SMART ONLINE NURSERY SYSTEM: SMART NURSERY BD

BY

MD. Asif Ali
ID: 171-15-1415

MD. Tanvir Jubayed Anik
Id: 171-15-1224

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Dr. S. M. Aminul Haque

Professor and Associate Head
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Md Assaduzzaman

Lecturer (Senior Scale)
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

26 January 2024

APPROVAL

This Project/internship titled **"Smart Online Nursery System: Smart Nursery BD"**, submitted by MD. Asif Ali, ID No: 171-15-1415 and MD. Tanvir Jubayed Anik Id: 171-15-1224 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on *01 August 2023*.

BOARD OF EXAMINERS

Dr. Md. Zahid Hasan (ZH)   Chairman

Associate Professor

Department of Computer Science and
Engineering

Daffodil International University

Raja Tariqul Hasan Tusher (THT)   Internal Examiner

Associate Professor

Department of Computer Science and
Engineering

Daffodil International University

Md. Abbas Ali Khan (AAK)   Internal Examiner

Associate Professor

Department of Computer Science and
Engineering

Daffodil International University

Dr. Mohammed Nasir Uddin |(DNU)   External Examiner
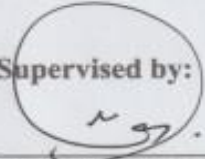
Professor

Department of Computer Science and Engineering

Jagannath University

DECLARATION

We hereby declare that; this project has been done by us under the supervision of **Dr. S.M. Aminul Haque, Professor & Associate Head, Department of CSE,** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.
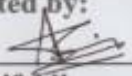
Supervised by:

Dr. S.M. Aminul Haque
Professor & Associate Head
Department of CSE
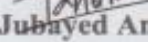Daffodil International University

Co-Supervised by:

Mr. Md Assaduzzaman
Lecturer (Senior Scale)
Department of CSE
Daffodil International University

Submitted by:

MD. Asif Ali
ID: -171-15-1415
Department of CSE
Daffodil International University

Tanvir Jubayed Anik
Id: 171-15-1224
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project/internship successfully.

Dr. S.M. Aminul Haque, professor and the associate head of the CSE department at Daffodil International University in Dhaka, has our sincere gratitude and debt. To complete this assignment, our supervisor must have deep knowledge of and a strong interest in the field of "web development." The completion of this project has been made possible by his unending patience, academic guidance, ongoing encouragement, constant and energetic supervision, constructive criticism, insightful advice, and his reading of numerous subpar drafts and correction of them at every stage.

Our sincere gratitude goes out to Dr. Sheak Rashed Haider Noori, Head of the CSE Department at Daffodil International University, as well as other academic members and staff for their invaluable assistance in seeing our project through to completion.

We extend our gratitude to all of our Daffodil International University course participants who participated in this conversation during the course of the assignment.

Lastly, we must respectfully thank our parents for their unwavering support and patience.

ABSTRACT

The Smart Online Nursery System is a comprehensive web-based platform called Smart Nursery BD that aims to revolutionize the way people buy and maintain plants for their indoor and outdoor nurseries. The project's main goal is to provide an easy-to-use, convenient online marketplace that provides a wide selection of plants, knowledgeable assistance, and other features to improve gardening as a whole. The user interface of the system is visually stimulating and interactive thanks to its front-end design. The portal is simple to use; users can look up specific plants, browse through various categories, get comprehensive details on the traits of each plant, and make purchases. The Online Nursery System's back-end architecture is built with great performance and dependability in mind for the admin database. The Online Nursery System seeks to promote healthy living conditions. With a user-friendly interface, a strong back-end architecture, and a wealth of plant information, the project aims to transform gardening into a more pleasant at-home activity. Because of this, the Smart Online Nursery System provides users with a fulfilling experience that fosters a greater appreciation for nature and the development of colorful and flourishing gardens.

TABLE OF CONTENTS

CONTENTS   **PAGE**

LIST OF FIGURES

LIST OF TABLES

New Features

CHAPTER 1

INTRODUCTION

1.1 Introduction

The Smart Online Nursery System is a web-based initiative designed to transform the way we care for and feed our children. In order to provide precursors and, most importantly, the youths with a perfect nursery experience, this design attempts to create a thoughtful and comprehensive outcome that connects safety, benefit, and technology.

The population of Bangladesh is growing so quickly that it is getting harder to clear any vacant land for the purpose of planting trees or carrying out other tasks that benefit the environment and the lives of people. People ought to start propagating nurseries on their own properties or homes in such a situation. Saying that some people are already committed to doing so is an issue of peace. However, proper plant care requires an understanding of different plant breeds. Because of this, most people are unable to guarantee how long the plants they grow in their home garden will live. In addition, the adults' appreciation for the nursery is hampered by the demands of their jobs.This initiative is aimed to address this lack of wisdom by taking into account the right way to grow trees, the requirements of different plant breeds, and the different types of nourishment that each type of plant will need.

Nowadays, adults sometimes find themselves juggling a number of obligations and commitments, which makes it difficult for them to visit nurseries that may be located far from their home. By utilizing the power of an online platform to create a connected and interactive environment for providing comfort to working individuals, the Online Nursery System aims to close this gap.

Imagine if there was a nursery system that anyone could order plants or trees from while lounging on the couch or at the office. Additionally, the system facilitates online ordering, on-demand planting in one's home or place of business, and appropriate advice to extend the life of the plant and enhance its health and wellness.

The Online Smart Nursery System provides all of that and more, including a blogging and e-commerce website to soothe and create a safe and healthy atmosphere for both parents and infants. Translucency is taken seriously by the Online Nursery System, which provides a forum for people to share recommendations and fosters user trust.

The Online Nursery System's advantages go beyond this procedure. Through a newsletter (mailing) system, users may easily arrange visits, write reviews, comments, and ask questions through the platform's faultless online registration system. This digital strategy saves people's valuable time and difficulty by streamlining the registration procedure and eliminating the need for time-consuming nursery visits and online searches on sites like Google, YouTube, Quora, and others.

With this online platform, offline nurseries can reach a larger consumer base and earn a 50/50 profit on their plants. Nurseries may reach a wider audience and draw in potential clients who are assiduously looking for their services with the aid of an internet presence and profile.

In summary, the Online Nursery System is a pioneer in the field of running nurseries. People's nursery hunt and registration procedure is made simpler by this web-based design, which makes use of technology and the internet. The Online Nursery System seeks to link families with reputable nurseries so that everyone can live comfortably and in a healthy environment. It does this by offering an intuitive registration process and user-friendly interface.

1.2 Motivation

The impetus for creating the Online Nursery System came from a thorough comprehension of the difficulties individuals encounter in obtaining high-quality nursery services for their interior spaces. We conclude that adults who are looking for a nursery often find it to be a difficult and time-consuming procedure, as they want to locate a loving environment that fits with their personal comfort level and ideals. Conventional methods for examining registration and nurseries

usually entail manual research, phone calls, and in-person meetings, all of which can be very taxing on persons with busy schedules. Even more taxing on the decision-making process are the lack of unified information and a trustworthy forum for debates and comments.

Our main goal in creating the Online Nursery System was to make the processes of choosing plants, caring for them, and registering them as easy as possible. We want to provide an approachable and efficient platform that encourages people to harvest trees for a better livelihood while still being in a comfortable environment at home by utilizing the power of the internet and technology.

Ultimately, our dedication to streamlining and improving plant growth in every home to restore a green atmosphere and promote health is what drove the construction of the Online Nursery System. We are driven by the conviction that technology has the power to transform the way that nursery services are provided, resulting in a more efficient, transparent, and ultimately enjoyable process.

1.3 Objectives

The nation has developed environmental regulations, initiatives, and amendments with noticeable progress [1]. Notwithstanding this development, Bangladesh has endured decades of unrelenting environmental deterioration and congenital capital loss that have a negative impact on environmental services, agriculture, and mortality [1]. An analysis reveals that at least 19 million people in Bangladesh depend on timber for their livelihood [1]. Quick changes in land usage threaten the nation's few remaining forests, which provide a safety net for the impoverished and mitigate the effects of climate change. In light of this, we considered an online nursery system. This project's primary goal is to create a nursery in every home for the environment's benefit.

The following represent the Online Nursery System's ideal design:

- Create a web-based platform that makes it easier and more enjoyable to purchase and trade plants and related goods from the comfort of your home.
- supplying customers with an easy-to-use and accessible interface so they may peruse, purchase, and monitor their orders.
- guaranteeing user security.
- implementing user suggestions to improve the experience for users.
- Encourage the nursery's expansion, respectable behavior, and eco-friendly living.
-

1.4 Expected Outcomes

- Simplified Ordering Process: A platform that makes it simple for consumers to look for various kinds of plants, saplings, and fertilizer suggestions.
- Professional Plant Care Advice: This blogging platform can assist individuals in finishing their preparatory work to grow plants successfully both indoors and outdoors.
- Reviews: Through the email, reviews and user recommendations will be posted.
- Convenient Delivery Options: Users may specify a date for delivery, and delivery will be made on that day.
- Simplified Registration Process: In order to order and monitor their items, users will have their own account.
- Payment Gateway: Customers can use bKash to purchase the plant of their choice.
- Admin Panel: By testing and resolving bugs, the admin will be able to update and maintain the system on a constant basis.
- deployment of the CMS for order and product administration.

1.5 Project Management and Finance

We required the following timetable in order to finish the project:
- Requirements Collecting and Planning (12 days)

- Design and Development (36 days)
- Testing and Bug Fixing (12 days)
- Final Implementation (12 days)
- Documentation (7 days)

We finished the project on our own, within the deadline. However, in order to make it a significant and successful one, we will eventually require a competent staff of front-end and back-end engineers. The following individuals will make up the project team:

- Project Manager
- Web Developers
- UX/UI Designers
- Quality Assurance Experts
- Database Administrators
- Customer Management Delegates

Finance:

We will require a large sum of money for project financing in order to hire these specialists. Given that we anticipate the project to be significant in the future, the following should be the approximate project budget:

- Design and Development: 80,000 BDT
- Quality Control and Testing: 20,000 BDT
- Deployment and Hosting: 10,000 BDT
- Database Management: 15,000 BDT
- Supervisory: 10,000 BDT/month
- Additional Costs: 20,000 BDT

1.6 Report Layout

Chapter 1

Introduction

Motivation

Objective

Expected Outcome

Project Management and Finance

Report Layout

Chapter 2

Terminologies

Related works

Comparative Analysis

Scope of the Problem

Challenges

Chapter 3

Business Process Modeling

Requirement Collection and Analysis

Use Case Modelling and Description

Design Requirement

Chapter 4

Front End Design

Back End Design

Interaction Design and User Experience (UX)

Implementation Requirements

Chapter 5

Implementation of Database

Implementation of Frontend Design

Testing Implementations

Test results and Reports

Chapter 6

Impact on Society

Ethical Aspects

Sustainability Plan

Chapter 7

Discussion and Conclusion

Scope for Further Developments

CHAPTER 2
BACKGROUND STUDY

2.1 Terminologies

Most people in the modern era are having access to social media sites. The realm of online media is now its own. With the internet, we have access to information about anything in the world. In light of the fact that our nation is becoming less green, we decided to combine the answer with an internet platform. For the benefit of the users, we will go over some of our terminology that pertains to our project, the Smart Online Nursery System, in the sections that follow.

- Online Nursery System: An online store where customers can peruse and select plants, seedlings, and accessories.

- User Interface (UI): In addition to login, menus, newsletters, carts, and other design features, the UI is the visual component of a website that facilitates interaction with any kind of user.

- User Experience (UX): The overall feeling and contentment of users during their usage of the Online Nursery System, encompassing the ease of use, naturalness, and effectiveness of the interface.

- Payment Gateway: A mechanism that is automated that enables customers to safely use the bKash payment option to make online payments for their products.

- Customer support system: Use phone, email, and newsletter to assist consumers. Resolve complaints, handle questions, and offer post-purchase assistance.

- Order management includes processing, placing, and fulfilling orders from customers and making sure that the product is delivered on schedule and without incident.

- Inventory management: the administrator's responsibility to ensure that there are no stock outs, add, remove, or change products inside the Online Nursery System.

- Performance: Ensuring seamless navigation and reduced loading times for pages.

- Security: We always prioritize transparency in our system and take great care to

protect consumers' personal data. We have put procedures in place to guard against unauthorized third-party access to the Online Nursery System and user data as a result.

- Bug Fixing: Identifying and resolving software flaws, mistakes, or problems inside the website to maintain optimal functionality through incremental updates and maintenance.

