American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Green Dhaka

A Software Engineering Project Submitted
By

Semester: Spring 22-23		**Section: B**	**Group Number:**	
SN	Student Name	Student ID	Contribution (CO1+CO2)	Individual Marks
01	Md Mehedi Hasan	18-38925-3	20%	
02	Jariatun Islam	21-44458-1	20%	
02	Arnab Bishakh Sarker	21-44464-1	20%	
03	Zobayer Alam	21-44487-1	20%	
04	Mohammad Nur	21-44540-1	20%	

The project will be Evaluated for the following Course Outcomes

CO1: *Analyze* the impact of software engineering models over various context of software development to assess societal, health, safety, legal and cultural issues.	Total Marks	
Project Background Analysis and feasibility (needs, goal, benefits, etc.)	[5 Marks]	
Analysis the impact of societal, health, safety, legal and cultural issues	[5Marks]	
Review of existing Studies and Relevant Example	[5Marks]	
CO2: *Explain* appropriate software engineering model, project management roles and their skills in the context of professional engineering practice and solutions to complex engineering problems in a software development environment.	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5Marks]	
Evidence of Argumentation regarding process model selection	[5Marks]	
Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report	[5Marks]	

Description of Student's Contribution in the Project work

Student Name: Md Mehedi Hasan
Student ID: 18-38925-3
Contribution in Percentage (%): 20%
Contribution in the Project:

- Project Proposal.
- Functional Requirements.
- Activity Diagram.
- User interface.
- Test Case FR-13, FR -14, FR-15, FR-16.
- Risk Management.

Signature of the Student

Student Name: Jariatun Islam
Student ID: 21-44458-1
Contribution in Percentage (%): 20%
Contribution in the Project:

- Project Proposal.
- Functional Requirements.
- Sequence Diagram.
- Process Model.
- User Interface.
- Test Case FR-09, FR-10, FR-11, FR-12.
- Software Project Estimation (COCOMO).
- WBS.
- Project Timeline Chart.
- Detailed Project Timeline Chart.

Signature of the Student

Student Name: Arnab Bishakh Sarker
Student ID: 21-44464-1
Contribution in Percentage (%): 20%
Contribution in the Project:

- Project Proposal.
- Functional Requirements.
- Use Case Diagram.
- Class Diagram.
- User interface.
- Test Case FR-05, FR-06, FR-07.
- Project Timeline Chart.
- Detailed Project Timeline Chart

Signature of the Student

Student Name: Zobayer Alam
Student ID: 21-44487-1
Contribution in Percentage (%): 20%
Contribution in the Project:

- Project Proposal
- Functional Requirements
- Class Diagram
- Activity Diagram
- Process Model
- User Interface.
- Test Case FR-02, FR-03, FR04, FR-08
- Software Project Estimation (COCOMO)
- Project Timeline Chart.
- Detailed Project Timeline Chart.
- Probability Impact Matrix

Signature of the Student

Student Name: Mohammad Nur
Student ID: 21-44540-1
Contribution in Percentage (%): 20%
Contribution in the Project:

- Project Proposal
- Functional Requirements
- Class Diagram
- User interface.
- Risk Management

Signature of the Student

Rubric for Project Assessment (CO1)

Marking Criteria	Marks Distribution (Maximum 3X5=15)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Background Analysis	No background information regarding the project is given; project goals and benefits are missing.	Insufficient background information is given; project goals and benefits are poorly stated	Sufficient background information is given; the purpose and goals of the project are explained.	Thorough and relevant background information is given; project goals are clear and easy to identify.	
Analysis the impact of societal, health, safety, legal and cultural issues	Student vaguely discuss the impact of societal, health, safety, legal and cultural issues in their project	Student provided with partial relevance to the impact of societal, health, safety, legal and cultural issues in their project	Student fairly provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project	Student comprehensively provided the analysis to the impact of societal, health, safety, legal and cultural issues in their project	
Existing Studies and Relevant Example	Ambiguous representative example.	Partially identify / indicate towards real-life example.	Real-life example is fairly connected towards the definition.	Comprehensively defend with real life example.	
				Acquired Marks:	
				CO Pass / Fail:	

Rubric for Project Assessment (CO2)

Criteria	Marks distribution (Max 3X5= 15)				Acquired Marks
	Inadequate (1-2)	**Satisfactory (3)**	**Good (4)**	**Excellent (5)**	
Argumentation of Model selection with Evidence of Argumentation	Does not articulate a position or argument of choosing appropriate model. Does not present any evidence to support the arguments for the choice of the model	Articulates a position or argument for choosing models that is unfocused or ambiguous. Presents incomplete/vague evidence to support argument for model choice	Articulates a position or argument of choosing models that is limited in scope. Does not present enough evidence to support the argument for the choice of the model	Clearly articulates a position or argument for the choosing software engineering models. Presents sufficient amount of evidence to support argument for the model selection	
Role identification and Responsibility Allocation	The project has poor project management plans for identifying roles and assigning the responsibilities	Identify few roles in the project management where some of the roles are left alone with any project responsibilities	Identify most of the roles in the project management and assign their responsibilities	Well planned project with proper role identification and responsibility allocation in the project management activities	
Submission, Completeness, Spelling, grammar and Organization of the Project report	Project report is not complete and Several errors in spelling and grammar. Present a Confusing organization of concepts, supporting arguments, and real-life example. Sentences rambling, and details are repeated.	Some errors in spelling and grammar. Some problems of organizing the answer in a logical order of defining, elaborating, and providing real-life examples.	Few errors in spelling and grammar. Presents most of the details in a logical flow of organization in definition, details, and example.	Project report is complete and No errors in spelling and grammar. Consistently presents a logical and effective organization of definition, details, and real-life example of the topic.	
				Acquired marks:	
				CO Pass / Fail:	

Project Proposal

1. Background

Dhaka metropolitan area is facing many problems most impacting is greenery & unemployment. Our system will try to implement a sustainable Dhaka city by creating greenery on rooftops & offering assistance by training the unemployed but eligible people.

2. Solutions

A. The main objective of this project is to help the DCC residents implement a self-sustaining rooftop garden. That'll increase the greenery in Dhaka city which is declining day by day. With added features like calling assistance for household tasks like water, electricity, sewage, gas etc.
B. Getting all the necessary assistance to implement a rooftop garden & maintaining it will be the focus of our system. This will ensure a little bit of greenery in the harsh concrete world. Our system will also lend out expensive & specialized machineries for a fraction of cost as a value-added service.
C. Dhaka Bangladesh govt has established youth training centers which gives vocational training. Every year the pass out rate of these vocational centers are very high, but employment rate is very low. So, to utilize their training properly govt can appoint them to a particular area as a certified assistant for a particular household work. This will ensure the proper use of their training & will make them self-sufficient.
D. The main targeted user groups of our solutions systems are the people with empty & unutilized rooftops. Which will then be transformed to serve as a self-sustainable garden. As per DSCC, they'll enjoy a tax rebate of 10% for gardening. Secondly, we will also utilize the unemployed trained youths to serve society in its various tasks.
E. The contribution of this project to the advancement of scientific results is very impactful, as this system aims to improve the natural imbalance created by mass urbanization. F. (Literature review on tree plantation).
G. The software "sheba.xyz" is well-known among the existing studies in the problem area. This program is mostly used to get a helping hand for many of our daily problems. However, it lacks the greenery plan which we'll do in our system.
H. "sheba.xyz" only focuses on assisting people with various tasks. But this proposed project will provide not only assistance but also a one-stop solution for gardening many essential renting out many useful accessories that comes at a high cost for a fraction of the amount and many more.

Software Requirement Analysis

1. **Software Login**
    - The software will allow users to login with their given username & password.
    - The credentials will be verified against the database records.
    - If the login attempt is successful user will be transferred to user dashboard.
    - If entered username or password doesn't match user can perform a username or password recovery through his/her given email/phone number.

    Priority Level: High.

    Pre-condition: User must have a valid username & password.

2. **Software Signup**
    - The software will allow new users to register.
    - Users will enter their image [optional], name, address, email/phone number, desired username & password which will be then saved to a database.
    - While registering a verification code will be sent out to the given email/phone number.

    Priority Level: High.

    Pre-condition: User must have a valid email/phone number for account verification.

3. **Product services search**
    - The software will allow users to search through products or services that are available to purchase through the software.
    - The searching system will be dynamic. Software will start to show matches as soon as user types something.
    - Registered users will be able to use the search feature.

    Priority Level: Medium.

    Pre-condition: User must have a verified account.

4. **Garden registration**
    - The software will allow new or existing users to register their own garden.
    - Only the building owner can register under this option as the TIN & NID will be verified against NRB & EC sites.
    - Registering for garden requires some basic info like Building owners name, Tax Identification Number, address, garden size, images of the garden [optional], email/phone number.
    - Registering their gardens requires physical verification. After registration a physical verification will be conducted by agents.
    - The registration page will show some basic requirements to pass the garden registration. Ex. Garden size. Tree types etc.

    Priority Level: High.

    Pre-condition: User must be the owner of the building to register.

5. **Gardening Equipment**
    - A variety of gardening items will be available through the software. Tools, fertilizer, seeds, etc.
    - The user will choose the equipment they want, and those items will be placed to their shopping cart.
    - They can place an order at the selected address by using the checkout process.
    - The products will be made available to them within a short period of time.

    Priority Level: Medium.
    Pre-condition: User must register for a garden.

6. **Hiring a Gardener**
    - The software will have a function that allows users to hire a gardener to assist them by performing physical labor tasks in their gardens.
    - Through the software, the user will request a gardener with a date and time slot.
    - A person at their location will be available at the requested time.

    Priority Level: Medium.
    Pre-condition: User must register for a garden.

7. **Solar Power Panel**
    - The software allows users to book solar panel through a registration system.
    - The system will automatically take the username and address of the users from the profile data, or the user can manually input those.
    - The system will ask for the rooftop area. Users can put their rooftop area in desired measurements.
    - The system will suggest an ideal size and power of solar panel for the specific rooftop.
    - Users also can upgrade the solar panel though the system will maintain a margin. This also goes for downgrade.
    - At bottom of the same page the system will show the expanses of the solar panel.
    - If user like to purchase the panel system will forward it to cart segment for the payment process.

    Priority Level: Medium
    Pre-condition: User must have to have a profile in the system.

8. **Garden feeds**
    - The software allows users to stay updated with other users through a feed system.
    - The system will allow users to post reels and short stories of garden.
    - The system will have a post reel function. Which will take the user to files and have an access permission to use the camera directly.
    - The system will allow a certain size file. If the user exceeds the limit, the system will notify with a message.

- Users also can react to the feeds with two allowed reaction emoji.
- The system will save a record to the database and every month it will pick 5 most reacted feeds.
- The feeds segment will have another sub segment Tips & tricks.
- It will take the user to another page which will have a list of categories based on basic information about gardening.
- The user also can post short tutorial tips and tricks videos of their own.
- The system will have a post function which will take files from the users.
- User must have to put a category from the listed options so that the system can categorize the content.
- Users can see the content of other users and specialist.

Priority Level: Medium
Pre-condition: User must have to have a profile in the system.

9. **Subsidiary panel (tax reduction/utility bill reduction):**
    - This function calculates and finds out the tax benefit they can gain if they register their garden.
    - This function calculates and finds out the utility bill reduction they can obtain after they become a part.
    - A guest or user needs to provide their location, the area of their garden, the area of the whole rooftop, the area, and the number of solar panels.
    - Total solar panel area is found out by multiplying the solar panel area and the number of solar panels.
    - Fixed rates for a different range of areas of the garden and total solar panel area are pre-determined.
    - Using the rates, the overall benefit is shown.

    Priority Level: High

    Pre-condition: User must have to have a profile in the system.

10. **Expert opinion:**
    - This function allows rooftop planners, who are authorized by the company, to provide expert suggestions.
    - They provide a customized plan for each rooftop depending on the location, size, and condition of the rooftop.
    - They can design a new garden or modify an existing one for better use of the limited area.
    - They can help to solve existing problems with plants and solar panels and provide maintenance tips.
    - They can also provide a cost-efficient and easy way of maintaining such gardens.
    - A user has two options, he can make a video call, or can request a house tour.

- Each session is pre-paid and has a fixed rate depending on the type and duration of the session.

Priority Level: Medium.

Pre-condition: User must have to have a profile in the system.

11. <u>Notification:</u>

- This function sends notifications on their status of registration.
- Users get notifications when they need to pay attention to certain functions such as providing required information.
- Users receive the booking remainders.
- Users receive suggestions for using other functions.
- Send notifications about special events or discounts going on the platform.

Priority Level: Medium.

Pre-condition: User must sign in.

12. <u>Donation</u>

- The software will offer a donation opportunity.
- Users can donate food, clothing, and money to help the needy and poor.
- If a user requests a donation, our volunteers will collect those donations every week.
- The user may also make a donation using one of several online payment methods.

Priority Level: Low.
Pre-condition: User must have a verified account.

13. <u>Software Add to Cart /Checkout</u>

- The software should allow users to add any kind of product which are available on the shop page.
- From the cart, the users should delete products from the cart and add products that the user want.
- The software should display unit price, sub-total, and total.
- The user should confirm the order by checkout the page.
- On the checkout Page, the software should display which payment the user wants.
- After choosing the payment method, the software should confirm the order and mail it to the admin and the user.

Priority Level: Low.
Pre-condition: User must have a verified account.

14. <u>Software Service History</u>

- The software should allow the user to see every service that the user has taken.

Priority Level: Low.
Pre-condition: User must have a verified account.

