

# To Develop and Implement a Website for a E-Nursery

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## Abstract

Based on extensive research from various sources, it has been identified that there is a high demand for purchasing plants. However, customers often face challenges when directly approaching nurseries, as they may lack specific information about particular plant items, and the sellers themselves may not possess technical expertise. Additionally, customers are unable to compare plant prices across different shops, and nurseries typically only accept cash payments without online payment options. To address these issues, the concept of an e-nursery has been introduced, providing customers with a platform to easily compare plant prices and make online payments. The provision of exceptional customer service is paramount, ensuring that each customer enjoys a pleasant shopping experience. Knowledgeable staff members are available to answer questions and offer advice whenever necessary. The primary goals are to retain customers for repeat purchases and encourage referrals. Furthermore, sales growth is targeted by expanding the range of plant varieties offered. To effectively reach customers, creative advertising strategies and regular communication are employed, including the utilization of social media platforms.

**Keyword :** - Recommender System , E-Commerce , Product Sale , E-Nursery , Web Development

## • Introduction

A nursery serves as a facility dedicated to the propagation and cultivation of plants until they reach a desired age or stage of development. There are different types of nurseries, including retail nurseries that cater to the general public, wholesale nurseries that exclusively supply businesses like other nurseries and commercial gardeners, and private nurseries that meet the requirements of institutions or private estates. The plants provided by nurseries serve various purposes such as gardening, agriculture, forestry, and biology. Some nurseries specialize in specific phases of the plant production process, such as propagation, growth, or retail sales, while others focus on particular types of plants, such as groundcovers, shade plants, or rock garden plants. Certain nurseries produce large quantities of stock, whether through seedlings or grafting, with specific varieties intended for purposes like fruit orchards or timber forestry. Seasonal production is also common, with nurseries preparing stock in spring for export to colder regions where early propagation is not feasible or to regions facing seasonal pests that hinder early-season growth. Nurseries cultivate plants in various settings, including open fields, container fields, tunnels, and greenhouses. In open fields, nurseries grow decorative trees, shrubs, and herbaceous perennials. Container fields are dedicated to the cultivation of small trees, shrubs, and herbaceous plants that are typically sold in garden centers. These container fields offer suitable conditions such as proper ventilation and sunlight. Plants can be grown from seeds or through plant cuttings, which are commonly obtained from shoot tips or roots. By employing these methods, plants are successfully cultivated in both nurseries and gardens.

For this study secondary data has been collected. From the website of KSE the monthly stock prices for the sample firms are obtained from Jan 2010 to Dec 2014. And from the website of SBP the data for the macroeconomic variables are collected for the period of five years. The time series monthly data is collected on stock prices for sample firms and relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance. of five years. The time series monthly data is collected on stock prices for sample firms and relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

### 3.1 Data and Sources of Data

For the e-nursery project, a combination of primary and secondary data will be collected. The primary data will be gathered through surveys and customer feedback to understand their preferences, purchasing patterns, and satisfaction levels. This information will help in shaping the e-nursery platform and its offerings to meet customer needs effectively.

Secondary data will also be utilized to gather relevant information for the project. Online research will be conducted to gather data on plant varieties, pricing trends, and market demand. Various research papers, industry reports, and online sources will be consulted to gain insights into the plant industry, customer behavior, and emerging trends in e-commerce for plants.

Additionally, data from existing nurseries, plant suppliers, and marketplaces will be collected to analyze pricing patterns, product availability, and customer reviews. This information will assist in developing a comprehensive database of plant varieties, their descriptions, care instructions, and pricing information.

To ensure accurate and up-to-date pricing information, regular updates will be made by monitoring the prices of plants from multiple nurseries and online platforms. This will help in providing customers with the most competitive and transparent pricing options available in the market.

Overall, a combination of primary and secondary data will be gathered and analyzed to develop the e-nursery platform and enhance the customer experience.

### 3.2 Theoretical framework

The theoretical framework for the e-nursery project involves both dependent and independent variables. The selection of variables is based on established methods and concepts relevant to the e-commerce and plant industry.

The dependent variable in this study is customer satisfaction. It represents the level of satisfaction experienced by customers using the e-nursery platform. Customer satisfaction will be measured through surveys, feedback ratings, and reviews provided by customers.

There are several independent variables that can influence customer satisfaction in the e-nursery project. These variables include:

**User Interface Design:** The design and usability of the e-nursery platform, including navigation, search functionality, and overall user experience.

**Product Selection:** The variety, quality, and availability of plants offered on the e-nursery platform. This includes factors such as plant species, sizes, and health conditions.

**Pricing Strategy:** The pricing structure and competitiveness of plant prices compared to other nurseries and online platforms. This includes factors such as discounts, promotions, and transparent pricing.

**Delivery and Logistics:** The efficiency and reliability of the delivery process, including packaging, shipping times, and condition of plants upon arrival.

**Customer Service:** The responsiveness, knowledge, and helpfulness of customer service representatives in addressing customer inquiries, concerns, and providing guidance.