2.2 Related Works

Social media has successfully reached people of all generations. Since the pandemic, there has been a sharp rise in reliance on social media. In light of that, the majority of individuals are also gravitating toward internet enterprises. E-commerce sites are primarily located online throughout the majority of Bangladesh. As such, there are some online platforms associated to this task, since we are developing a web-based platform on the nursery system, which is an e-commerce site. A selection of similar sites can be seen below:

Bangladesh is home to the online nursery system Satvai Nursery. Various plants, fruits, and seeds are sold throughout Bangladesh through this site. The website has 1.8k active users, indicating that its popularity is continually rising. They are using social media sites like Facebook and their website to conduct active retail sales. In addition, they are pursuing a similar strategy for product exportation. Even while they have been developing steadily, they still fall short in several areas when it comes to offering crucial user-friendly experiences like feedback, suggestions, and customer education to prolong the life of the plants.
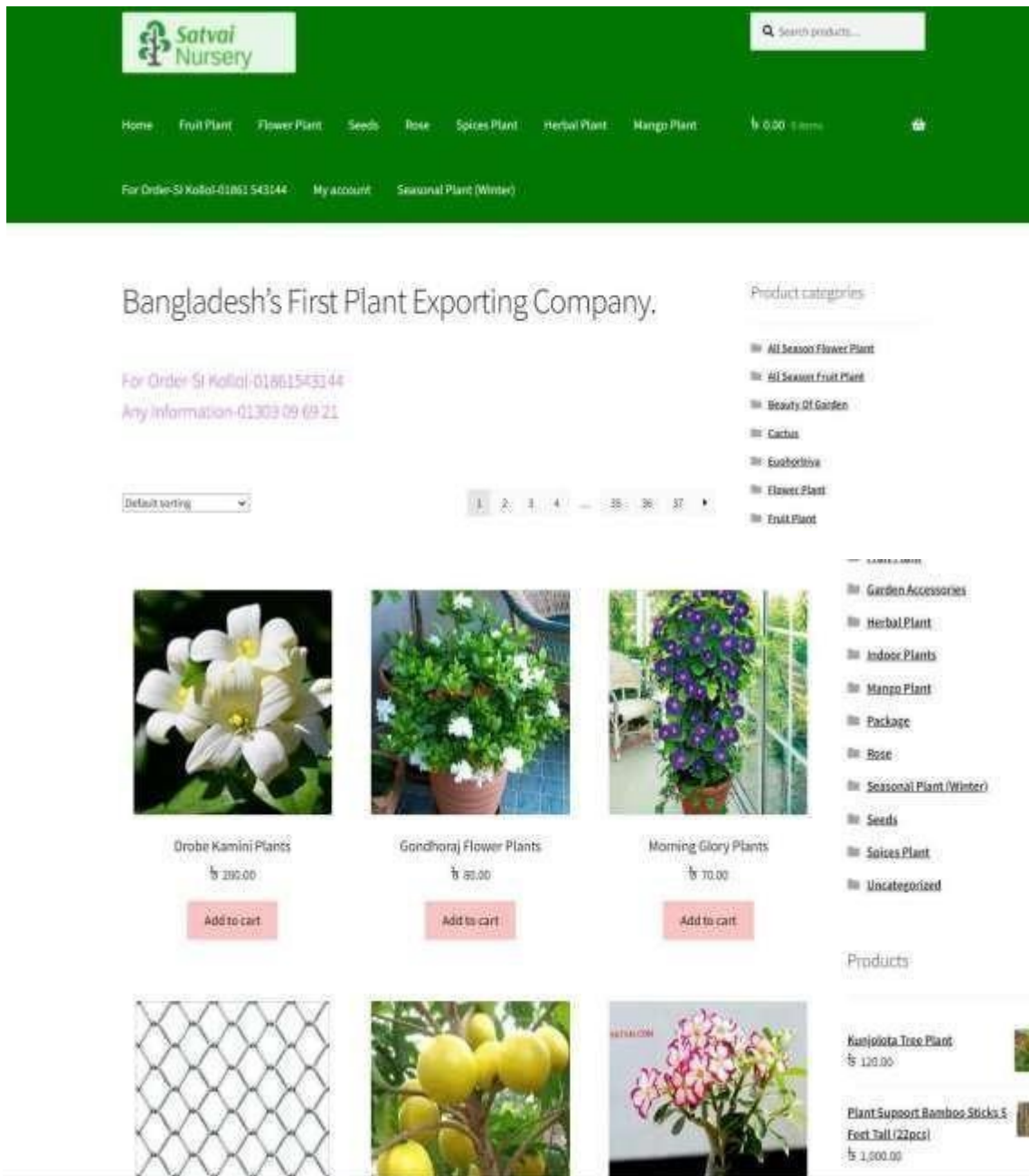
Fig. 2.2.1. Satvai Nursery Website

A user-friendly interface with no customer support system is displayed on Satvai Nursery's website in the above figure.
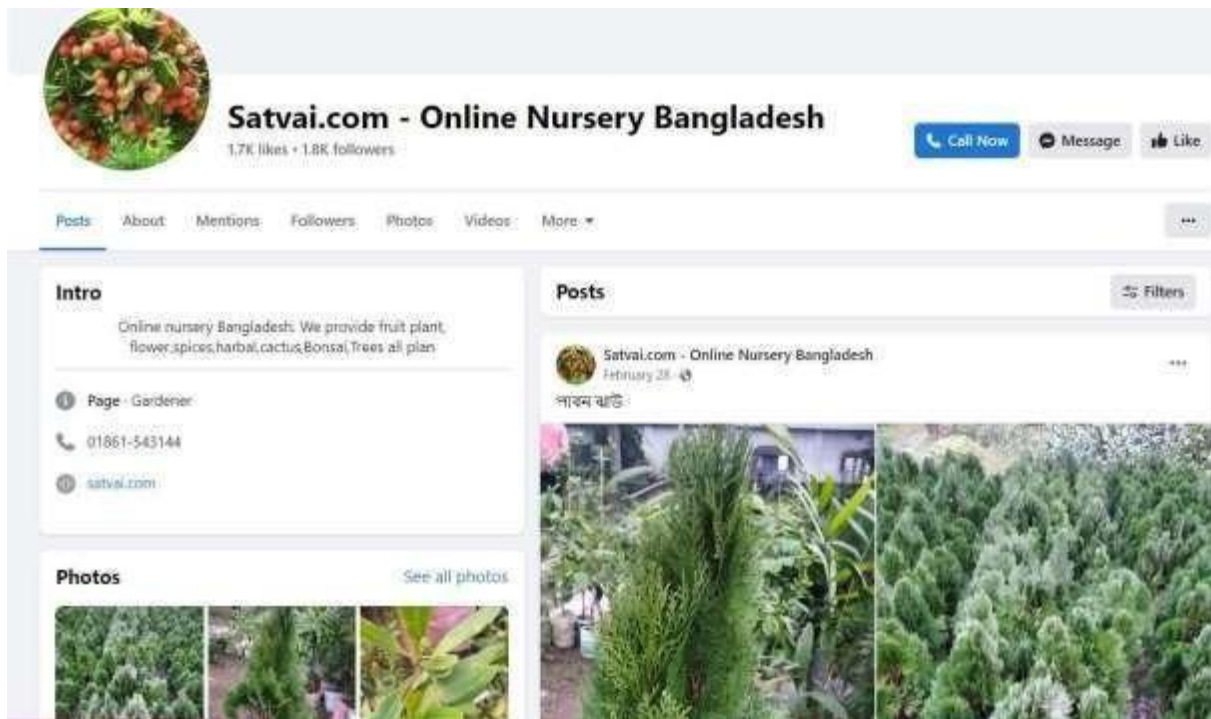
Fig. 2.2.2. Satvai Nursery Facebook page

The Facebook page of Satvai Nursery is depicted in the above graphic, where the number of active users is displayed along with a non-interactive page that requires further development.

Plants BD is a networked nursery site that is actively expanding. Demand for this website is rising among its 2.7k active users. Their revenue is derived from selling various plants, seeds, fertilizers, and pottery on internet platforms and social media sites like as Facebook. For an e-commerce website, reviews and ratings are essential, and they have been carefully implemented to make the website more user-friendly. In addition, it could have been a good idea to include training resources to improve customer outreach and connection.
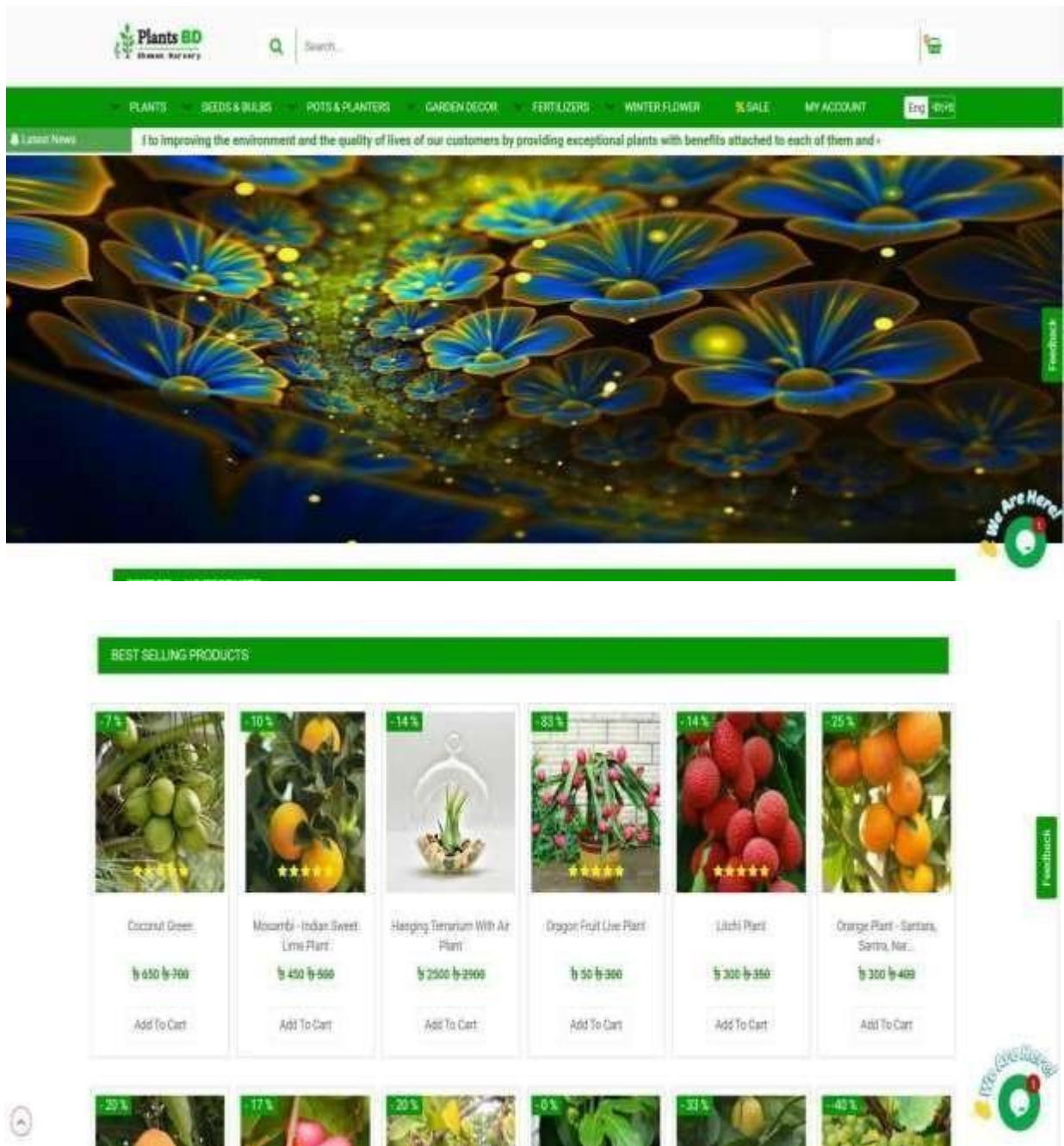
Fig. 2.2.3. Plants BD Website

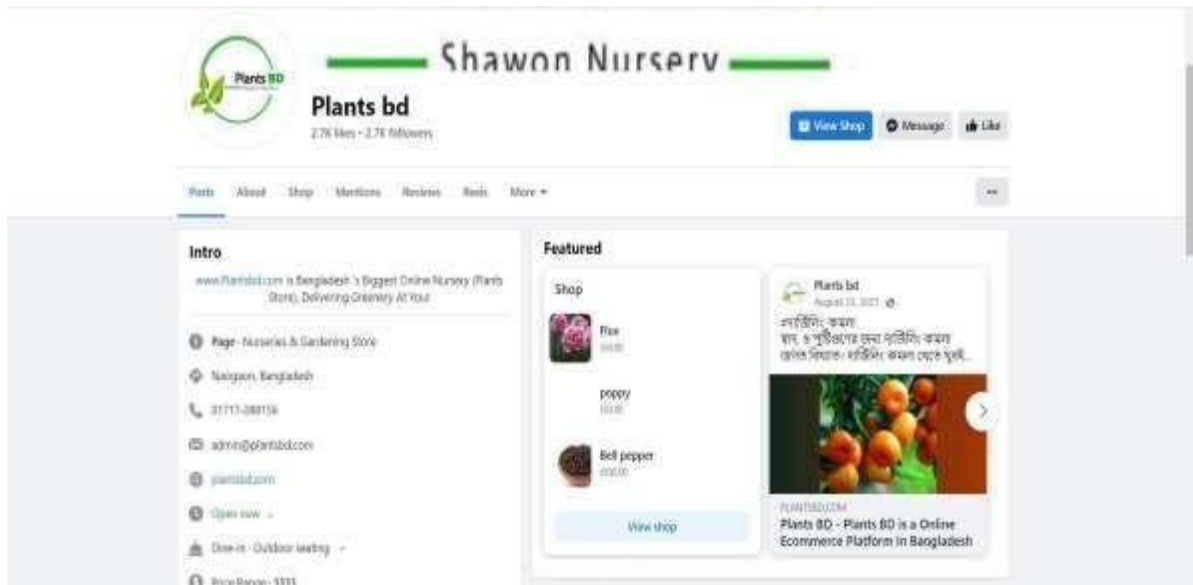The Plants BD nursery's user-friendly interface is depicted in the figure.

Fig. 2.2.4. Plants BD Facebook page

You can observe active users and posts on Plants BD Nursery's Facebook page in the above graphic.

2.3 Comparative Analysis

Table 2.3.1 Comparative Analysis

Comparison	Satvai Nursery	Plants BD	Smart Nursery BD
Functionality	Although there is a secure payment channel and a lack of customer support, the website design is not well-organized.	There is a customer support system, a secure payment channel, and an intuitive design.	A customer support system, a blogging system for pre-training, a solid and secure payment gateway, an intuitive and aesthetically pleasing

	No blogging site method for pre-training side by side.	The description mechanism on blogging sites should be more explicit.	user interface, and a content management system to handle the product using Python are all included.
User Support	Simple to use interface, but no system reviews, ratings, or pre-training option. not contacting the admin section to ask for assistance.	The system does not offer a pre-training option. A feedback mechanism is present.	A user-friendly interface featuring a pre-training option, a feedback and contact system via email or newsletter, and a login option is offered.
Features	There is a dearth of blogging sites that provide clients with pre-training, and loading times are frequently	There was no website that provided users with training to help them understand the many plant breeds and how	A blogging platform that allows users to interact for pre-training to understand and become acquainted

	complicated.	they thrive.	with the plant growth process.
Social media	only on Facebook; no presence on other social media networks. Less involvement on social media platforms as well.	Of all the online media, Facebook is the only one with an online presence.	fostering ties with consumers and advertising on YouTube and Facebook to specific consumers.In addition, they vlog every day from their social media profiles.

