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The Design and Implementation of an E-Commerce Site for Online Book Sales

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ABSTRACT:The business-to-consumer aspect of electronic commerce (e-commerce) is the most visible business use of the World Wide Web. The primary goal of an e-commerce site is to sell goods and services online. This project deals with developing an e-commerce website for Online Book Sale. It provides the user with a catalogue of different books available for purchase in the store. In order to facilitate online purchase a shopping cart is provided to the user. The system is implemented using a 3-tier approach, with a backend database, a middle tier of Sun J2EE 1.4 application server and JSP, and a web browser as the front end client. In order to develop an e-commerce website, a number of Technologies must be studied and understood.

These include multi-tiered architecture, server and client side scripting techniques, implementation technologies such as JSP, programming language (such as JAVA, JavaScript and HTML). This is a project with the objective to develop a basic website where a consumer is provided with a shopping cart application and also to know about the technologies used develop such an application. This document will discuss each of the underlying technologies to create and implement an e book store relational databases (such as MySQL, Access).

KEYWORDS : Recommender System, Polarization Detection, Machine learning, Echo Chamber, Data Science.

I. INTRODUCTION

In the world of software development their lots of improvement in the area of Architectural design and principles. The philosophies and implementation details are changing as the people guiding the development of the application. In this fantastic and yet sometimes complex world of software development there are some tried and true architecture patterns and software development guidelines employed by most architects. Also your design must have an ability to turn towards innovation instead of lending itself to common practices. Web services are one such area where architects must lean on their creative side and hope that their solutions are still successful. In this report we will explain an exciting voyage down the road of Web services application. From requirements to use cases, to database design, to component frameworks, to user interfaces, we will cover each and every aspect of system design required to build an application with collaborative Web services. The reason why we selected online Bookstore web service is everybody walking down the street has some idea about bookstores. The objective of this project is to develop an e- book store where books can be bought from the comfort of home through the Internet. An online book store is a virtual store on the Internet where customers can browse the catalogue and select books of interest. The selected books may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e-mail notification is sent to the customer as soon as the order is place.

II. RELATED WORK

Electronic Commerce (e-commerce) applications support the interaction between different parties participating in a commerce transaction via the network, as well as the management of the data involved in the process. The increasing importance of e-commerce is apparent in the study conducted by researchers at the GVU (Graphics, Visualization, and Usability) Centre at the Georgia Institute of Technology. In their summary of the findings from the eighth survey, the researchers report that "e-commerce is taking off both in terms of the number of users shopping as well as the total amount people are spending via Internet based transactions". Over three quarters of the 10,000 respondents report having purchased items online. The most cited reason for using the web for personal shopping was convenience (65%), followed by availability of vendor information (60%), no pressure from sales person (55%) and saving time (53%). Although the issue of security remains the primary reasons why more people do not purchase items online, the GVA survey also indicates that faith in the security of e-commerce is increasing. As more people gain confidence in current encryption technologies, more and more users can be expected to frequently purchase items online.

III. METHODOLOGIES USED

The early JSP specifications advocated two philosophical approaches, popularly known as Model 1 and Model 2 architectures, for applying technology. These approaches differ essentially in the location at which the bulk of the request processing was performed, and offer a useful paradigm for building applications using **JSP technology**.

In the Model 1 architecture, the incoming request from a web browser is sent directly to the JSP page, which is responsible for processing it and replying back to the client. There is still separation of presentation from content, because all data access is performed using beans. Although the Model 1 architecture is suitable for simple applications, it may not be desirable for complex implementations. Indiscriminate usage of this architecture usually leads to a significant amount of script or Java code embedded within the JSP page, especially if there is a significant amount of request processing to be performed.

While this may not seem to be much of a problem for Java developers, it is certainly an issue if your JSP pages are created and maintained by designers which is usually the norm on large projects. Another downside of this architecture is that each of the JSP pages must be individually responsible for managing application state and verifying authentication and secure.

