

# **Green Dhaka**

## **A Software Quality Testing Project**

**Project Performed**

**By**

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### **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.

## 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. Notification:**

- 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. Donation**

- 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. Software Add to Cart /Checkout**

- 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. Software Service History**

- 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**

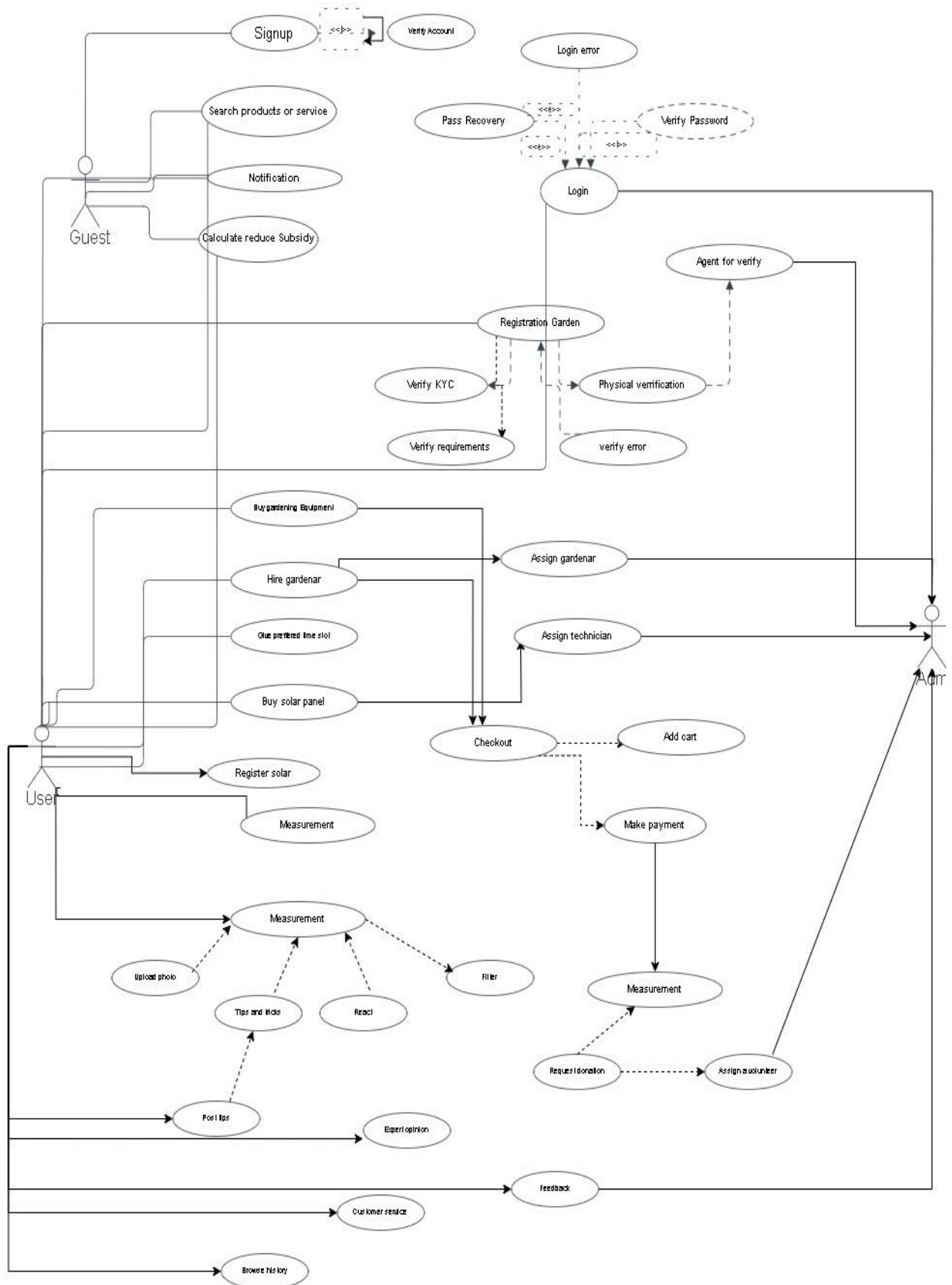
- The software should allow the users to message the help center.
- The software should allow the users to call the help center.

