

Evergreen (An Integrated Android Application for Organic Farming & click stream Analysis)

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Abstract: Application called "Evergreen" makes it possible for farmers to use the best methods for organic farming. Crop rotation, green manure, compost, and biological control are all covered in a piece on Evergreen that offers techniques and facts. The application analyzes clickstream information to assess the enterprise's performance as a channel-to-market. It is interested in the pages that customers spend the most time on, the things they add to or remove from their shopping carts, and the products they buy. People use a specific pattern to browse through applications based on their interests, so they can view the internet pages that speak to them. The visitor's path is known as their clickstream. The "Evergreen" application's primary goal is to make it simple for farmers to get information about various plant types, growing suggestions, purchasing plants, and current events using mobile platforms. When consumers shop, they prefer to do so online since they can easily compare prices between different retailers.

It is important to have a solid understanding of users' purchasing and browsing habits on e-commerce applications so that online retailers can make their system more user-friendly and beneficial as the number of websites grows. One such method is the prediction of user purchase of a specific product. Analyzing users' surfing habits, which largely reveal their interests, is one of the traditional methods of collecting user data. clickstream data that show the browsing routes, frequency of visits, and amount of time spent per category based on the clickstream data counting the number of users online, analyzing user buying behavior to predict the likelihood of a purchase as well as visualize the overall user pattern. The click stream data is analyzed to identify different paths taken by the visitors and the sequence of pages that lead to payment. According to this analysis, the application includes overall organization transaction visualization, specific category sales visualization (history), SMS -based user interaction, GPS-based user interaction using users' order history, click-based user interaction, category-based sales data visualization, and category-based user interaction using Google Analytics. To maximize the revenue for the website, particular, visualization techniques for the ratio of live users to applications are advised.

I. INTRODUCTION

An Android-based mobile application called "Evergreen" enables farmers to embrace the finest practices in organic farming. Additionally, Evergreen has a component that offers Tips and Information on Biological Control, Compost, and Green Manure.

The application analyzes clickstream information to assess the enterprise's performance as a channel-to-market. It is interested in the pages that the customer browses for a long time, the items they add to or remove from their shopping cart, and the products they buy. People follow a specific routine when browsing the Application, choosing the pages of the website that appeal to them based on their interests. The visitor's path is known as their "clickstream."

Problem statement:

Concerns have been raised about clickstream analysis, which has spread to a worldwide scale. Analyzing click data and optimizing Android applications are two common uses of clickstream analysis. thinks EVERGREEN Applications for organic farming and formation that track clicks and analyze them to better understand user behaviour

Scope of the project:

Since a customer or farmer must approach many persons in the current system in order to get the plants they desire, there is room for the "Evergreen" Application. This frequently takes a lot of time and work. The customer finds it tiresome to travel to several locations. The "Evergreen" project was created to replace the present system and gives customers and farmers the ability to view various plants, sell them, and buy them using an application that is conveniently located at their fingertips.

Clickstream analysis looks at why visitors behave a certain way and assists in making more knowledgeable business decisions. Clickstream helps to understand the consumer segmentation on a more detailed level. Clickstream also aids in increasing business productivity.

Objectives:

The purpose of this project is to develop a system that moves plant purchases made offline online in order to reach a wider audience, give farmers access to plant-related information, and enable the purchasing and selling of various plants and products. Because it is built on Android, everyone with a smartphone may readily access the project.

What are the following: clickstream collecting, generation of click patterns, analysis of clickstream patterns to recommend better items to customers, creation of dashboards, and geographic distribution of application users? The number of daily visits to the website, the most popular web pages, the average visit duration on the application, user involvement via automatic SMS integration, GPS-based user interaction, and the creation of dashboards cart, and the products they buy. People follow a specific routine when browsing the Application, choosing the pages of the website that appeal to them based on their interests. The visitor's path is known as their clickstream.

II. LITERATURE SURVEY

Literature Review:

[1] This paper surveys the use of clickstream analysis for personalized recommendations in mobile app usage. Clickstream data is the sequence of actions that a user takes when using an app, such as the pages they visit, the buttons they click, and the text they enter. Clickstream analysis can be used to extract features about user behavior, such as their interests, preferences, and intent. These features can then be used to generate personalized recommendations for users.

[2] This paper proposes a clickstream analysis framework for Android applications. The framework collects clickstream data from Android apps, and then uses machine learning to extract features from the data. These features are then used to generate personalized recommendations for users.

[3] This paper surveys the state of the art in clickstream analysis for Android applications. The paper presents the findings of several studies that used clickstream analysis to enhance the user experience, raise user engagement, and enhance the general performance of Android applications. It also discusses the various techniques that can be used to gather and analyze clickstream data.