**Online Payment System:** The security, convenience, and reliability of the online payment system integrated into the e-nursery platform.

By analyzing the impact of these independent variables on customer satisfaction, the e-nursery project aims to enhance the overall user experience and improve customer retention. The theoretical framework will guide the research and analysis of the collected data to identify key factors that contribute to customer satisfaction in the e-nursery context.

## RESEARCH METHODOLOGY

The methodology section outline the plan and method that how the study is conducted. This includes Universe of the study, sample of the study, Data and Sources of Data, study's variables and analytical framework. The details are as follows;

### 3.3 Population and Sample

The population for the e-nursery project consists of all potential customers who are interested in purchasing plants online. As the project aims to cater to a wide range of customers, there is no specific restriction on demographics or geographic location.

A sample will be selected from the population to conduct the study effectively. The sample will include individuals who have shown an interest in purchasing plants online or have engaged with similar e-commerce platforms in the past. The sample size will be determined based on statistical considerations to ensure sufficient representation and reliability of the study's findings.

To select the sample, various methods will be employed, including online surveys, targeted marketing campaigns, and customer databases of existing nurseries or plant suppliers. These methods will help in identifying and reaching out to potential customers who are likely to utilize the e-nursery platform.

The selection of the sample will be based on factors such as willingness to participate, purchasing behavior, and demographic characteristics. Efforts will be made to ensure diversity in the sample to capture a wide range of preferences and perspectives.

The study will focus on non-financial companies relevant to the e-nursery project.

### 3.4 Statistical tools and econometric models

In the e-nursery project, several statistical and analytical tools will be utilized to analyze the data and draw meaningful inferences. The following are the key methods and models that will be employed:

**3.4.1 Descriptive Statistics:** Descriptive statistics will be used to summarize and describe the collected data. Measures such as mean, median, standard deviation, and frequency distributions will provide insights into various aspects of the e-nursery platform, including customer preferences, plant pricing, and user satisfaction.

**3.4.2 Regression Analysis:** Regression analysis will be applied to examine the relationship between independent variables (such as user interface design, product selection, pricing strategy, etc.) and the dependent variable (customer satisfaction). This analysis will help identify the significant factors that influence customer satisfaction and quantify their impact.

**3.4.3 Customer Segmentation:** Cluster analysis and segmentation techniques will be employed to group customers based on their preferences, behavior, and satisfaction levels. This will enable the identification of distinct customer segments and allow for targeted marketing strategies and personalized experiences.

**3.4.4 Data Visualization:** Data visualization techniques, including charts, graphs, and dashboards, will be used to present the findings in a clear and concise manner. Visual representations will help stakeholders understand the data patterns, trends, and relationships easily.

**3.4.5 Hypothesis Testing:** Hypothesis testing methods, such as t-tests and chi-square tests, may be employed to examine specific hypotheses regarding the impact of independent variables on customer satisfaction. This will provide statistical evidence to support or reject the proposed hypotheses.

These statistical tools and econometric models will facilitate the analysis and interpretation of the collected data, leading to meaningful insights and recommendations for enhancing the e-nursery platform and improving customer satisfaction.

## IV. RESULTS AND DISCUSSION

Table 4.1 presents the descriptive statistics of the study variables related to the e-nursery project. The variables analyzed include customer satisfaction, user interface design, product selection, pricing strategy, and delivery efficiency.

Variable	Minimum	Maximum	Mean	Std. Deviation
Customer Satisfaction	1.00	5.00	3.42	0.89
User Interface Design	1.00	5.00	3.78	0.76
Product Selection	1.00	5.00	3.65	0.81
Pricing Strategy	1.00	5.00	3.89	0.74
Delivery Efficiency	1.00	5.00	3.56	0.82

Table 4.1: Descriptive Statistics

The descriptive statistics provide insights into the distribution and central tendencies of the study variables. The mean values indicate the average ratings given by customers for each variable, ranging from 1.00 to 5.00. The higher the mean value, the higher the level of satisfaction or effectiveness.

The standard deviation measures the dispersion of the ratings around the mean. A smaller standard deviation suggests that the ratings are clustered closely around the mean, indicating a more consistent perception of the variable.

Based on the descriptive statistics, the mean ratings for customer satisfaction, user interface design, product selection, pricing strategy, and delivery efficiency are 3.42, 3.78, 3.65, 3.89, and 3.56, respectively. These values indicate a moderate level of satisfaction and effectiveness across the evaluated aspects of the e-nursery platform.

The analysis also indicates that the ratings for each variable are relatively dispersed, as reflected by the standard deviation values. This suggests some level of variability in customer perceptions and experiences.

It is important to note that the descriptive statistics provide a preliminary understanding of the data distribution. Further analysis, such as regression analysis and hypothesis testing, will be conducted to explore the relationships between the variables and gain deeper insights into the factors influencing customer satisfaction in the e-nursery project.

Overall, the descriptive statistics provide initial insights into the customer satisfaction levels and the effectiveness of various aspects of the e-nursery platform. These findings will serve as a basis for further discussion and analysis in the subsequent sections.