**Priority Level:** Low.

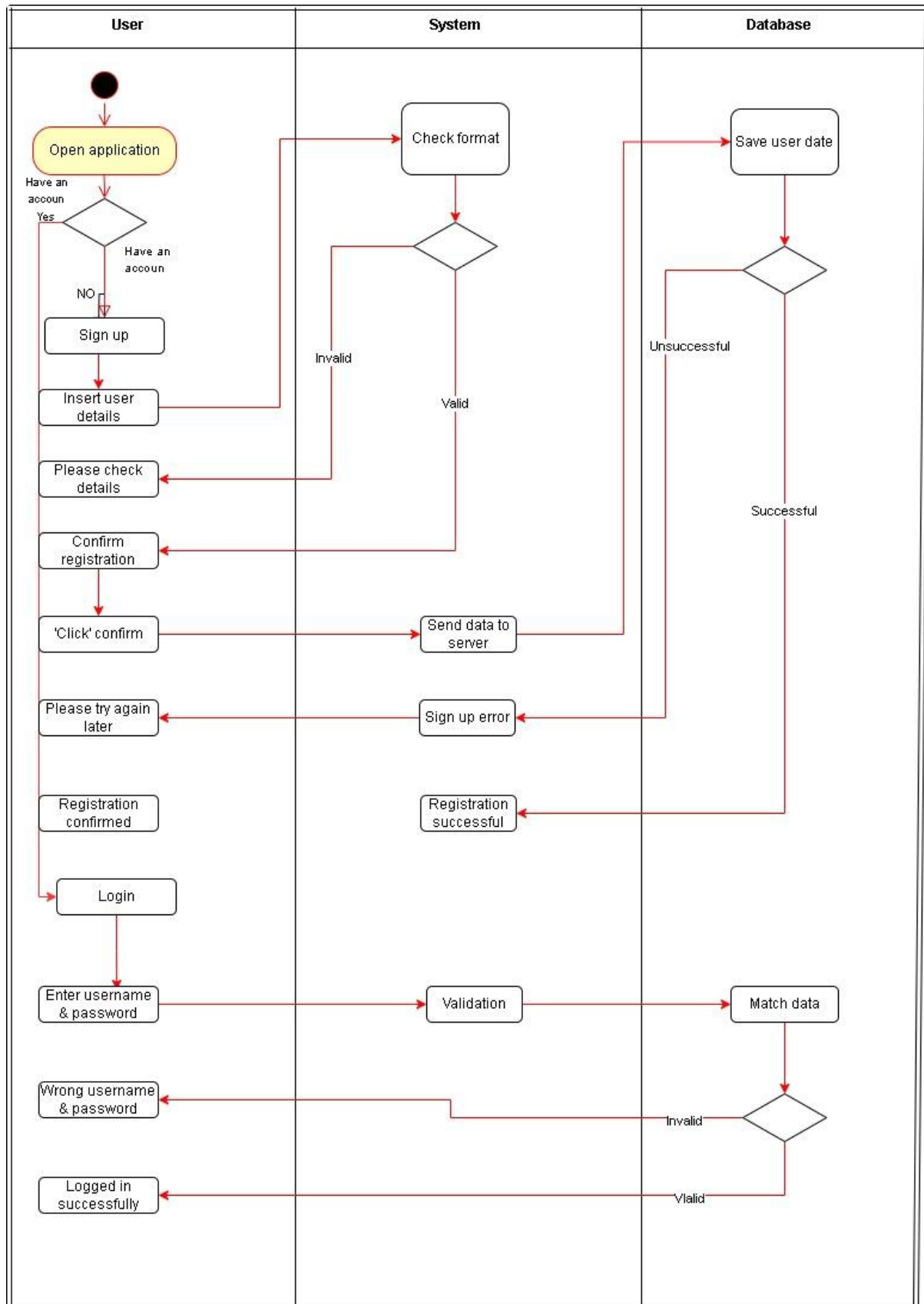
**Pre-condition:** User must have a verified account.

