APPENDIX 1

Virtual Mall

Project Report submitted in partial

fulfillment for the award of the degree of

Bachelor of Technology

Submitted by

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IN

COMPUTER SCIENCE AND ENGINEERING

School of Computer Science and Engineering

Under the Supervision of

Sudeept Singh Yadav

Assistant Professor

(Established under Galgotias University Uttar Pradesh Act No. 14 of 2011)

June 2021

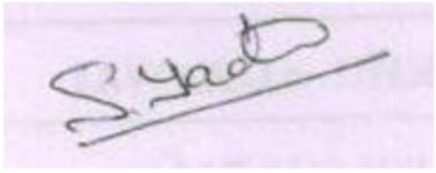
APPENDIX 2

GALGOTIAS UNIVERSITY

School of Computer Science and Engineering

BONAFIDE CERTIFICATE

Certified that this project report **"VIRTUAL MALL"** is the bonafide work of "**VANSH JAIN, SARTHAK SAXENA, PRAJWAL SINGH"** who carried out the project work under my supervision.



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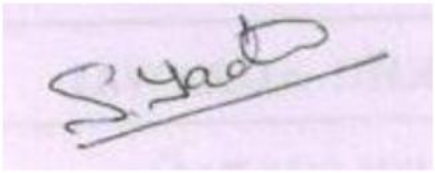
Approval Sheet

This report entitled Virtual Mall by Vansh Jain, Sarthak Saxena, Prajwal Singh is approved for the degree of Bachelor of Technology in Computer Science and Engineering.



Supervisor

Sudeept Singh Yadav

Date: 02-06-2021

Place: Greater Noida

Abstract

The project we are working is developing an E-Commerce website using latest library. Electronic commerce or E-Commerce is a way to do business online using a computer, mobile or electronic gadgets. Anyone with access to a computer or a mobile device can use the Internet to buy or sell goods. The traditional business model is undergoing a complete transformation. This significant shift in the business model has resulted in tremendous growth all over the world, including India. E-commerce has grown in popularity as a result of widespread internet use, and this option is increasingly being used by start-ups as a differentiating business model. Furthermore, E-Commerce has significant environmental consequences. The research strategy demonstrates the importance of e-commerce for business in developing countries. Several businesses have already had a lot of success. COVID-19 has had a huge impact on cross-border e-commerce. Consumers can shop more easily and safely, especially when shopping online, where the business specifies certain rules, the confidentiality of the roles of the parties, and customer information. In cases in which the product consumers wish to purchase does not fit the product online, problems occur or product details are inaccurate, contributing to consumer disappointment. In such cases, customers who have not had their needs met choose to return the goods they have purchased. As a result, client satisfaction with return management is required, even as the value of distribution and logistics operations grows.

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Chapter 1: Introduction

In this project, we have developed an e-commerce website using React Js which is a Javascript library. Our website is offering clothes to men and women, jackets, sneakers, and hat. We have offered the sign-in/sign-up facility using firebase. Also, our website is hosted on the firebase.

Electronic Commerce is process of doing business through computer networks. A person sitting on his chair in front of a computer can access all the facilities of the Internet to buy or sell the products. Unlike traditional commerce that is carried out physically with effort of a person to go & get products, ecommerce has made it easier for human to reduce physical work and to save time. E-Commerce which was started in early 1990's has taken a great leap in the world of computers, but the fact that has hindered the growth of e-commerce is security. Security is the challenge facing e-commerce today & there is still a lot of advancement made in the field of security. The main advantage of e-commerce over traditional commerce is the user can browse online shops, compare prices and order merchandise sitting at home on their PC.

A website is a collection of related web pages, including multimedia content, typically identified with a common domain name, and published on at least one web server. A website may be accessible via a public Internet Protocol (IP) network, such as the Internet, or a private local area network (LAN), by referencing a uniform resource locator (URL) that identifies the site.

Websites have many functions and can be used in various fashions; a website can be a personal website, a commercial website for a company, a government website or a non-profit organization website. Websites are typically dedicated to a particular topic or purpose, ranging from entertainment and social networking to providing news and education. All publicly accessible websites collectively constitute the World Wide Web, while private websites, such as a company's website for its employees, and are typically a part of an intranet.

Web pages, which are the building blocks of websites, are documents, typically composed in plain text interspersed with formatting instructions of Hypertext Markup Language (HTML, XHTML). They may incorporate elements from other websites

with suitable markup anchors. Web pages are accessed and transported with the Hypertext Transfer Protocol (HTTP), which may optionally employ encryption (HTTP Secure, HTTPS) to provide security and privacy for the user. The user's application, often a web browser, renders the page content according to its HTML markup instructions onto a display terminal.