2.4 Scope of the problem

The extent of the issue is among the difficulties and outcomes that our project, aims to solve. The goal of this project is to overcome the limitations and gaps in the current nursery sector. Understanding the problem's extent is essential to articulating the necessity of our project.

- Inadequate Accessibility: Not all clients can reach physical nursery stores within their immediate vicinity. This project may help to resolve this problem.

- Time and Convenience Restrictions: Buyers may not be able to visit physical nurseries because of work or other obligations. Our Online Nursery System may therefore be a useful convenience.

- Lack of Product Availability: In traditional nurseries, customers frequently struggle to find the varieties of plants they want, together with information about how to care for the plants and if they will grow well indoors. Deciphering our design's web platform could be a wise choice.

- Absence of After-Sales Support: Consumers encounter difficulties when attempting to get answers to questions regarding plant maintenance or health. Our project is committed to helping clients at all times with the blogging component and communication to successfully maintain relationships with users.

2.5 Challenges

The following are some key issues that is manageable and diagnosable:
- E-commerce Configuration
- Product Classification Administration
- UI/UX Design
- Keeping Data Secure and Private and Ensuring It
- Integration of Payment Gateway and CMS
- Configuring the Admin Panel

CHAPTER 3
REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

A Business Process Model is a graphic representation, diagram, or chart that shows the sequence of steps and interactions in a business process. It provides a uniform and transparent picture of how an organization operates, illustrating the progression of decisions, information, and operations from beginning to end.

Among a business process model's fundamental components are:

- Actions
- Taken
- Choices
- Inputs and Outputs
- Auxiliary
- Terminator
- Limitations and Regulators

The following is included in the business process model for our project:

- **Customer Registration:** Although customers can use this site straight forward, They have to first register by giving a few fundamental details in order to place an order. The customer data is valued by the system and is handled with complete security.

- **Browse Plants:** Visitors are able to peruse a variety of plant categories. To narrow down their search to just the type of plant they want, they can utilize search filters.

- **Product Selection and Cart:** Customers can examine plant characteristics, such as pictures and costs, and then, if they would like to purchase the item, add it to their cart. The order and total order prices are trackable by the admin.

- **Checkout and Payment:** After adding items to their carts, buyers can move to the checkout page to choose their preferred payment option. You have two options for making payments: cash on delivery or bKash. Customers can view the total amount due for the purchase before making a payment. A single payment gateway is used by the system to safely execute the payment transaction.

- **Order Completion and Processing:** Following a successful payment, the order confirmation is processed by the system.

- **Delivery and Tracking:** After that, the order is carefully handled, packaged, and delivered on schedule.

- **Customer support and feedback:** For any questions, concerns about orders, or comments, customers can email or contact the administrator.
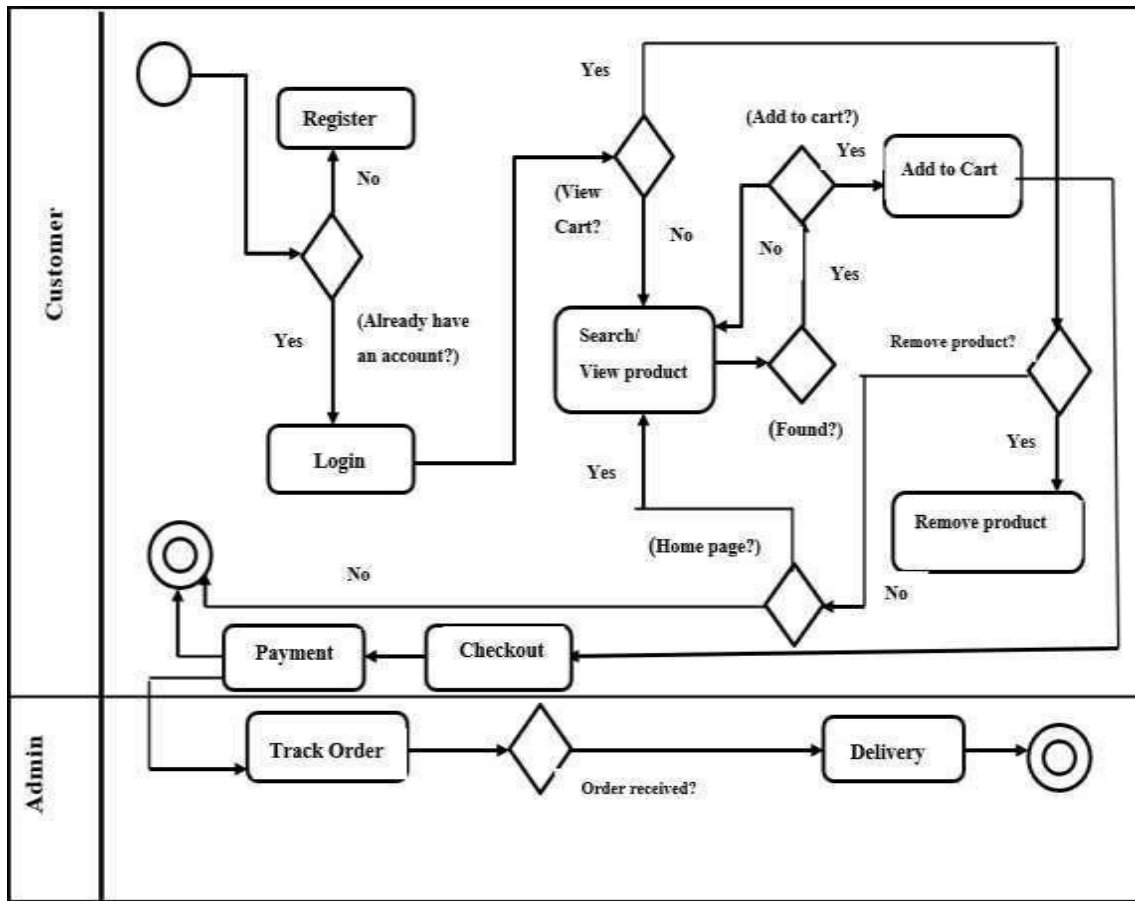
Fig. 3.1.1. Smart Online Nursery System's Business Process Model: Smart Nursery BD

The BPM graphic above illustrates how a customer may order the plant of their choice in our project and how the admin panel effectively manages the order. The admin panel can also be used to add or remove products, view customers who have registered, monitor delivery history, change blog posts, update the admin's portfolio, review user feedback, and respond to users.

3.2 Requirement Collection and Analysis

Smart Nursery BD project's inspection, prototype design, coding development, installation, and upkeep.

Stakeholder Confirmation:

Validating the key players, including suppliers of plants, internet nurseries, and buyers. Meetings, conversations, and questionnaires were conducted to learn about the process of gathering products and to examine the opinions and expectations of customers regarding the Online Nursery System: Smart Nursery BD project.

Functional Prerequisites:
- Signing up
- Management of Products
- Search Option
- Cart and Checkout
- Management of Multiple Orders
- Client Assistance
- Gateways for payments
- Form of contact
- Additions and deletions to portfolios
- Instructional Blogs
4 Adaptive Dynamic Architecture

Non-Functional Prerequisites:
- Performance and Updates
- Safety and Privacy
- Easy to use UI/UX
- Harmoniousness

Prioritization was determined by importance and viability during the requirements gathering and analysis process, and many customers were included for validation and assessment. Requirements are updated continuously based on importance and demands.

4.2 Use Case Modeling and Description

A Diagram of Use Cases is a visual portrayal of the relationships between users and the system administrator that is being studied. It shows how a system works from the standpoint of its users. Use case diagrams are frequently used in prototype design, which is the process of defining the qualities and boundaries of a project before it is developed.

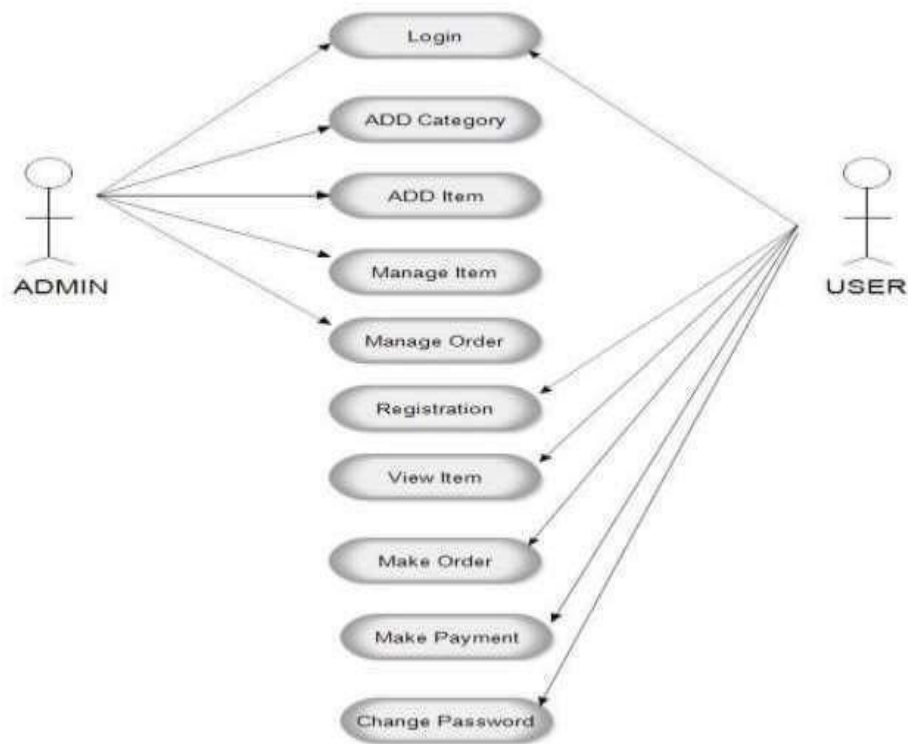Our project's use case model is displayed as follows:

Fig. 3.3.1. Smart Online Nursery System Use Case Diagram

Description:

4.3 Logical Data Model

A logical data model, which does not include any technological errors, illustrates the fundamental organization and connections between the data in a system. associations between data attributes and entities that guarantee data accuracy, consistency, and ethics.
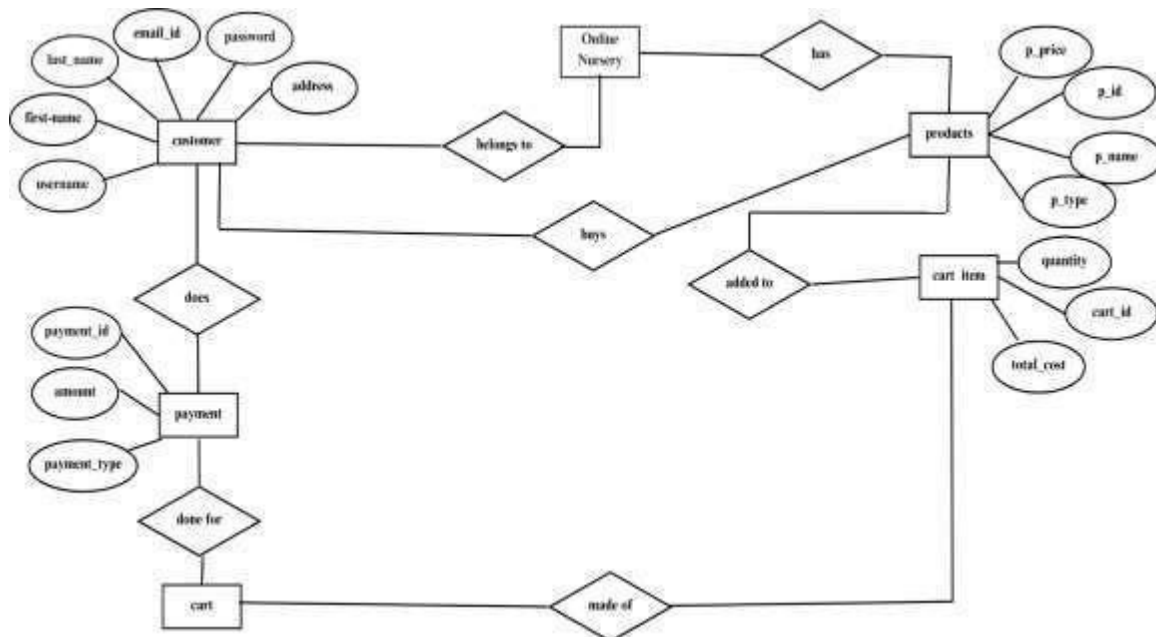

Fig. 3.4.1. The Smart Online Nursery System's Logical Data Model

We depicted a high-level scenario of the data architecture and interactions in our project in the above graphic. It acts as a guide for designing databases. The physical model, which includes implementing each of these aspects, can be built from the logical data model.

4.4 Design Requirements

A necessary component of design operation is the design requirement. A user-friendly website receives more market value than one that is not, which is crucial for development-based projects. Users lose interest in the system and seek for alternative solutions as a result. The requirements for design include a sorted site distribution, problem resolution, Use-case diagrams, flow charts, architectural design, user experience considerations, assessment, and testing. Our website's eye-catching effects, business appearance, and responsive design have added additional dimensions to our project, making it more user-friendly. To make the design more user-friendly and appealing to clients, it is still being maintained and updated gradually.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The process of creating a website's graphical user interface and aesthetic elements. It entails creating the optical components and website structure that users engage with when they connect to the site. In front-end design, components such as these are designed:

- Configuration and structure: Choosing where to put footers, sidebars, headers, and navigation menu bars.
- Composition: Choose appropriate typefaces for each textual piece, taking into account font sizes and styles.
- Themes and color schemes: Choosing a color scheme that complements the website's concept for backdrops, text, and buttons.
- Images and graphics: Including icons, graphics, and images to enhance the visual presentation.
- User interaction: creating radio buttons, forms, and other interactive features as well as constructing an intuitive user interface for simple website navigation.
- Making sure the design is responsive across a range of devices and screen sizes.

