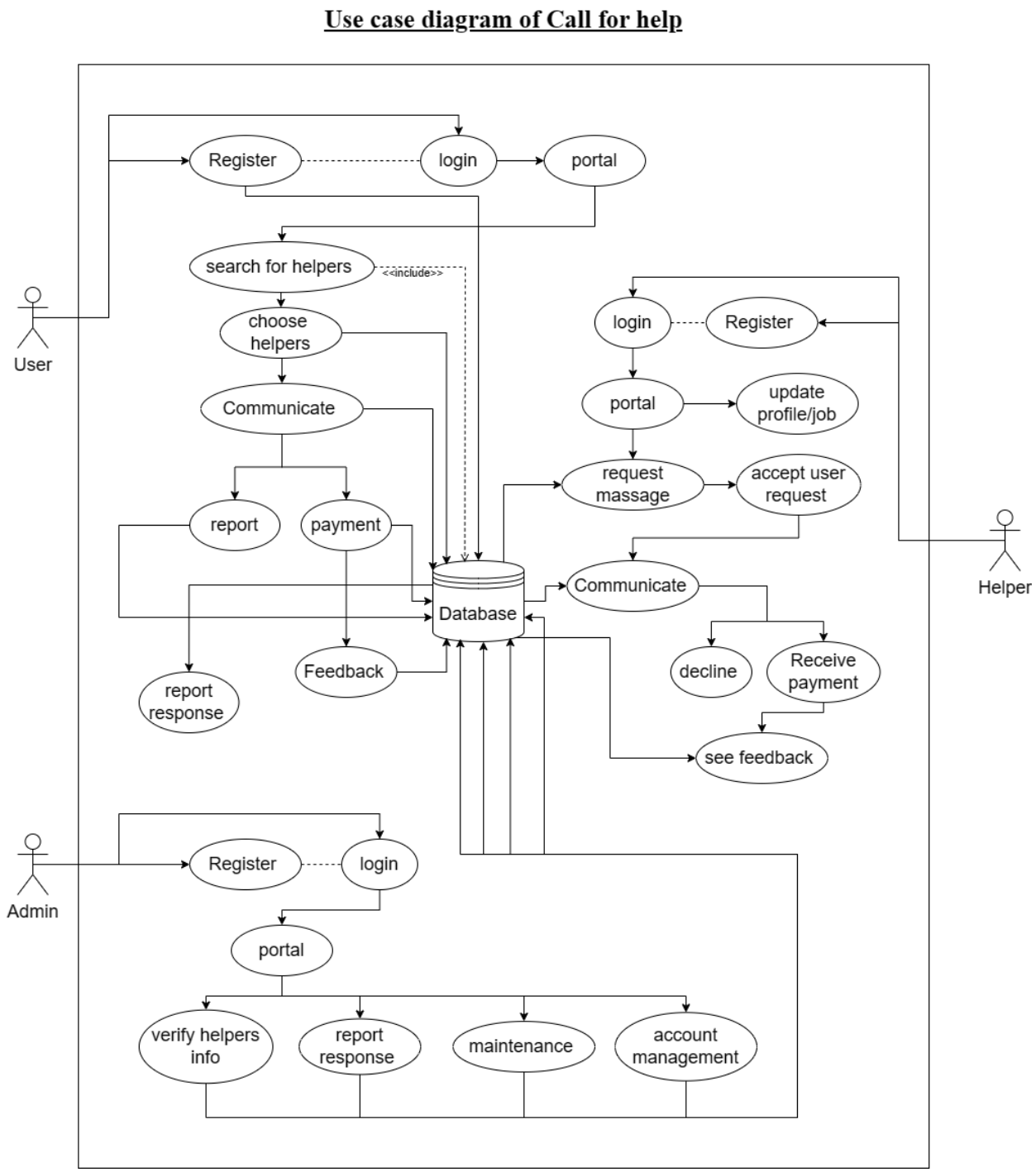


Figure 1: Use case diagram of the system.