# Use Case Diagram

Green Dhaka

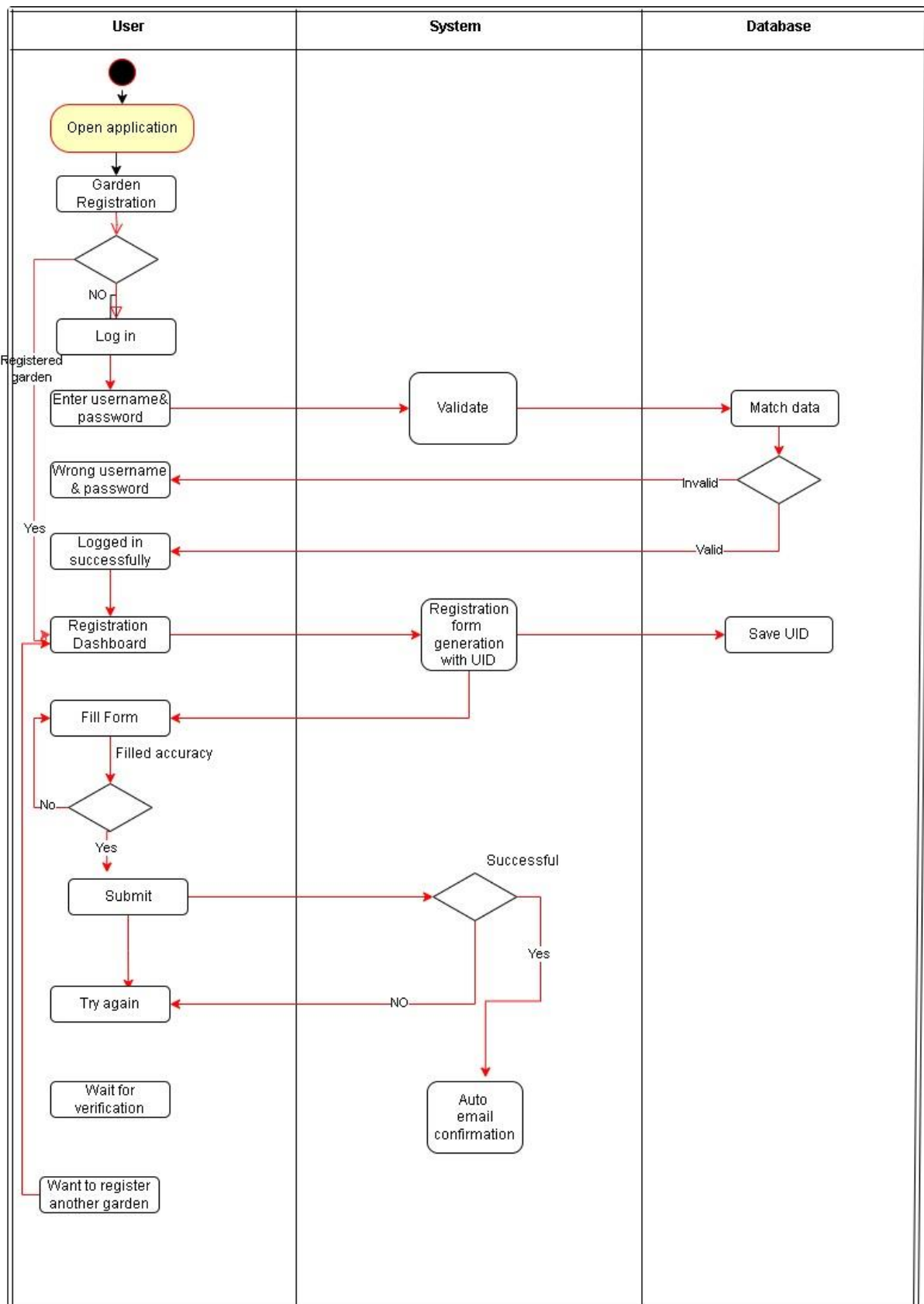


## Activity Diagram

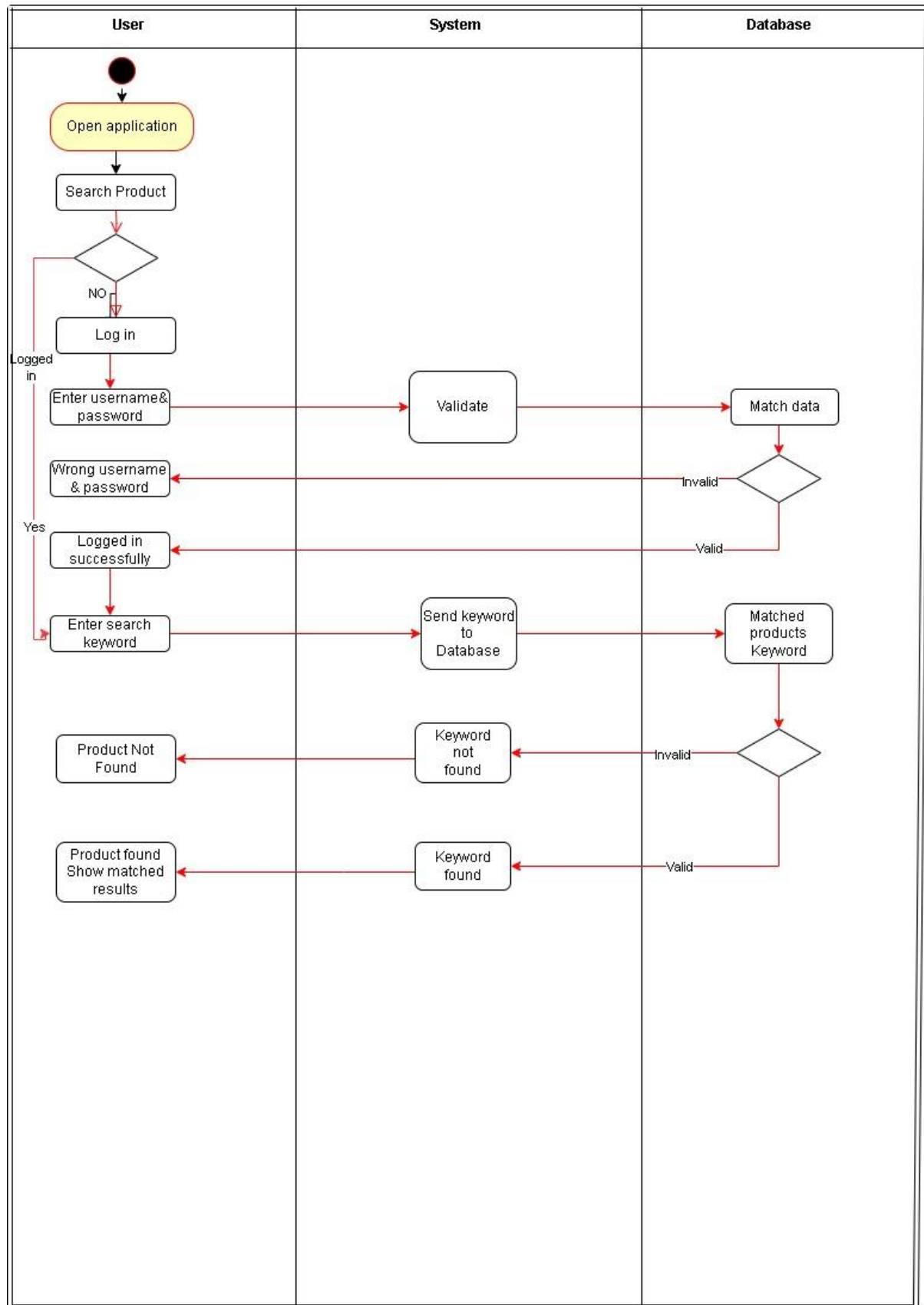