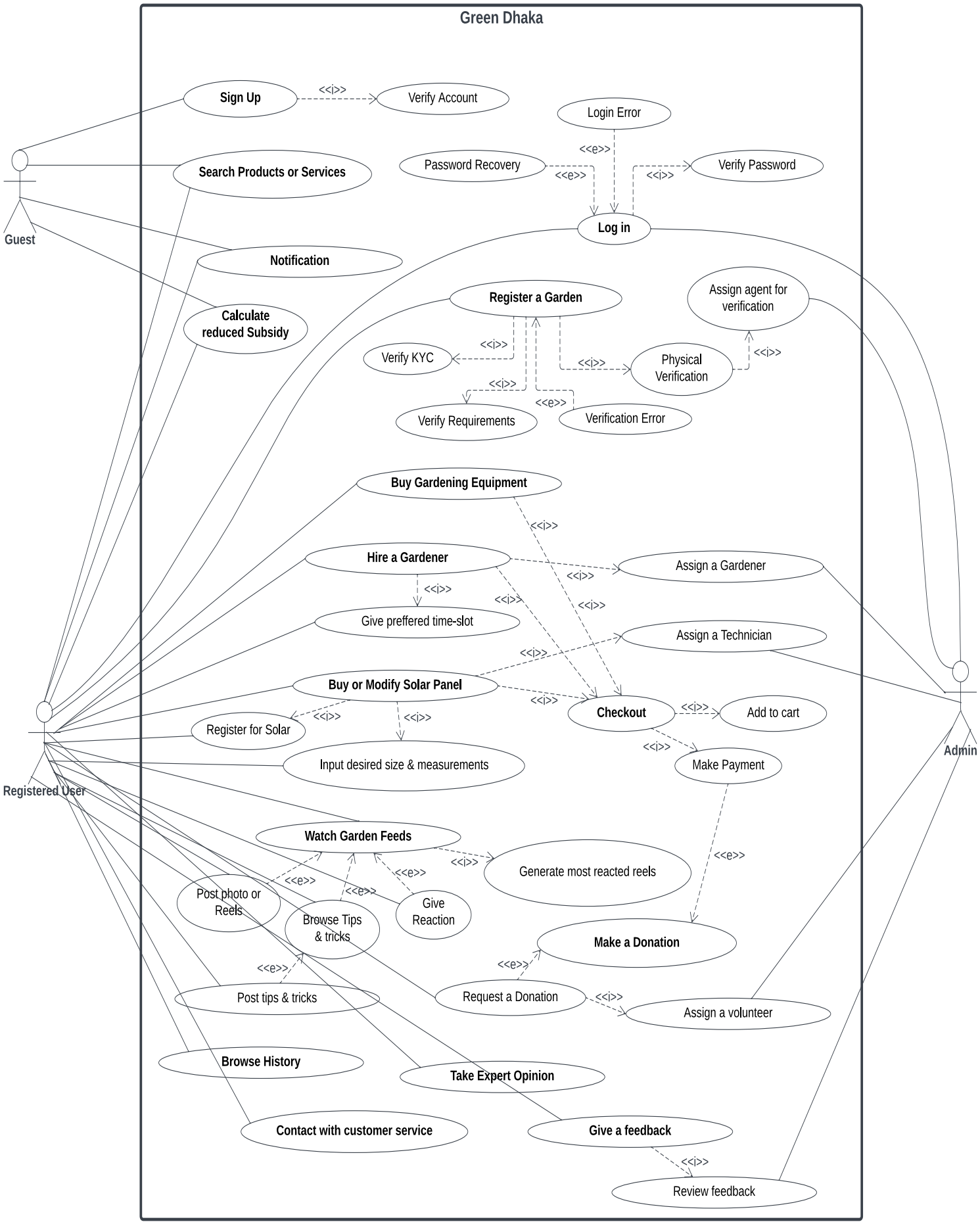
15. **Software Feedback**
    - The software should allow the users to give feedback on every operation.
    - The software should allow this feature optional.

    Priority Level: Low.
    Pre-condition: User must have a verified account.

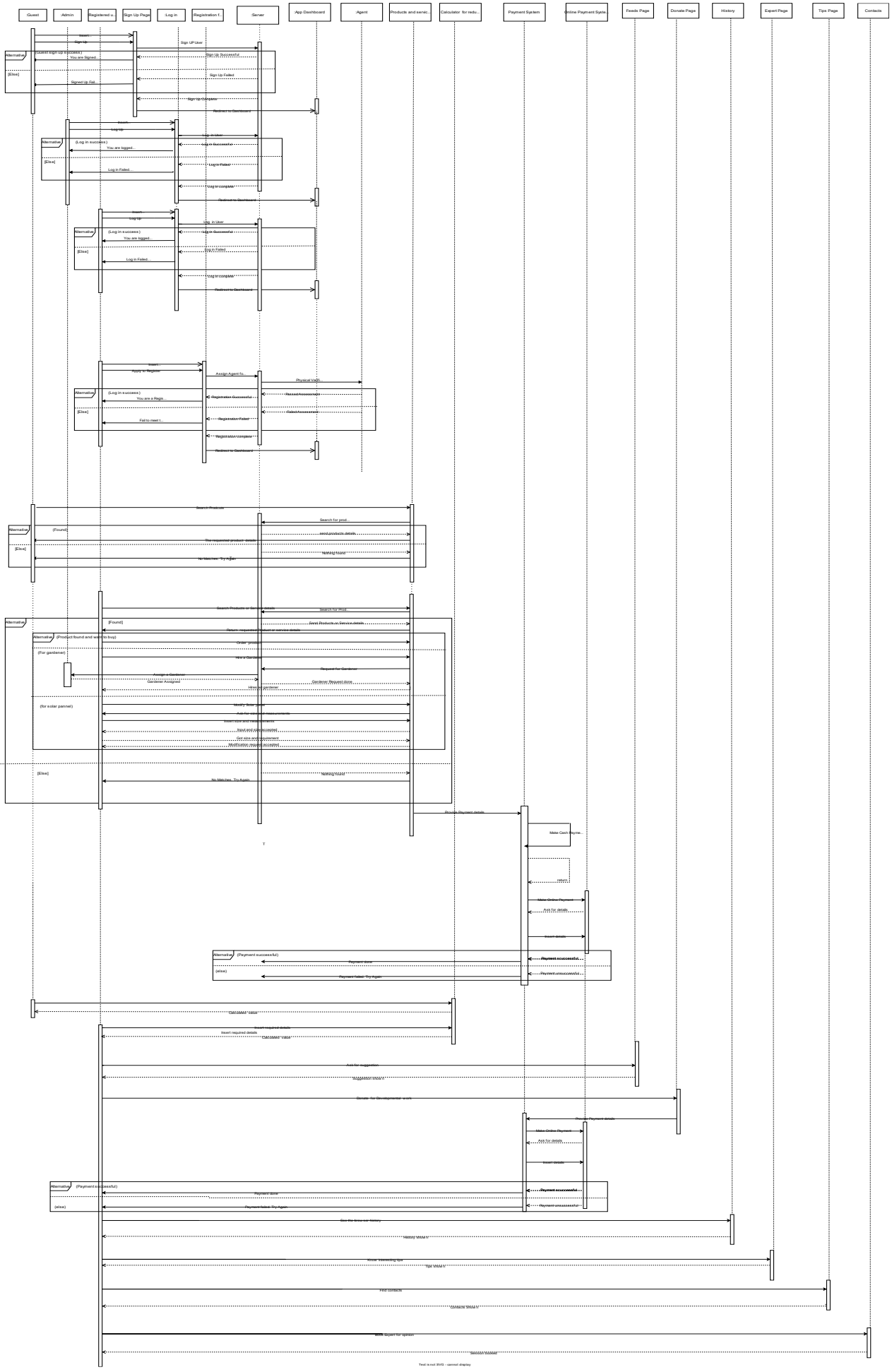
16. **Software help and customer service**
    - The software should allow the users to message the help center.
    - The software should allow the users to call the help center.

    Priority Level: Low.
    Pre-condition: User must have a verified account.