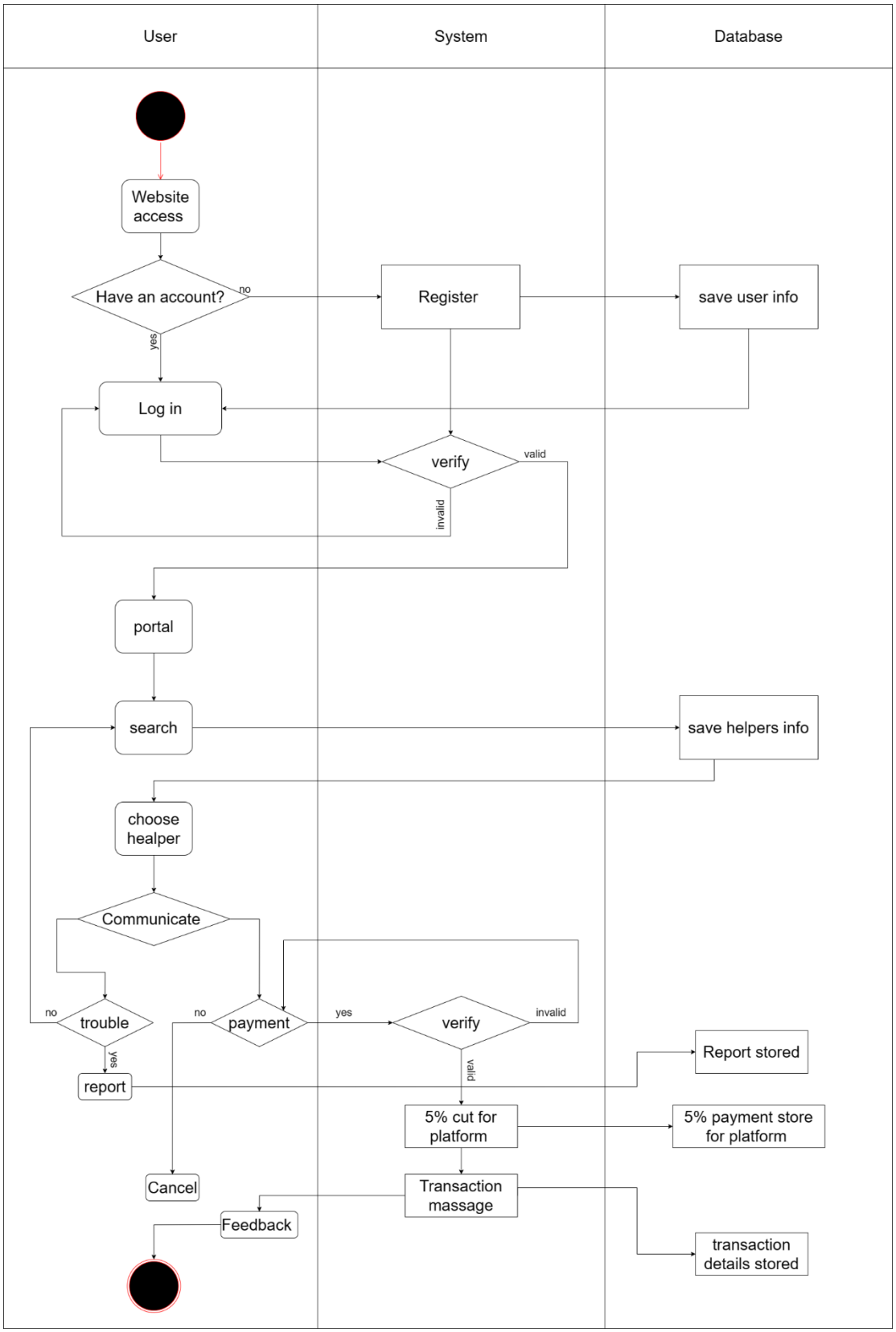


Figure 2: Activity diagram of the user.

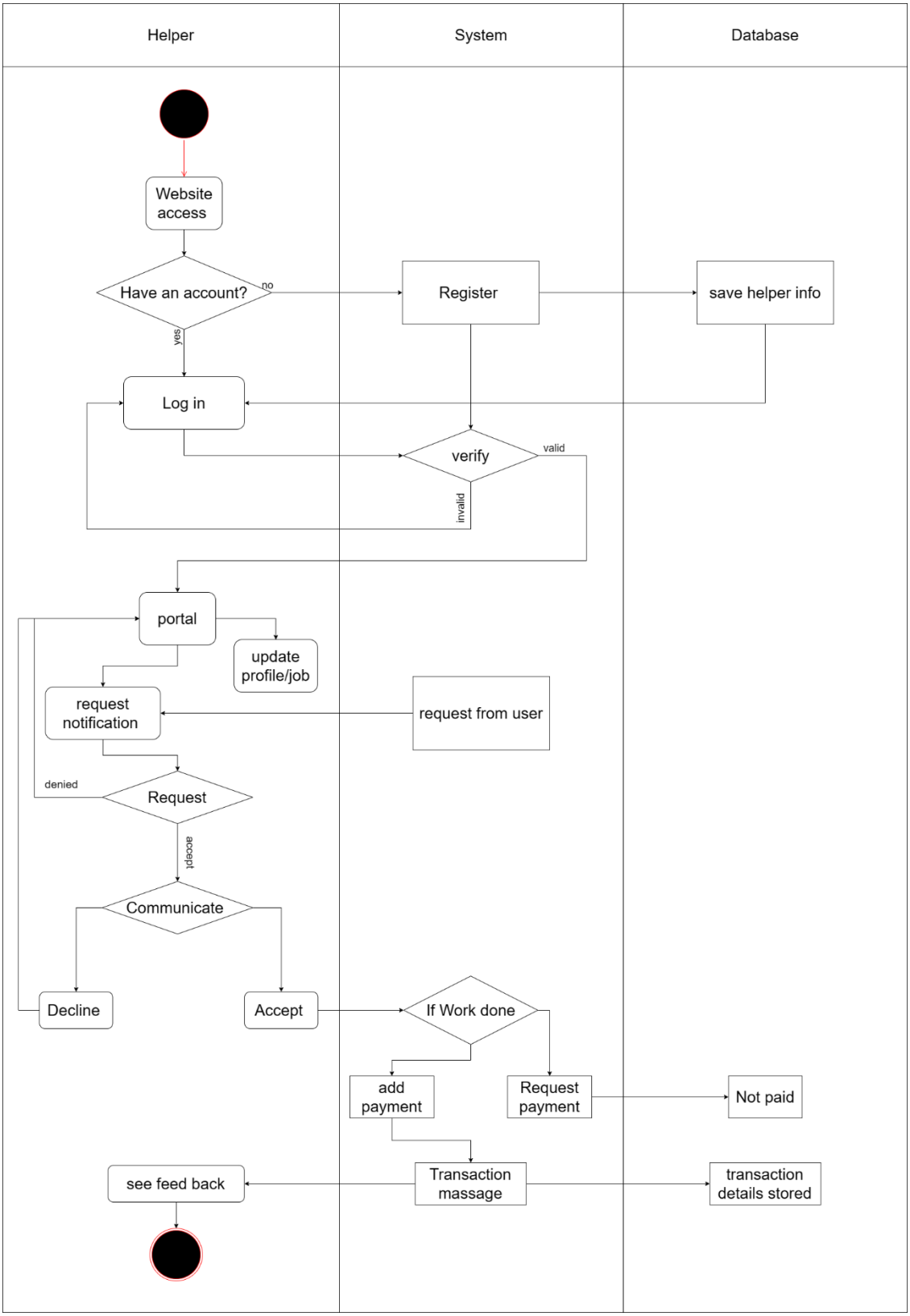


Figure 3: Activity diagram of the helper.

