**SYNOPSIS**

**Report on**

**E- COMMERSE WEBSITE CLONE**

**by**

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**ABSTRACT**

An e-commerce website clone allows customers to browse and purchase products and services online. The website allows users to register accounts and create login credentials to access their account pages. From their accounts, customers can view product listings organized into categories on the homepage. They can click through to detailed product pages with images, descriptions, specifications and reviews. From the product pages, customers can select options and quantities and add products to their shopping cart. Once they have added all desired products, they can proceed to checkout by clicking the shopping cart icon. At checkout, customers fill in their shipping address and payment details to place an order. On the admin side, database admins can manage products by performing actions like adding new products, editing existing product details and images, and deleting products from the catalogue. Finally, admins can manage user accounts by blocking, suspending or banning users when required. The clone aims to replicate the core features of an e-commerce store in a simple and user-friendly manner to facilitate online shopping.

In summary, the main focus will be on building all the necessary features required for an e-commerce store like Amazon while maintaining a user-friendly interface and smooth user experience. Security and performance optimization will also be taken into consideration.

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**INTRODUCTION**

**1.1 Project Description**

An E-commerce website is an online store where customers can browse and purchase products and services. This project aims to develop a fully functional E-commerce website for selling products online.

The key features of the E-commerce website are:

* The website will have categorized listings of various products for sale. Customers can browse products by category, search for specific products, and view product details pages.
* Customers can add products to their shopping cart and proceed to checkout. The cart will keep track of the items, quantities, and total price.
* Customers can proceed to checkout where they enter their shipping and billing information. Various payment options like credit card, debit card, PayPal, etc. will be integrated to allow customers to make secure payments.
* Registered customers will be able to create accounts, maintain their profile information, view order history and track orders.
* Admin users will have access to an admin panel where they can manage products, categories, orders, users and configure website settings.
* The website will integrate with various payment gateways, shipping carriers, email service providers, etc. to provide a seamless customer experience.

In summary, the E-commerce website will provide all the essential features to operate an effective online store where customers can browse, buy and sell products with ease. The website will be developed to be scalable, secure and optimized for both desktop and mobile devices.

**1.2 Project Scope**

Here is the project scope for an e-commerce website clone:

• The scope of the project will be to build a fully functional e-commerce website with features similar to Amazon.

• The website will allow customers to browse products, add products to cart, checkout and make payments.

• The main focus will be on the frontend - building an easy-to-use and responsive customer-facing website.

• The admin interface will allow managing products, orders, customers and other site settings.

• The following features will be in scope:

* Product catalog management
* Shopping cart
* Order management
* User authentication and authorization
* Search and filter products
* Wishlist
* Reviews and ratings

• The following features will be out of scope for the initial version:

* Recommendation engine
* Loyalty programs
* Advanced analytics and business intelligence
* Mobile app
* Drop shipping or order fulfillment
* Multi-vendor support

• Security, performance and scalability will be considered but not optimized to the level of Amazon. The initial focus will be on building a minimum viable product.

• The website will be developed using React JS, Node JS, and Mongo-DB.

In summary, the scope of the project is to build the basic yet essential features required for an e-commerce store, with an emphasis on the customer-facing website while keeping security, performance and scalability in mind to a reasonable extent.

**1.3 Hardware / Software used in Project**

Here are the hardware and software that can be used for an e-commerce website clone project:

Hardware:

* Web server: A high-performance web server will be required to handle the traffic and load of an e-commerce website. Options include AWS EC2 instances, Google Cloud Compute Engine, or a dedicated server.
* Database server: A database server will be needed to store product data, order details, user information, and more. Options include AWS RDS, Google Cloud SQL, or a self-hosted SQL database server.
* Load balancer (optional): A load balancer can be used to distribute traffic across multiple web and database servers for high availability and scalability.

Software:

* Web server: Node JS HTTP Server
* Programming languages: React JS, JavaScript, HTML, CSS.
* Database: Mongo-DB

Other tools:

* Text editor: VS Code.
* Browser dev tools: For testing and debugging.
* Version control: Git.

In summary, to develop an e-commerce website clone, you'll need a combination of hardware resources like web and database servers, and software like programming languages, frameworks, libraries and tools. The specific stack depends on your preferences and requirements.

The important thing is to choose technologies that you are comfortable with while keeping performance, scalability and security in mind.

**LITERATURE REVIEW**

An Amazon clone website built using the MERN stack (MongoDB, Express.js, React.js and Node.js) aims to replicate the features and functionality of the e-commerce giant Amazon. Several such mini projects exist to help learn and demonstrate the MERN stack.

The key technologies used in these projects are:

* MongoDB as the database to store products, users, orders and other data.
* Express.js as the Node.js framework to build the API endpoints. Express.js handles routing and requests from the frontend.
* React.js for building the frontend UI - product listing, product details, cart, checkout, admin panel etc. React provides a clean and component-based design.
* Node.js as the runtime environment to run the Express.js server and API endpoints.