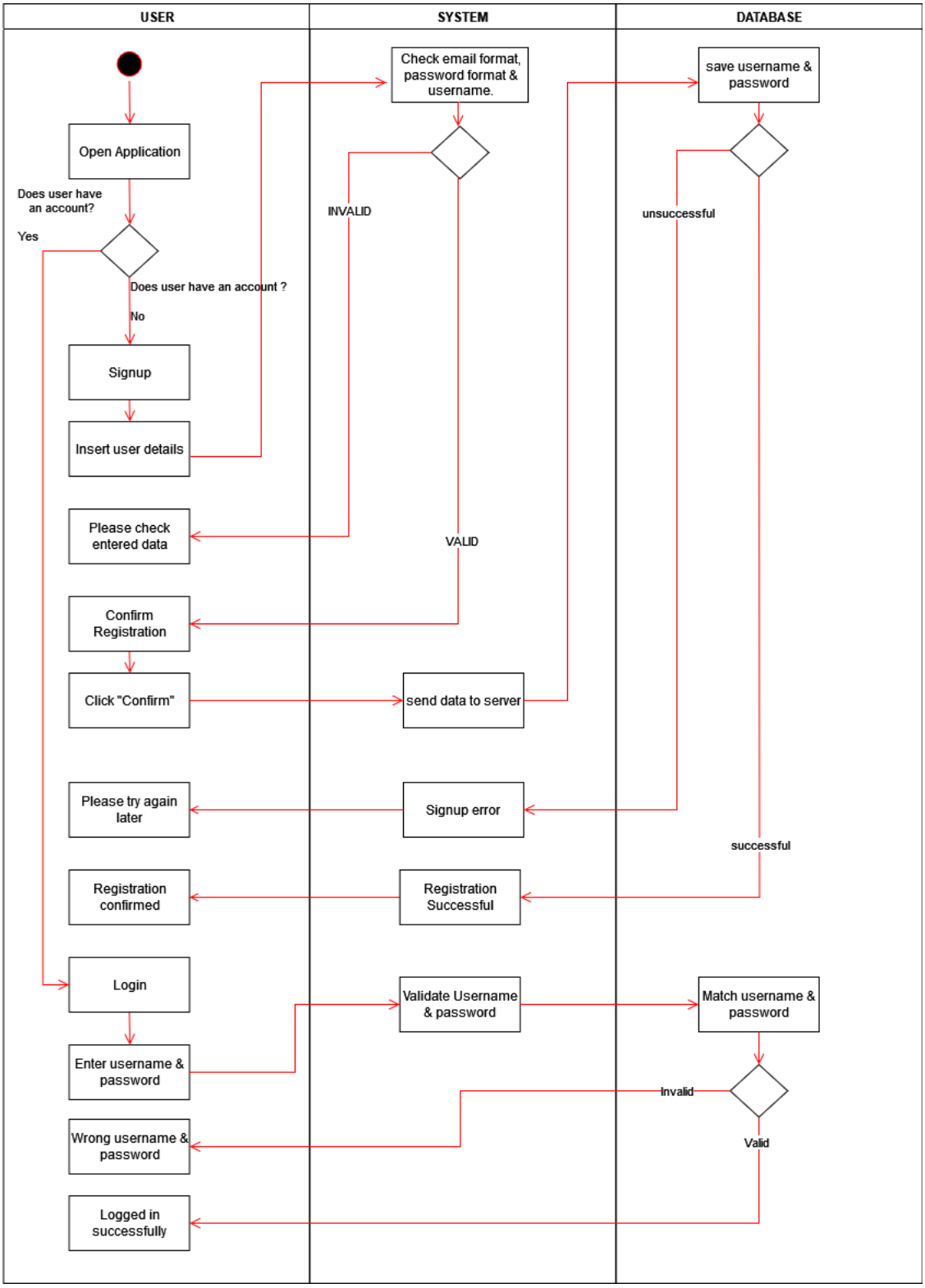
Use Case Diagram



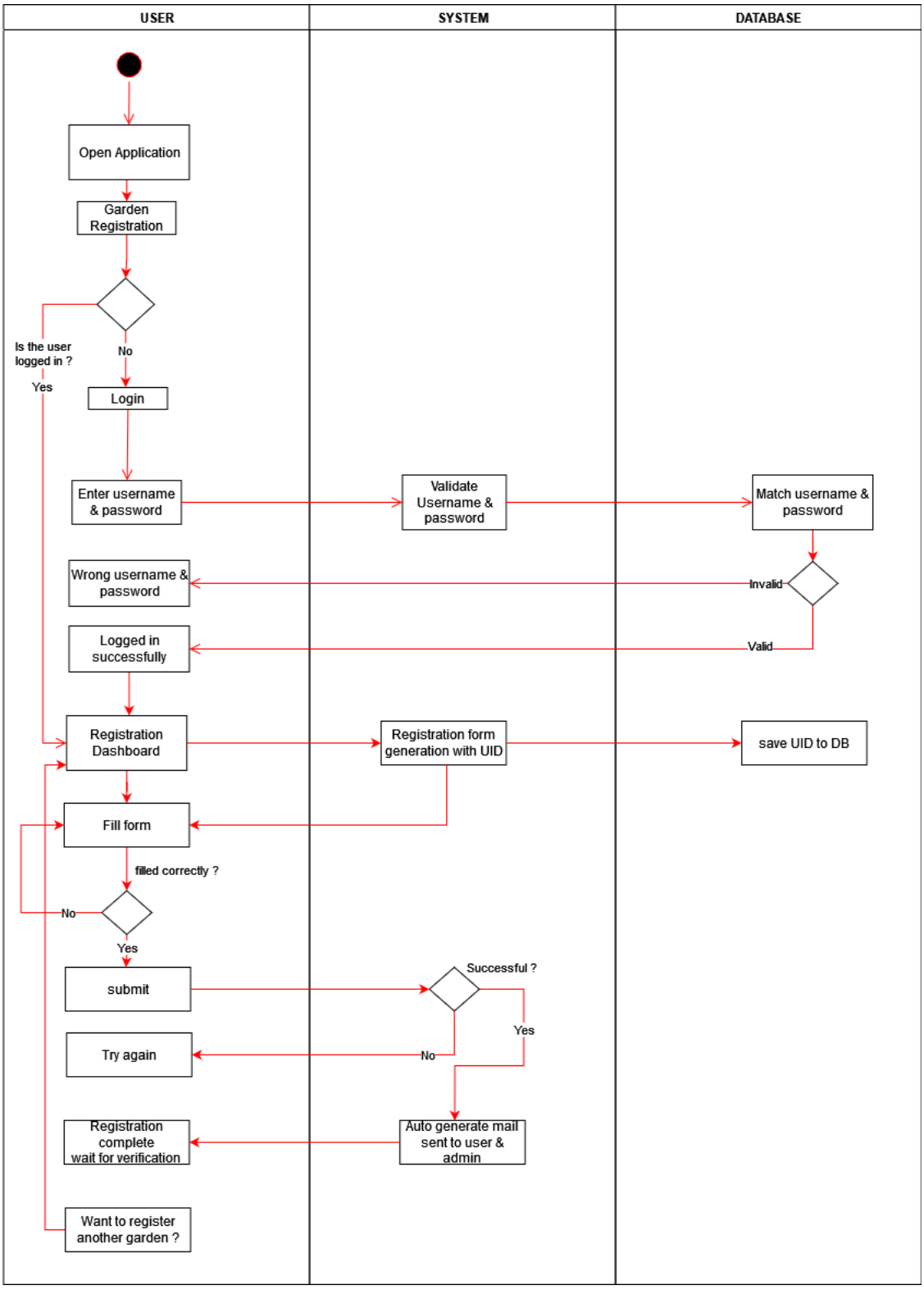
Sequence Diagram



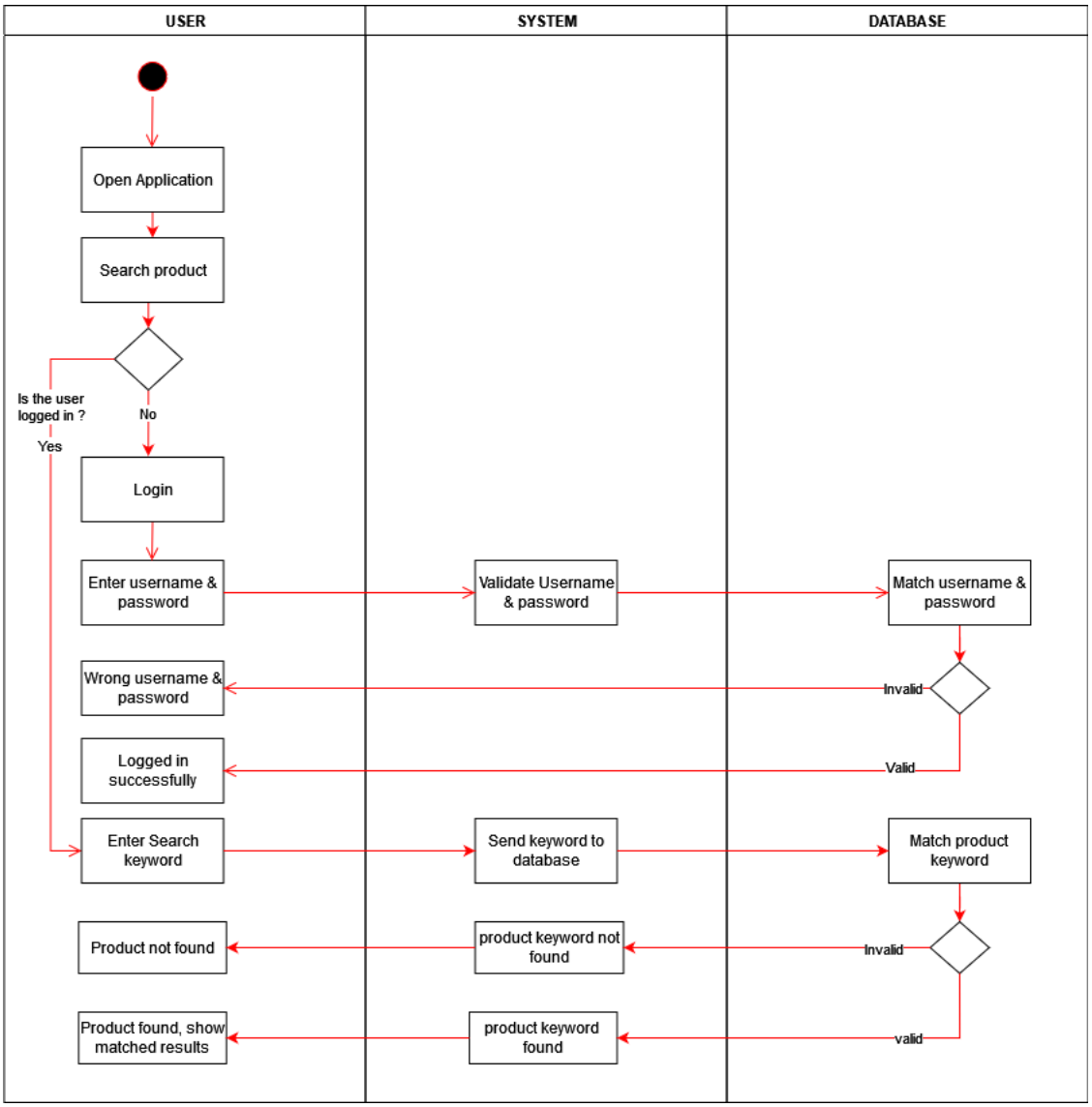
Activity Diagram



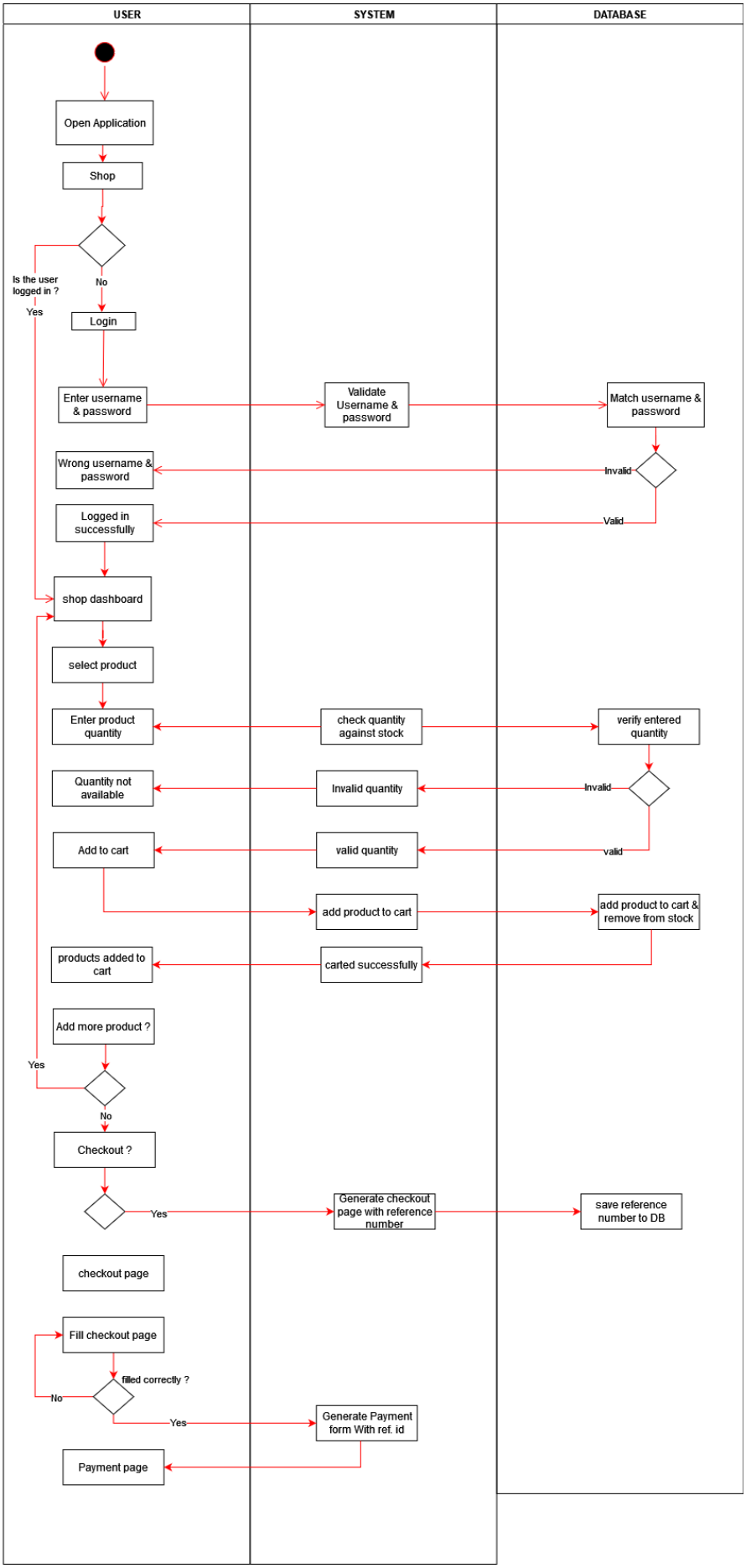
Signup



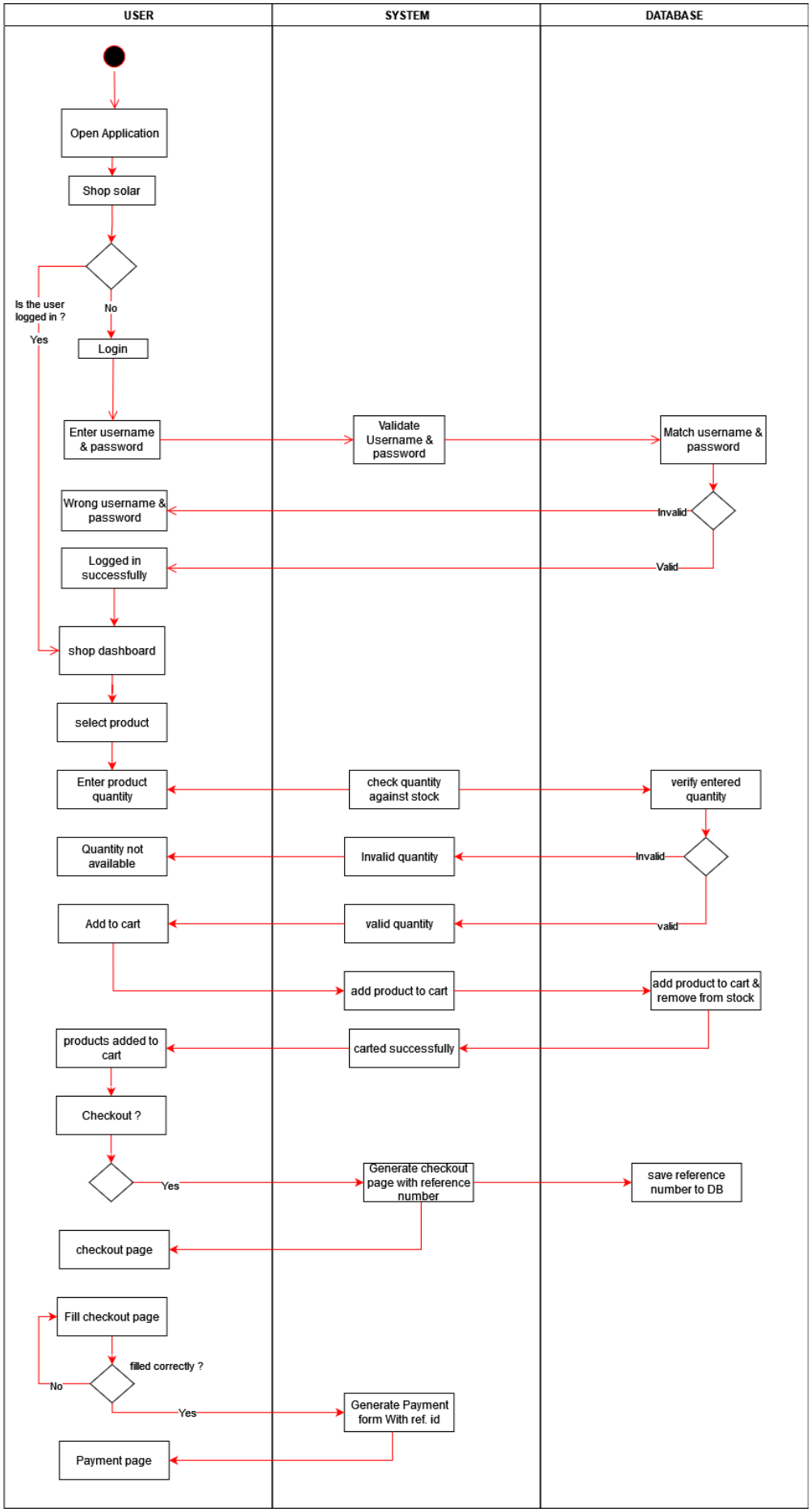
Garden Registration


USER
SYSTEM
DATABASE
Open Application
Search product
Is the user logged in ?
No
Yes
Login
Enter username & password
Validate Username & password
Match username & password
Wrong username & password
Invalid
Logged in successfully
Valid
Enter Search keyword
Send keyword to database
Match product keyword
Product not found
product keyword not found
Invalid
Product found, show matched results
product keyword found
valid