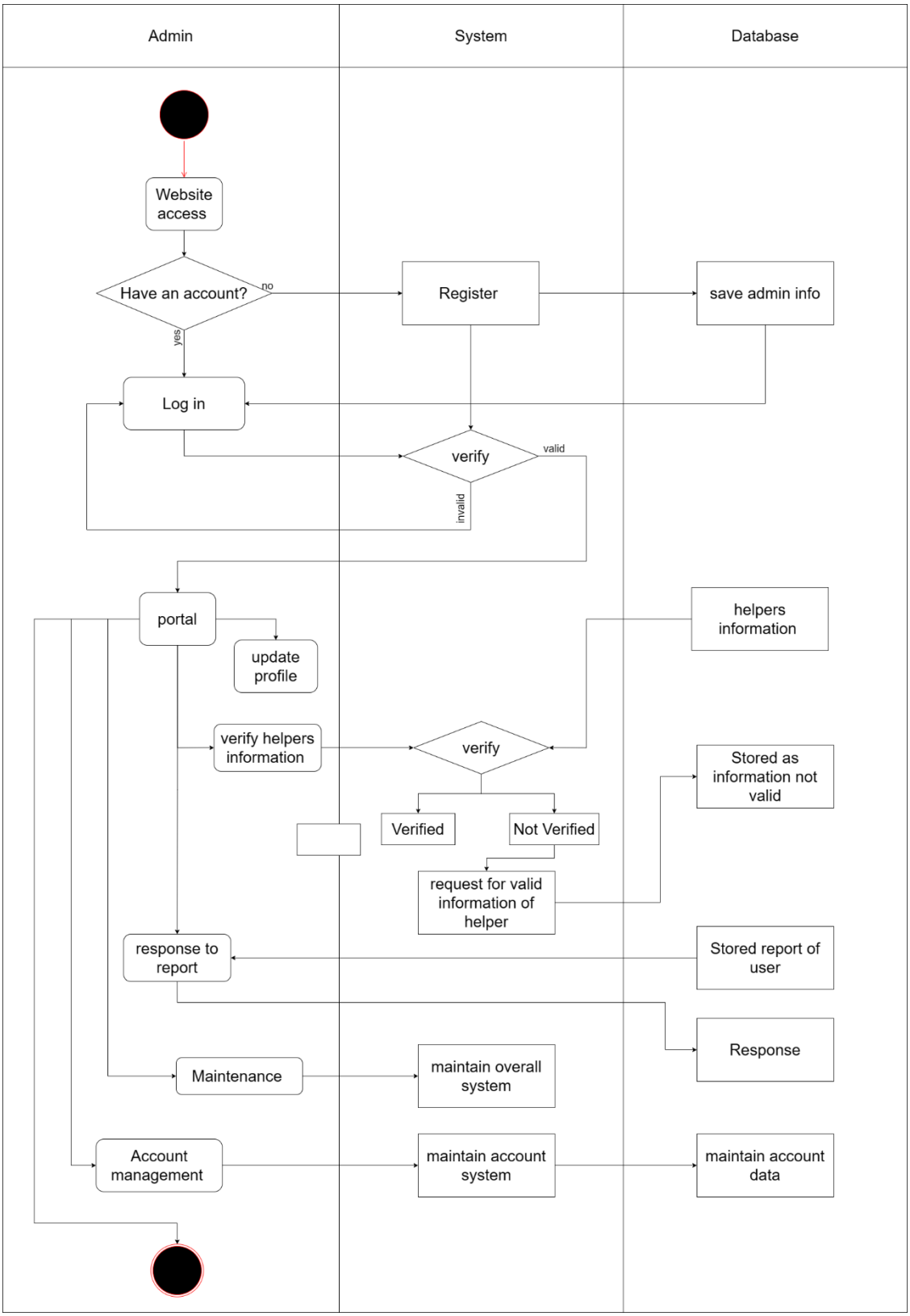


Figure 4: Activity diagram of the admin.