Hyperlinking between web pages conveys to the reader the site structure and guides the navigation of the site, which often starts with a home page containing a directory of the site web content. Some websites require user registration or subscription to access content. Examples of subscription websites include many business sites, news websites, academic journal websites, gaming websites, file-sharing websites, message boards, web-based email, social networking websites, websites providing real-time stock market data, as well as sites providing various other services. As of 2016 end users can access websites on a range of devices, including desktop and laptop computers, tablet computers, smartphones and smart TVs.

For increasing the use of e-commerce in developing countries the e-commerce is implemented for improving access to global markets for firms in developing countries. For a developing country advancement in the field of e-commerce is essential. The research strategy shows the importance of the e-commerce in developing countries for business applications. As a place for direct retail shopping, with its 24-hour availability, a global reach, the ability to interact and provide custom information and ordering, and 47 multimedia prospects, the Web is rapidly becoming a multibillion-dollar source of revenue for the world's businesses. A number of businesses already report considerable success. As early as the middle of 1997, Dell Computers reported orders of a million dollars a day. By early 1999, projected e-commerce revenues for business were in the billions of dollars and the stocks of companies deemed most adept at e-commerce were skyrocketing. Although many so-called dotcom retailers disappeared in the economic shakeout of 2000, Web retailing at sites such as Amazon.com, CDNow.com, and CompudataOnline.com continues to grow.

The advancements in the Internet in recent years have made new systems available to business. The social media like online communities is a good example (Lu & Hsiao, 2010). Communications and information technology are the biggest components of the terminology related to the whole process rather than information conveyance. The term of communications and information technology surfaced after there was integration between computer hardware and software with communications technology in the middle of the 20th century. The Internet is one of the means used in telecommunications. The population of Indonesia is 251.160.124 with 51% of city dwellers and 49% of rural inhabitants. Internet users in cities account for 18% or 38.191.873 people (wearesocial.sg, 2014). The Internet is also one of the most revolutionary kinds of technology. It has changed the business environment and has had a dramatic effect on electronic commerce (e-commerce).

Sharma and Mittal (2009) in their study "prospects of e-commerce in India", mentions that India is showing tremendous growth in the e-commerce. Undoubtedly, with the middle class of 288 million people, online shopping shows unlimited potential in India. The real estate costs are touching the sky. Today ecommerce has become an integral part of our daily life. There are websites providing any number of goods and services. The e-commerce portals provide goods and services in a variety of categories. Concluded that the ecommerce has broken the geographical limitations and it is a revolution-commerce will improve tremendously in next five years in India. Concluded that the e-commerce has a very bright future in India although security, privacy and dependency on technology are some of the drawbacks of e-commerce but still there is a bright future to e-commerce.

Many large organizations find it difficult to develop an e-commerce strategy. With e-commerce comes major changes that must be carefully planned and coordinated to avoid chaos and confusion. The aim of this website is to provide an approach to develop an e-commerce strategy for large organizations. A web page, or webpage, is a document that is suitable for the World Wide Web and web browsers. A web browser displays a web page on a monitor or mobile device. The web page is what displays, but the term also refers to a computer file, usually written in HTML or comparable markup language. Web browsers coordinate the various web resource elements for the written web page, such as style sheets, scripts, and images, to present the web page.

Chapter 2: Requirements , Feasibility and Scope/Objective

Requirement

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects, such as interactive forms, may be embedded into the rendered page. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as <img /> and <input /> introduce content into the page directly. Others such as ... surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript which affect the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

HTML markup consists of several key components, including those called tags (and their attributes), character-based data types, character references and entity references. HTML tags most commonly come in pairs like <h1> and </h1>, although some represent empty elements and so are unpaired, for example <img>. The first tag in such a pair is the start tag, and the second is the end tag (they are also called opening tags and closing tags).

HTML (Hyper Text Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behaviour (JavaScript). "Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as <img/> and <input/> directly introduce content into the page. Other tags such as <p> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page. HTML can embed programs written in a scripting language such as JavaScript, which affects the behaviour and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML,

the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

CSS is designed primarily to enable the separation of presentation and content, including aspects such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content. Separation of formatting and content makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. It can also display

Sass (short for syntactically awesome style sheets) is a pre-processor scripting language that is interpreted or compiled into Cascading Style Sheets (CSS).