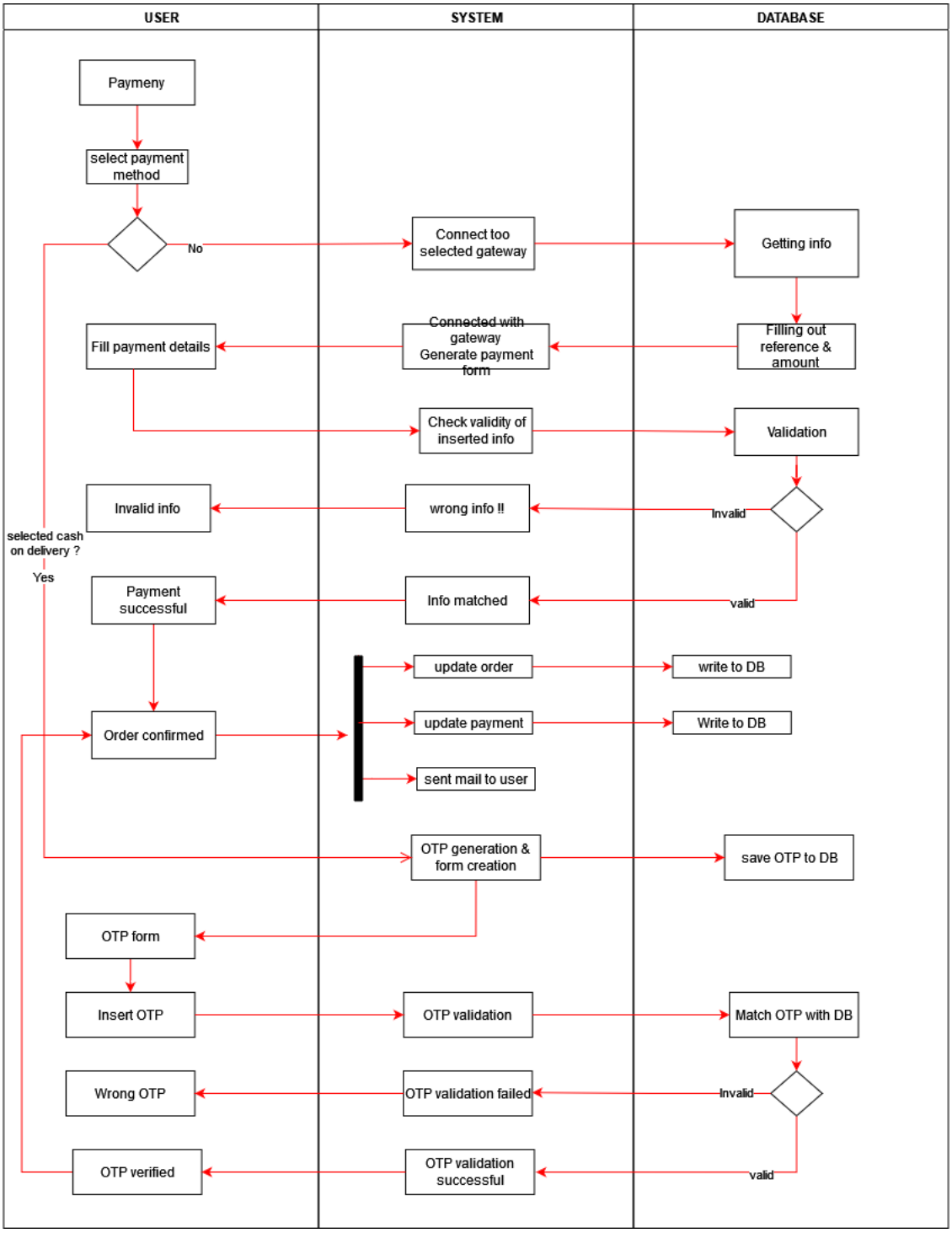
Search


USER
SYSTEM
DATABASE
Open Application
Shop
Is the user logged in ?
No
Yes
Login
Enter username & password
Validate Username & password
Match username & password
Invalid
Wrong username & password
Valid
Logged in successfully
shop dashboard
select product
Enter product quantity
check quantity against stock
verify entered quantity
Invalid
Quantity not available
Invalid quantity
valid
Add to cart
valid quantity
add product to cart
add product to cart & remove from stock
products added to cart
carted successfully
Add more product ?
Yes
No
Checkout ?
Yes
Generate checkout page with reference number
save reference number to DB
checkout page
Fill checkout page
filled correctly ?
No
Yes
Generate Payment form With ref. id
Payment page

Shop

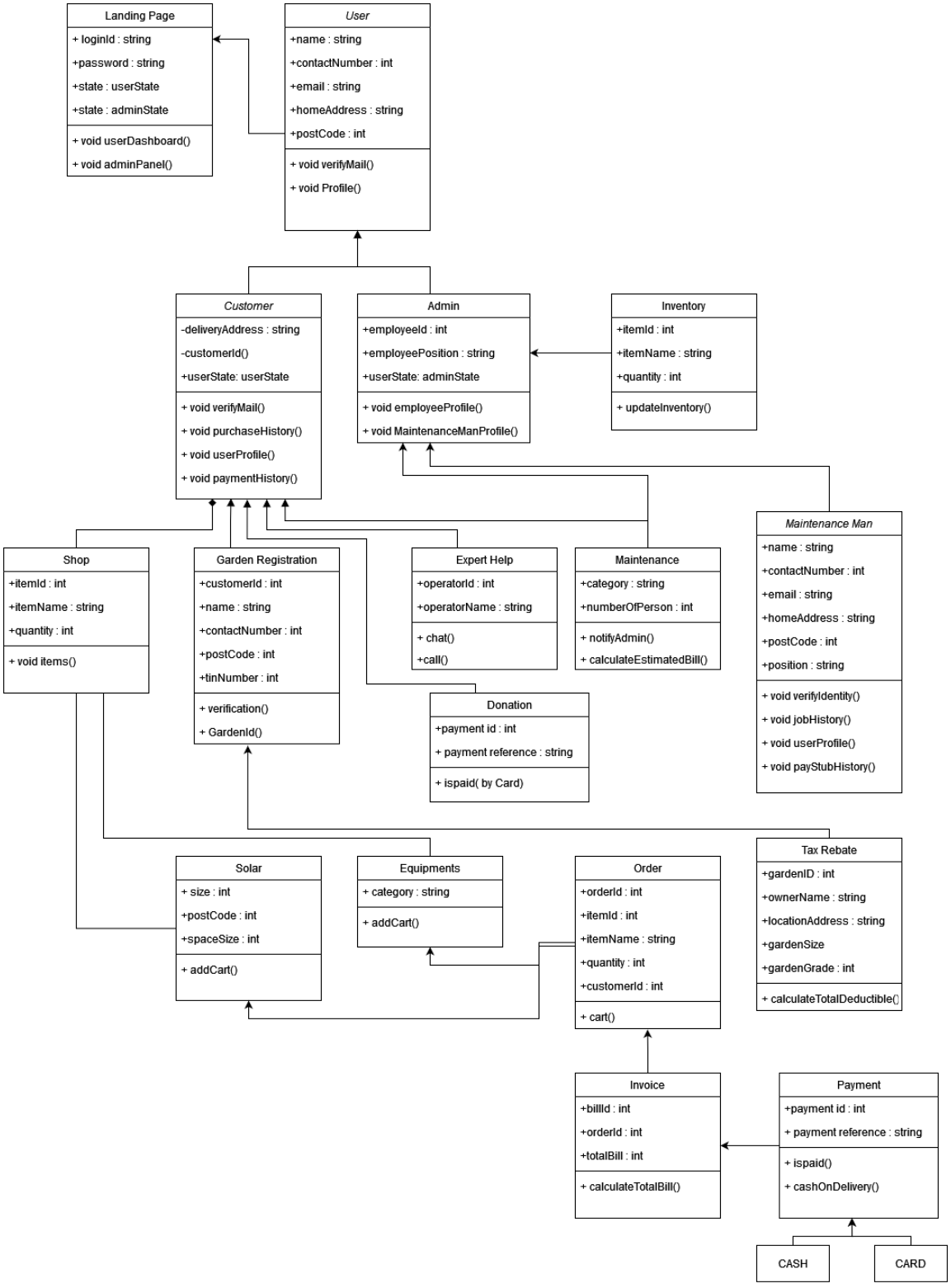


Solar Purchase


USER
SYSTEM
DATABASE
Paymeny
select payment method
No
Connect too selected gateway
Getting info
Fill payment details
Connected with gateway
Generate payment form
Filling out reference & amount
Check validity of inserted info
Validation
Invalid info
wrong info !!
Invalid
selected cash on delivery ?
Yes
Payment successful
Info matched
valid
update order
write to DB
Order confirmed
update payment
Write to DB
sent mail to user
OTP generation & form creation
save OTP to DB
OTP form
Insert OTP
OTP validation
Match OTP with DB
Wrong OTP
OTP validation failed
Invalid
OTP verified
OTP validation successful
valid

Payment

Class Diagram



Choosing the Process model for the project

1. Process model for the project.

We have chosen Incremental prototype from iterative process model to effectively provide us with guidance to control & coordinate the task to achieve the final product and objectives as effectively as possible.

2. Reason for choosing incremental model.

Iterative process models are designed for repeating stages of the process. That is, they are iterative or cyclical in structure. The advantage of iterative processes is the ability to loop and revisit previous phases (and their activities) as part of the process. Each "loop back" is an iteration, hence the name "iterative process." Iterations allow for client feedback to be incorporated within the process as being the norm, not the exception. Iterative process models are readily amenable to Agile practices, yet they also embody sequential portions reminiscent of linear process models. When a product is built and released in increments, it is an incremental prototype. In incremental prototyping a triage system is followed,

"Triaging" means assessing each of the system's components and assigning a priority. Based on that priority, a product's components are built iteratively in increments from "most important" to "least important." In this way, incremental prototypes make use of the process philosophies behind iterative processes models. Priorities for a software product's features are based on three categories: "must do," "should do," and what "could do." Core features are assigned the highest priority—must do. In our project the most important feature is encouraging users to register their roof gardens & tax benefit. Additionally registering for solar panel will improve the condition of our city by reducing carbon emission because of higher usage of renewable energy. Another core feature is tax reduction calculator which will allow the use to know how much they can save with their contribution to our green project. All these features will be implemented & deployed in the first increment. In the second increment we will focus on the product & service part of the application. Customers can buy products at a reduced cost. They also can hire gardener & ask for expert advice. The other features are newsfeed for the users to post & react to them. They also can make donation, browse their history, ask for tips & also can contact for technical support.

3. Comparison with other models.

Waterfall model, Agile, and Incremental Prototype are three different process models used in software development. Here's a comparison of these models:

Waterfall Model: The Waterfall model is a sequential approach to software development, where each stage of development follows the previous one. The development process proceeds in a linear fashion, with each stage being completed before the next one begins. The stages include requirements gathering, design, development, testing, and deployment.

Disadvantages: The Waterfall model is inflexible and does not allow for changes or modifications. Testing and debugging occur only after the completion of the development phase, which can be risky and expensive. The model may not be suitable for projects with evolving or unclear requirements.

Agile Model: The Agile model is an iterative and incremental approach to software development, where each development cycle involves planning, design, development, testing, and delivery. The Agile model is designed to be flexible and adaptable, with a focus on collaboration and continuous improvement.

Disadvantages: The Agile model requires a high degree of collaboration and communication between team members, which can be resource intensive. The model may not be suitable for large-scale projects or projects with strict deadlines. The model may not be suitable for projects with complex requirements.

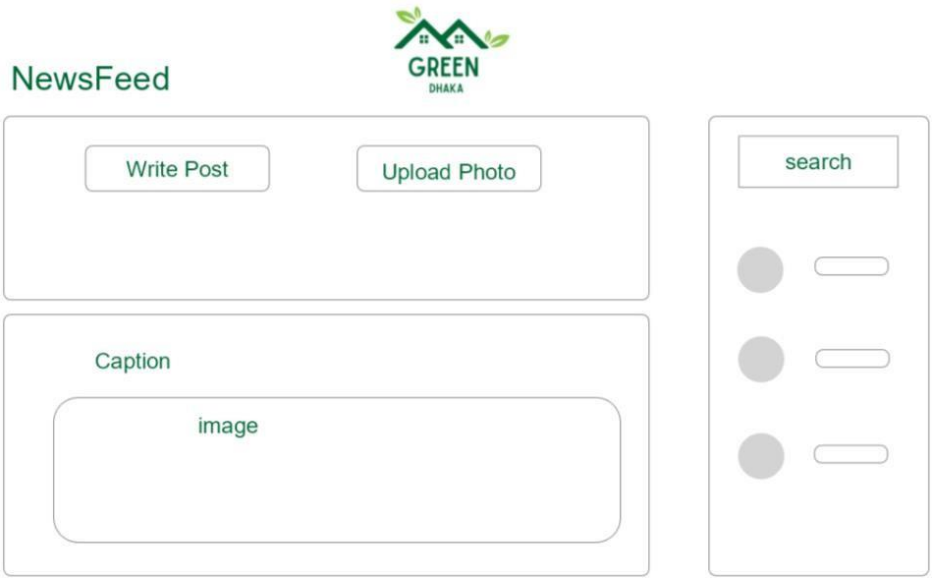
3. Justification

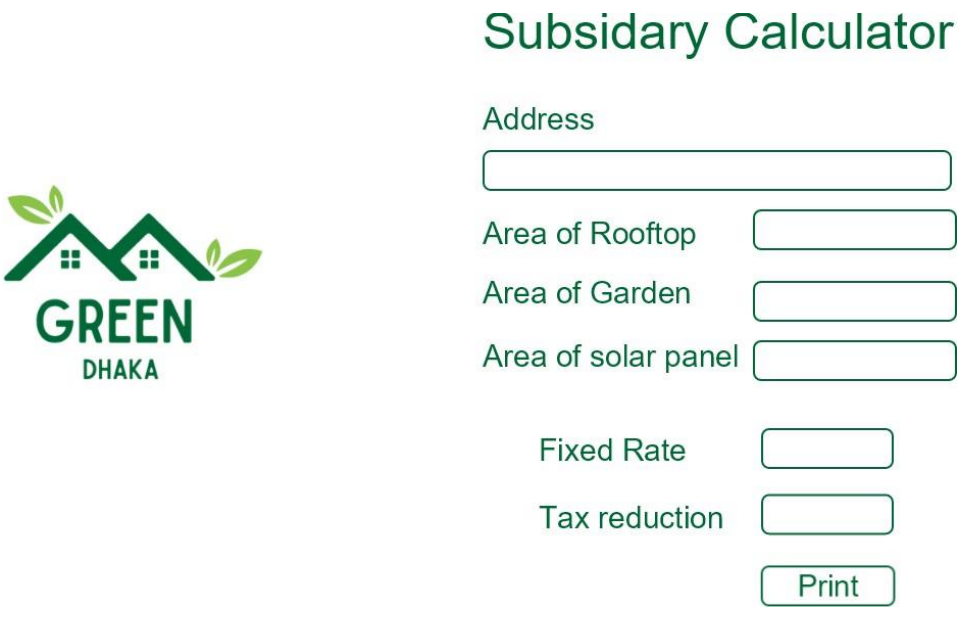
In summary, the Waterfall model is suitable for projects with well-defined requirements and fixed budgets or deadlines. The Agile model is suitable for projects with evolving or unclear requirements and a need for flexibility and adaptability. The Incremental Prototype model is suitable for projects with evolving or unclear requirements and a need for early testing and feedback.

