2023 MALLA REDDY UNIVERSITY (MRUH)
Hyderabad, Telangana, June 3, 2023

E COMMERCE WEBSITE USING DJANGO

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ABSTRACT : An e-commerce website using Django is a web application that allows users to purchase goods or services online. Django is a Python-based web framework that provides a robust and scalable solution for developing e-commerce websites. It follows the Model-View-Controller (MVC) architectural pattern, which makes it easy to build complex web applications. In Django, an e-commerce website can be broken down into several components. The first component is the database, which stores information about products, customers, orders, and other relevant entities. Django supports various databases, including SQLite, PostgreSQL, MySQL, etc Finally, an e-commerce website using Django should include a shopping cart and a checkout process. The shopping cart is responsible for storing products that users have added to their cart, while the checkout process handles the payment and shipping information. Django provides various third-party libraries and plugins that can be used to implement these features, such as Django-Cart, Django-Payments, and Django-Stripe. In summary, an e-commerce website using Django is a complex web application that requires a thorough understanding of Python, web development, and e-commerce concepts. However, with the help of Django's powerful features and third-party libraries, developers can build robust and scalable e-commerce websites that meet their clients' specific needs.

INTRODUCTION

E-commerce is quickly becoming a recognized and utilized business paradigm. More and more companies are putting in place websites with capability for conducting business transactions online. It is safe to argue that shopping online has become routine. The goal of this project is to create a general- purpose online store where people may shop for items like clothing, Shoes, Electronics etc. while lounging at home.

Logically, a consumer finds an item more intriguing and appealing when they can view the item's details online and find it on the retailer's website. Customers of today are drawn to online shopping not only because it is very easy, but also because there are more options, prices are very competitive, there is greater product information, and the navigation for searching for products is very straightforward. In addition, business owners frequently provide low-cost online purchasing choices due to the higher overhead costs associated with creating and operating a physical store. Additionally, the products have access to a global market thanks to online purchasing, which boosts the number of clients from various ethnic backgrounds, increases customer value, and makes marketing more generally viable [4]. A virtual store on the Internet where clients can browse the inventory and choose items of interest is known as an online store. The chosen items could be put in a shopping basket. The goods in the shopping cart will be shown as an order when it is time to check out. At that point, more details will be required to finalize the purchase. The customer will typically be required to provide or choose a billing address, a mailing address, a delivery option, and payment details like a credit card number or payment gateway.

LITERATURE REVIEW

The development of e-commerce websites has become increasingly popular in recent years due to the growth of online shopping. Django is a popular web framework for building e-commerce websites due to its scalability, security, and ease of use. This literature review will explore the various aspects of web development, Python, websites, e-commerce, SQL Server, databases, HTML and CSS, and Django, and how they relate to the development of an e-commerce website using Django.

Web Development: Web development is the process of creating websites and web applications. It involves a combination of programming languages, frameworks, and tools to create a functional and visually appealing website. According to Wikipedia [1], web development can be divided into three categories: client-side scripting, server-side scripting, and database technology.

Python: Python is a high-level programming language that is widely used in web development. It is known for its simplicity, readability, and ease of use. W3 Schools [2] provides a comprehensive guide to Python, including its syntax, data types, control structures, functions, and modules.

Website: A website is a collection of web pages that are accessed through the internet. It can be used for various purposes, such as providing information, selling products, or offering services. Wikipedia [3] provides a detailed overview of websites, including their history, types, and components.

E-commerce: E-commerce refers to the buying and selling of goods and services over the internet. It has become increasingly popular in recent years due to the growth of online shopping. Wikipedia [4] provides a comprehensive overview of e-commerce, including its history, types, and benefits.

SQL Server: SQL Server is a relational database management system that is widely used in web development. It is used to store and retrieve data from a database. Murach's SQL Server 2012 for developers [5] provides a comprehensive guide to SQL Server, including its installation, configuration, and use.

Database: A database is a collection of data that is organized in a specific way. It is used to store and retrieve data from a website or web application. Stack Overflow [6] provides a comprehensive guide to databases, including their types, design, and management.

HTML and CSS: HTML and CSS are the building blocks of web development. HTML is used to create the structure of a website, while CSS is used to style it. Learn HTML and CSS faster [7] provides a comprehensive guide to HTML and CSS, including their syntax, elements, and properties.

Django: Django is a popular web framework for building e-commerce websites. It is known for its scalability, security, and ease of use. Wikipedia [8] provides a comprehensive overview of Django, including its history, features, and benefits.