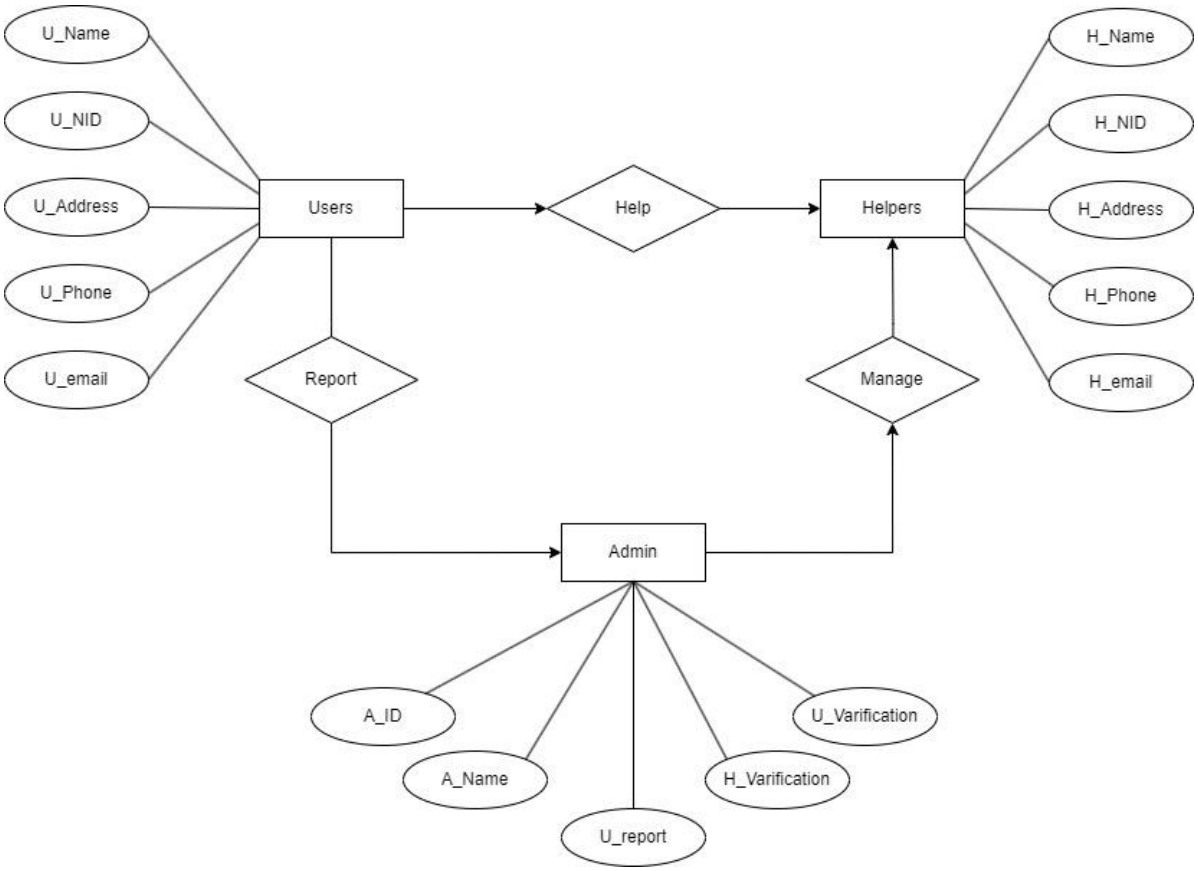


Figure 5: ER diagram of the system.

3. Social Impact

The project idea of creating a web-based platform to connect household workers with urban residents offers several societal benefits and social impacts:

- **Enhanced convenience:** By providing a centralized platform for hiring household workers, the project significantly increases convenience for urban residents. They can easily find skilled workers for various tasks without the hassle of extensive search efforts or unreliable referrals.
- **Economic empowerment:** The project empowers household workers by offering them opportunities to showcase their skills and connect with clients directly. This not only enhances their earning potential but also contributes to their economic empowerment and financial stability.
- **Improved living standards:** Access to reliable household workers can lead to improved living standards for urban residents. Tasks such as plumbing, AC maintenance, and maid services are essential for maintaining a comfortable living environment, and by facilitating access to skilled workers, the project indirectly contributes to enhancing the quality of life.

- **Social inclusion:** The platform fosters social inclusion by providing equal opportunities for both service providers and clients. It bridges the gap between urban residents in need of household assistance and workers seeking employment, regardless of socio-economic background or demographic factors.

Overall, the project's societal impact lies in its ability to streamline the hiring process, empower workers, improve living standards, and promote social inclusion within urban communities.

4. Development Plan with Project Schedule

4.1 Development Plan

"Call for Help" web-based software deployment plan essentially involves creating a database of service workers and connecting them with busy urban residents who require their assistance. The initial project plan provides important task-level information regarding the steps and order of implementation. We have a business goal of having users and helpers authenticate via NID once and only once with simplicity to be able to use web applications and data. Properly defined project scope is important for our project's time management and budgeting. When defining "Call for Help" project's scope, we keep in mind the following demands and requirements that our organization might have:

1. Delivery of a portal solution to meet today's business objectives.
2. Best performance
3. High availability
4. Scalability
5. Straight-forward, easy deployment
6. No single point of failure
7. Delivery of the right capacity to meet future growth.
8. Delivery of enough capacity to meet above normal peak.
9. Easy migrations and upgrades to future releases
10. Fast and easy navigation
11. Properly placed calls to actions to turn users and helpers into leads.
12. "About Us" section will make the users and helpers trust more and learn about our objective.
13. Contact information should be not only on a separate page but also in the toggle menu for easy accessibility. This guarantees that interested users and helpers will be able contact us without hindrance for sure.
14. The menu toggle system should provide access to all the pages access with simplicity.
15. A single font throughout all web pages and signing up should be simple and fast.

After defining project scope, we must focus on the development processing steps. To control the project development process, we build a development schedule where we add tasks and set deadlines. After setting the deadlines, we can count an approximate cost of the development. At this stage, we also outline the requirements for every element of the "Call for Help" project system. Requirement specifications should describe the layout, the content, supported browsers, authentication process, and so on. Summing up the first two stages, a written document is prepared to set responsibilities, costs, and deadlines.