Roles

- Project Manager: responsible for overall project planning, execution, and monitoring.
- Product Owner: responsible for defining the requirements and priorities for the product.
- Developers: responsible for coding and testing the software.
- Testers: responsible for testing the software to ensure that it meets the requirements and is free of bugs.
- UX/UI Designer: responsible for designing the user interface and ensuring that the software is easy to use and visually appealing.
- Technical Writers: responsible for creating documentation and user manuals.

User Interface





Expert Opinion

GREEN DHAKA

Image	Image	Image
Name: Experties: Rating:	Name: Experties: Rating:	Name: Experties: Rating:
Book a House Visit	Book a House Visit	Book a House Visit
Book a Video chat	Book a Video chat	Book a Video chat

About Us

GREEN DHAKA

Image Slider

About Us

Contacts

GREEN
DHAKA

Arnab Bishakh

Donation

Money | Food | Clothes

Image

Pickup Location

Address line 1

Address line 2

Area | Zip

Pick a Date 21/03/2023

Description

March 2023

S	M	T	W	T	F	S
26	27	28	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

Request a Pickup

GREEN
DHAKA

Arnab Bishakh

Checkout

Selected items

Item Name **Price**	Quantity
Item Name **Price**	Quantity
Item Name **Price**	Quantity
Item Name **Price**	Quantity

Total Price :

Delivery Address

Address line 1

Address line 2

Area | Zip

Make Payment

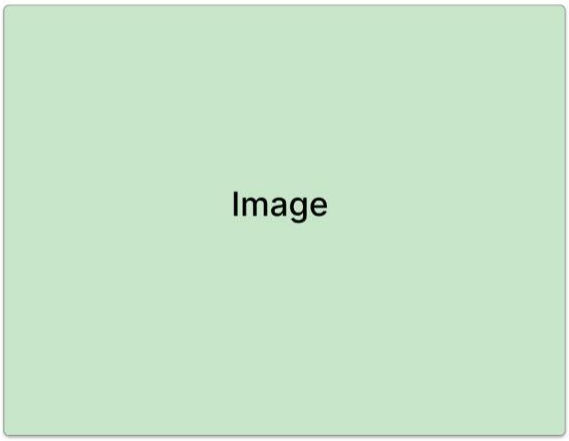
- **Card Payment** (VISA)
- **MFS Payment** (bKash)
- **Cash on Delivery**

Procceed to Checkout

GREEN
DHAKA

Arnab Bishakh

Hiring a Gardener



Please Provide Your Information

Address line 1

Address line 2

Area

Zip

Pick a Date 21/03/2023

March 2023

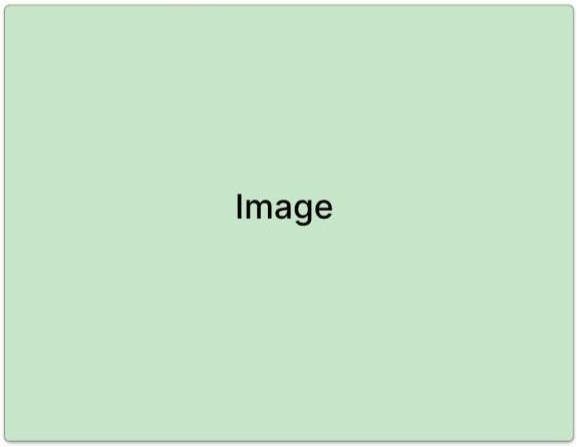
S	M	T	W	T	F	S
26	27	28	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

Request a Gardener

GREEN
DHAKA

Arnab Bishakh

Schedule an Appointment



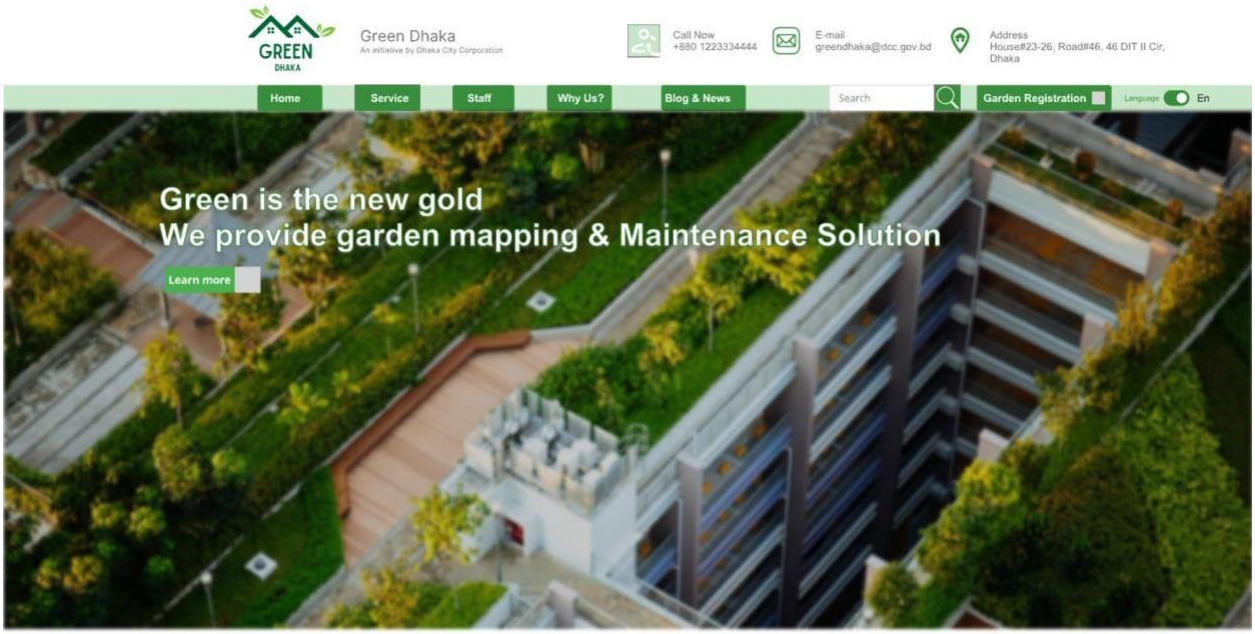
Please Provide Your Information

Mobile Number

E-mail

Description

Schedule an Appointment



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Green Dhaka
Dhaka City Corporation

Nagar bhaban (Dhaka North City Corporation),
1212, Gulshan Center Point,
House#23-26, Road#46, 46 DIT II Cir,
Dhaka

E-mail:

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Green Dhaka
An initiative by Dhaka City Corporation

Welcome,
Zobayer Alam

Language En

Green Dhaka SOLAR

GET A FREE CONSULTATION

Solar Panel installation for both Residential & Commercial building

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Resideltial

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Commercial

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Learn More

Green Dhaka
An initiative by Dhaka City Corporation

Welcome,
Zobayer Alam

Language En

/Shop

Availability
- In Stock
- Pre Order
- Up Coming

Show: 12 Sort By: Default

Wheel Barrow

৳ 200
Add to Cart

Watering Can

৳ 200
Add to Cart

Shovel

৳ 200
Add to Cart

Garden Rake

৳ 200
Add to Cart

Garden Hose

৳ 200
Add to Cart

Pruning Tool

৳ 200
Add to Cart

Planting Pot

৳ 200
Add to Cart

Weed Hoe

৳ 200
Add to Cart

Garden PitchFork

৳ 200
Add to Cart

Planting Pot

৳ 200
Add to Cart

Hedge Trimmer

৳ 200
Add to Cart

Garden Gloves

৳ 200
Add to Cart

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Green Dhaka
Dhaka City Corporation

Nagar bhaban (Dhaka North City Corporation),
1212, Gulshan Center Point,
House#23-26, Road#46, 46 DIT II Cir,
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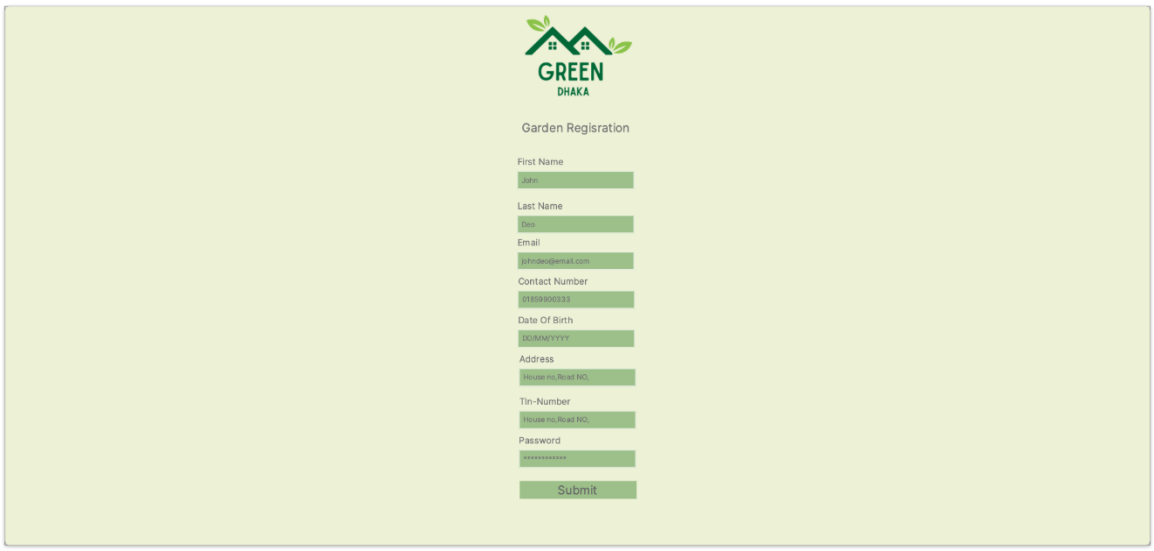
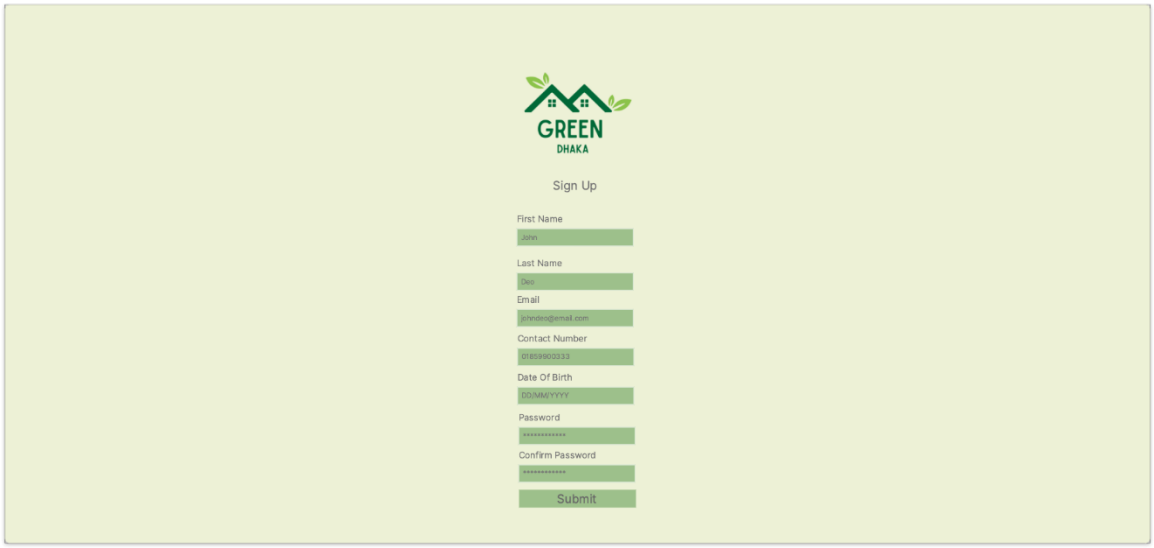

GREEN
DHAKA
Garden Regisration
First Name
John
Last Name
Deo
Email
johndeo@email.com
Contact Number
01859900333
Date Of Birth
DD/MM/YYYY
Address
House no,Road NO,
Tin-Number
House no,Road NO,
Password
Submit