To make our front end far more user-friendly, we employed a variety of popular programming languages, markup languages, and frameworks in our project. Below is their name:

- **Programming language:** JavaScript
- **Markup language:** HTML5
- **Style Sheet:** CSS3
- **Framework:** Bootstrap4

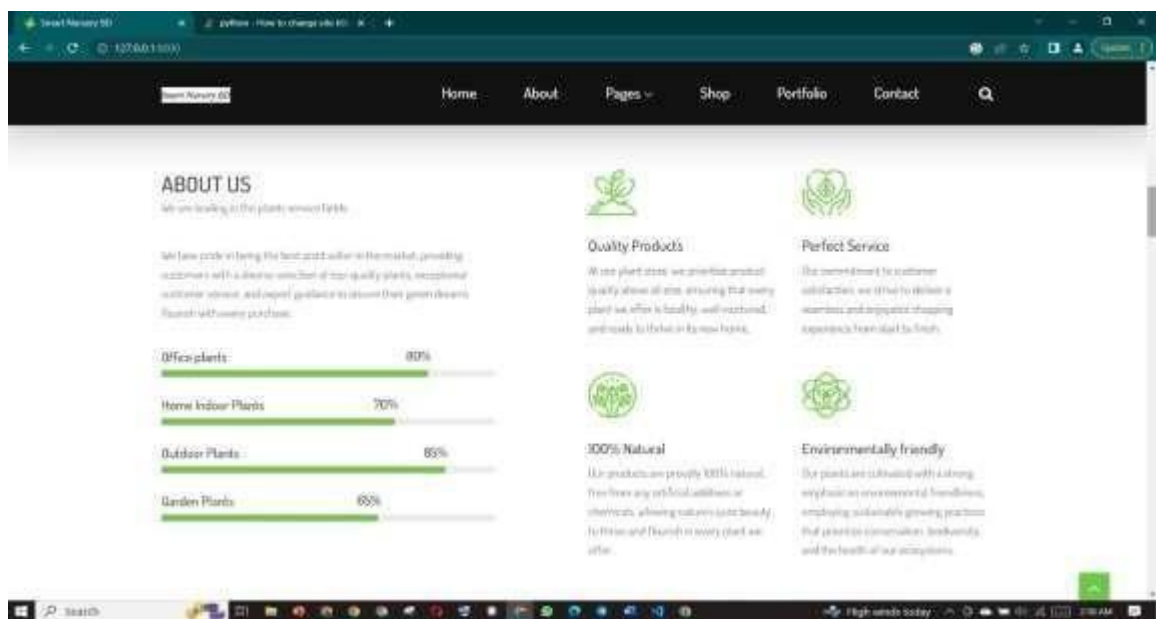**Home page:** The initial impression a consumer has of our website

Fig. 4.1.1. Smart Online Nursery System's homepage

The initial view of our website as seen by a user is depicted in the above figure.

Register and login page: Before using their account to buy plants, a customer must first complete the registration process, after which they will be redirected to the login page..
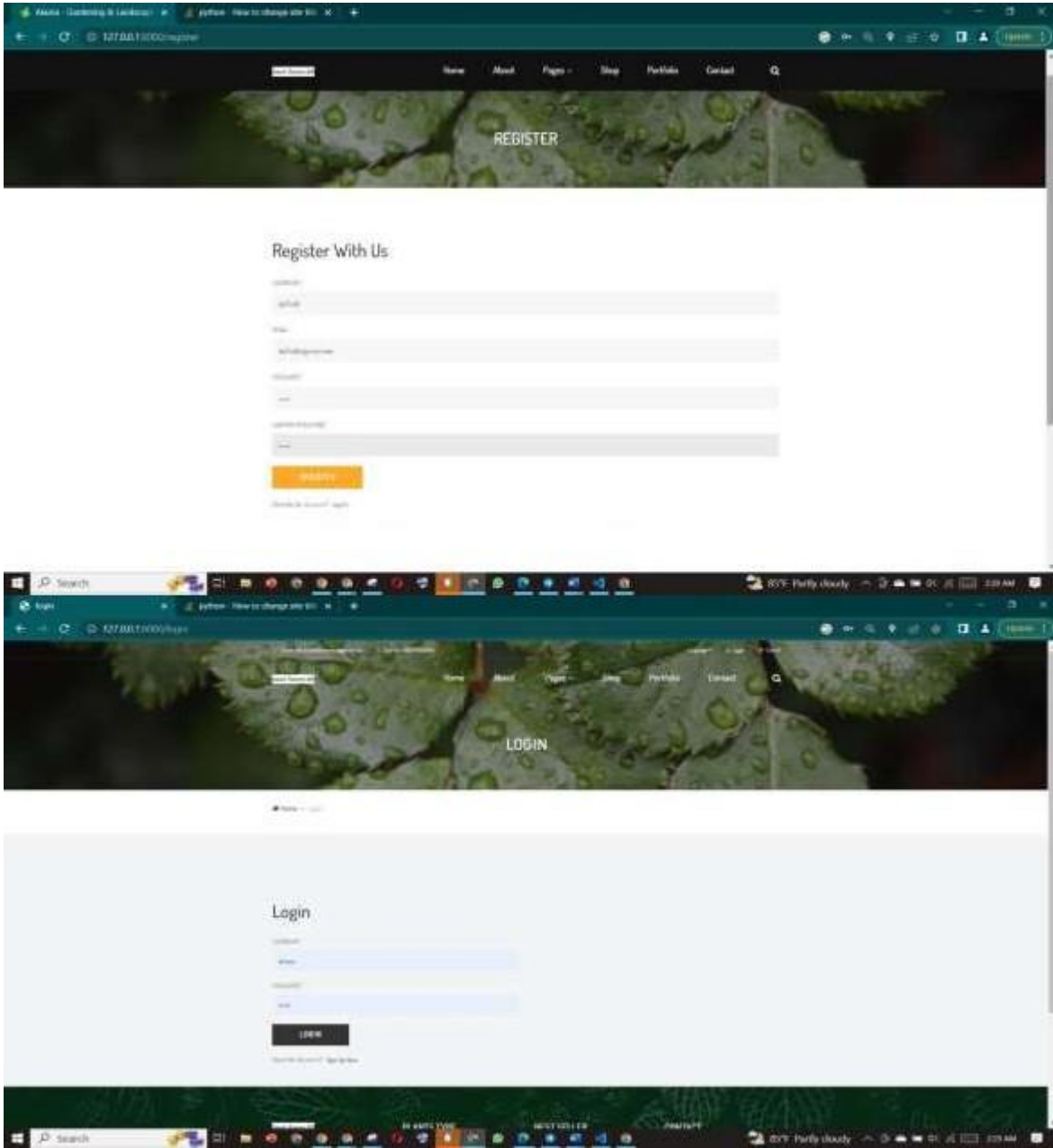

Fig. 4.1.2.The Smart Online Nursery System's register and login page

The user's registration and login details are displayed in the above figure.

Shop page and Product details: Consumers can peruse the entire website to purchase the things they want while learning about the plants through the product descriptions.
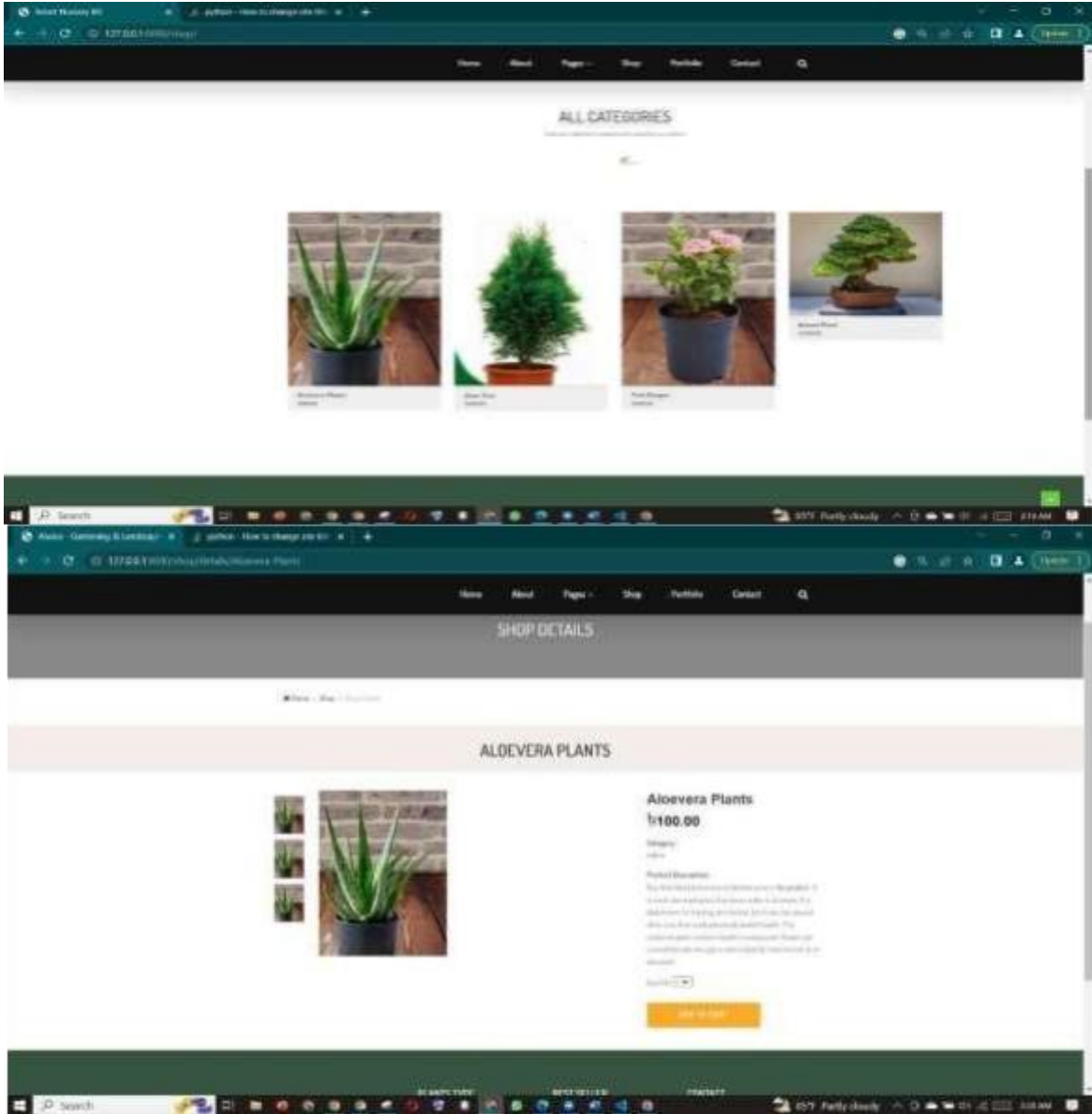

Fig. 4.1.3. The Smart Online Nursery System's shop and product description page .

Customers can view a variety of plants on this shop page. By clicking on any particular plant, they can select the number they wish to order and be taken to the product description for that particular plant. The image above serves as an example of this.
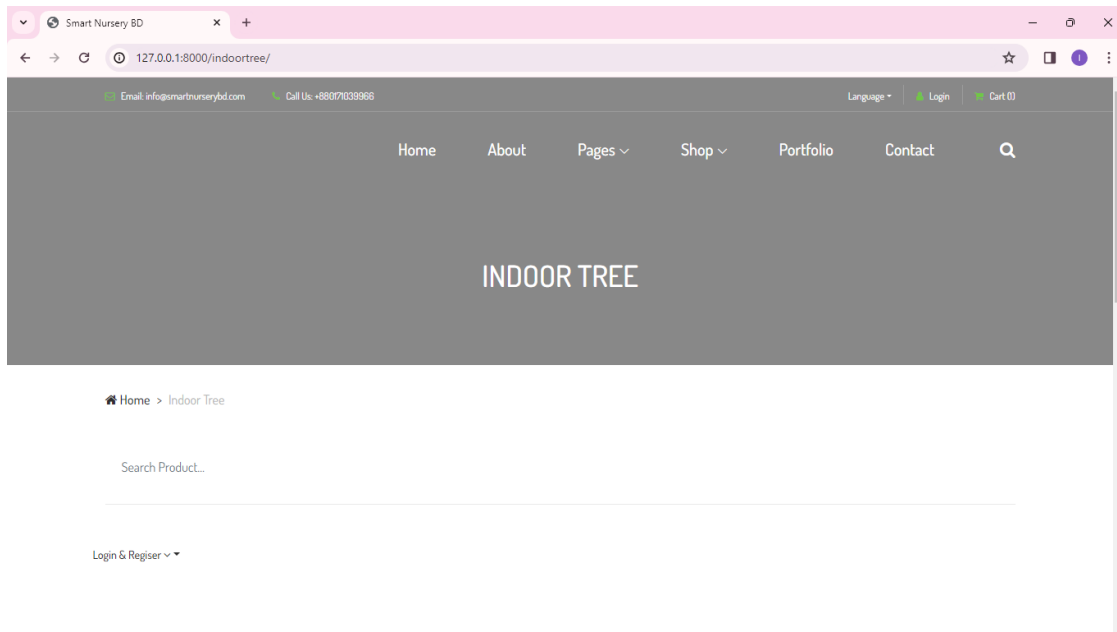
Indoor Trees

Fig. 4.1.4.The Smart Online Nursery System's Indoor Tree page
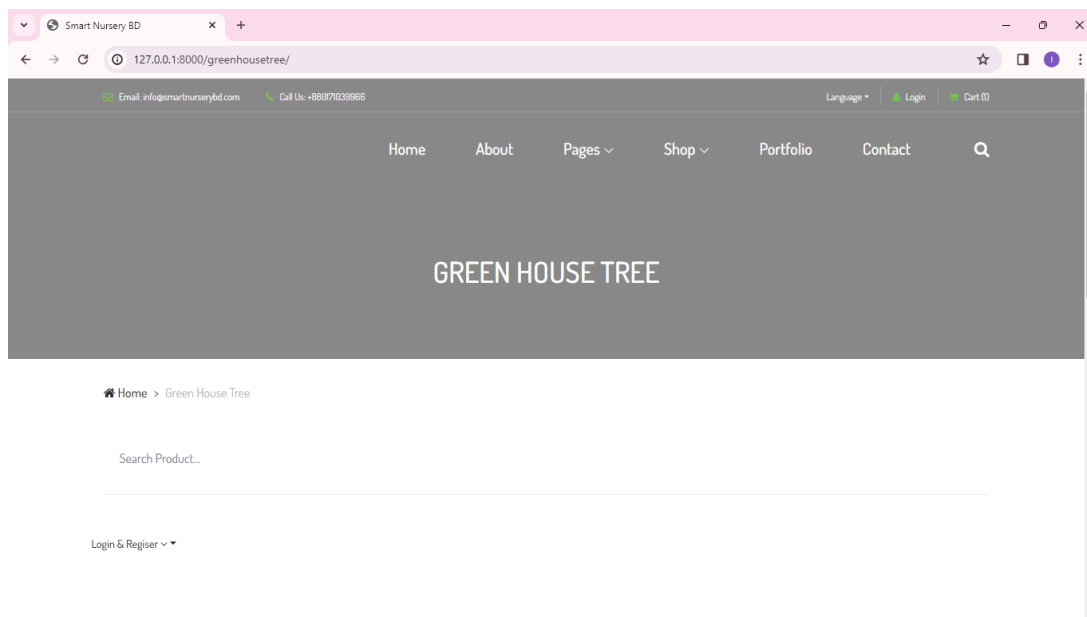
Green House