4.2 Project Schedule

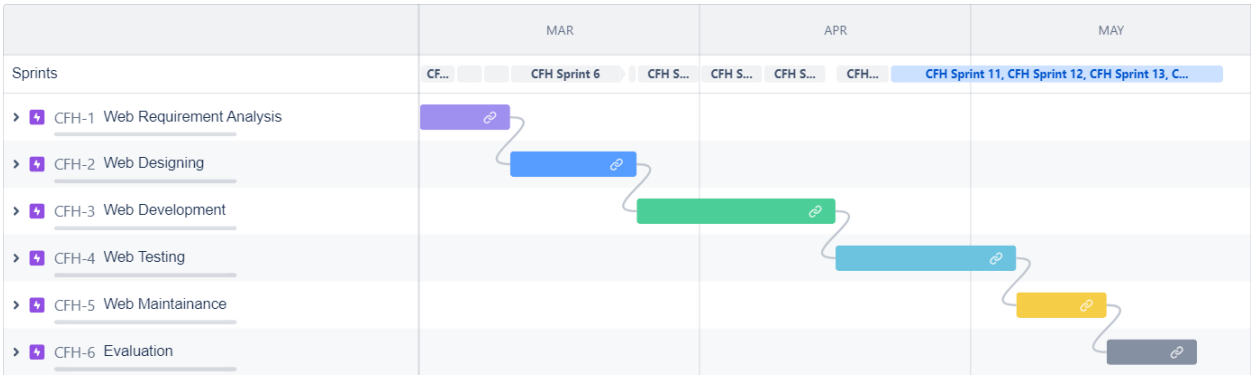


Figure 6: Road map for all epic

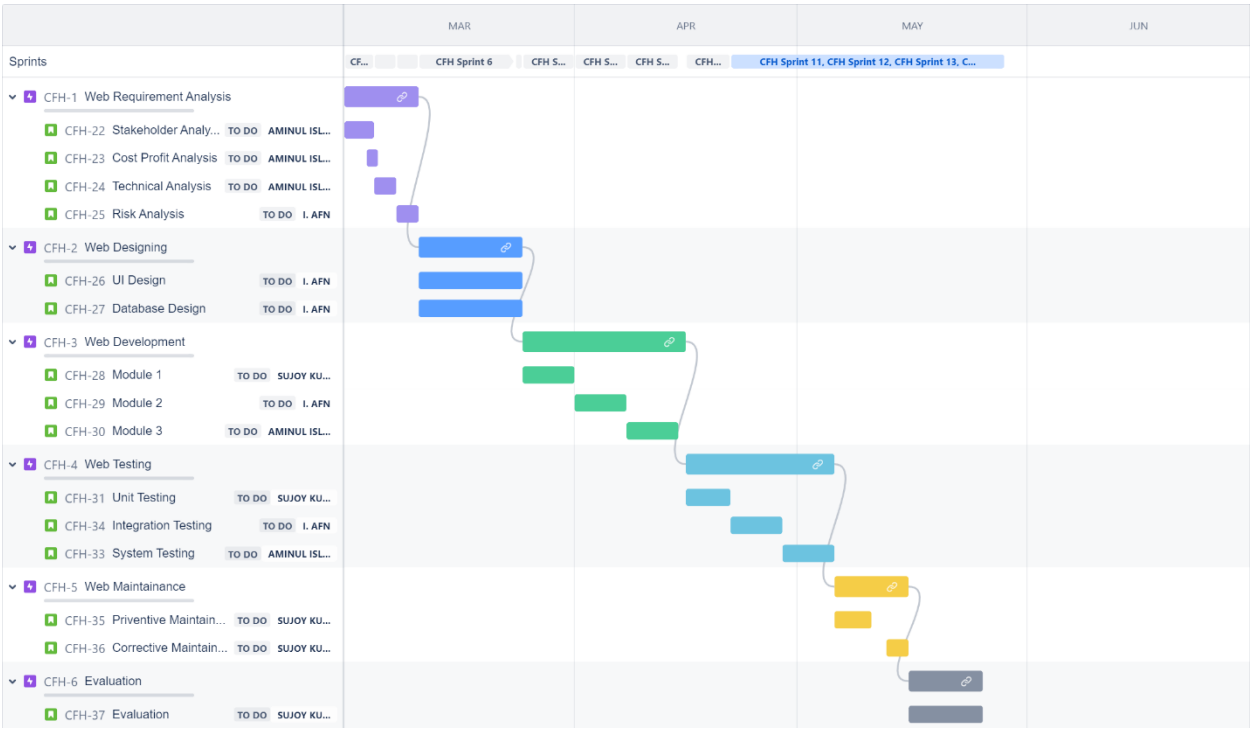


Figure 7: Road map for all epics and task details overview.

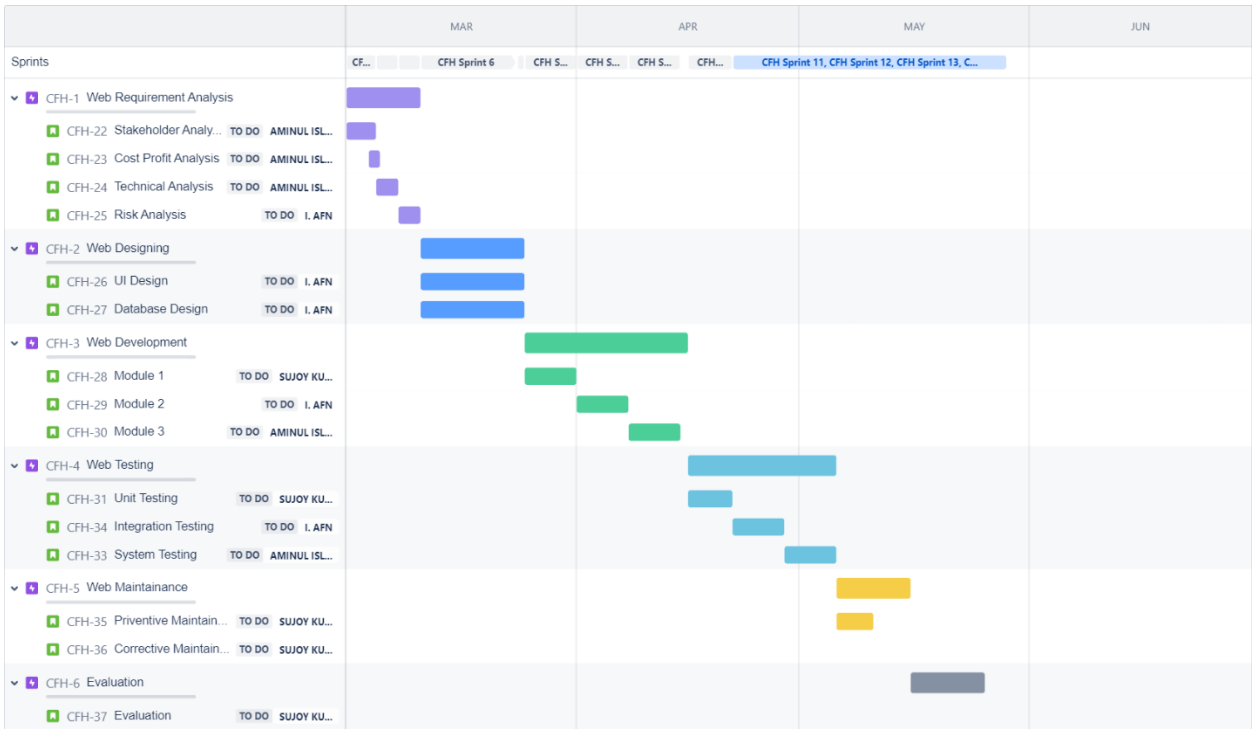


Figure 8: Overview of task details and overall schedule by month.