GREEN
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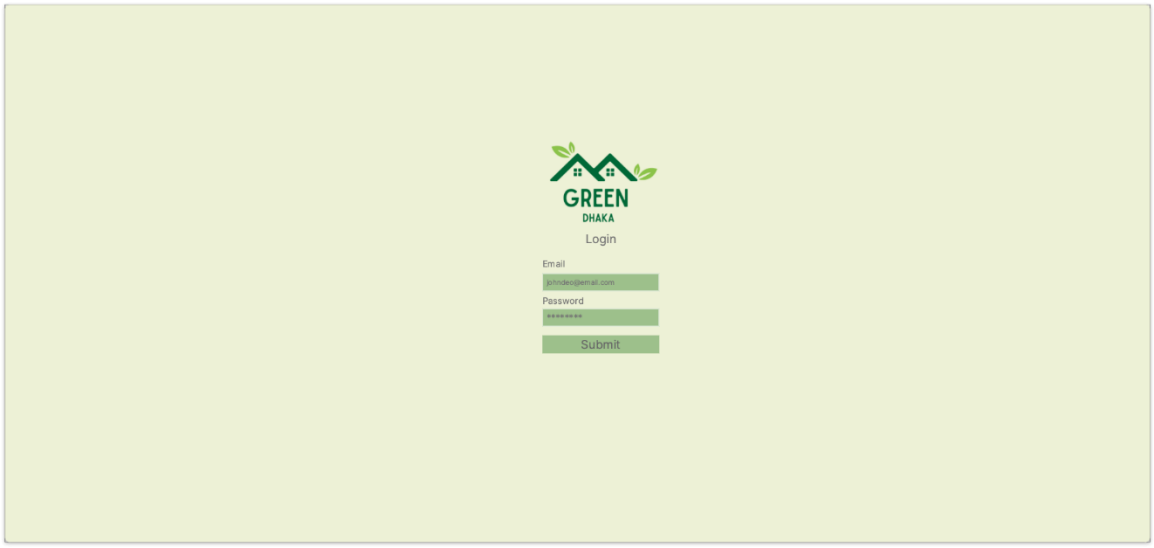
Sign Up
First Name
John
Last Name
Deo
Email
johndeo@email.com
Contact Number
01859900333
Date Of Birth
DD/MM/YYYY
Password
Confirm Password
Submit


GREEN
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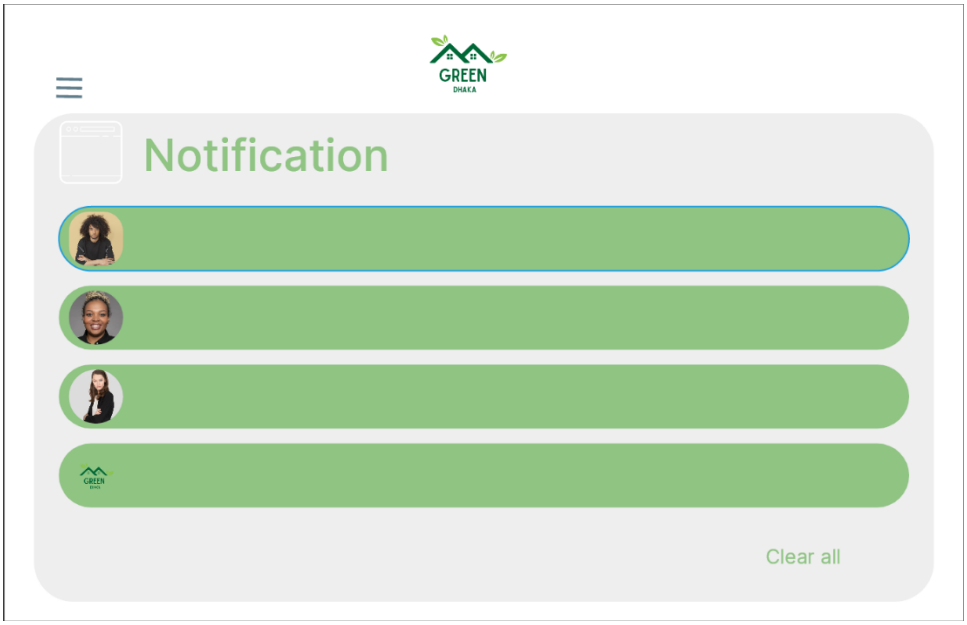
Login
Email
johndeo@email.com
Password
Submit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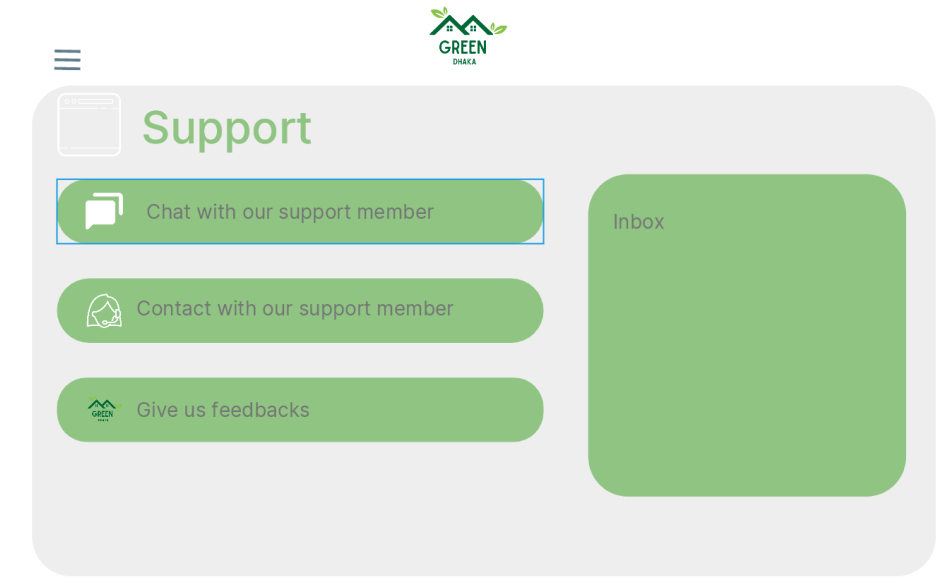
DHAKA
Notification
Clear all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Chat with our support member
Contact with our support member
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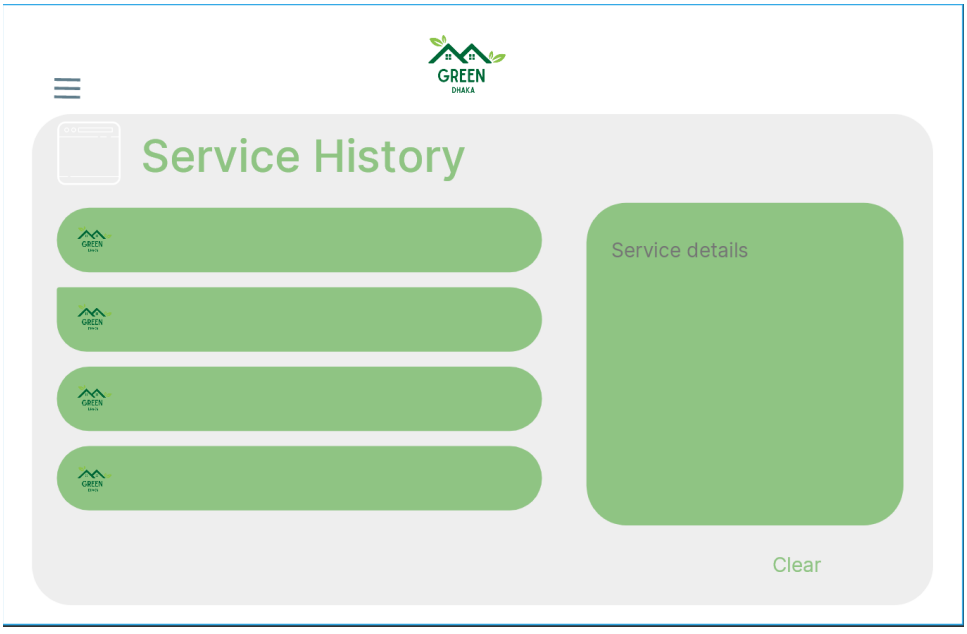
Inbox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DHAKA
Service History
Service details
Clear

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case:FR-2			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): HIGH			Test Executed by:	
Module Name: Signup Session.			Test Executed date:	
Test Title: Register new user with valid name, password & email.				
Description: Test signup page.				
Precondition (if any): User must have a valid & previously not used email				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Enter username. 3. Enter name. 4. Enter password. 5. Enter email. 6. Click register.	Username Zobayer01 Name Zobayer Alam Password ZoBaYeR#08 Email zobayer@gmail.com	User should register into the system.		
Post Condition: All user data is saved into an encrypted database. After that the user should be able to log into his/her account.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case:FR-2			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): HIGH			Test Executed by:	
Module Name: Signup Session.			Test Executed date:	
Test Title: Register new user with valid name, password & email.				
Description: Test signup page.				
Precondition (if any): User must have a valid & previously not used email				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Enter username. 3. Enter name. 4. Enter password. 5. Enter email. 6. Click register.	Username Zobayer01 Name Zobayer Alam Password ZoBaYeR#090 Email zobayer@gmail.com	Username & email is already in use		
Post Condition: As the username & email is previously used the user will not be able to signup successfully.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case:FR-03			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Search Execution.			Test Executed date:	
Test Title: Search various product & services through the search bar.				
Description: Test the search bar.				
Precondition (if any): A must be registered & logged into his account.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Check if logged in or not. 3. Search for desired product or service.	Search bar "Pot"	Matching Product found		
Post Condition: User will be served with matching information.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case: FR-03			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Search Execution.			Test Executed date:	
Test Title: Search various product & services through the search bar.				
Description: Test the search bar.				
Precondition (if any): A user must be registered & logged into his account.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Check if logged in or not. 3. Search for desired product or service.	Input search text "Grass Cutter"	Matching Product not found		
Post Condition: As the product is not available no information will be shown.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case: FR-04			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Garden Registration			Test Executed date:	
Test Title: User will be able to register their garden				
Description: Test Garden Registration portal.				
Precondition (if any): you must be a registered user.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Check if the user is logged in or not. 3. Click garden registration from the home page. 4. Fill in the required data. 5. Click submit.	Owner's name Zobayer Alam TIN 0990090900090 Address H#517, R#13 Garden size 320 sq. ft. Images[optional] img1.jpg	If the TIN matches with the owner's name, the "application successfully submitted prompt will be shown"		
Post Condition: users' data will be saved in a database & his application will be submitted for a physical verification.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case: FR-04			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Garden Registration			Test Executed date:	
Test Title: User will be able to register their garden				
Description: Test Garden Registration portal.				
Precondition (if any): you must be a registered user.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Check if the user is logged in or not. 3. Click garden registration from the home page. 4. Fill in the required data. 5. Click submit.	Owner's name Zobayer Alam TIN 0990090900090 Address H#517, R#13 Garden size 320 sq. ft. Images[optional] img1.jpg	If the TIN matches with the owner's name, the "application successfully submitted prompt will be shown"		
Post Condition: users' data will be saved in a database & his application will be submitted for a physical verification.				

Project Name: Green Dhaka	Test Designed by: Arnab Bishakh Sarker
Test Case: FR-05	Test Design date: 22/03/2023
Test Priority (Low, Medium, High): Medium	Test Executed by:
Module Name: Gardening Equipment	Test Executed date:
Test Title: Buying Gardening Equipment	
Description: User can browse Gardening Equipment (tools, seeds, fertilizer etc.) & also buy them using checkout process.	
Precondition (if any): User must register for a garden.	

Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on equipment shop icon. 2. Browse desired equipment. 3. Add equipment to cart. 4. Buy those items through checkout.	Select Items Scrolling	Items added to cart. Procced to checkout		
Post Condition: Registered user successfully selected desired equipment & procced to checkout.				

Project Name: Green Dhaka	Test Designed by: Arnab Bishakh Sarker
Test Case: FR-05	Test Design date: 22/03/2023
Test Priority (Low, Medium, High): Medium	Test Executed by:
Module Name: Gardening Equipment	Test Executed date:
Test Title: Buying Gardening Equipment	
Description: User can browse Gardening Equipment (tools, seeds, fertilizer etc.) & also buy them using checkout process.	
Precondition (if any): User must register for a garden.	

Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on equipment shop icon. 2. Browse desired equipment. 3. Add equipment to cart. 4. Buy those items through checkout.	Select Items Scrolling	Product not available. Could not procced to checkout		
Post Condition: Registered user can’t select his desired equipment due to product is out of stock & failed to checkout.				

Project Name: Green Dhaka			Test Designed by: Arnab Bishakh Sarker	
Test Case: FR-06			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Hire a Gardener			Test Executed date:	
Test Title: Hiring a Gardener for help.				
Description: User can hire a gardener by providing area location & desired timeslot.				
Precondition (if any): User must register for a garden.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on hire a gardener icon. 2. Fill up necessary details. 3. Provide desired date & time. 4. Request for a gardener.	Address: H-517, Road-13 Area: Bashundhara R/A Zip: 1229 Date: 22/03/23 Time: 12.10PM	Gardener Hiring request submitted		
Post Condition: Registered user successfully submitted a request to hire a gardener.				

Project Name: Green Dhaka			Test Designed by: Arnab Bishakh Sarker	
Test Case: FR-06			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Hire a Gardener			Test Executed date:	
Test Title: Hiring a Gardener for help.				
Description: User can hire a gardener by providing area location & desired timeslot.				
Precondition (if any): User must register for a garden.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on hire a gardener icon. 2. Fill up necessary details. 3. Provide desired date & time. 4. Request for a gardener.	Address: H-517, Road-13 Area: Bashundhara R/A Zip: 1229 Date: 22/03/23 Time: 12.10 PM	Gardener not available		
Post Condition: Registered user failed to submit a request to hire a gardener.				

Project Name: Green Dhaka			Test Designed by: Arnab Bishakh Sarker	
Test Case: FR-07			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Solar Power Panel			Test Executed date:	
Test Title: Requesting for Solar Power Panel				
Description: User can register to book a solar panel & also upgrade or downgrade current solar panel module.				
Precondition (if any): User must have a profile in the system.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on solar power panel option. 2. Provide detailed measurements of the rooftop area. 3. Book a solar Panel.	Area of Rooftop: 3000 sq feet	Ideal size of Solar panel: 250 sq feet Total cost: 20lac Booking request submitted		
Post Condition: Registered user successfully submitted a request to book a solar panel.				