The advantage of this architecture is that there is no processing logic within the presentation component itself; it is simply responsible for retrieving any objects or beans that may have been previously created by the controller, and extracting the dynamic content within for insertion within its static templates. Consequently, this clean separation of presentation from content leads to a clear delineation of the roles and responsibilities of the developers and page designers on the programming team.

Another benefit of this approach is that the front components present a single point of entry into the application, thus making the management of application state, security, and presentation uniform and easier to maintain.

MySQL Database:

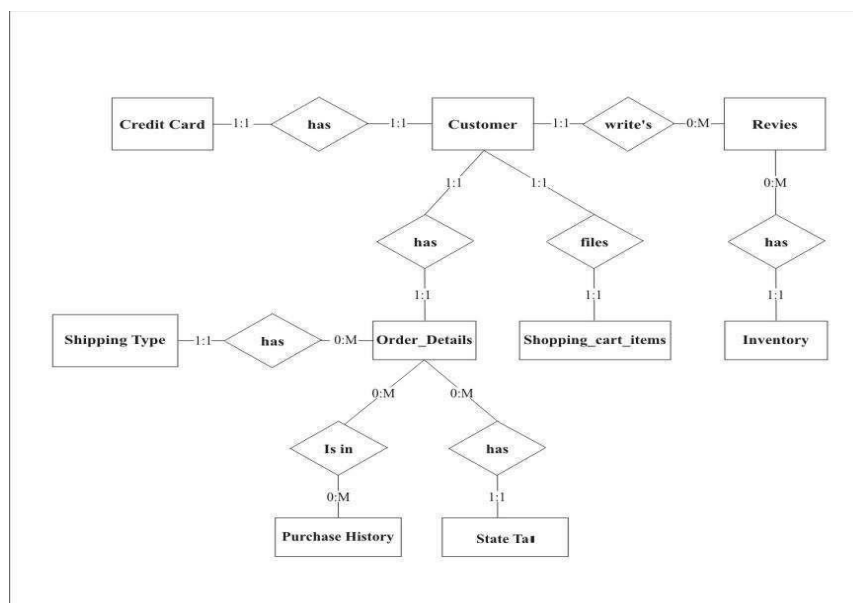
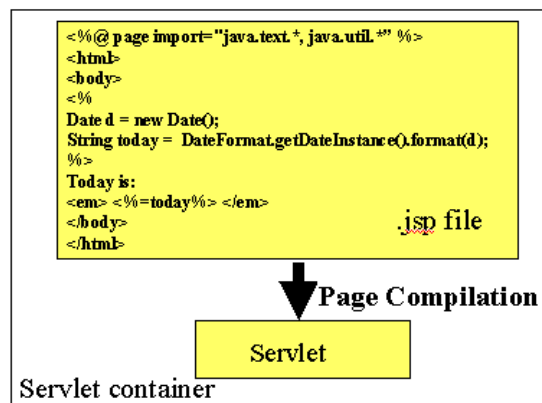
In this project, MySQL is used as the backend database. MySQL is an open source database management system. The features of MySQL are given below:

- MySQL is a relational database management system. A relational database stores information in different tables, rather than in one giant table. These tables can be referenced to each other, to access and maintain data easily.
- MySQL is open source database system. The database software can be used and modified by anyone according to their needs.
- It is fast, reliable and easy to use. To improve the performance, MySQL is a multithreaded database engine. A multithreaded application performs many tasks at the same time as if multiple instances of that application were running simultaneously. In being multithreaded MySQL has many advantages. A separate thread handles each incoming connection with an extra thread that is always running to manage the connections. Multiple clients can perform read operations simultaneously, but while writing, only hold up another client that needs access to the data being updated. Even though the threads share the same process space, they execute individually and because of this separation, multiprocessor machines can spread the thread across many CPUs as long as the host operating system supports multiple CPUs. Multithreading is the key feature to support MySQL's performance design goals. It is the core feature around which MySQL is built. MySQL database is connected to JSP using an ODBC driver. Open Database Connectivity (ODBC) is a widely accepted application-programming interface (API) for database access. The ODBC driver is a library that implements the functions supported by ODBC API. It processes ODBC

function calls, submits SQL requests to MySQL server, and returns results back to the application. If necessary, the driver modifies an application's request so that the request conforms to syntax supported by MySQL.