[4] This paper studies utilizing clickstream analysis for in-app advertising. The paper proposes a method in order to use clickstream data to determine users who are most likely to be interested in specific ads. This method after that used to target advertisements to users who are more likely to be interested in them.

[5] An analysis framework for creating clickstreams for Android applications based on deep learning is presented in this post. The framework gathers clickstream information from Android apps, and then applies deep learning to the data to identify and extract features. Then, using these characteristics, users are provided with customised recommendations.

[6] The article uses clickstream analysis to conduct surveys in order to understand user behavior when using mobile apps. The article provides the findings of several research that have utilized clickstream analysis to enhance our understanding of user behavior in the use of mobile apps, and it talks about the various techniques that may be used to gather and analyze clickstream data. The constraints and restrictions of clickstream analysis are covered in the paper's conclusion, along with some ideas for future research.

[7] In order to understand user behavior when using mobile apps, this study surveys the use of clickstream analysis. The article provides the findings of several research that have utilized clickstream analysis to enhance our understanding of user behavior in the use of mobile apps, and it talks about the various techniques that may be used to gather and analyze clickstream data.

[8] This study examines how clickstream analysis is applied to Android applications. The study gathered clickstream information from the App Store and utilized it to examine how users found, downloaded, and used apps. The study discovered that key elements influencing user behavior in Android applications can be found using clickstream data.

[9] This study examines how clickstream analysis can increase user engagement with mobile apps. It covers the various techniques for gathering and analyzing clickstream data and gives the findings of several studies that employed clickstream analysis to raise user engagement with mobile apps.

[10] The use of clickstream analysis to increase user retention in mobile app usage is surveyed in this research. It covers the various techniques for gathering and analyzing clickstream data and gives the findings of several studies that employed clickstream analysis to increase user retention in mobile app usage.

Existing Model:

Many popular marketing websites nowadays, including Amazon, Flipkart, and many others, maintain their own clickstream analysis systems. They work on enormous blocks of data and have very high maintenance costs for user-related data in the market.

Disadvantages

- High Cost.
- Since the cost of software is very high, small businesses cannot afford it.
- Complex systems that are inefficient for small businesses.
- The length of these exceedingly high.

Proposed Methodology:

"Evergreen" Android-based mobile application that gathers clickstream information from users is the suggested fix. Following that, the system will automatically start focusing on particular users, with clickstream analysis organizations' main objective being to understand user requirements.

Advantages

- Targeting specific users after understanding their needs.
- Inexpensive to adopt the technology.
- There are extremely few software requirements.
- Work effectively, even in small businesses.

III. METHODOLOGY

System Perspective

The software design document's main goal is to simplify the Evergreen Android Application flow. It is also used to create systems that offer a high degree of functionality to demonstrate their viability for usage in mass production. This article outlines many high-level designs that are utilized in the development of Android and web applications.

Definition

These documents completely describe the system at the architecture level, including subsystems and their services, data management, and components that are necessary for the evergreen system. System design is top level design at this level with a focus on the modules' specifications and how they are connected.

Overview

The result of the architectural design process, which is an architectural model describing the system's organization as a collection of communicative components

System Architecture

Evergreen's organizational structure needs to be understood in order to create the system's overall structure, which is what architectural design is all about. The process of designing software begins with architectural design. As it determines the primary structural components of a system and their relationships, requirements engineering is the crucial connection between design and requirements. an architectural model that shows how the system is built up as a collection of communicating components as the end result of the architectural design process.

Three tier architecture

The Evergreen system has three-tier architecture. The client-server three-tier architecture design It includes a user interface, functional process logic, and data access created and kept up as discrete modules on different platforms. The three-tiered structure is a recognized software architecture and software design pattern.

Presentation layer: Contains information about the services offered on a website and takes up the top level. Results sent to the browser and further network tiers are how this tier connects with other tiers.

Application layer: This layer is derived from the tier of presentations and is also known as the business, logic, and middle tiers logic, or layer of logic. It performs intricate processing to regulate application functioning.

Data layer: where data is saved and obtained are database servers. Neither application servers nor business logic are allowed to affect information in this layer.