Project Name: Green Dhaka			Test Designed by: Arnab Bishakh Sarker	
Test Case: FR-07			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Solar Power Panel			Test Executed date:	
Test Title: Requesting for Solar Power Panel				
Description: User can register to book a solar panel & also upgrade or downgrade current solar panel module.				
Precondition (if any): User must have a profile in the system.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click on solar power panel modify option. 2. Provide measurements of the rooftop area which will be modified. 3. Request a modification.	Area of Rooftop: 50 sq feet Modify Option: Downgrade	Total cost: 50k Modifying Request submitted		
Post Condition: Registered user successfully submitted a request to downgrade a solar panel.				

Project Name: Green Dhaka			Test Designed by: Zobayer Alam	
Test Case: FR-08			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Garden feeds			Test Executed date:	
Test Title: User will be able post questions, finding & general info.				
Description: Test blog & feed section portal.				
Precondition (if any): you must be a registered user & logged into your account.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to website. 2. Check if the user is logged in or not. 3. Click Blog & News button. 4. User can post status or image. 5. User can also choose to scroll & observer others post.	Status What is on your mind? Attach. [image, gif] [optional] img2.jpg	User will be able to post questions, information. This will be showed in the feeds section.		
Post Condition: users' data will be saved in a database & his application will be submitted for a physical verification.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-09			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Subsidiary Panel			Test Executed date:	
Test Title: It calculates the tax benefit that a user can avail				
Description: Test website subsidy calculator page.				
Precondition (if any): Must input the user password for printing the subsidy slip				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to subsidiary calculator page 2. Input the required values. 3.Enter password 4.Click Print	Address: Mohammadpur Area of Rooftop: 3000 sq feet Area of Garden:1000 sq feet Area of Solar panel: 250 sq feet Fixed Rate: Tk 0.2 /sq feet Tax reduction value: Tk 250 Print: 001100 (password)	User will be able to calculate the amount of subsidy based on their garden area.		
Post Condition: User can get an estimate of their subsidy.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-09			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Subsidiary Panel			Test Executed date:	
Test Title: It calculates the tax benefit that a user can avail				
Description: Test website subsidy calculator page.				
Precondition (if any): Must input the user password for printing the subsidy slip				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Go to subsidiary calculator page 2. Input the required values. 3.Enter password 4.Click Print	Address: Mohammadpur Area of Rooftop: 3000 sq feet Area of Garden: 50 sq feet Area of Solar panel: 250 sq feet Fixed Rate: Tk 0.2 /sq feet Tax reduction value: Tk 250 Print: 001100 (password)	Rooftop to Garden ratio is too small to avail subsidy.		
Post Condition: User will not avail any subsidy.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-10			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Expert Opinion			Test Executed date:	
Test Title: It allows to book experts for help and suggestions.				
Description: Test expert Opinion Page.				
Precondition (if any): User must have a registered garden.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1.Click on experts' profile 2.Browse desired experts' profile. 3.Book a house visit. 4.Book a Video chat 5.Confirm booking through checkout.	1.Select items 2.Scroll through the options 3.Book an appointment	1.Select an expert. 2.Successful booking		
Post Condition: With a successful checkout user will be able to reserve an appointment.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-10			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Expert Opinion			Test Executed date:	
Test Title: It allows to book experts for help and suggestions.				
Description: Test expert Opinion Page.				
Precondition (if any): User must have a registered garden.				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1.Click on experts' profile 2.Browse desired experts' profile. 3.Book a house visit. 4.Book a Video chat 5.Confirm booking through checkout.	1.Select items 2.Scroll through the options 3.Book an appointment	1.Expert is unavailable right now. 2.Unsuccessful booking		
Post Condition: As an expert is unavailable, no appointment will be scheduled				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-11			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Notification			Test Executed date:	
Test Title: It sends user remainder about booked appointments, shop purchases, printing of subsidiary slips				
Description: Test the Notification portal.				
Precondition (if any): User must have a profile				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1.Login as admin 2. send notification	1. test notification :00001111	1. Notification was sent		
Post Condition: User got the notification successfully.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-11			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Notification			Test Executed date:	
Test Title: It sends user remainder about booked appointments, shop purchases, printing of subsidiary slips				
Description: Test the Notification portal.				
Precondition (if any): User must have a profile				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1.Login as admin 2. send notification	1. test notification :00001111	1. Information that was not sent		
Post Condition: User did not get the notification successfully.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-12			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Donation			Test Executed date:	
Test Title: It allows the user to donate money, food, clothes.				
Description: Test the donation Page				
Precondition (if any): User must have a profile				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Fill the pickup location. 2. Pick a date. 3. Describe your donation.	Pickup location: House:517 Address: H-517, Road-13 Area: Bashundhara R/A Zip: 1229 Date: 22/03/23 Time: 12.10 PM Description: I want to donate clothes and food	1. Successful donation of food and clothes.		
Post Condition: A volunteer will physically collect the donation from pickup location.				

Project Name: Green Dhaka			Test Designed by: Jariatun Islam	
Test Case: FR-12			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Donation			Test Executed date:	
Test Title: It allows the user to donate money, food, clothes.				
Description: Test the donation Page				
Precondition (if any): User must have a profile				
Test Steps	Test Data	Expected Result	Actual result	Status (Pass/Fail)
1. Click the money button. 2.Put the required amount 2.Go to payment 3.Click payment option 4. Fill up the required information 5.Click the payment	1.Name: Zobayer Alam 2.Card number: 01778711223 3.Amount: Tk.5000	1.Successfully payment received.		
Post Condition: A successful donation will send a thank you note to donor.				

Project Name: Green Dhaka	Test Designed by: Md. Mehedi Hasan
Test Case: FR-13	Test Design date: 22/03/2023
Test Priority(Low, Medium, High): Low	Test Executed by:
Module Name: Add to cart	Test Executed date:
Test Title: Checkout session	
Description: User can add, delete available items to cart. Should display unit price, total, sub-total. Should be able to confirm order by checkout page. user can select payment method. After the confirmation of the order, it will be notified to admin through a mail.	

Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1. Click on the add to cart icon on any item 2. Click on the cart icon. 3. Click on delete icon. 4. Click on payment method icon. 5. Click on confirm order	1. Scrolling 2. item selection 3. Selected items 4. total, per unit price. 5. Selected item 6. changes in total. 7. Available payment methods. 8. Checks all the fields	1.added to check-out page. 2.Show added cart items 3.Delete the selected items. 4.Shows the eligible payment methods. 5.Order confirmation.		
Post Condition: Successfully ordered.				

Project Name: Green Dhaka	Test Designed by: Md. Mehedi Hasan
Test Case:FR-13	Test Design date: 22/03/2023
Test Priority(Low, Medium, High): Low	Test Executed by:
Module Name: Add to cart	Test Executed date:
Test Title: Checkout session	
Description: User can add, delete available items to cart. Should display unit price, total, sub-total. Should be able to confirm order by checkout page. User can select payment method. After the confirmation of the order, it will be notified to admin through a mail.	
Precondition (if any): User must have a verified account.	

Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1. Click on the add to cart icon on any item. 2. Click on the cart icon. 3. Click on delete icon. 4. Click on payment method icon. 5. Click on confirm order	1. No items selected. 2. No payment methods selected	1. Cart is empty. 2. Order denied.		
Post Condition: Not applicable.				

Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-14			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: History			Test Executed date:	
Test Title: Service histories				
Description: Should allow the users to see their previous service information.				
Precondition (if any): User must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1.Click on the service history icon.	1.Checks for the Performed services information.	1.Shows the information.		
Post Condition: User will be shown a list of previously taken services.				

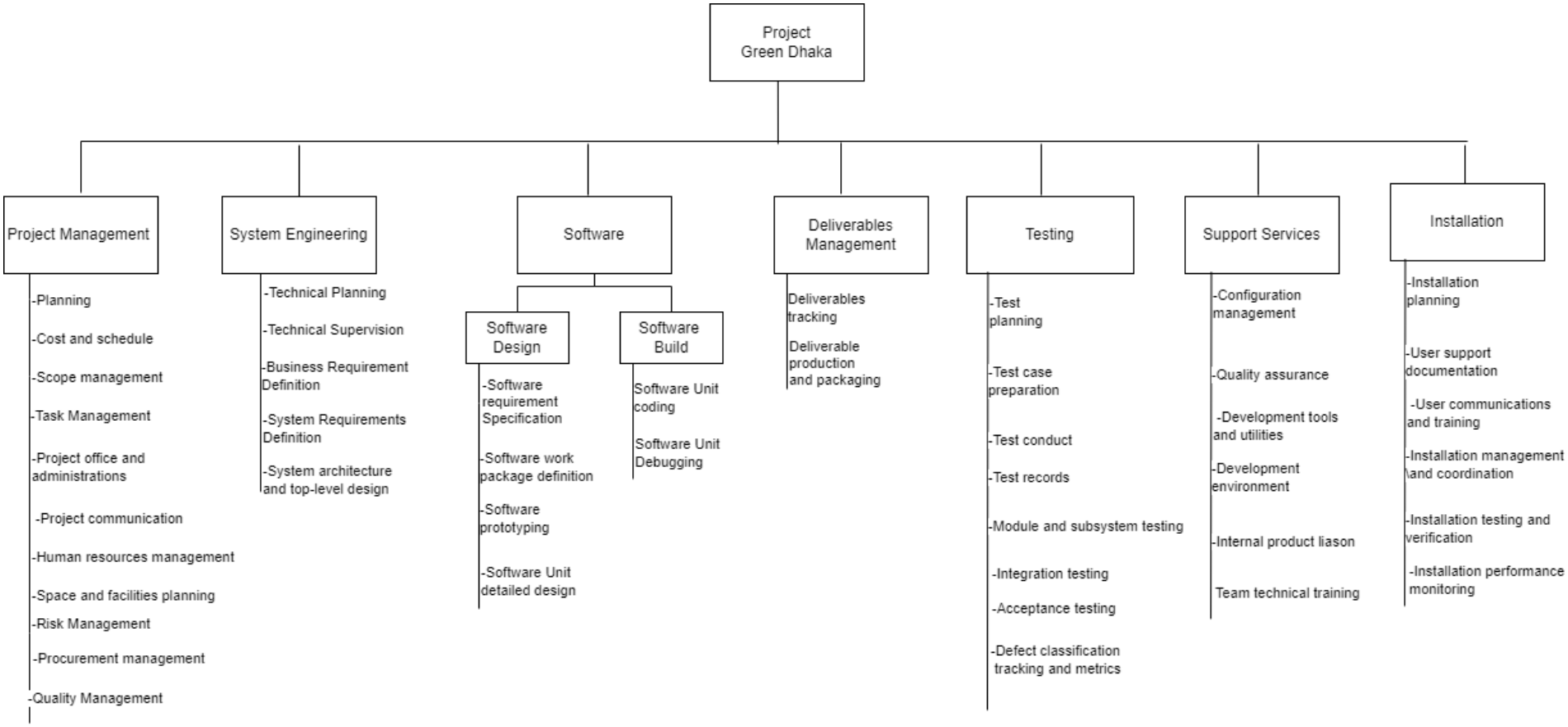
Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-14			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: History			Test Executed date:	
Test Title: Service histories				
Description: Should allow the users to see their previous service information.				
Precondition (if any): User must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1. Click on the service history icon.	1.Checks for the Performed services information	1.No history of Any services.		
Post Condition: As the user have not used any services previously no list will be generated.				

Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-15			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Feedback			Test Executed date:	
Test Title: Software Feedback form.				
Description: The software should optionally offer the users feedbacks on every operation.				
Precondition (if any): Users must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1.Click on the feedback option in account settings. > status on.	1.Turn on the feedback feature.	1.Gives a short information on every available operation.		
Post Condition: A prompt stating successful submission will be shown.				

Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-15			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Feedback			Test Executed date:	
Test Title: Software Feedback form.				
Description: The software should optionally offer the users feedbacks on every operation.				
Precondition (if any): User must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1.Click on the feedback option in account-> settings-> status off.	1.Turn off the feature.	1.Any feedback will not be popping up on operations.		
Post Condition: As the user have opted out of this service user will not be asked to submit a review.				

Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-16			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Customer service			Test Executed date:	
Test Title: Help & custom services				
Description: Allow the users to message and call the help center.				
Precondition (if any): User must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1.Click on the help icon. 2.click on chat icon. 3.click on send. 4.click on call icon. 5.click on history Icon	1.Options. 2.Inbox 3.sends the message. 4.looks for a carrier operator 5.gets data of previous calls.	1.opens a help page with chat or call option. 2.opens a chat inbox for writing the message. 3.message will be sent to the help center to respond. 4.Dials the help line of the help center to respond. 5.shows the helps history.		
Post Condition: Calls are only applicable for mobile phones.				

Project Name: Green Dhaka			Test Designed by: Md. Mehedi Hasan	
Test Case:FR-16			Test Design date: 22/03/2023	
Test Priority (Low, Medium, High): low			Test Executed by:	
Module Name: Customer service.			Test Executed date:	
Test Title: Help & customer service.				
Description: Allow the users to message and call the help center.				
Precondition (if any): User must have to have a verified account.				
Test Steps	Test Data	Expected Data	Actual result	Status (Pass/Fail)
1.Click on the Call Icon. 2.click on send icon.	1.looks for carrier network. 2.connects with the help center.	1.Error. 2.Error.		
Post Condition: Error in network or other connection will terminate the connection with the customer service.				