IV. PROJECT IMPLEMENTATION

While there are numerous technologies for building web applications that serve dynamic content, the one that has really caught the attention of the development community is Java Server Pages (JSP). And not without ample reason either. JSP not only enjoys cross-platform and cross-Web-server support, but effectively melds the power of server-side Java technology with the WYSIWYG features of static HTML pages. JSP pages typically comprise of: Static HTML/XML components. Special JSP tags 4Optionally, snippets of code written in the Java programming language called "script." Consequently, you can create and maintain JSP pages by conventional HTML/XML tools. It is important to note that the JSP specification is a standard extension defined on top of the Servlet API. Thus, it leverages all of your experience with servlets. There are significant differences between JSP and servlet technology. Unlike servlets, which is a programmatic technology requiring significant developer expertise, JSP appeals to a much wider audience. It can be used not only by developers, but also by page designers, who can now play a more direct role in the development life cycle. Another advantage of JSP is the inherent separation of presentation from content facilitated by the technology, due its reliance upon reusable component technologies like the JavaBeans component architecture and Enterprise JavaBeans technology. This course provides you with an in-depth introduction to this versatile technology, and uses the Tomcat JSP 1.1 Reference Implementation from the **Apache group for running the example programs.**



V. RESULT

1. Increased sales and revenue: An e-commerce website opens up your book business to a larger customer base, potentially leading to increased sales and revenue. With the ability to reach customers globally, you can tap into new markets and expand your customer reach beyond the limitations of a physical store.
2. Expanded market reach: E-commerce websites enable you to reach customers who may not have easy access to physical bookstores. This can include customers in remote areas or those with limited mobility. By removing geographical barriers, you can target a broader audience and potentially increase market share.
3. Improved customer convenience: E-commerce websites provide customers with the convenience of shopping for books anytime and from anywhere. Customers can browse through your book catalogue, read descriptions, check availability, and make purchases at their own convenience. This convenience factor can enhance the overall customer experience and encourage repeat purchases.
4. Enhanced customer engagement and personalization: E-commerce websites allow for personalized customer experiences. By leveraging customer data and analytics, you can offer tailored book recommendations, personalized offers, and targeted marketing campaigns. This level of personalization can help you engage customers more effectively and build long-term relationships.
5. Efficient inventory management: An e-commerce website simplifies inventory management by providing real-time inventory updates and automating stock control processes. This helps you avoid stockouts or overstocking, optimize inventory levels, and improve operational efficiency.
6. Access to valuable customer data: E-commerce websites generate valuable data about customer behaviour, preferences, and buying patterns. By analysing this data, you can gain insights into customer trends, identify popular book categories, and make data-driven decisions to optimize your book selection and marketing strategies.
7. Cost savings and operational efficiency: Compared to operating a physical store, e-commerce websites can be more cost-effective. You can save on expenses like rent, utilities, and staffing costs. Additionally, automation features such as online payments, order processing, and inventory management can improve operational efficiency and reduce manual workload.
8. Improved marketing opportunities: E-commerce websites offer various marketing opportunities, including search engine optimization (SEO), social media marketing, email marketing, and content marketing. By leveraging these channels, you can increase brand visibility, drive targeted traffic to your website, and engage with potential customers.
9. Customer reviews and social proof: E-commerce websites often include customer review and rating systems. Positive reviews and ratings can build trust, credibility, and social proof. This can help influence potential customers' purchasing decisions and attract new customers to your website.
10. Flexibility and scalability: E-commerce websites provide flexibility and scalability as your business grows. You can easily add new products, update product information, and expand your catalog to meet customer demands. Additionally, as your customer base expands, you can scale up your website infrastructure to handle increased traffic and transactions.

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1. Figure 1: Class Diagram
2. Figure 2: Entity Relationship Diagram



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