



e-ISSN:2582-7219



# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 7, Issue 5, May 2024



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 7.521



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# Binary Search Algorithm based Application for Streamlined E-Commerce Platform with CRM and OMS Integration

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**ABSTRACT:** This Paper involves the development of a streamlined e-commerce platform integrated with a Customer Relationship Management (CRM) system and an Order Management System (OMS). The primary objective is to enhance operational efficiency, customer experience, and overall business performance. The goal is simple: Improve business relationships to grow your business. A CRM system helps companies stay connected to customers, streamline processes, and improve profitability. Integration with a CRM system ensures a unified customer profile, incorporating data on interactions, preferences, and purchase history. This integration enables personalized marketing campaigns, efficient customer support, and streamlined communication. An Order Management System (OMS) is a digital tool used in e-commerce to track sales, orders, inventory, and fulfillment. It streamlines the order processing cycle, from receipt of order to delivery, ensuring accuracy and efficiency. Additionally, the integration of an Order Management System facilitates real-time order processing, inventory management, and seamless coordination between the front-end and back-end operations. Automation features optimize routine tasks, from order fulfillment to customer follow-ups, enhancing overall workflow efficiency. This system emphasizes real-time data synchronization, ensuring accurate and up-to-date information across platforms. Security measures are implemented to safeguard customer data and transactions. User training and comprehensive testing precede the platform's launch, ensuring a smooth and error-free user experience. Post-launch, continuous monitoring and user feedback mechanisms are established to identify areas for improvement and ensure ongoing optimization.

**KEYWORDS:** CRM, OMS, react, Laravel, react router DOM, AXIOS

## I.INTRODUCTION

In the dynamic environment of digital marketing, companies are constantly looking for new solutions to enhance customer experience, improve operations and support long-term growth. In this direction, the integration of customer relationship management (CRM) and management system (OMS) into e-commerce platforms has become an important strategy. This integration provides unprecedented and powerful functionality, providing a unique integration where customer interactions, orders and product management are streamlined.

The basis of this change is the simple e-commerce concept using CRM and OMS integration. This integration has transformed traditional silos, allowing businesses to transcend corporate boundaries and deliver a seamless experience to customers through shopping. In this introduction, we will talk about the many benefits and important ideas of this type of integration. The integration of CRM into the e-commerce framework reflects the change in the way businesses see and interact with their customers. By combining customer data from different sources, including web interactions, social media, and purchasing history, companies can voluntarily understand customer behavior and preferences.

With this intelligence, marketing campaigns can be customized to individual needs and preferences, creating deeper connections and increasing customer loyalty. In addition to CRM capabilities, OMS integration into the e-commerce ecosystem makes it easier for businesses to place orders and complete surgery. With real-time synchronization of product levels, order status, and delivery information, companies can improve inventory management, reduce product outages, and fulfil orders. This not only improves operational efficiency, but also



improves reliability and timeliness, resulting in customer satisfaction and retention. However, the real change of an e-commerce platform with CRM and OMS integration is in the integration of these products. By combining different aspects of customer perception and performance, companies can create a great experience for their customers.

For example, companies that use CRM data to predict customer needs and preferences can tailor product offerings and customize product recommendations to ensure the reliability of personalized and non-competitive purchases. Additionally, this integration allows businesses to cross social media and encourage long-term customer engagement. By fostering ongoing communication through communication, honest services, and post-purchase support, businesses can create a sense of community and eight customer advocacy, encouraging repeat purchases and word-of-mouth recommendations. Additionally, the impact of this integration goes beyond customer experience to include operational excellence and efficiency.

## II. RELATED WORKS

The Amazon-Sales force partnership integrates e-commerce and CRM, enhancing sales efficiency. Amazon's OMS optimizes inventory and shipping, ensuring timely global delivery and customer satisfaction. Sellers benefit from OMS's user-friendly interfaces and automated processes. OMS symbolizes e-commerce innovation, efficiency, and customer focus, setting industry standards. This collaboration fosters mutual benefits and drives success in the digital marketplace. Electronic customer relationship management (E-CRM) is the implementation of E-technology or internet-based technology in order to attain customer relationship management (CRM) objectives.

According to the literature, E-CRM is about technology, processes and people and E-CRM is to gain customer loyalty. The impact of E-CRM on customer satisfaction and customer loyalty has been investigated by previous scholars. The major purpose of current study is to review relevant studies of which have been conducted on determination of E-CRM on customer satisfaction and loyalty of customer. In order to achieve this, authors searched various related journals indexed in valid databases for collection of sufficient bibliography and then reviewing them in details.

Findings provide information about each source, indicating what can be found there and how the information can be helpful. This article fulfills an identified information/resources need and offers practical help to an individual and academic starting out a research on E-CRM and its relationship with customer satisfaction and loyalty. Moreover, this study will bring helpful insights for the managers of service industries to implement the E-CRM in the best shape and match it with their organizations or industries' culture to enhance level of customer loyalty and gaining more profitability and revenue for their own businesses.