PROBLEM STATEMENT

Traditionally, customers are used to buying the products at the real, in other words, factual shops or supermarkets. It needs the customers to show up in the shops in person, and walk around different shopping shelves,

and it also needs the owners of shops to stock, exhibit, and transfer the products required by customers. It takes labour, time and space to process these operations. Furthermore, the spread of the Covid-19 pandemic has caused a lot of changes in our lifestyle, people fearing to get outside their homes, transportation almost shut down and social distancing becoming all the more important. Big to small scale business that relied on the traditional incur a lot of consequence due to the lockdown issues. Some tend to more towards using social media platforms like Facebook to sell their product. However, the social media platforms have been beneficial for marketing purposes alone but leaves the whole task of customer and massive order management via direct messaging(DM), which takes a lot of time to respond to all customers.

DATA DESCRIPTION

eCommerce data provides information collected from the Commerce industry - online retail sites - about products, pricing, sales performance, and customers. Companies with an online retail presence use the data to gain insights into customer behavior and improve their experience. Online businesses and Commerce retailers leverage eCommerce data to understand how their business performs, carry out competitor analysis, and drive higher online sales.

RESEARCH QUESTIONS AND HYPOTHESES

What are the important economic and social implimentations of e commers?

Hypothesis :

E-commerce has grown dramatically in the recent past. The transition from traditional physical marketplaces to technology-enabled marketplaces has important economic and social implications. Let us explore the same.

What are the main trending research topics in e-business and e-commerce ?

Hypothesis :
- Online Marketplaces.
- Ecommerce Platforms.
- Digital Healthcare.
- Social Media.

METHODOLOGY :

There are several steps involved in creating a website, including the ones listed below: • Building a UI (User interface)

• Scripting (Both at server end and client end) • Building a database or a backend

UI Development Technologies that are mostly used to develop a User Interface are:
- HTML
- CSS
- Bootstrap

HTML: The markup language used to create web pages and web applications is called Hypertext Markup Language (HTML).

Together with JavaScript and Cascading Style Sheets (CSS), it makes up the trio of foundational technologies for the World Wide Web. Web browsers transform HTML documents into multimedia web pages after receiving them from a webserver or local storage. HTML originally featured cues for the document's design and semantically explains the structure of a web page. The foundation of HTML pages are HTML components. Images and other objects, including interactive forms, can be embedded into the produced page using HTML structures. By indicating structural semantics for text elements including headers, paragraphs, lists, links, quotes, and other objects, it offers a way to produce structured document

CSS: The display of a text expressed in a markup language can be described using Cascading Style Sheets (CSS), a style sheet language. The language can be used to set the visual style of any XML document, including plain XML, SVG, and XUL, and is adaptable to rendering in voice or on other media, while being most frequently used to set the visual style of web pages and user interfaces written in HTML and XHTML. The majority of websites employ CSS, together with HTML and JavaScript, as a foundational technology to design visually appealing webpages, user interfaces for web apps, and user interfaces for many mobile applications.

Server-side Scripting : To create responses that are unique for each user's (client's) request to the website, server-side scripting is a technique used in web development. The alternative is for a static web page to be delivered directly by the web server. Any of the available serverside scripting languages can be used to create scripts (see below). Client-side scripting, where embedded scripts like JavaScript are run client-side in a web browser, is distinct from server-side scripting, though both approaches are frequently combined [2]. To give users a personalized interface, server-side scripting is frequently employed. In order to tailor the response based on the client's characteristics, the user's requirements, access rights, etc., these scripts may compile the client's characteristics. In contrast to client-side scripting, which gives the user access to all the code received by the client, server-side scripting allows the website owner to conceal the source code that creates the interface. The usage of server- side scripting has the drawback of requiring further network requests from the client to the server for fresh information to be displayed to the user through the web browser.

Client-Side Scripting : Client-side scripting is the process of altering the interface behaviors on a particular web page in response to mouse or keyboard inputs or at predetermined timing events.

In this instance, the presentation itself exhibits the dynamic nature. The user's local computer system is where the client-side content is created. Rich interfaced pages, a presentation technique, are used on these websites. To choreograph the presentation's media kinds (sound, animations, changing text, etc.), client-side scripting languages like JavaScript or ActionScript, used for Dynamic HTML (DHTML) and Flash technologies respectively, are widely utilized. The usage of remote scripting, which involves the DHTML page requesting more data from a server using a hidden frame, XML Http Requests, or a Web service, is also made possible by client-side scripting. In 1997, after becoming standardized as ECMAScript and being integrated into Netscape 3, JavaScript saw its first significant application.