Project
Green Dhaka
Project Management
-Planning
-Cost and schedule
-Scope management
-Task Management
-Project office and administrations
-Project communication
-Human resources management
-Space and facilities planning
-Risk Management
-Procurement management
-Quality Management
System Engineering
-Technical Planning
-Technical Supervision
-Business Requirement Definition
-System Requirements Definition
-System architecture and top-level design
Software
Software Design
-Software requirement Specification
-Software work package definition
-Software prototyping
-Software Unit detailed design
Software Build
Software Unit coding
Software Unit Debugging
Deliverables Management
Deliverables tracking
Deliverable production and packaging
Testing
-Test planning
-Test case preparation
-Test conduct
-Test records
-Module and subsystem testing
-Integration testing
-Acceptance testing
-Defect classification tracking and metrics
Support Services
-Configuration management
-Quality assurance
-Development tools and utilities
-Development environment
-Internal product liason
Team technical training
Installation
-Installation planning
-User support documentation
-User communications and training
-Installation management \and coordination
-Installation testing and verification
-Installation performance monitoring

Software Project Estimation (Constructive Cost Model)

1. Effort = PM = 2.4 X (6000 X 1000) $^{\wedge 1.05}$
   = 15.75 WORKING HOUR

2. Development Time = DM = 2.50 X (PM)^0.38
   2.50 X (15.75) ^0.38
   7.13 MONTHS

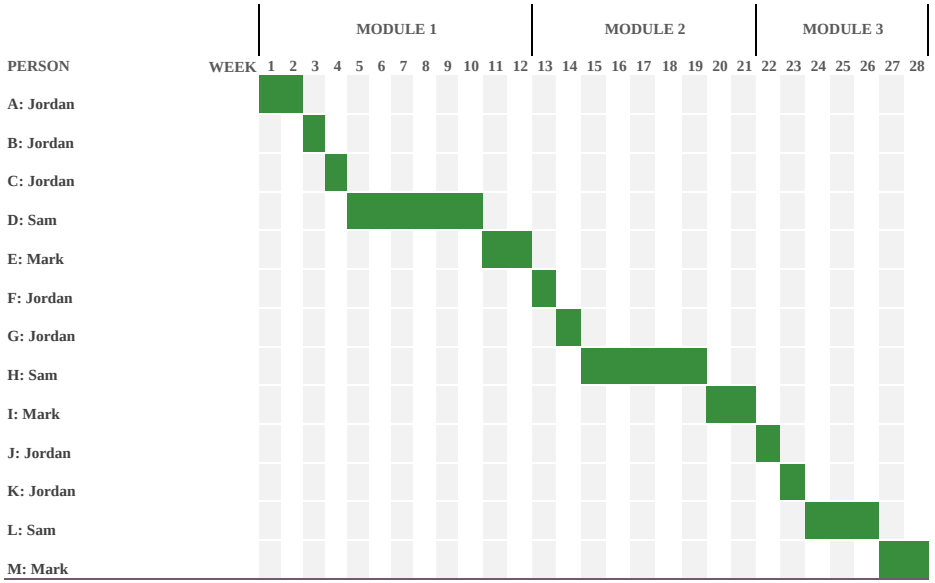
Where,
Software Project Type = Organic
Co-efficient Factor = 2.4
P = 1.05
T = 0.38

3. Required Number of People = ST = $\frac{PM}{DM}$
   = $\frac{15.75}{7.13}$
   = 2.20
   = 3

4. Working Weeks = DM x 4
   = 7.13 x 4
   = 28.52
   = 28 Weeks

5. Working Days = Working Weeks X 5
   = 28 x 5
   = 140 Working Days

Green Dhaka Project Timeline



Activity key

A: Overall design

B: Analysis Module 1:- Garden Registration, Solar Panel, subsidiary panel

C: Design Module 1:- Garden Registration, Solar Panel, subsidiary panel

D: Code Module 1:- Garden Registration, Solar Panel, subsidiary panel

E: Test Module 1 (Integration & System):- Garden Registration, Solar Panel, subsidiary panel

F: Analysis Module 2:- Shop, Hiring labor, expert opinion

G: Design Module 2:- Shop, Hiring labor, expert opinion

H: Code Module 2:- Shop, Hiring labor, expert opinion

I: Test Module 2 (Integration & System):- Shop, Hiring labor, expert opinion

J: Analysis Module 3:- Newsfeed, Donation, Tips

K: Design Module 3:- Newsfeed, Donation, Tips

L: Code Module 3:- Newsfeed, Donation, Tips

M: Test Module 3 (Integration & System):- Newsfeed, Donation, Tips

GREEN DHAKA (Detailed Timeline Chart-2)

MODULE	ACTIVITY
MODULE 1	Overall Design
	ANALYSIS: Identify needs & benefit
	ANALYSIS: Meet with customers
	ANALYSIS: Validate customer requirments
	ANALYSIS: Identify needs and project constaints
	ANALYSIS: Describe modes of interaction
	ANALYSIS: Describe other WP functions
	ANALYSIS: Isolation software elements
	ANALYSIS: Milestone: Software elements defined
	ANALYSIS: Research availability of existing software
	ANALYSIS: Identify technical requirments
	ANALYSIS: Define technical feasibility
	ANALYSIS: Milestone: Technical feasibility assessed
	ANALYSIS: Make a quick estimate of the size
	ANALYSIS: Scope and Goal Setting
	ANALYSIS: Scope modes of interaction
	ANALYSIS: Scope document diagnosis
	ANALYSIS: Scope other WP functions
	ANALYSIS: Create a scope definition
	ANALYSIS: System Requirements Definition
	ANALYSIS: System architecture and top-level design
	ANALYSIS: Define WP functions
	ANALYSIS: Review the scope document with the customer
	ANALYSIS: Revise document as required
	ANALYSIS: Milestone: Scope document complete
	ANALYSIS: Budget Estimation
	ANALYSIS: Proposal for funding
	ANALYSIS: Communication Plan
	ANALYSIS: Risk Management
	DESIGN: Feasibility study
	DESIGN: User research
	DESIGN: Develop project plan
	DESIGN: Manage project risk
	DESIGN: Design specifications
	DESIGN: Create data model
	DESIGN: Identify components
	DESIGN: Choose pattern
	DESIGN: Design interfaces
	DESIGN: Design security
	DESIGN: Design error handling
	DESIGN: Develop algorithm
	DESIGN: Test components
	DESIGN: Debug issues
	DESIGN: Optimize performance
	DESIGN: Develop documentation
	DESIGN: Scalability
	CODING: Requirements gathering
	CODING: Architecture design/coding
	CODING: Database coding
	CODING: Front-end coding
	CODING: Back-end coding
	CODING: Data access layer development
	CODING: Optimization
	CODING: Logging and error handling
	CODING: Integration
	CODING: Data migration
	CODING: Monitoring
	CODING: Code review and quality assurance
	CODING: Documentation
	CODING: Localization
	CODING: Deployment
	TESTING: Analyze the scope of testing.
	TESTING: Plan the testing process.
	TESTING: Decide on the testing environment.
	TESTING: Decide on testing tools.
	TESTING: Development test case
	TESTING: Environment setup
	TESTING: Data creation for test
	TESTING: Execution and record test
	TESTING: Review the recorded results.
	TESTING: Report defects
	TESTING: Keep track of the defects
	TESTING: Regression testing
	TESTING: Analysis of test results
	TESTING: Report the test to the project owners and manager
	TESTING: Archive test observation and test resources.
	TESTING: Test automation planning
	TESTING: Test script development
	TESTING: Test script execution
	TESTING: Test script maintenance
	TESTING: Performance testing
	TESTING: Security testing
	TESTING: Compatibility testing
	TESTING: Usability testing
MODULE 2	ANALYSIS: Identify needs & benefit
	ANALYSIS: Meet with customers
	ANALYSIS: Validate customer requirments
	ANALYSIS: Identify needs and project constaints
	ANALYSIS: Describe modes of interaction
	ANALYSIS: Describe other WP functions
	ANALYSIS: Isolation software elements
	ANALYSIS: Milestone: Software elements defined
	ANALYSIS: Research availability of existing software
	ANALYSIS: Identify technical requirments
	ANALYSIS: Define technical feasibility
	ANALYSIS: Milestone: Technical feasibility assessed
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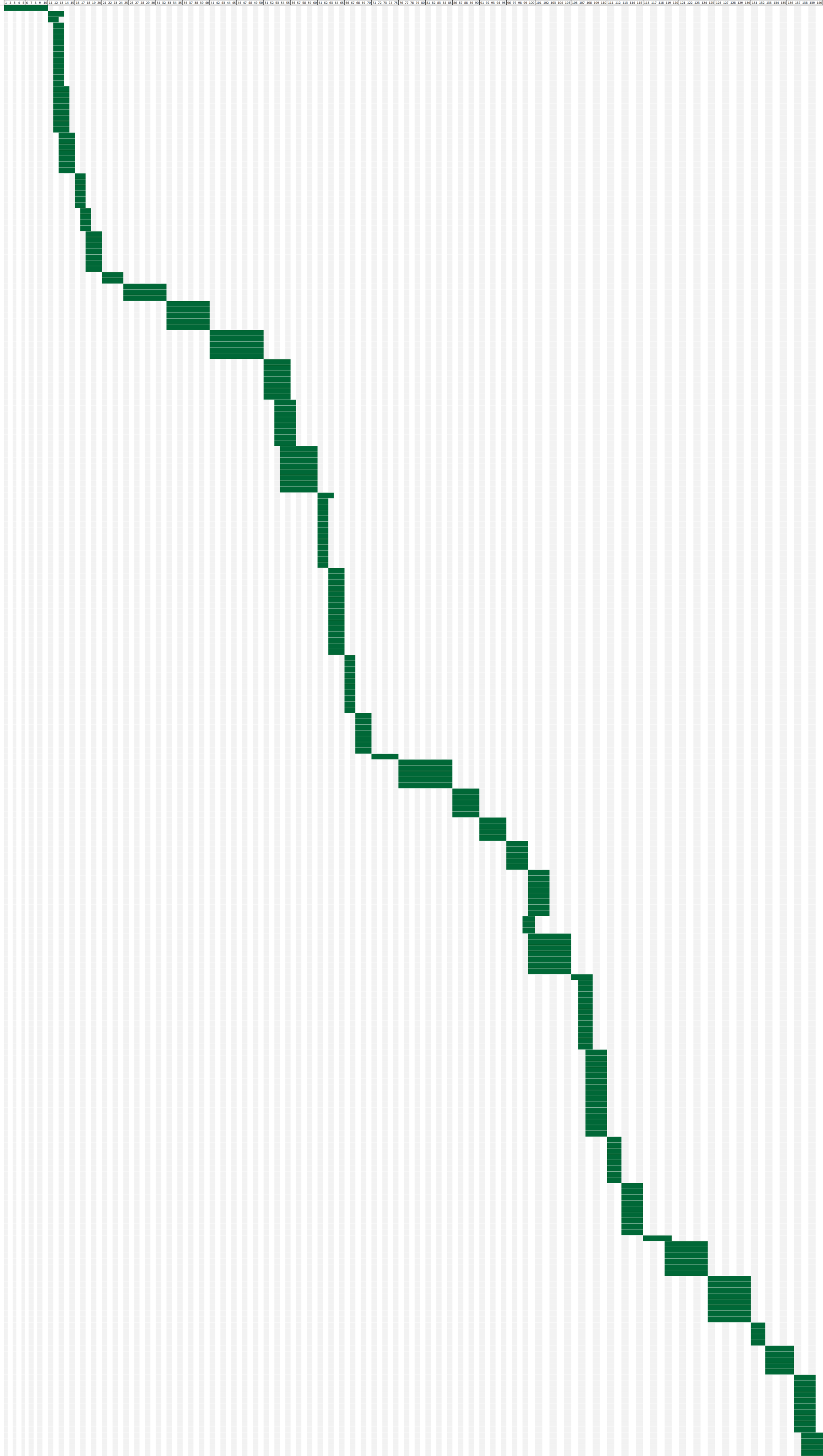

Risk Assessment

Personnel shortfalls: Staffing with top talent; job matching; teambuilding; training and career development; early scheduling of key personnel

Unrealistic time and cost estimates: Multiple estimation techniques; design to cost; incremental development; recording and analysis of past projects; standardization of methods

Developing the wrong software functions : Improved software evaluation; formal specification methods; user surveys; prototyping; early user manuals

Developing the wrong user interface : Prototyping; task analysis; user involvement

Gold plating : Requirements scrubbing (cleaning), prototyping, design to cost

Late changes to requirements : Change control, incremental development

Shortfalls in externally supplied components : Benchmarking (evaluate by comparison with standard), inspections, formal specifications, contractual agreements, quality controls

Shortfalls in externally performed tasks : Quality assurance procedures, competitive design

Development technically too difficult : Technical analysis, cost-benefit analysis, prototyping , training

Productivity Risks: Inefficient or ineffective development practices can lead to reduced productivity and lower quality.

Security Risks: Inadequate security measures can result in data breaches, system failures, and damage to the organization's reputation.

Cost Risks: Budget overruns can put the project and the organization in financial distress.

Process Risks: Poorly defined or documented development processes can lead to errors, inconsistencies, and delays.

Risk	Category	Probability	Impact
Size estimate may be significantly low	PS	60%	2
Larger number of users than planned	PS	30%	3
Less reuse than planned	PS	70%	2
End-users resist system	BU	40%	3
Delivery deadline will be tightened	BU	80%	2
Funding will be lost	CU	30%	1
Customer will change requirements	PS	80%	2
Technology will not meet expectations	TE	30%	1
Lack of training on tools	DE	80%	3
Staff inexperienced	ST	30%	2
Staff turnover will be high	ST	60%	2
Lack of vendor support	TE	20%	4
Stakeholder conflicts	BU	40%	3
Security breach or data loss	TE	20%	4
Inadequate communication among team members	ST	50%	2

PROBABILITY IMAPCT MATRIX

		IMPACT				
		TRIVIAL	MINOR	MODERATE	MAJOR	EXTREME
PROBABILITY	RARE	LOW	LOW	LOW	MEDIUM	MEDIUM
	UNLIKELY	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
	MODERATE	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH
	LIKELY	MEDIUM	MEDIUM	MEDIUM	HIGH	HIGH
	VERY LIKELY	MEDIUM	MEDIUM	HIGH	HIGH	HIGH