Fig. 4.1.5 Smart Nursery BD's GreenHouse Trees page

Cart and Checkout: Users will need to add that product to their cart after choosing their preferred plant. Users can proceed to checkout and make payment after adding items to their cart with their chosen amounts using the dropdown menu.
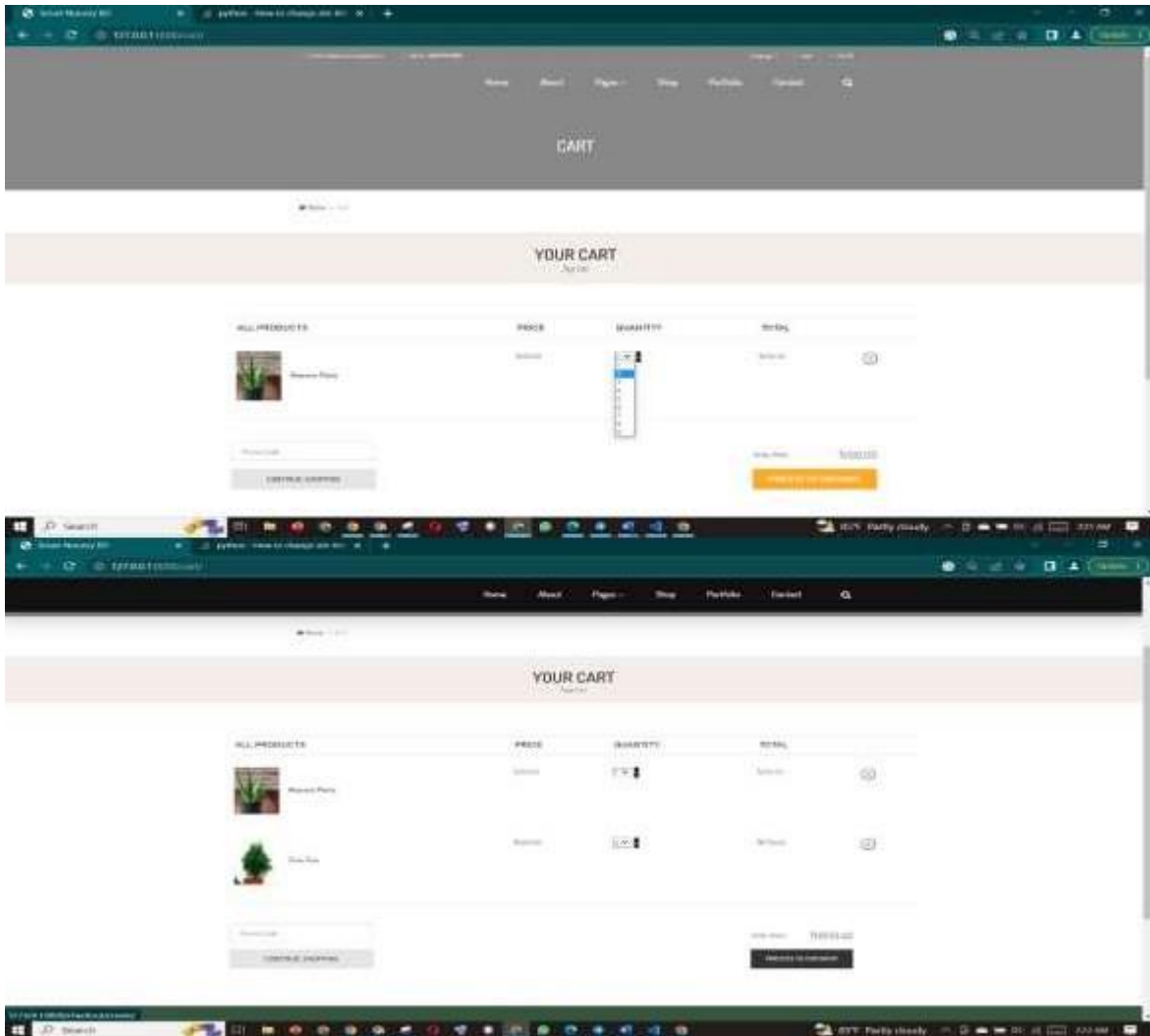

Fig. 4.1.6. Smart Online Nursery System's Cart & Checkout Page

Here, as the graphic illustrates, buyers must first choose the desired quantity before processing it to their cart. Click "Proceed to checkout" to finish the payment process after that.

Payment Method Selection: By providing some essential information, customers can choose between the COD system and the derivatives bKash payment option.
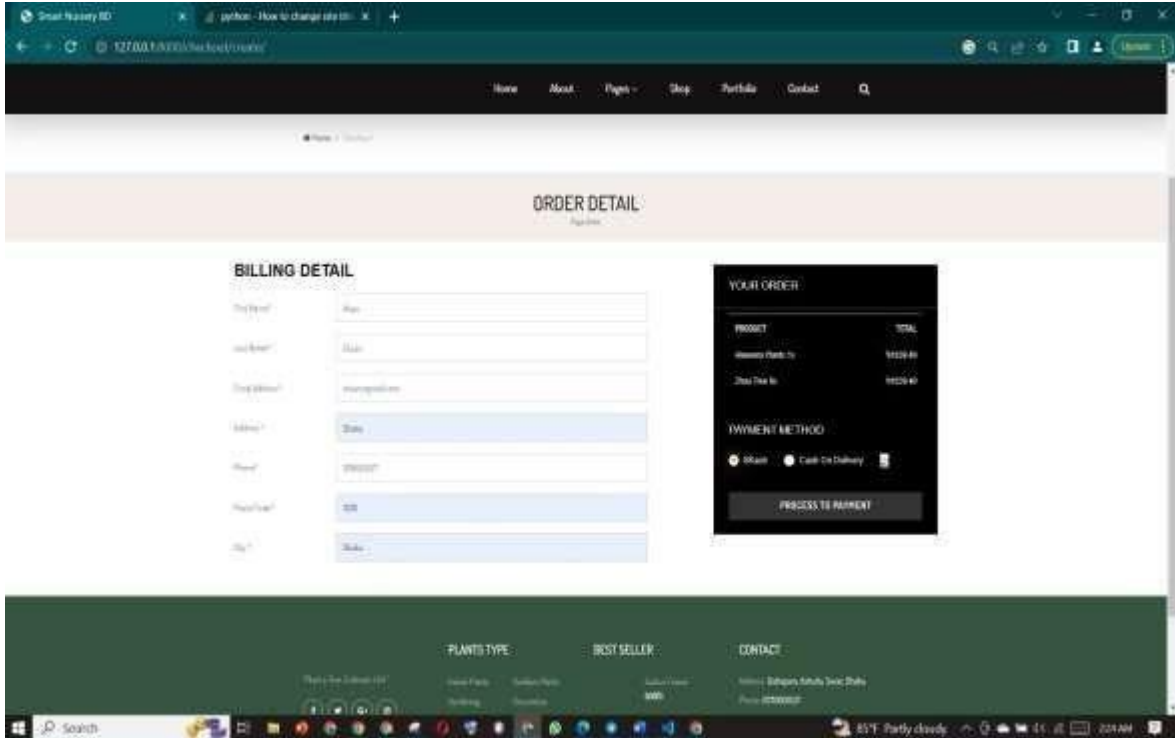

Fig. 4.1.7. The Smart Online Nursery System's Smart Nursery BD payment method page

Following the processing of the first and last names, email addresses, contact information, and shipping addresses, buyers can choose their preferred method of payment in the above figure. The customer will be redirected to the home page after choosing either COD or bKash as their payment option.

Blog Page: By reading blogs, customers receive pre-training that helps to prolong the life of the plant.

Fig. 4.1.8. Smart Nursery BD is the blog page for the Smart Online Nursery System.

The site's blog page provides a description of the training methods, as seen in the figure above.

Portfolio: Various plant varieties offered by the website development team are listed here.
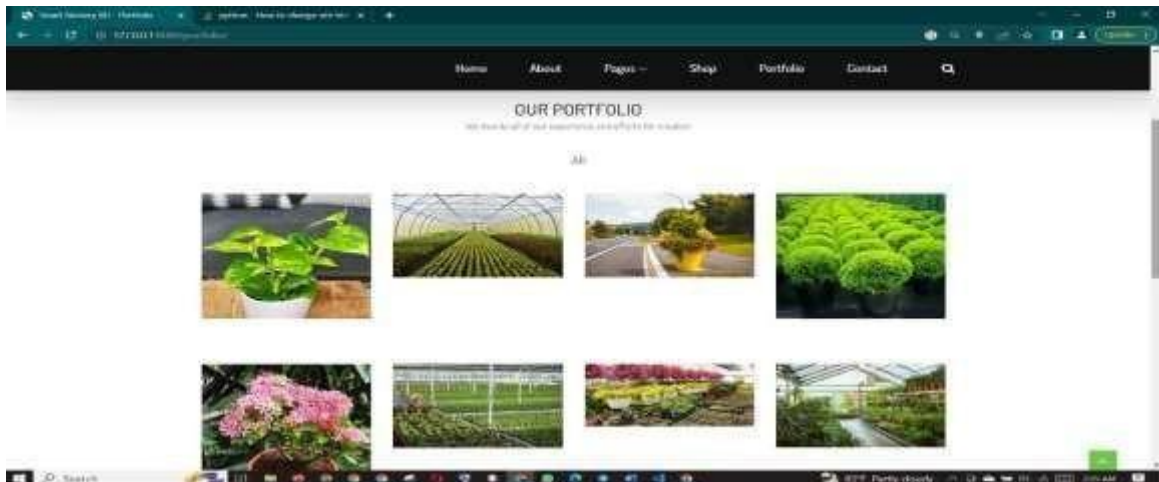

Fig. 4.1.9. Smart Online Nursery System's Portfolio Page

Contact Page: This page outlines the process for customers to contact us with questions and to offer us feedback. Through this approach, we hope to establish enduring relationships based on trust.
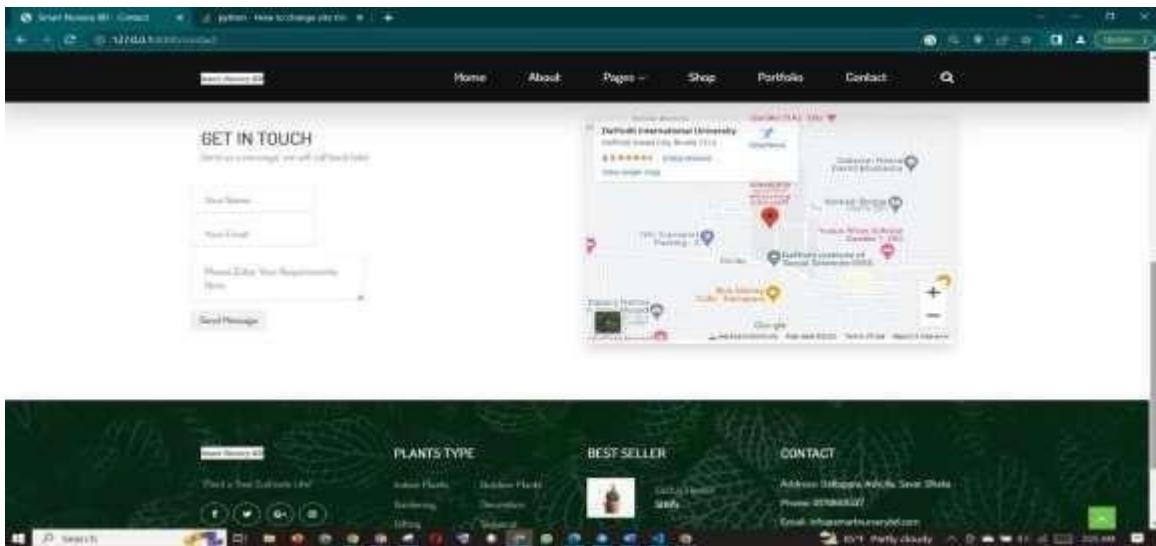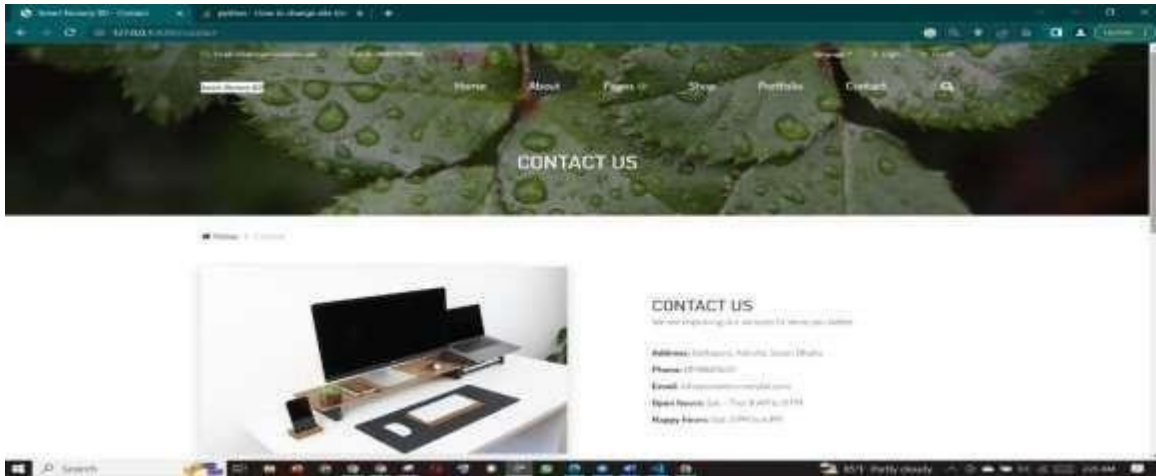

Fig. 4.1.10. Smart Online Nursery System's contact page is located at Smart Nursery BD.