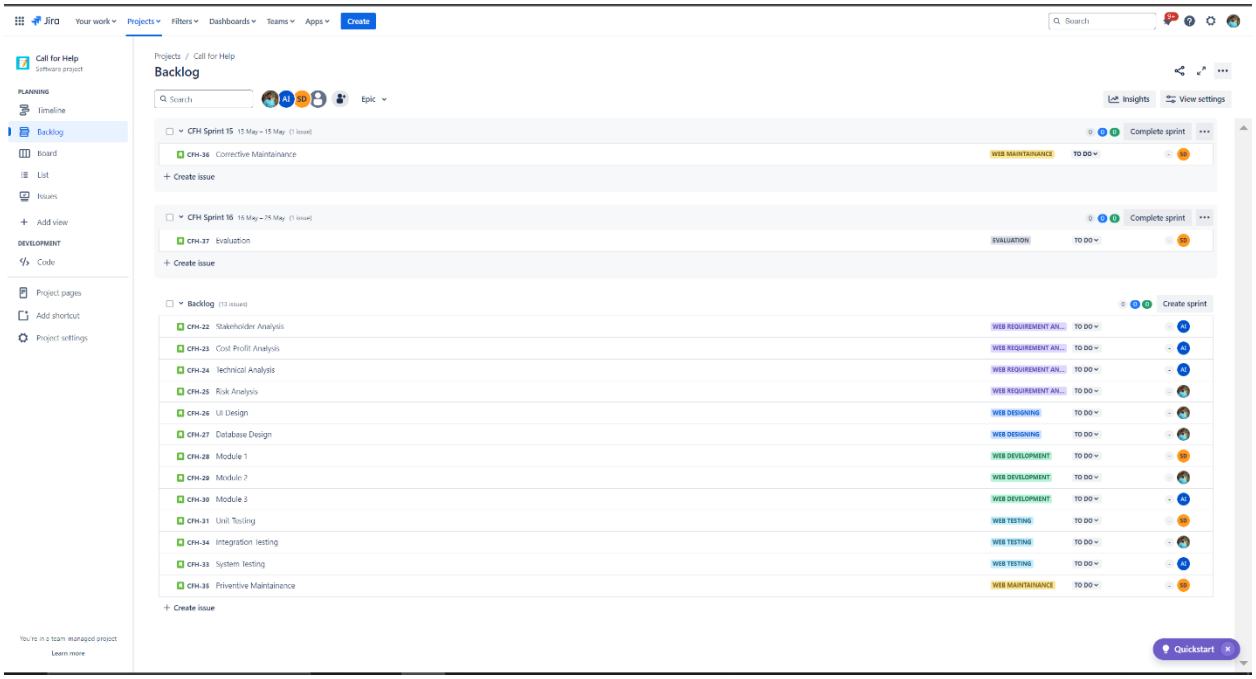


Figure 9: Backlog.

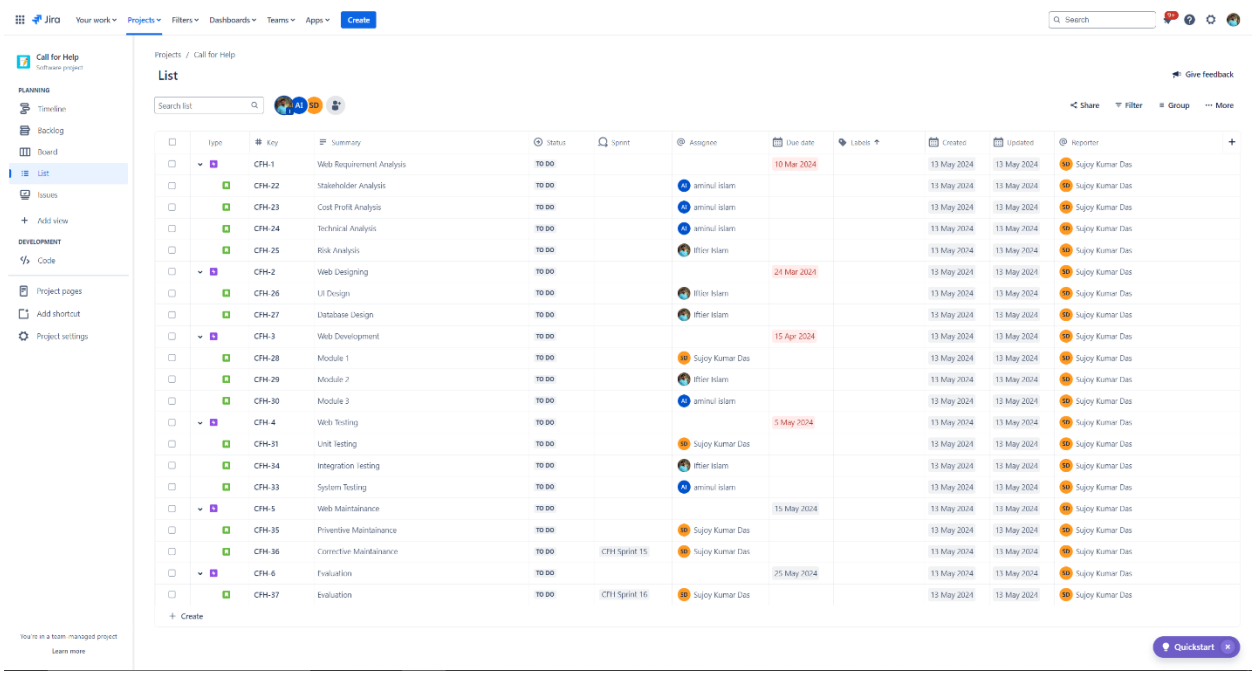


Figure 10: Overview of task details and task assigned to the team members.