## Signup

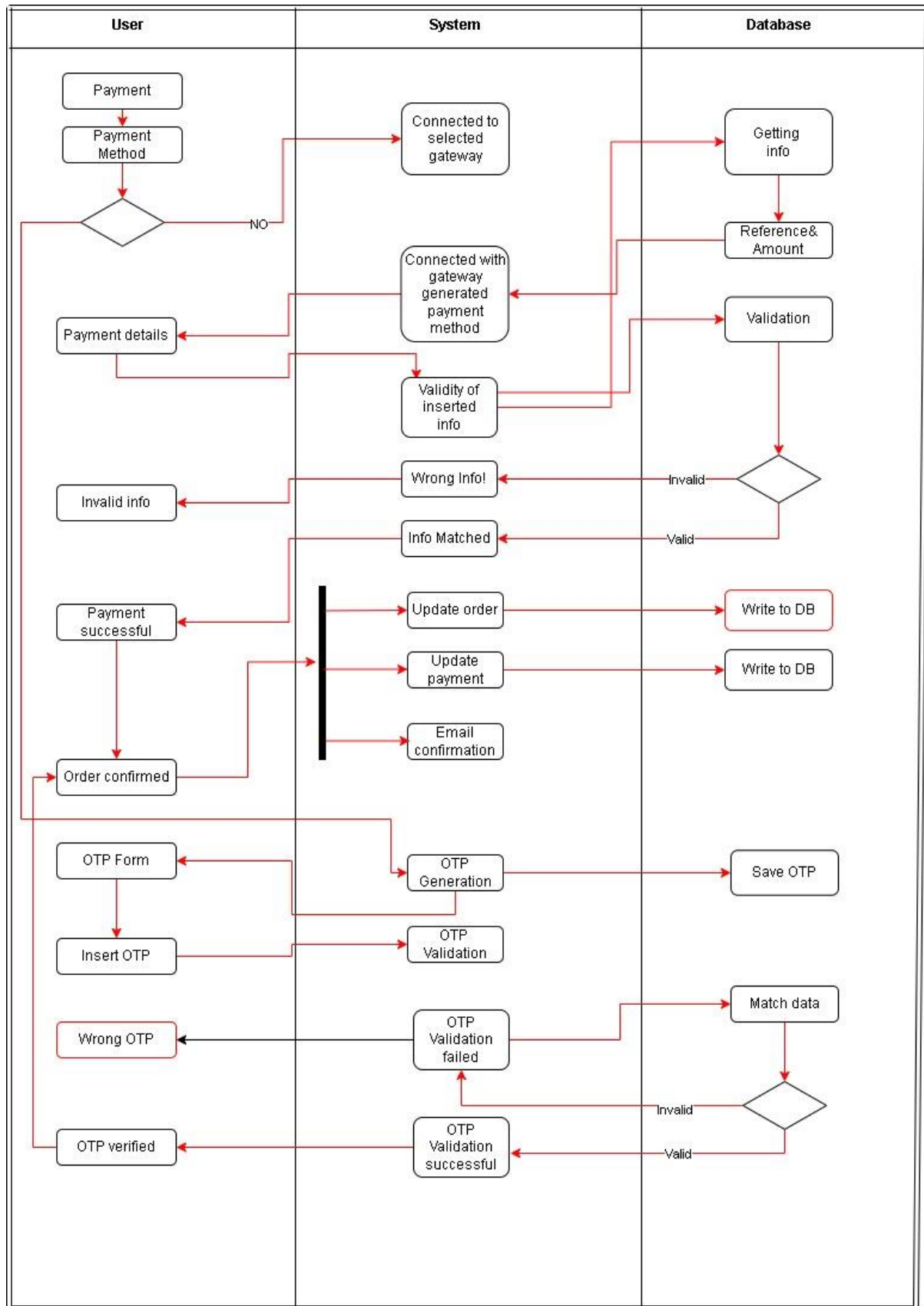




**Garden Registration**