Navigation bar: This section includes page menus so that users can click their way around the system.

Fig. 4.1.11. Smart Online Nursery System's navigation bar

Footer: The website's general footer is located below.

Fig. 4.1.12. Smart Nursery BD is the footer of the Smart Online Nursery System.

The navigation bar, which contains menus and website pages, as well as the footer containing basic general information about our project, are depicted in the above graphics.

4.2 Back-end Design:
The procedure for creating a website's layout and server-side components. It emphasizes the internal workings that underpin the user interface.

The database development tool, programming language, and framework that we utilize in our project are as follows:

Programming Language: Python

Framework: Django

Database development: SQLite

Database Administration: The project's admin panel database is depicted in the figure below.
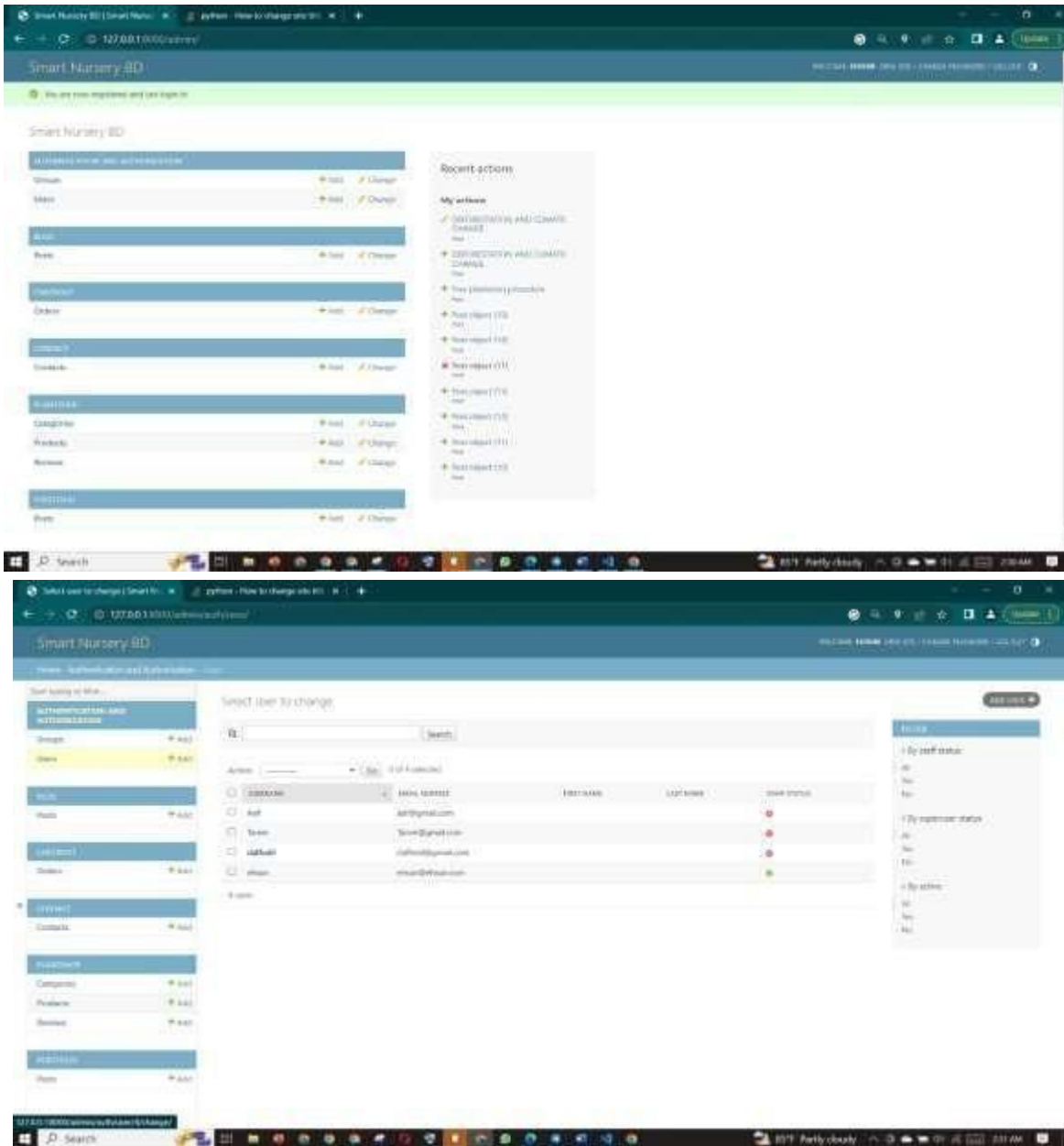
Fig. 4.2.1. Database for the Smart Online Nursery System's Admin Panel (User tracking)
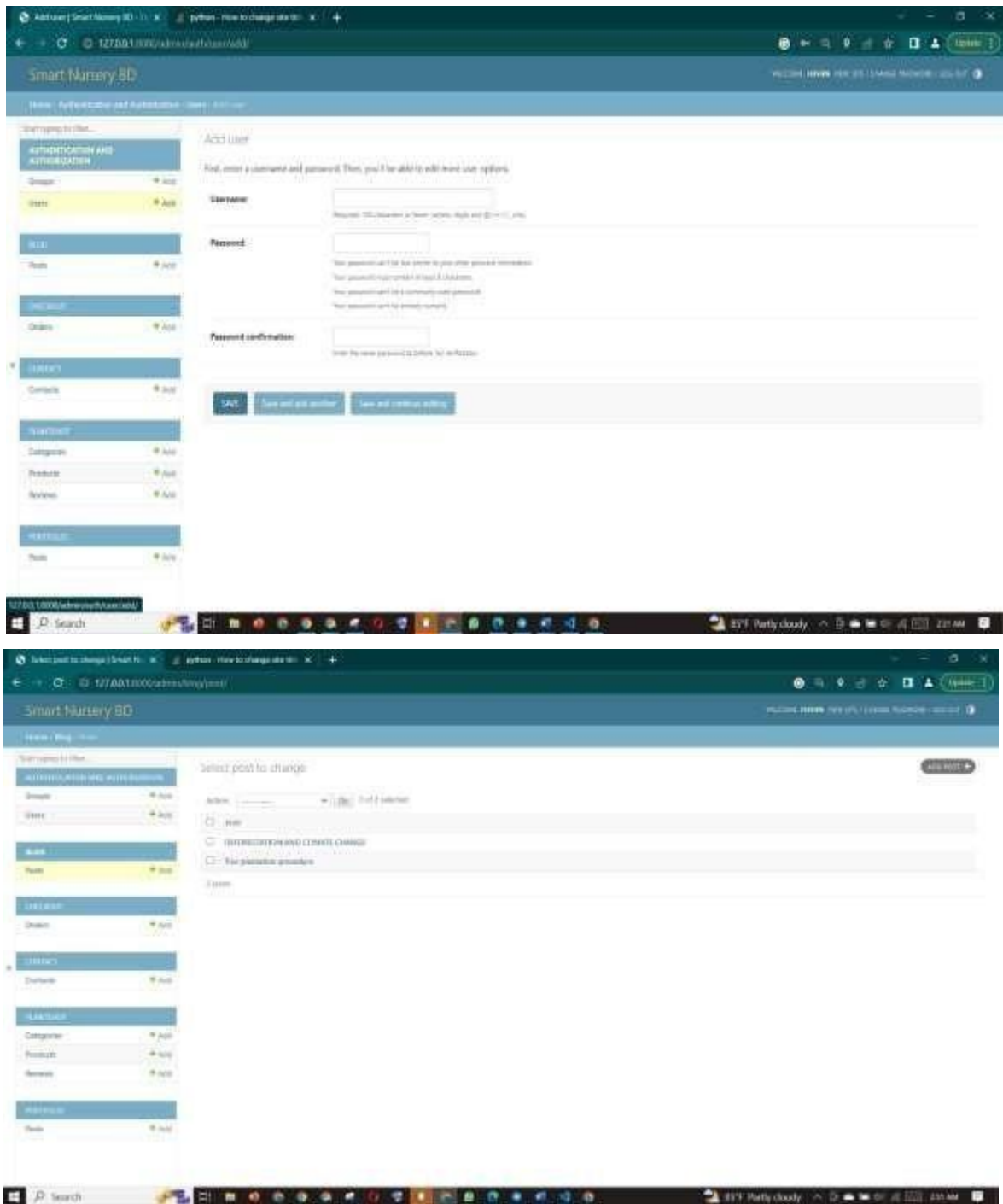
Fig. 4.2.2.Database of the Smart Online Nursery System's Admin Panel (add and track posts)
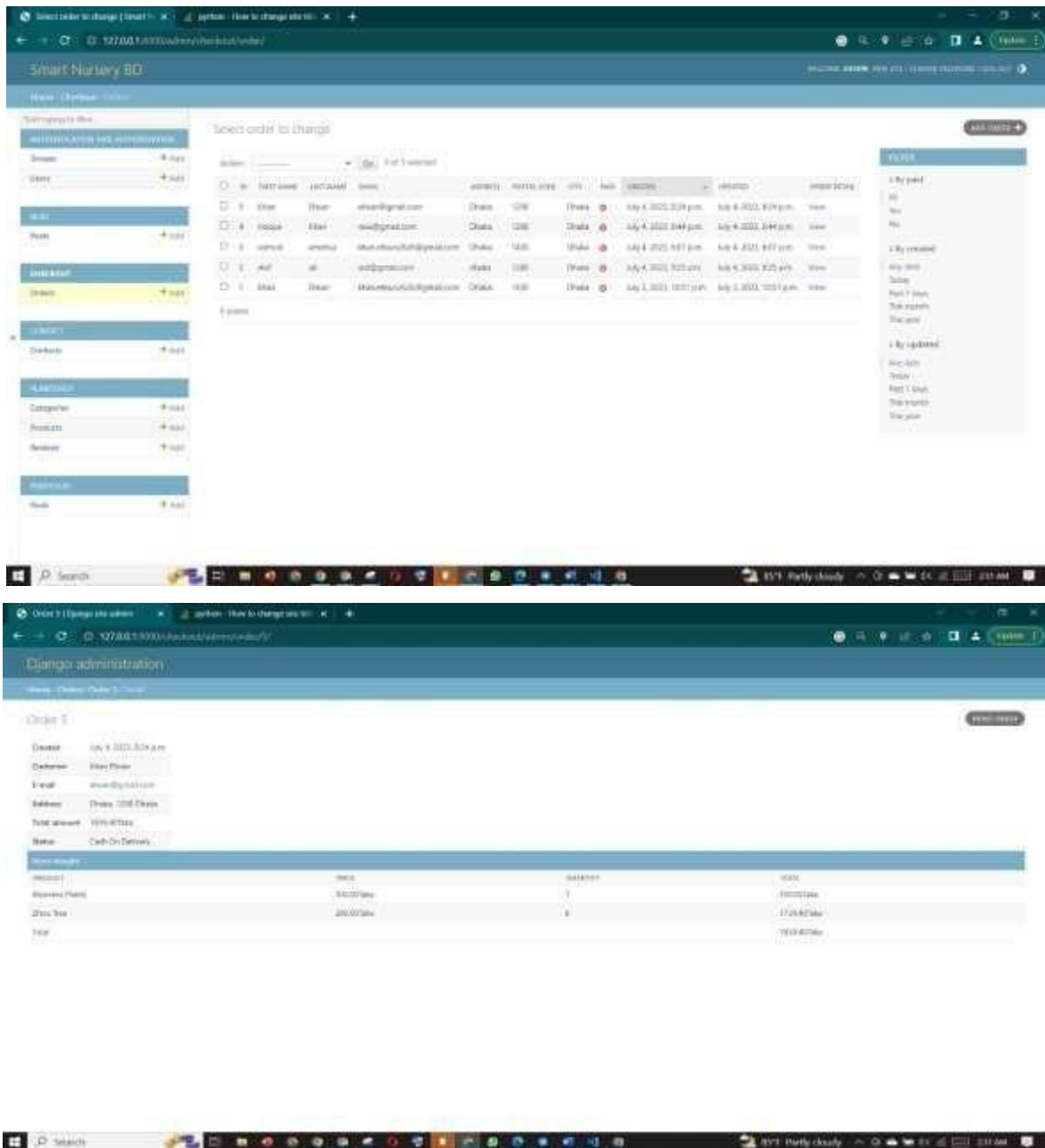
Fig. 4.2.3. Database of the Smart Online Nursery System's Admin Panel (track orders)
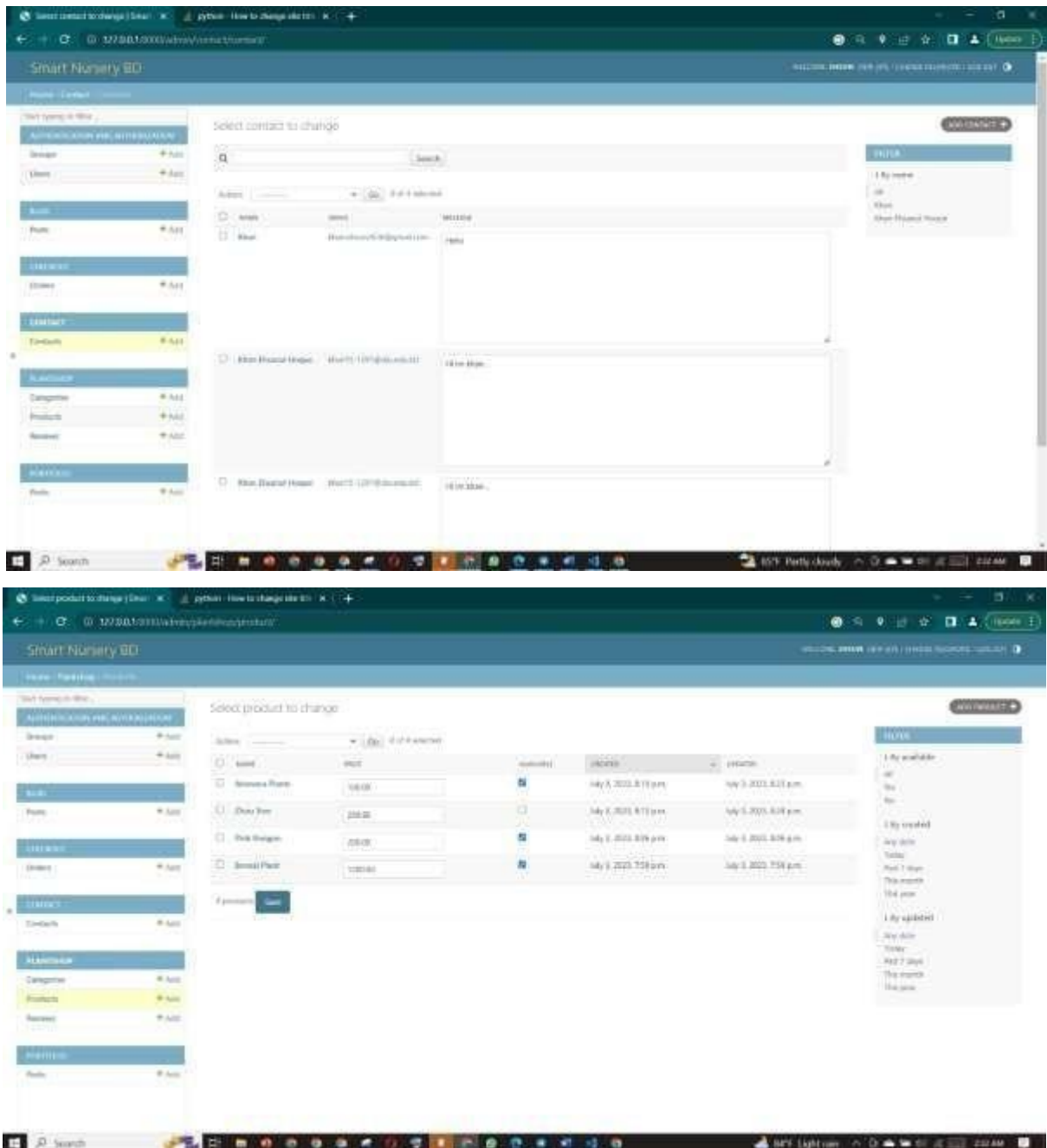
Fig. 4.2.4. Database of the Smart Online Nursery System's Admin Panel (contact and product)