5. Marketing Plan

Short-Term Plan (0-6 months):

Media Campaign: Press releases, email, and social media will all be used to generate publicity.

Promotional Offers: Discounts will be offered for early adopters.

Local Partnerships: Partnerships with businesses and communities will be formed for localized promotions.

Referral Program: To encourage organic growth, user and helper referrals will receive benefits.

Long-Term Plan (6-12 months):

Expansion: New cities and neighborhoods will be targeted with tailored marketing.

Content Strategy: Users and helpers will be educated through blogs, videos, and tips on home management.

Influencer Partnerships: Collaboration with local influencers will be pursued for wider reach.

Customer Engagement: Community will be fostered, and feedback will be responded to.

Continuous Plan (Ongoing):

Customer Support: Excellent support will be provided across multiple channels.

Regular Updates: The platform will be kept fresh with new features based on user feedback.

Community Events: Workshops or seminars related to home management will be sponsored.

Data-Driven Marketing: Analytics will be utilized for targeted campaigns and optimization.

With these strategies, the aim is to effectively promote the platform, build brand awareness, and attract a growing user base for long-term success.

6. Cost and Profit Analysis

Customer Requirements:

The customer wants the software in 8 months.

Effort Estimation:

As the project does not have any historical data available and it contains unique characteristics, we have decided to follow bottom-up approach of estimation. Bottom-up approach follows basic WBS (work breakdown structure) where effort for each bottom level task is estimated. The broken estimated parts later will be added together to get a more descriptive overview of the effort needed for the project. WBS is basically followed in bottom-up approach only.

Constructive Cost Model

S/W Project Type	Coefficient	P	T
Organic	2.4	1.05	0.38

1. Calculation of Effort (PM):

Effort = Coefficient * (Effort Factor) * (SLOC/1000) ^ P Using the given values:

Effort = 2.4 * (3000/1000) ^ 1.05

Effort = 7.056 person-months

2. Calculation of Development Time (DM):

Development time = 2.50 * (PM) ^ T Using the given values:

Development time = 2.50 * (7.056) ^ 0.38

Development time = 3.789 months or approximately 17 weeks

3. Calculation of Required Number of People (ST):

Required number of people = PM / DM Using the calculated values:

Required number of people = 7.056 / 3.789

Required number of people = 1.860 or approximately 2 people

4. Estimation of Cost:

The estimated total cost of the solution is provided as 4,00,000 BDT, and the breakdown of costs for different activities is also provided to the effort, development time, and number of people. Additionally, the data backup and hosting charges (50,000 taka per year).

5. Development Cost:

The development cost includes the expenses related to the actual creation of the software solution. In the given information, the breakdown of costs for different activities is provided as follows:

- Front-End Programming: 80,000 BDT
- Strategic Planning & Project Management: 100,000 BDT
- Back-End Programming: 120,000 BDT

- Advanced Analysis and Advanced Programming: 100,000 BDT

The total development cost can be calculated by summing up these individual costs:

Total Development Cost = Front-End Programming + Strategic Planning & Project Management + Backend Programming + Advanced Analysis and Advanced Programming

Total Development Cost = 80,000 BDT + 100,000 BDT + 120,000 BDT + 100,000 BDT

Total Development Cost = 400,000 BDT

6. Total Cost:

To calculate the total cost, you need to sum up the development cost and the estimated marketing cost:

Total Cost = Development Cost + Marketing Cost

Since the marketing cost is not provided, the total cost can only be determined based on the given development cost:

Total Cost = 400,000 BDT

7. Marketing Cost:

The marketing cost for a software project can range anywhere from 10% to 30% of the total project cost. For example, if the estimated cost of a software project is 4,00,000 BDT, the marketing cost could range from 40,000 BDT to 1,20,000 BDT.

Profit Analysis:

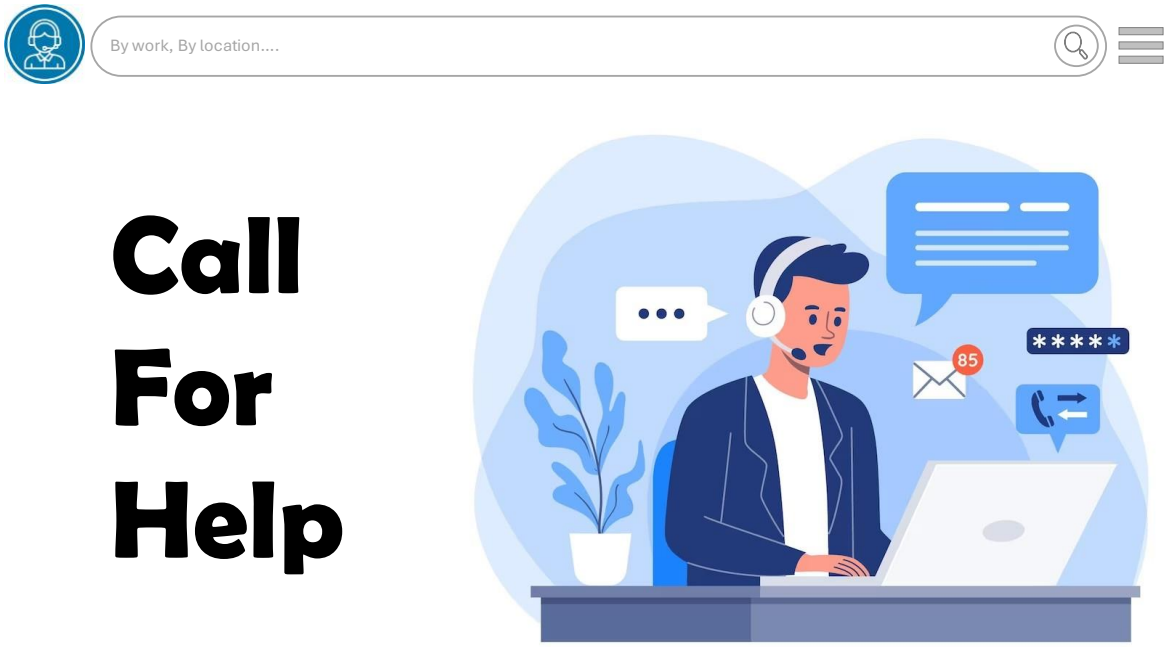
According to 8 months of assumption the client was offer us around 6,00,000 BDT.