Sass Script is the scripting language itself. Sass consists of two syntaxes. The original syntax, called “the indented syntax,” uses a syntax similar to Haml. It uses indentation to separate code blocks and newline characters to separate rules. The newer syntax, “SCSS” (Sassy CSS), uses block formatting like that of CSS. It uses braces to denote code blocks and semicolons to separate rules within a block. The indented syntax and SCSS files are traditionally given the extensions .sass and .scss, respectively. CSS3 consists of a series of selectors and pseudo-selectors that group rules that apply to them. Sass (in the larger context of both syntaxes) extends CSS by providing several mechanisms available in more traditional programming languages, particularly object-oriented languages, but that are not available to CSS3 itself. When SassScript is interpreted, it creates blocks of CSS rules for various selectors as defined by the Sass file. The indented syntax is a metalanguage. SCSS is a nested metalanguage, as valid CSS is valid SCSS with the same semantics. SassScript

provides the following mechanisms: variables, nesting, mixins, and selector inheritance.

JavaScript (JS) is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions. While it is most well-known as the scripting language for Web pages, many non-browser environments also use it, such as Node.js, Apache CouchDB and Adobe Acrobat. JavaScript is a prototype-based, multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative, and declarative (e.g., functional programming) styles.

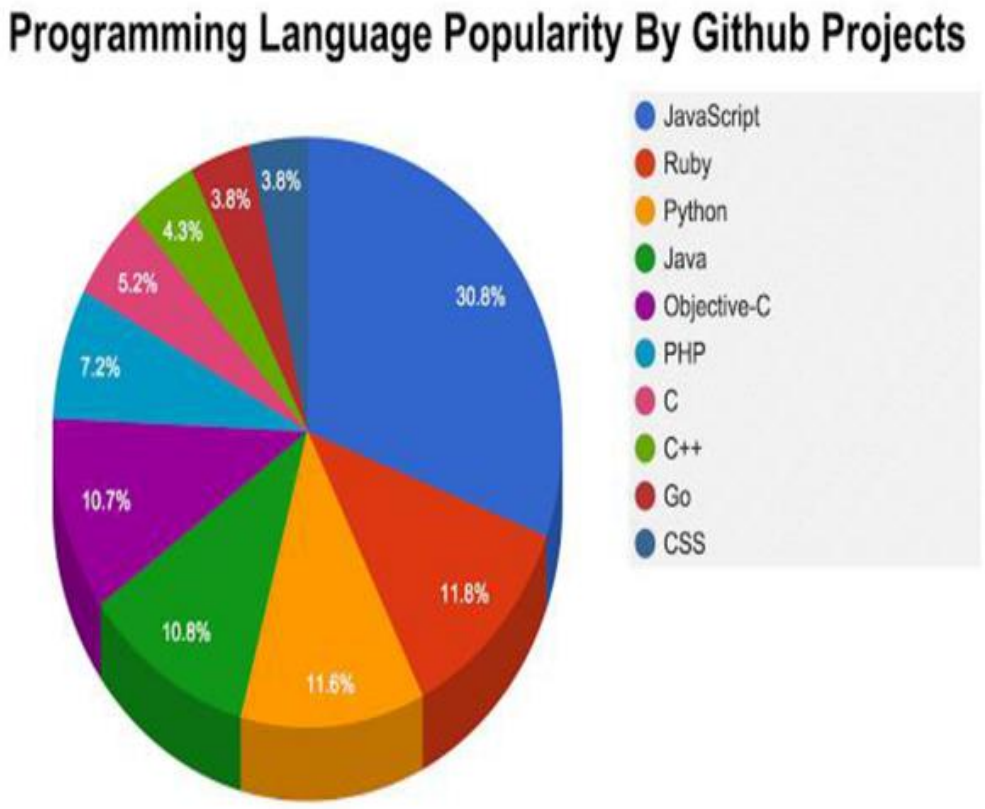


Figure 1. Programming language popularity

React is a declarative, efficient, and flexible JavaScript library for building user interfaces. It lets you compose complex UI from small and isolated pieces of code called “components”. React (also known as React.js or ReactJS) is an open-source, front end, JavaScript library for building user interfaces or UI components. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single-page or mobile applications. However, react is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

For backend, we have used firebase. Firebase is a platform developed by Google for creating mobile and web applications. It was originally an independent company founded in 2011. In 2014, Google acquired the platform and it is now their flagship offering for app development.