## III.METHODOLOGY

An advanced e-commerce platform with CRM and OMS integration, the model leverages the powerful features of Laravel 10, React, Axios and other cutting-edge technologies to create a smooth and efficient business experience. Built on Laravel's efficient MVC architecture, the platform ensures scalability, security and maintainability. React is used for its dynamic user interface that enables responsive and interactive shopping experiences. Axios enables smooth data transfer between the user interface and the backend system, which ensures fast data transfer and updates. Integrating CRM functions improves customer engagement and retention, allowing businesses to personalize communications and streamline sales processes. In addition, integration of an order management system (OMS) ensures efficient order processing, inventory and fulfillment, which optimizes operational efficiency. Together, these technologies form a cohesive ecosystem that enables businesses to succeed in the competitive world of e-commerce.

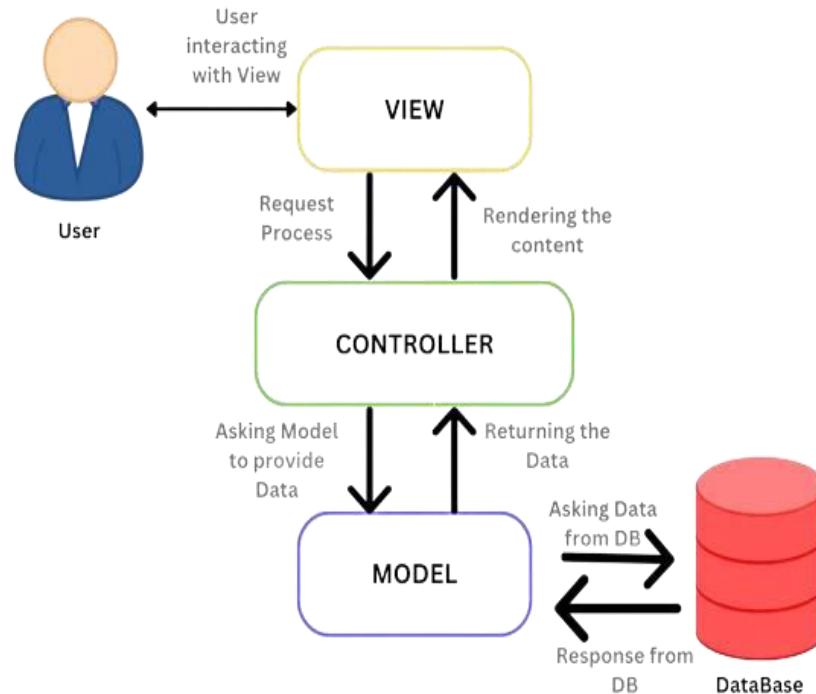


Fig-1 Backend Architecture of MVC

### 3.1 Binary Search Algorithm

CRM systems rely on binary search algorithms for effective data management, swiftly pinpointing customer information through iterative search space division. This strategy significantly boosts performance, particularly with extensive datasets, by promptly honing in on the search scope. Binary search enhances CRM operations across different scenarios, including customer queries based on ID or name. Rapid access to pertinent data elevates user efficiency and enhances the customer journey. Ultimately, these algorithms streamline CRM processes, nurturing successful customer relationship management and business outcomes.

### 3.2 LIFO&FIFO

In order management systems (OMS), LIFO and FIFO principles are pivotal for inventory management and efficient order fulfillment. LIFO prioritizes recent inventory for shipping, reducing risks for perishable goods, while FIFO ensures older inventory is dispatched first, ideal for maintaining product freshness. OMS selects between LIFO and FIFO based on product nature, customer preferences, and supply chain dynamics. By leveraging these principles, OMS optimizes inventory, cuts costs, and enhances customer satisfaction through timely order fulfillment.

## IV.RESULTS AND DISCUSSION

In this Section we are comparing the existing model and proposed model with some of the parameters such as XML Http Response , JSON and XML Transfer rate The related graph of both the models have give below.