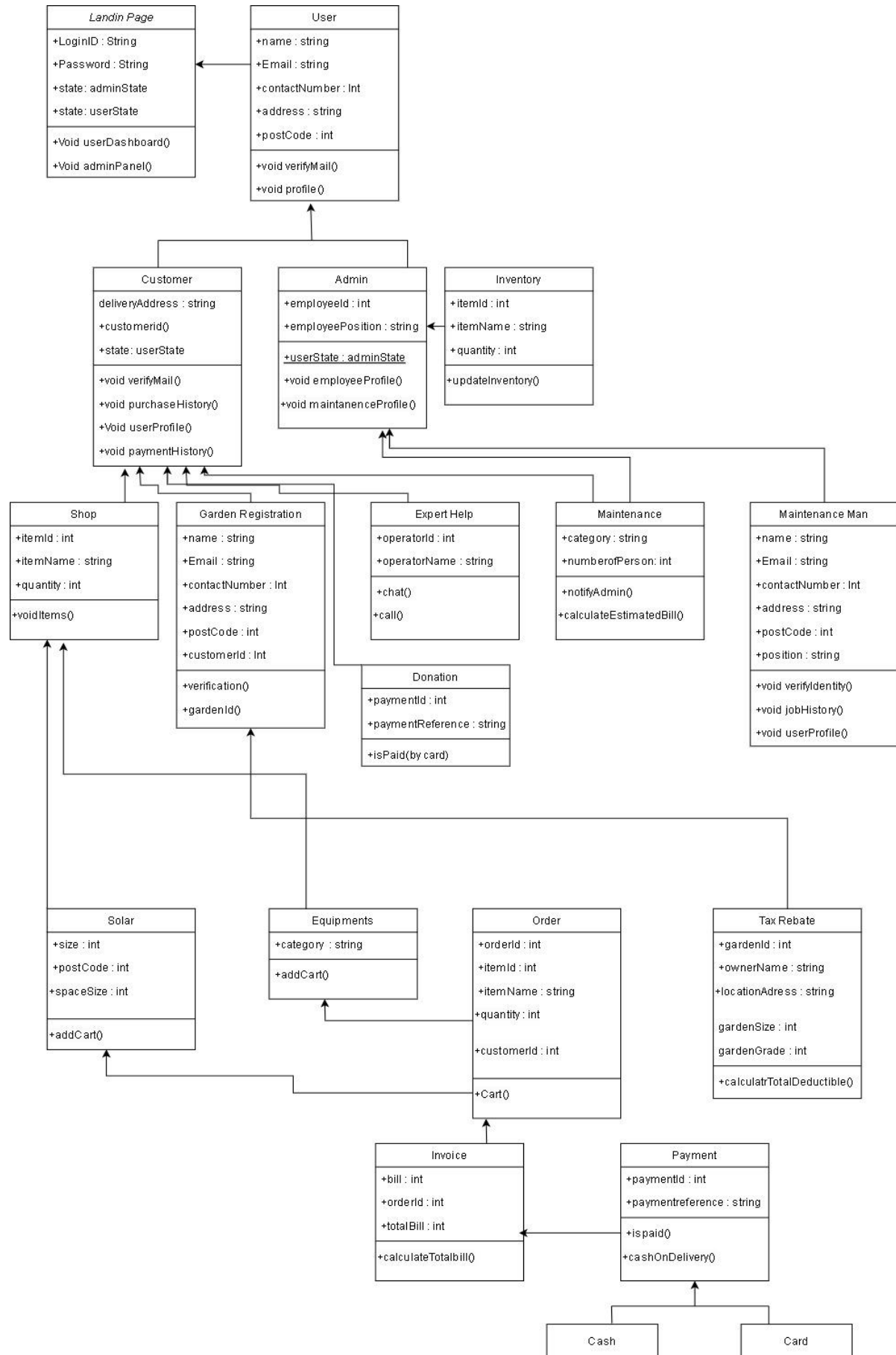


## Search

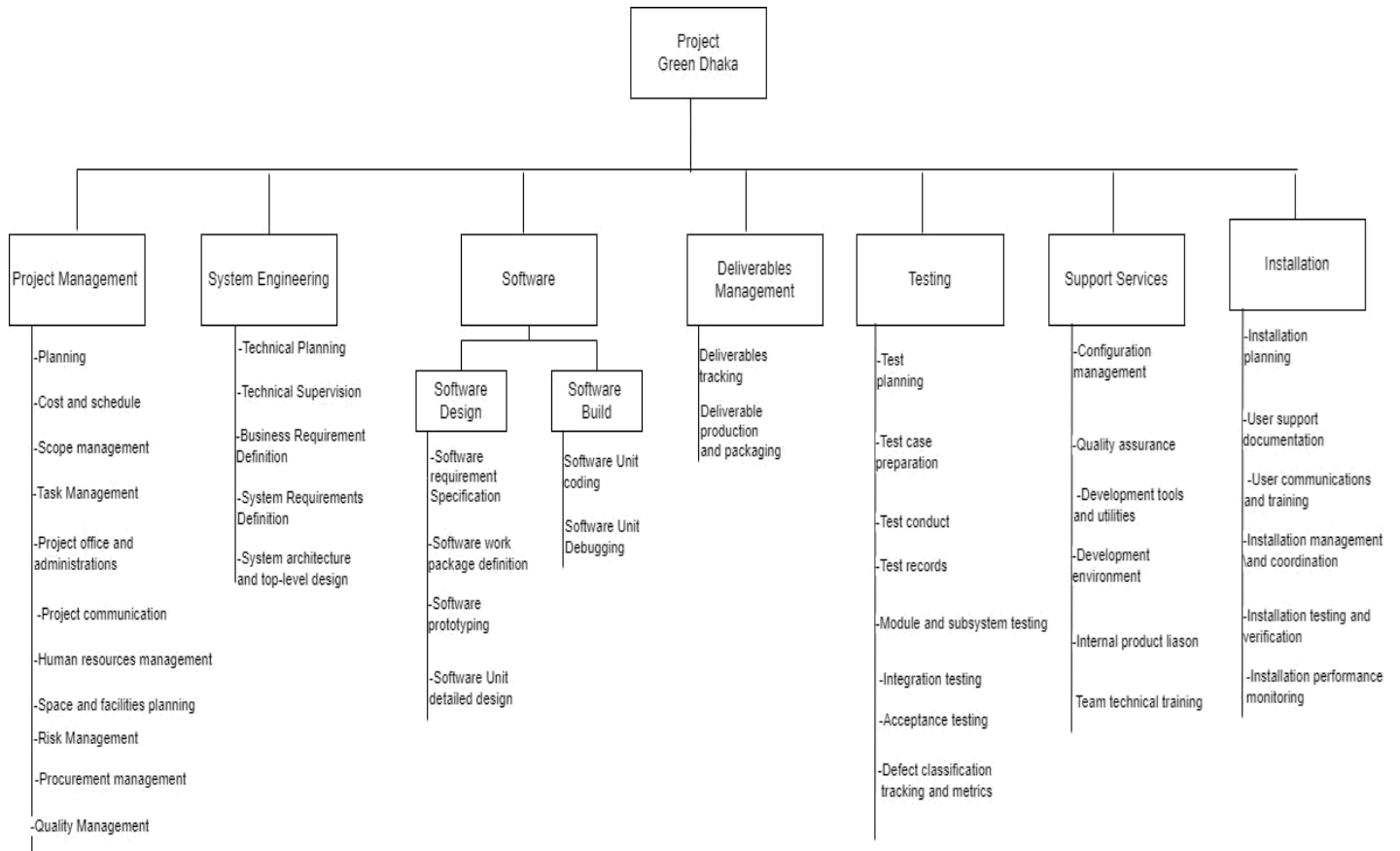


## Payment

## Class Diagram



## Project Planning



## Software Project Estimation (Constructive Cost Model)- Assumed Cost and factors

$$\begin{aligned} 1. \text{ Effort} &= PM = 2.4 \times (6000 \times 1000)^{1.05} \\ &= 15.75 \text{ WORKING HOUR} \end{aligned}$$