Settings:
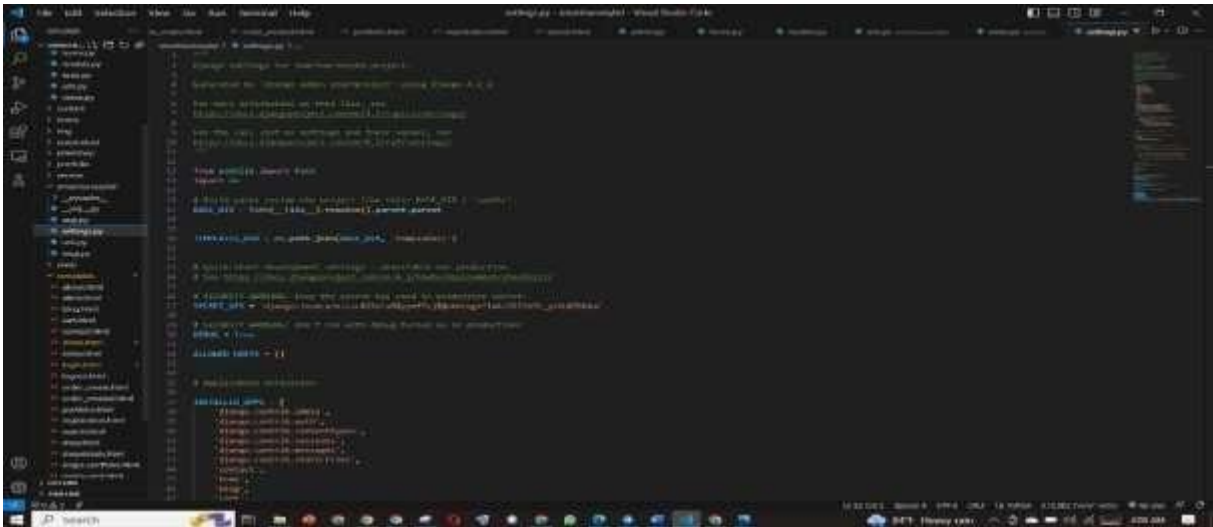
Fig. 4.2.5. Admin panel Settings of Smart Online Nursery System

URLS:
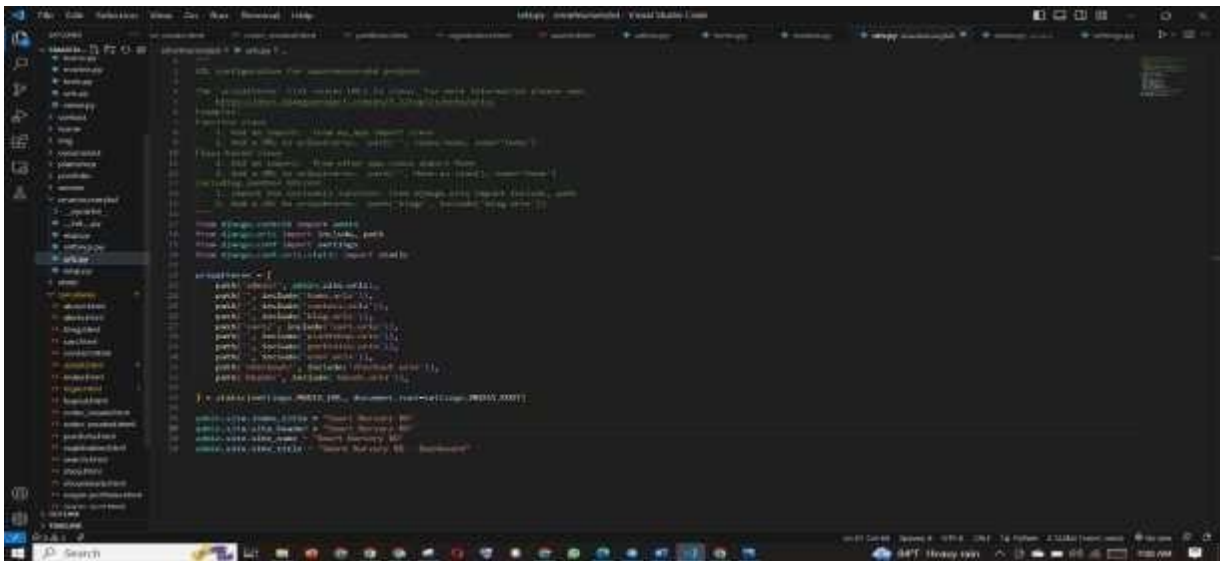
Fig. 4.2.6. Fig. 4.2.6.Smart Online Nursery System's admin panel (main page URLs)

Login:
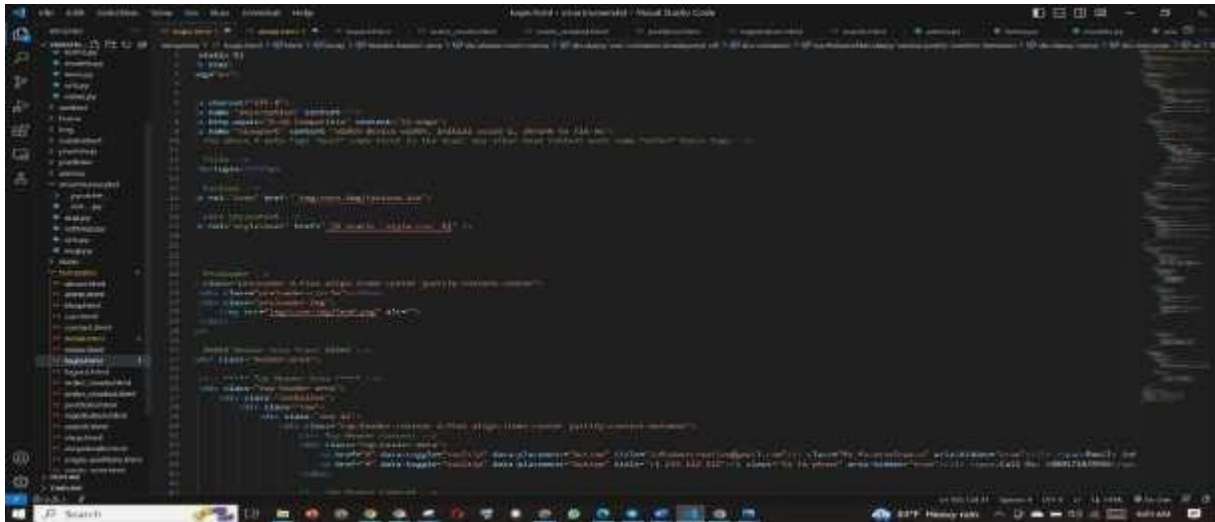
4.2.7 Figure: Smart Online Nursery System User Login

Registration:

Fig. 4.2.8.Smart Online Nursery System user registration

Shop:
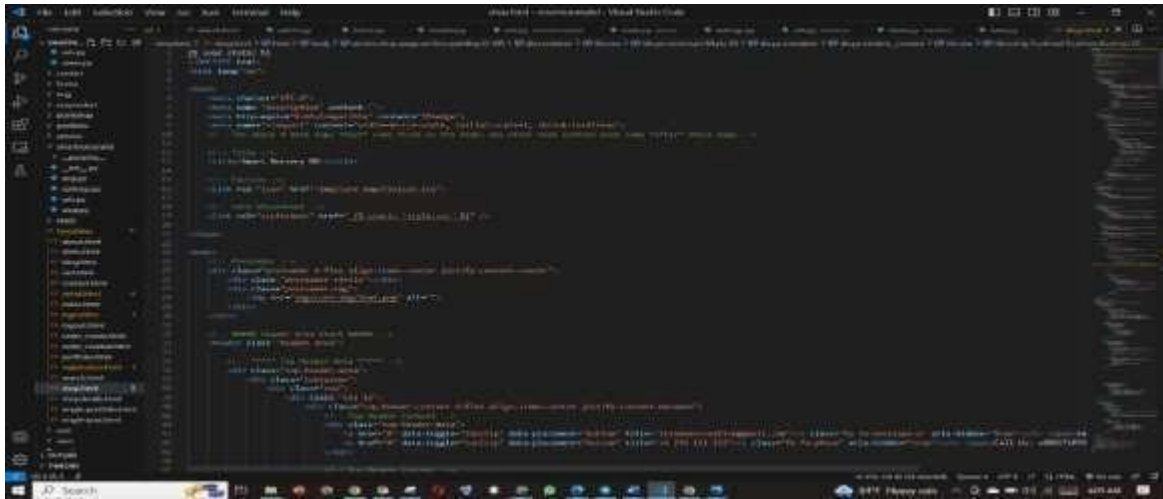
Fig. 4.2.9. Shop page of Smart Online Nursery System

View
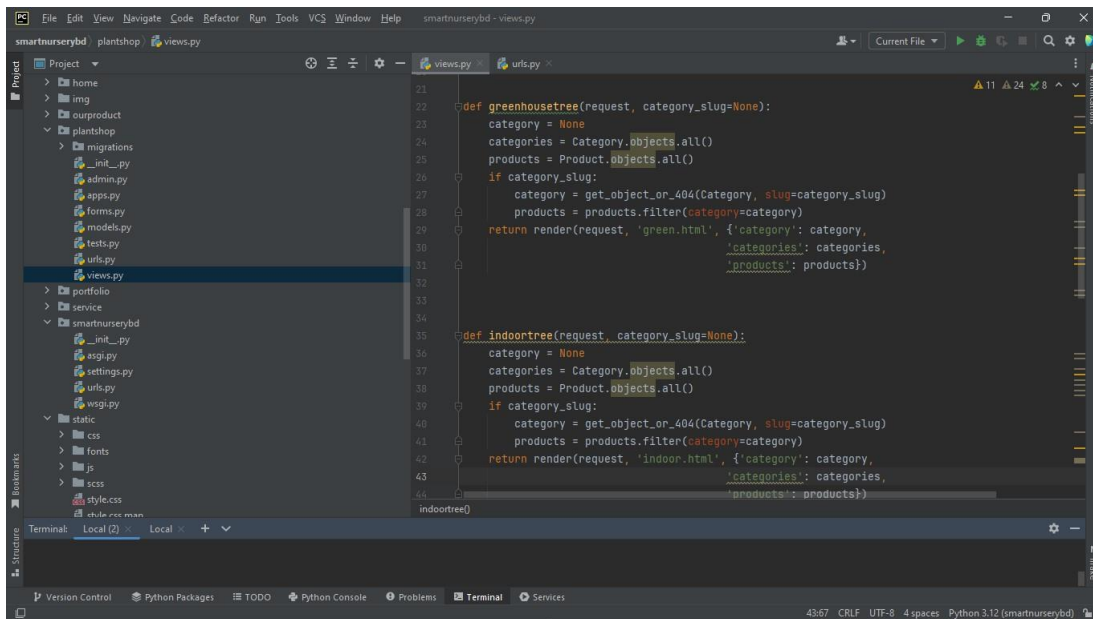
Fig. 4.2.10 View of Smart Online Nursery System

The project's admin panel database is depicted in the figure below.

4.3 Interaction Design and User Experience (UX)

Clients are our primary priority when developing a project. Prioritizing a customer's demands and feedback is crucial. Given that every product is created with consumers in mind alone, user experience is a factor that puts pressure on developers. We believe that a website will achieve market value if users have a positive experience. With that in mind, we attempted to develop a website by examining user needs.

4.4 Implementation Requirements

For the front portion of our website, we utilize HTML, CSS, JavaScript, and Bootstrap; for the back portion, we use Python, the Django framework, and SQLite.