We assume that we can complete the software within 6 months. So, we calculate our budget according to 5.5 months but from customer We want 8 months time. where as Less amount of labor =8*2=16 Member.

Decrease computers =8 pc.

Final Profit = (Total Budget – Estimated Cost for Development) = (6,00,000-4,00,000) =2,00,000 BDT

7. UI design prototype



By work, By location....

Home

Helpers

About us

Registration for helpers

Registration for customer

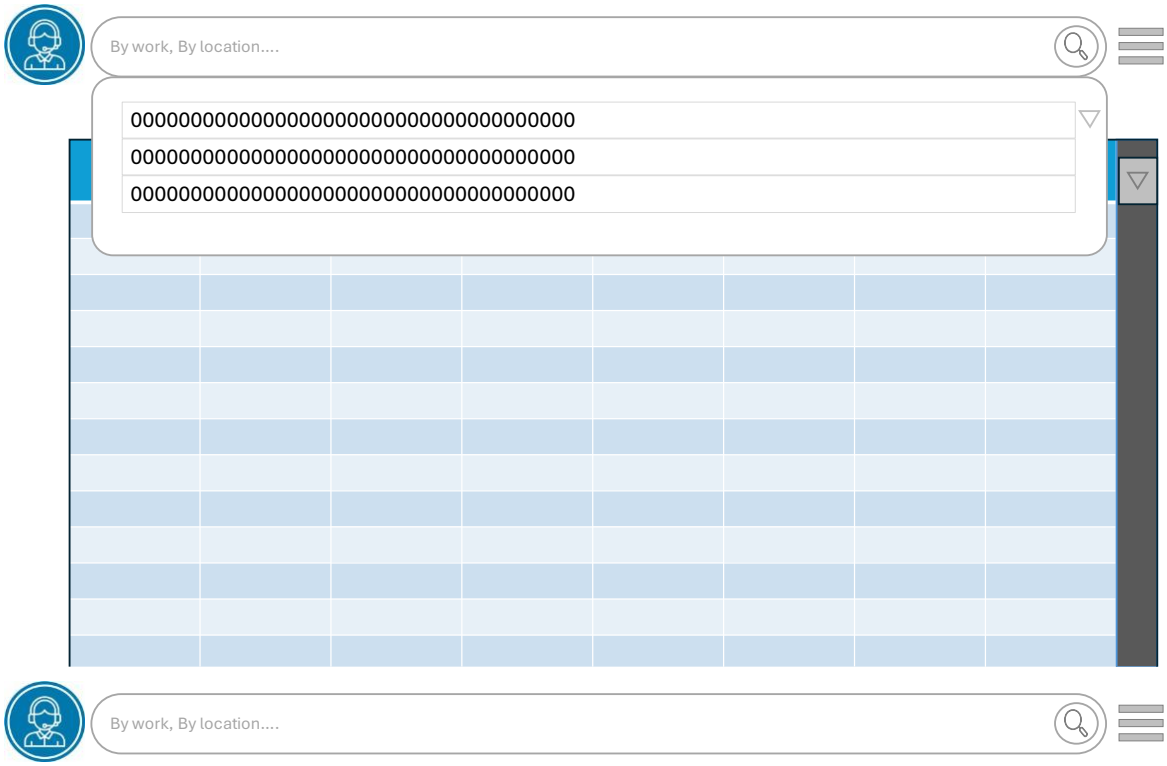
Log in

Contact us

Call For Help

By work, By location....

ID	Name	Field of work	NID Number	Phone Number	Age	Gender	location



Call for Help is a user-friendly web platform connecting individuals with verified temporary service providers in various fields, such as mechanics, plumbers, and decorators etc.

Users can register by selecting their specific field of work, providing necessary details, and benefit from a secure and efficient system managed by a dedicated team ensuring NID and contact number verification.

More...

Registration for helpers:

Name:

NID number: → Upload NID card front and back

DOB:

Gender:

Location:

Field of work:

Registration for customer

Name:

NID number: → Upload NID card front and back

DOB:

Gender:

Location:

By work, By location....

Call For Help

Help at your doorstep over your call

Sign in with your id/user number.

Username:

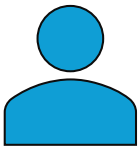
Password:

Forget password?

Sign in | Log in

By work, By location....

Customer's Portal:



Upload picture

NID

Name:

NID number:

DOB:

Gender:

Location:

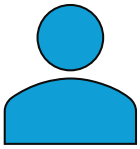
History of taken help

Feedback:

Write here...

By work, By location....

Helper's Portal:



Upload picture

NID

Name:

NID number:

DOB:

Gender:

Location:

Field of work:

History of helping

HELP	LOCATION	Customer_Name	Customer_ phone

8. Reference

- https://sujoy.atlassian.net/jira/software/projects/CFH/boards/4/timeline?shared=&atlOrigin=eyJpIjoiZGM5ODJiYWRjOTUyNDRhMzkxYTQwNGE4ZjIyNjY0ZWYiLCJwIjoiaiJ9
- https://app.diagrams.net/
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- https://procoders.tech/blog/cost-of-software-development/