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

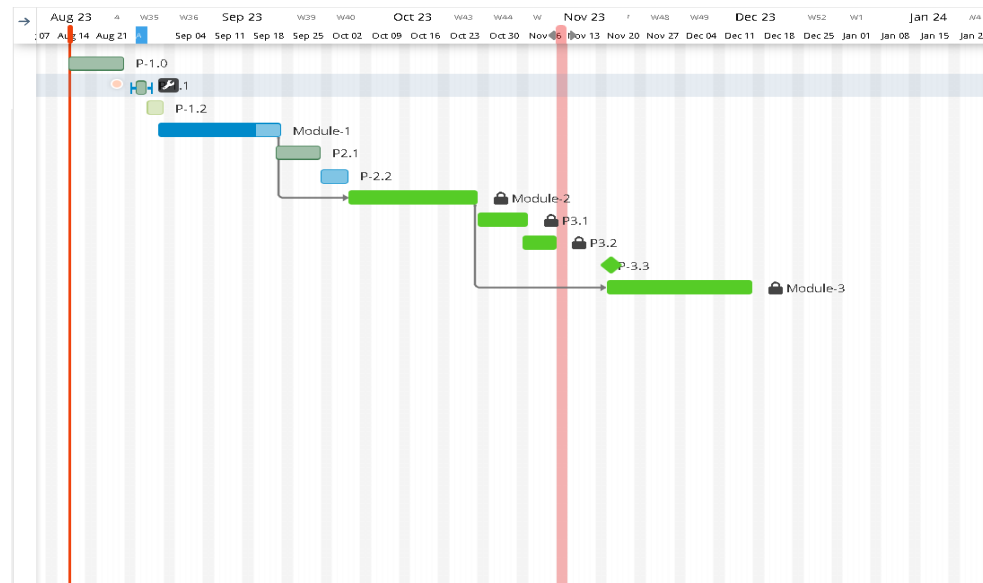
$$\begin{aligned} 2. \text{ Development Time} &= DM = 2.50 \times (PM)^{0.38} \\ &= 2.50 \times (15.75)^{0.38} \\ &= 7.13 \text{ MONTHS} \end{aligned}$$

$$\begin{aligned} 3. \text{ Required Number} &= ST = \text{---} \\ \text{of People} &= \frac{15.75}{7.13} \\ &= 2.20 \\ &= 3 \end{aligned}$$

$$\begin{aligned} 4. \text{ Working Weeks} &= DM \times 4 \\ &= 7.13 \times 4 \\ &= 28.52 \\ &= 28 \text{ Weeks} \end{aligned}$$

$$\begin{aligned} 5. \text{ Working Days} &= \text{Working Weeks} \times 5 \\ &= 28 \times 5 \\ &= 140 \text{ Working Days} \end{aligned}$$

# Green Dhaka Project Timeline



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

## **Marketing Plan:**

**Research:** Dive into understanding our audience and what our competitors are doing.

**Goals:** Set specific, measurable goals (e.g., app downloads increase by 30% in 6 months).

**Strategy:** We need to highlight what makes our Green Dhaka app special, pinpoint our target users, and emphasize our app's value.

**Tactics:** We'll make waves through digital marketing, leverage influencers to spread the word, form partnerships with eco-friendly businesses, and host engaging events.

**Budget:** Allocate funds for each tactic.

**Timeline:** Map out when each activity will roll out for a smooth execution.

**Metrics:** Track KPIs using analytics tools.

**Execution:** Launch campaigns, collaborate with partners and influencers.

**Optimize:** Adjust strategies based on feedback and data.

**Reporting:** Share performance reports with Our team.

**Adapt:** Refine strategies for growth.



**Reference:**

- I. All the diagram and charts have been created with the help of online tools.
- II. Draw.io and Instagantt were used for project Timeline.
- III. CCM mentioned in this project were based on assumed value and factors

**Thank You**