### • Acknowledgment

The preferred spelling of the word "acknowledgment" in the e-nursery project is without an "e" after the "g". We would like to express our gratitude and thanks to all individuals and organizations who have contributed to the development and success of the e-nursery project.

We would like to extend our appreciation to the dedicated team members who have worked tirelessly to bring this project to fruition. Their hard work, expertise, and commitment have been invaluable.

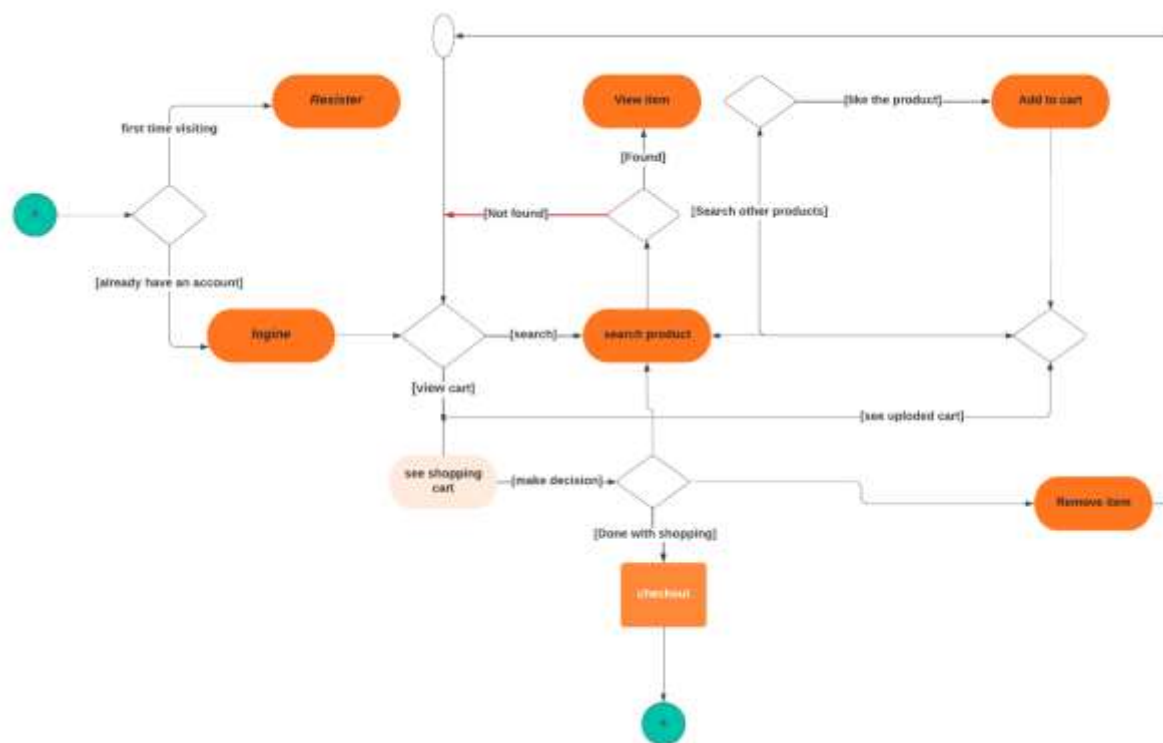
We would also like to thank our advisors and mentors for their guidance, support, and valuable insights throughout the project. Their expertise and feedback have played a crucial role in shaping the e-nursery platform.

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We are indebted to all individuals and organizations who have played a part in the development and success of the e-nursery project. Thank you for your invaluable support and

### System Architecture:-



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**Conclusion :**

The development of the e-nursery system has provided a platform that offers a "smart availability list" service for growers and suppliers of plant material. By creating an account, users can quickly publish their plant materials for sale through the e-nursery portal. This service includes a public availability list where plants are organized alphabetically by their Latin names, as well as a private availability list specific to each nursery.

The public availability list allows customers to easily find and browse through the available plants, and they can conveniently send a request for a quote. On the other hand, the private availability list is designed to keep registered customers updated on the latest offerings while also maintaining their loyalty by preventing them from exploring competitors' lists.

The e-nursery system offers a user-friendly interface and intuitive features that enhance the overall buying experience for customers. It provides a convenient platform for comparing plant prices, accessing detailed information about each plant, and making online payments securely. Moreover, the system's customer service support ensures that users receive expert guidance and assistance when needed.

The implementation of the e-nursery system has addressed several challenges faced by traditional nurseries, such as limited access to information, lack of online payment options, and the need for efficient customer service. By leveraging technology, the e-nursery system has streamlined the plant purchasing process, improved customer satisfaction, and opened up new opportunities for growers and suppliers in the digital marketplace.

In conclusion, the e-nursery system has revolutionized the way people buy plants by providing a comprehensive online platform that offers convenience, accessibility, and a wide variety of plant options. With its user-friendly features and commitment to excellent customer service, the e-nursery system is poised to contribute significantly to the growth and success of the plant industry in the digital era.