Django Framework : A high-level Python web framework called Django enables the quick creation of safe and dependable websites. Django, which was created by seasoned programmers, handles a lot of the hassle associated with web development, allowing you to concentrate on developing your app without having to invent the wheel. It is open source and free, has a strong community, excellent documentation, and a variety of free and paid support options. The following are some of Django's features: • Django adheres to the "batteries included" philosophy and provides nearly everything a developer might need "out of the box." Because everything you require is included in a single "product," it all works in unison and adheres to consistent design principles. • Django can (and has been) used to create nearly any type of website, ranging from content management systems and wikis to social networks and news sites. It is compatible with any client-side framework and can deliver content in nearly an

ALGORITHMS

Linear Search is a simple searching algorithm that iterates through each element in a list sequentially until the desired element is found. It works on both sorted and unsorted lists and is easy to implement. However, it can be slow for large datasets, as it requires checking each element one by one. In an e-commerce website, linear search can be used for basic search functionality, such as searching for products by name or category in a small product catalog

Binary Search, on the other hand, is a more efficient searching algorithm that works only on sorted lists. It repeatedly divides the list into two halves, comparing the middle element with the desired value. If the middle element matches the desired value, the search is successful. If the middle element is greater than the desired value, the search continues in the left half of the list; otherwise, it continues in the right half. This process is repeated until the desired value is found or the list is exhausted. Binary search is faster than linear search, especially for large datasets, making it suitable for searching through large product catalogs or user databases in an e-commerce website.

ARCHITECTURE

Figure 1: Django Network Architecture
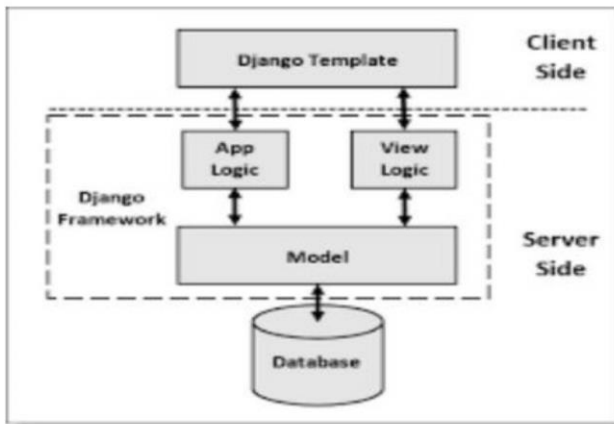
EXPERIMENTAL RESULTS
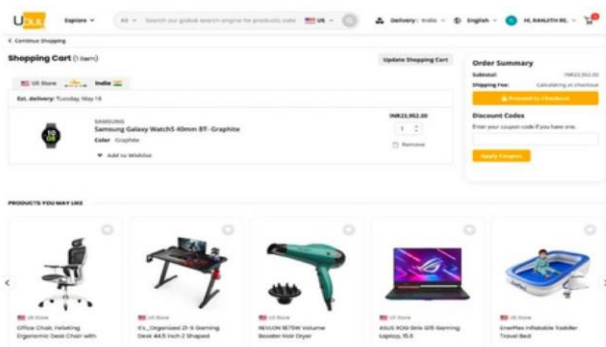
CONCLUSION

- Creating an eCommerce website using Django can be a challenging but rewarding task. With Django's built-in features likEe authentication, security, and database management, you can create a robust and scalable eCommerce website that can handle large amounts of traffic and transactions.

- In conclusion, to create an eCommerce website using Django, you need to install Django on your system, set up a Django project, create a Django app, design your database schema, create models, and then start coding your website's functionality using Django's built-in features and libraries.

- Remember that building a successful eCommerce website requires a lot of time, effort, and planning. You need to consider factors like user experience, payment gateway integration, shipping and handling, product management, and search engine optimization.

- Overall, Django is a great choice for building eCommerce websites as it provides a solid foundation for web development and is widely used and supported by the developer community.

FUTURE ENHANCEMENT

Implement a recommendation engine: You can use machine learning algorithms to analyze user behavior and make personalized recommendations for products that they are likely to be interested in.

Integrate with social media: You can add social media login and sharing features to your website to increase user engagement and promote your products on social media platforms.

Add a chatbot: You can add a chatbot to your website to provide customer support and assistance 24/7. Enhance the

search functionality: You can add advanced search features like auto-complete, spell-checking, and fuzzy search to help users find what they are looking for quickly and easily.

Add multiple language support: You can add support for multiple languages to your website to cater to customers from different regions and countries.

Implement a loyalty program : You can add a loyalty program to your website to reward customers for their repeat purchases and encourage them to keep coming back.

Integrate with a mobile app : You can create a mobile app for your eCommerce website and integrate it with your website to provide a seamless shopping experience for your users.

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