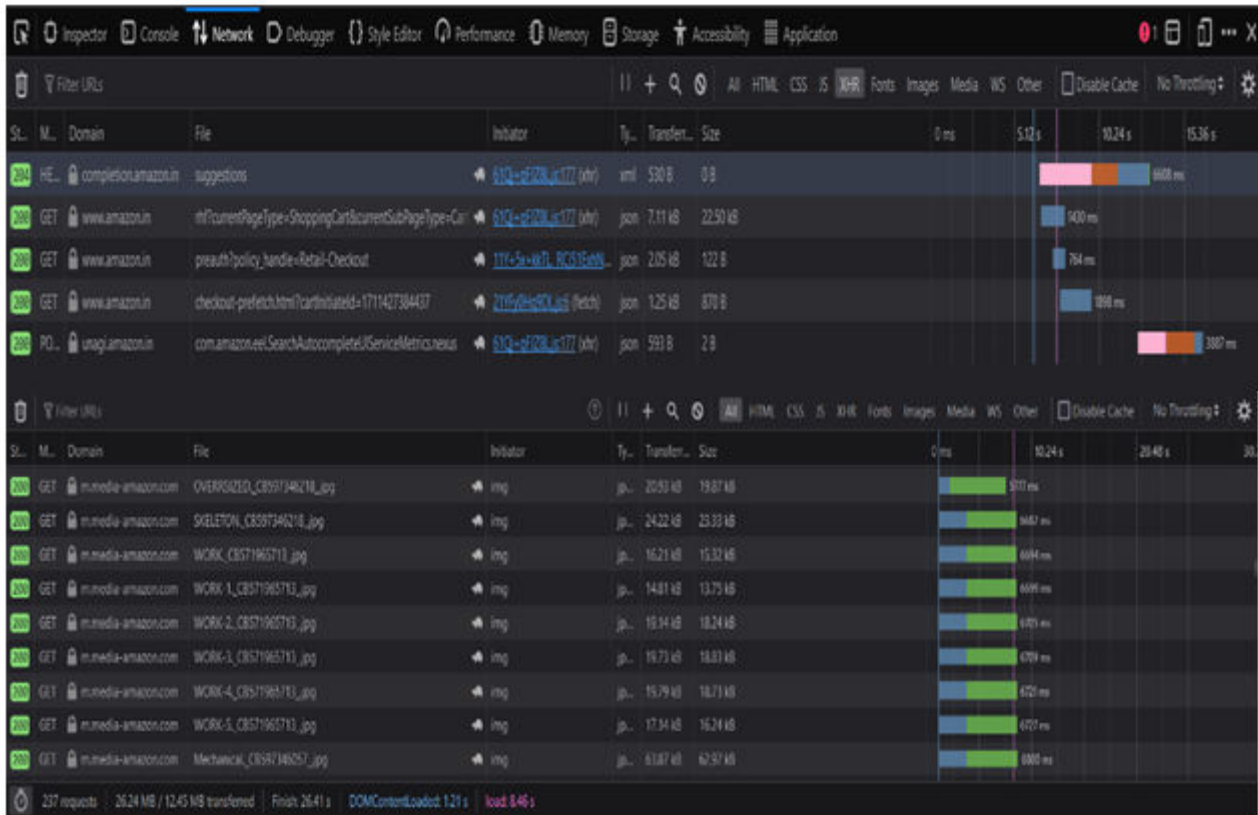
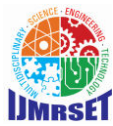


Fig 2. Sample results – Existing System

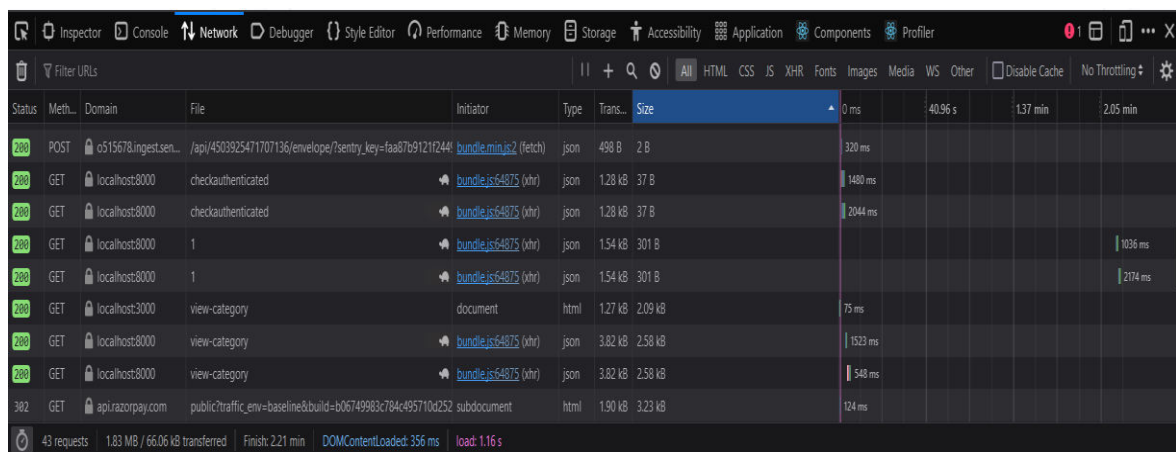


Fig 3. Sample results – Proposed System

V.CONCLUSION AND FUTURE WORK

Integrating CRM and ORM systems with solutions like resolving XML Http Response and optimizing API calls streamlines e-commerce operations. Simplifying system architecture by removing backend user interfaces and admin panels enhances security and reduces maintenance overhead. These enhancements improve data retrieval processes, streamline interactions, and ensure seamless user experiences. By leveraging modern technologies, businesses can thrive in the competitive e-commerce landscape with improved operational efficiency and exceptional customer experiences



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