Overall Architecture of Evergreen

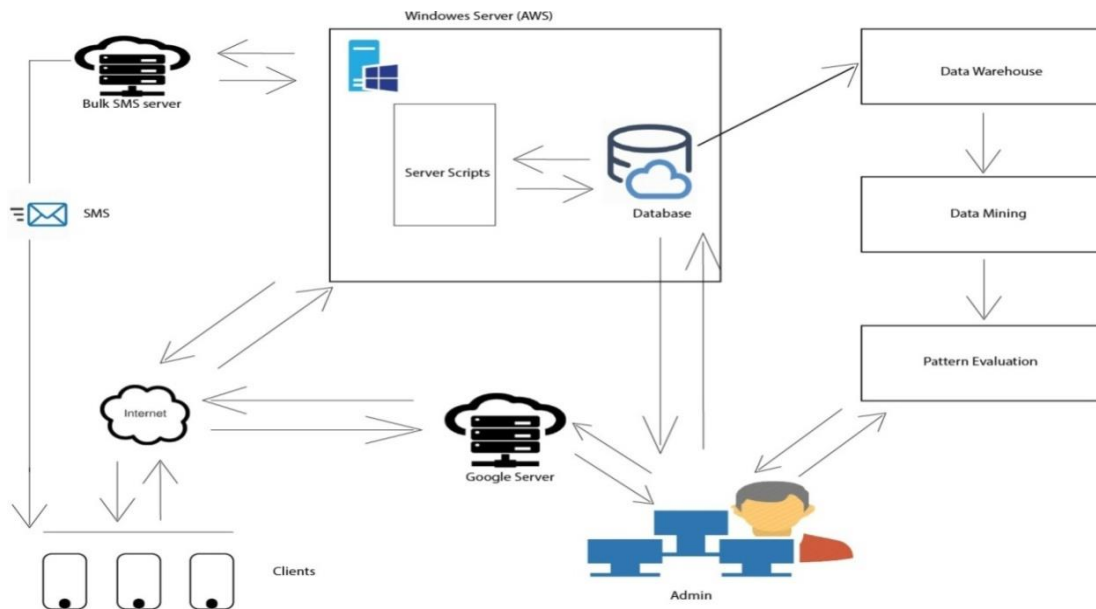


Fig 1. Overall Architecture of Evergreen

The overall architecture of evergreen system consists of various entities in the system such as internet, server system, google Analytics, Algorithm, Bulk SMS server, database and clients. Here particular entities will work on their mechanism on the system.

Google analytics

In EVERGREEN application has google firebase analytics library. The google Analytics helpsto capture users Activity's. it will capture user spent time on particular page, app crashes onparticular application version and pages, users stream data with map, events accord in a period of time.

Bulk SMS server

The SMS server helps to send the SMS for individual users to interact the customer based on their clickstream.

Windows server

The EVERGREEN Application uses windows server for storing and analyzing the clickstreamand visualizing the product sales, prediction visualization and maintaining the organization website, Application server scripts and user data and database.

Data warehouse

Data warehouse is a dump data of EVERGREEN system it helps to predict organization transaction.

Data mining

Data mining is procedure to extract the particular data for prediction in evergreen organizationtransaction.

Clients

Clients are end users on evergreen system the user can browse products, the software includes some clever features. that will interact users in the system, the App captures clickstream then based on users clicks application will start send SMS to user and suggest products in Application, the evergreen application has another intelligent feature ie the application suggests the product based on previous orders with respect to location.

Other technology in the EVERGREEN system

The evergreen system uses linear regression algorithm to predict the organization transaction and the entire application uses latitude and longitude to track user location, automatic address detection, location based suggestion.

IV. CONCLUSION

The benefit of examining real-time clickstream data and saved data is that they may be utilized to make predictions. The findings that are displayed in this system are a comprehensive open source solution to evaluate and analyse real-time streaming clickstream data, so we are also able to determine what is occurring right now on our website. Simple technical support clickstream data from the online learning portal or website were used to evaluate the solution.

The advantage of studying saved data and real-time clickstreams is that predictions can be made using them. This enables businesses to anticipate user behavior, spot new trends, and improve the user experience on their websites and other online platforms. Organizations can employ real-time clickstream data analysis to get significant insights into user behavior, preferences, and pain points. These insights can then be used to influence strategic decisions about how to improve their digital products and increase user engagement.

The system's findings provide a thorough open-source solution that enables businesses to efficiently evaluate and analyze real-time streaming clickstream data, giving them a real-time pulse on what is taking place right now on their website or platform. This enables quick detection of performance issues, tracking the success of marketing campaigns, and improved comprehension of user experiences.

In this instance, the foundation for evaluating the solution was straightforward technical support clickstream data from the online learning portal or website. Businesses can increase the potential for insights and predictive analytics by starting with this data, developing their analytical capabilities, and eventually incorporating more complicated clickstream data from multiple sources.

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