- To create an account, the user must be asked to supply all necessary information.
- After accounting is created, they must supply certain basic information about the billing address in order to make a purchase.
- The database was developed so that the admin could handle the customer orders.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

We utilized SQLite to create the database for our Smart Nursery BD website. A C-language package called SQLite generates a feature-rich, dependable, and quick SQL database engine. As of right now, SQLite is the most widely used database engine worldwide, with millions of users utilizing it on a daily basis for various purposes.
The entities in the Smart Nursery BD database structure are as follows:

- Product and Category Categories are included in the Authentication Authorization section of the Plant Shop.
- Blog Posts upkeep
- Checkouts feature user order tracking

Now that we have our specific entities, we need to talk about how they are related to one another:

- The user initially enters some information to register. The first section of the database section, "authenticate," is directed to the administrator by the provided data.
- The second portion of the database section is where users navigate through the various plant categories on the website. This section is added to and maintained by the admin.
- The user can view pre-training regarding the formula for growing plants by visiting the administrator's blog page. That data is provided by the admin in the database.
- Customers place orders by choosing the product they want and how much of it they want, and the order is then forwarded to the admin for processing and delivery. This section is included in the database so that the administrator can monitor and review each customer's order.

5.2 Implementation of Front-end Design

User Account: To confirm that users are real, a registration and login procedure will be put in place.

Homepage: Plants are categorized and items are visible on the homepage. Including details on the team that designed the website and the project's prior accomplishments.

Checkout: After selecting the checkout option, payment will be forwarded from the cart.

Contact: Customer feedback can be submitted on this page and forwarded to the administrator, who is the developer.

5.3 Testing Implementations

A project's viral testing phase comes before its launch. Information about failures, exceptions, and bugs is provided via testing. Testing each and every factor will reveal whether a project is ready to go live in the market. A range of tests must be performed to ensure that the functionality functions as intended.

Among the testing kinds are:

- Functional
- User Association
- UI/UX
- Performance
- Database
- Certainty
- Unit
- User Acceptance

It's crucial to remember that the testing and implementation phase will be completed and will persist for the Online Nursery System project's upkeep.

5.4 Test Results and Reports

This report's goal is to talk about the Online Nursery System's testing findings. Numerous testing methodologies, such as unit, user interface, performance, functionality, security, and user acceptability testing, will be used throughout the testing process.

After our design successfully passes these tests, it will go live. We tested its responsiveness across a range of desktops, tablets, and phones. Lastly, we conducted some research and discovered the benefits of testing uses:

- aesthetically pleasing UI for user engagement.
- It's easy to use for any kind of user.
- It's easy to navigate the system.
- It is encouraged for users to offer feedback regarding the application.
- dependable excellent performance throughout the market

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT, AND SUSTAINABILITY

6.1 Impact on Society

The following are a few ways that the smart online nursery system may have a significant impact on society:

1. Convenience and Usability: Customers may effortlessly gather and buy their favorite seedlings at home with the help of the intelligent online nursery system, and parents can buy their kids' favorite plants.For people who lack the time to pick up plants from the nursery, the intelligent online nursery system will also be very helpful.

2. Choosing the right guardian: Most of the time, we struggle to take care of plants or we forget to do the chores since we don't know how. In this instance, we will undoubtedly have a chance of success ifWe can take care of the tree in accordance with their advice because we have a skilled guardian.

3. Wish Reflection: By conserving their valuable time from squandering it on useless activities or social media, unemployed youth can have their wishes fulfilled through the use of an intelligent online nursery system. Additionally, enjoyment can mirror desire in addition to labor, much like a hobby.

4. Appropriate data analysis: With the aid of an intelligent online nursery system, we can readily take into account our surroundings and determine which types of trees are best for our environment as well as which types of trees may thrive in particular conditions. The website provides such in-depth analytical data. Thus, the general public can learn a great deal by visiting these websites.

6.2 Impact on Environment

Numerous far-reaching and extremely advantageous benefits for the environment can be attributed to an intelligent online nursery system. Here are a few ways that intelligent nursery systems can assist in maintaining the environment's natural equilibrium.

1. Paperless Media: Typical nurseries market and promote their business using various paper items, including banners and leaflets, which contribute to environmental waste when they become useless. The ecosystem is being severely harmed, and biodiversity is being jeopardized, by leaving abandoned banner leaflets and papers where they are. Therefore, there won't be any chance of any form of trash harming the environment if we use the online approach in this instance.

2. Convenience of transportation: Selecting a tree sapling necessitates a trip to the nursery, which takes a considerable amount of time, effort, and patience. We can replace it with something new on our property by doing and evaluating the quality. We stand to gain from this in two ways: first, we can conveniently receive delivery while lounging at home, saving on travel time.

3. Energy conservation: The smart online nursery system makes use of a digital platform that allows us to add product photographs to websites and mobile devices, making it simple for customers to view and place orders. Because no physical energy is required to show the products online, it uses significantly less energy and takes the least amount of time.

Waste reduction: One further significant benefit of selling goods online is the minimal amount of waste that is released into the environment. Owing to the various tasks involved, such as digitally preserving and listing product photographs, very few things are produced.

Environmental Education: Each product's description and specifics in an online nursery system can teach us something. Frequently, the caliber of several kinds of

published about the products on the website. One major benefit in this instance is that these websites are often helpful when reading various kinds of articles for study.

6.3 Ethical Aspects

A number of ethical issues arise during the implementation and management of an online smart nursery system, and these issues must be properly considered. Here, we're talking about a few ethical issues:

1.   Data security and privacy: Since there are many different kinds of user data and their information in an online nursery system, data security becomes crucial. Because of this, safeguarding the privacy of a website's data is crucial for maintenance. Furthermore, it is illegal for any user incursion of any type to conceal or disclose any kind of information without authorization. Thus, maintaining complete website data protection is crucial.

2.   Parental Consent: In order to protect any type of user information on the website, parental consent is necessary. Everybody should be aware of the website's policies regarding data privacy protection and usage. Every internet user should also be properly knowledgeable about how to use websites. in order for them to be able to make their own decisions.

3.   Digital help: In order for users to receive the necessary help from the authorities, the online nursery system needs to have digital support.If an issue arises while using it, it would be acknowledged as a critical duty for the authorities to address it quickly and take the necessary measures.

4.   Appropriate use of technology: Online nursery systems should be implemented and used in accordance with ethics to ensure that no violations of seclusion and a refusal to use corruption or bribery. With cutting edge technology, everyone should use prudence

and ethical responsibility. Additionally, effort should be made to guarantee that everyone has the highest level of security and that no one is injured by the system.

5.   Ease of Communication: In terms of ethical considerations, it is also critical that communication channels be simple. keeping a close check to enable consumers to readily communicate and receive assistance from relevant authorities in order to resolve issues. Improving client happiness and service quality is crucial in this situation.

6.4 Sustainability Plan

A sophisticated online nursery system should be developed and put into action with a few long-term, sustainable strategies. This provides a permanent planning framework.

1. Power and energy consumption: We must always consume less energy in order to handle our online nurseries intelligently. Overuse of energy will cost businesses money and may not produce the desired outcomes. Only when the effort and abilities are effectively applied will our management system become extremely powerful. This calls for knowledgeable workers with trees and experienced computer operators.

2.   Digital Operation: We must employ digital systems everywhere and use less paper in order to implement a smart online nursery system. Paper flyers, banners, posters, and festoons typically harm the environment greatly when they lose their usefulness. For this reason, an entire computer operating system must be used to oversee the online smart nursery system in order for it to function digitally.

3. Waste Reduction and Reuse: We must take great care to prevent any environmental harm with an online smart nursery system that is far-reaching and sustainable. Items that can be recycled need to be kept in a separate storage area with a special label. Food components that can be used to make fertilizer should be gathered locally as a sustainable energy source and transformed into composite

4.   assemblage of green trees: since they are essential to human living, green trees ought to be grown. Everywhere there are empty places in the environment, we must create green courtyards and turn them into green forests. This includes the sides of residential buildings and vacant lots. For the benefit of the ecology, higher-quality seedlings and trees ought to be made available, with the sale of goods yielding little profit.

5.   Environmental education: The curriculum should pique people's interest in going green via newspapers and other marketing venues in order to raise awareness of society. since greenery constitutes the most significant and essential component of the environment. Additionally, caution should be exercised to prevent tree death from harming the environment.

CHAPTER 7
CONCLUSION & FUTURE SCOPE

7.1 Discussion and Conclusion

Discussion:

A succinct synopsis is provided in relation to the conversation subject.

Essentially, what we've spoken about is an online smart nursery system with unique features and attributes compared to conventional websites. Given that we live in the information, communication, and technological age, the majority of people shop and acquire the equipment they need online. We have therefore talked in-depth about the web system that shares some of the same features and provides a simple means of locating any form of tree on the internet. Since there isn't enough information on the websites that are readily available online, many individuals are misinformed and end up purchasing things they don't fully comprehend. Therefore, we have highlighted some aspects on this website that will make things easier for users and introduce them to certain new features.

Customers using the Smart Online Nursery System website will benefit from the training blogs, which allow them to simply train and plant plants without requiring any kind of formal education. We've highlighted a few portfolios that present excellent opportunities for time-pressed individuals. Customers can order a gardening system to customize the look and feel of their home or surrounds. Enough things have been added to the website for them to choose from, and they are constantly searching online. Customers can easily place an order on this website, and the product will be sent to them in accordance with the website's specifications after the order is complete.

Among the other significant advantages are the opportunity to solve any issues you may run into and interact with the authorities via the free admin panel. People will be interested in purchasing things from this website because of its attractive features and responsive design. And why not sell using the clever online nursery system, which is regarded as a crucial tool for appropriate guidance.

Conclusion:

Smart Nursery BD project is a critical turning point in the creation of an easy-to-use online storefront. The team has effectively implemented an inclusive and reliable system that satisfies the project's goals throughout the development phase.

A range of attributes and capabilities that improve the user experience are offered by the project. Users are able to add products to their cart, successfully finish their transactions, and browse and search a selection of plants with comprehensive information about each plant. Additionally, the system offers an easy-to-use interface for managing user accounts, which include carts, order histories, and customized feedback.

The project team gave equal weight to the front-end and back-end designs, which produced a user experience that is both aesthetically pleasing and responsive.
In summary, the Smart Online Nursery System: Smart Nursery BD has been successfully implemented, enabling users to easily search and buy a wide variety of plants while creating a pleasurable experience when they are at home alone. The platform is robust and easy to use as a consequence of the project team's design, development, and testing efforts. All things considered, the project's accomplishment lays a solid basis for the advancement of plant aficionados in the future.

7.2 Scope for Further Developments

Even though the project is already finished, there are still plans for it in the future, and it is anticipated to function as a government initiative. We intend to finish testing and launch the website with HTTPS cookies on our secure domain in the near future. We also anticipate expanding the site's functionality and aesthetic appeal, as well as introducing more goods and features.

REFERENCES

[1]   The   World   Bank,   available   at   <<
https://www.worldbank.org/en/news/feature/2022/06/06/creating-a-
green-and-sustainable-growth-path-for-bangladesh >>, last accessed on 03 July, 2023 at 12.39pm.

[2] Satvai Nursery, available at << https://www.satvai.com/ >>, last accessed on 03 July, 2023 at 07.01pm.

[3] Plants BD, available at << https://plantsbd.com/ >>, last accessed on 03 July, 2023 at 07.49pm.

[4]   Javier Berrocal, Jose Garcia-Alonso, and Juan Murillo. Selecting architectural patterns by modeling the relationships between business and requirements. SERA, 2013. 10.1007/978-3-319-00948-3-11.

[5]   Javier Berrocal, Jose Garcia-Alonso, and Juan Murillo. Selecting architectural patterns by modeling the relationships between business and requirements. SERA, 2013. 10.1007/978-3-319-00948-3-11.

[6]   An Introduction to Horticulture by Kumar, N. 15.47, 15.50. Raja Lakshmi Publications, 28/5 – 693, Vepamoodu Junction, Nagercoil, 1997.

[7]   Nursery Planning, Development and Management, Landis, T.D., Tinos, R.W., McDonald, S.E., and Barnett, J.P. (1994). The container tree nursery manual, volume 1. Handbook of Agriculture 674. US Department, Washington, DC, USA.

[8]   The efficiency with which the Philippines' forest nursery industry operates in Leyte, was examined by Nestor, O.G., John, H., and Steve, H. (undated). Increasing Small-Scale Forestry's Triple Bottom Line Benefit, pages 155–165.

[9]   Seeds: USDA Yearbook of Agriculture, Stafford, A. United States Department of Agriculture, Washington, D.C., 1961.

[10]   Plant tissue culture: Techniques and applications in agriculture, by T. A. Thorpe, Academic Press, New York, 1981.

[11]   Scaling Up the Impact of Agroforestry Research, Cooper, P. P. and Denning, G. 1999, International Centre for Research in Agroforestry, Nairobi, 1999.

[12]   In 2022, Padme, M.P., Mahajan, M.R., Tathe, M.P., and Pandit, M.P. Product Management System for Online Nursery. May 18, 2022, pp. 1-3 in Journal of Web Development and Web Designing, 7(2).

In 2019, A. Calugaru, P. Leu, A. DAMALAN, and D. MIHAI. Web-based platform for intelligent management of farms. Journal of Science. Environmental Engineering, Series E: Land Reclamation, Earth Observation & Surveying, 8., January 1, 2019

[13]   Principles and practices of plant nursery management, by Krishnan, P. Ratha, Rajwant K. Kalia, J. C. Tewari, and M. M. Roy. 2014).

[14]   Shukla, V., Nagzi, K., Korde, L., Shrimnwar, N., Kohad, A., and Thakare, P., 2023. Nursery Management using React Js and Python, International Journal of Aquatic Science, 14(1), pp.86-89, January 2023.

Smart Online Nursery System: Smart Nursery BD

development to achieve greater impact",
Development in Practice, 2010
Publication

10	ijcrt.org Internet Source	<1%
11	link.springer.com Internet Source	<1%
12	dspace.library.daffodilvarsity.edu.bd:8080 Internet Source	<1%

Exclude quotes   Off   Exclude matches   Off
Exclude bibliography   Off