The main features implemented in these MERN Amazon clone projects are:

* User authentication and registration
* Product listing with search, filters and sorting
* Product details page showing images, description, ratings etc.
* Shopping cart
* Checkout flow with order summary, payment and address details
* Order history and account management
* Admin panel to manage products, orders and users

The system architecture typically consists of:

* A React app for the frontend
* An Express.js API server to handle requests from the frontend
* MongoDB database to store data

The benefits of the MERN stack for such e-commerce projects are:

* Ease of development with JavaScript used throughout
* Scalability - each component can be scaled independently
* Performance - caching, clustering etc. can be used to optimize
* Maturity of the technologies with a large ecosystem of libraries and tools

In summary, MERN Amazon clone projects provide a practical way to learn and demonstrate the full MEAN stack in action while building a useful and real-world e-commerce application. The literature reveals several open-source implementations on GitHub with tutorials and courses available to learn from.

**PROJECT OBJECTIVE**

The main objective of building an Amazon clone website using the MERN stack is to replicate the key features and functionalities of Amazon's e-commerce platform in order to:

* Practice and demonstrate the skills and knowledge of the MERN technologies in a real-world application. The MERN stack comprises of:
  + MongoDB - For storing product data, user info, orders etc.
  + Express.js - The Node.js framework used to build the API endpoints.
  + React.js - For building the front-end UI like product list, details, cart etc.
  + Node.js - As the runtime environment to run the Express server and API endpoints.
* Learn how to structure a large-scale web application by breaking it down into components and managing data flow and state.
* Replicate the essential e-commerce features like:
  + Product listing with search, filters and sorting.
  + Product details page.
  + Shopping cart.
  + Checkout flow.
  + User authentication and registration.
  + Order history and account management.
  + Admin panel to manage products, orders and users.
* Gain practical experience in deploying a full-stack web app to a platform like Heroku. This helps solidify the learning process.
* Have a portfolio project to demonstrate skills to potential employers. An Amazon clone shows competence with modern technologies and the ability to build complex web applications.

In summary, the main objectives are to learn and apply the MERN stack in a real-world scenario while building a useful e-commerce website with features similar to industry leaders like Amazon. This practical approach helps students gain a deeper understanding of the technologies involved and strengthens their full-stack web development skills.

**PROJECT OUTCOME**

Building an Amazon clone website using the MERN stack (MongoDB, Express.js, React.js and Node.js) as a student project can help you achieve several outcomes:

**Practical knowledge and skills**

* You will gain practical experience in building a full-stack web application using the MERN technologies.
* You will learn how to structure a complex application by breaking it down into components and managing data flow.
* You will learn to implement essential e-commerce features like product listing, cart, checkout, authentication, orders, and admin panel.
* You will learn to deploy your application to a platform like Heroku.

**Portfolio project**

* You will have a substantial project to showcase your full-stack web development skills to potential employers.
* An Amazon clone demonstrates your ability to build complex web applications using modern technologies.

**Real-world experience**

* Building an e-commerce website mimicking industry leaders like Amazon gives you experience working on a real-world application.
* You will encounter and solve issues similar to what you would face in a professional setting.

**Deeper learning**

* The practical, hands-on approach of building a full-stack application helps cement your knowledge of the technologies used.
* You will gain a stronger conceptual understanding through troubleshooting and overcoming challenges.

**Transferable skills**

* Skills like problem-solving, debugging, project planning and organization will improve and become more refined.
* These valuable skills can be transferred to other projects and job roles.

In summary, building an Amazon clone using MERN stack as a student project provides many benefits beyond just learning the technologies. You gain real-world experience, hone valuable skills, and have a substantial portfolio project - all of which can help boost your career as a web developer.

**PROPOSED TIME DURATION**

There is no definitive answer to how many days it takes to build an Amazon clone using the MERN stack. It depends on several factors:

* The complexity and functionality of the clone. A basic clone with just product listings and a cart could be built in a few days. But a full-fledged clone with all of Amazon's features could take weeks or months.
* The skills and experience of the developer. An experienced full stack developer could build a simple clone faster than a junior or student developer.
* The amount of time available each day. Working full-time (8 hours/day) will be faster than working part-time (4 hours/day).
* The UI design complexity. Simple designs are faster to implement than complex, animated designs.
* The testing and quality of the clone. More thorough testing and polishing takes more time.

In summary, realistic estimates for building an Amazon clone using MERN stack range from a few days for a basic clone to a few weeks for a fully functional clone with all features. Many factors influence the exact time needed. The repositories and videos in the WebSearchResult suggest it will take more than just hours, likely spanning multiple days

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