For editor, we have used Visual Studio Code or VS Code. Visual Studio Code is a freeware source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality. Microsoft has released Visual Studio Code’s source code on the `Microsoft/ VS Code` repository of GitHub, under the permissive MIT License, while the releases by Microsoft are freeware. In the Stack Overflow 2019 Developer Survey, Visual Studio Code was ranked the most popular developer environment tool, with 50.7% of 87,317 respondents reporting that they use it. Visual Studio Code was first announced on April 29, 2015, by Microsoft at the 2015 Build conference. A Preview build was released shortly thereafter. On November 18, 2015, Visual Studio Code was released under the MIT License, having its source code available on GitHub. Extension support was also announced. On April 14, 2016, Visual Studio Code graduated from the public preview stage and was released to the Web.

Cloud Firestore is a flexible, scalable database for mobile, web, and server development from Firebase and Google Cloud. Like Firebase Realtime Database, it keeps your data in sync across client apps through real-time listeners and offers offline support for mobile and web so you can build responsive apps that work regardless of network latency or Internet connectivity. Cloud Firestore also offers seamless integration with other Firebase and Google Cloud products, including Cloud Functions.

Netlify is an all-in-one platform for automating modern web projects. Replace your hosting infrastructure, continuous integration, and deployment pipeline with a single workflow. Integrate dynamic functionality like serverless functions, user authentication, and form handling as your projects grow.

Explore our documentation to learn about Netlify products and features. Here are some highlights from each section of the docs:

Configure builds – Netlify can run your build command and deploy the result whenever you push to your Git repo. Get started with basic build settings, learn about managing build dependencies, and explore additional options available with file-based configuration.

Site deploys – Atomic deploys with Netlify guarantee that your site is always consistent. Learn how to manage deploys, enable deploy notifications, and run a branch-based split test. Use the power of Deploy Previews to review site changes and collaborate with team members.

Monitor sites – Learn how Netlify Analytics lets you monitor trends in site activity. Monitor builds to understand the role individual sites play in your team's builds usage. Explore what kinds of logs and notifications are available for your sites.

Domains & HTTPS – Register a new domain in the Netlify UI, or use a domain you already own, to assign a custom domain to your site. Either way, you can have Netlify handle DNS management for you. We provide free automatic HTTPS on all sites.

Routing – Learn about static routing options available with redirects, proxies, and custom headers and dynamic routing options with Edge Handlers.

Visitor access – Enable site-wide password protection, authenticate users with Netlify Identity, or configure role-based access control.

Forms – You can use Netlify Forms without adding API calls or extra JavaScript on your site, configure extra spam prevention beyond our automatic spam filtering, and receive notifications about new submissions.

Functions – Deploy serverless functions built with JavaScript, with TypeScript, or with Go. You can even execute Background Functions for long-running tasks and trigger function calls when certain Netlify events happen.

Large Media – Get the benefits of Git version tracking for large files without bloating your repository. Use dynamic image transformations so you can upload images at full resolution, then serve the exact size you need when you need it.

Partner add-ons – Learn how to work with add-ons to connect third-party APIs and other microservices to your Jamstack projects on Netlify, discover what partner add-ons are currently available, or make your own add-on.

CLI – You can use Netlify's command line interface to deploy sites or configure continuous deployment. Netlify Dev brings the functionality of your Netlify production environment directly to your local machine.

API – To get started with the Netlify API, learn how to authenticate and make a request. Then explore options for deploying via API and usage for some popular endpoints.

Accounts & billing – Learn about managing team members and how to transfer sites between teams.

Get help - Explore self-serve and interactive help resources. Get tips for requesting support by email to help our support engineers help you.

NPM (originally short for Node Package Manager) is a package manager for the JavaScript programming language. NPM Inc. is a subsidiary of GitHub (a subsidiary of Microsoft), that provides hosting for software development and version control with the usage of Git. NPM is the default package manager for the JavaScript runtime environment Node.js. It consists of a command line client, also called NPM, and an online database of public and paid-for private packages, called the NPM registry. The registry is accessed via the client, and the available packages can be browsed and searched via the NPM website. The package manager and the registry are managed by NPM, Inc.

NPM is included as a recommended feature in the Node.js installer. NPM consists of a command line client that interacts with a remote registry. It allows users to consume and distribute JavaScript modules that are available in the registry. Over 1.3 million packages are available in the main NPM registry. The registry does not have any vetting process for submission, which means that packages found there can be low quality, insecure, or malicious. Instead, NPM relies on user reports to take down packages if they violate policies by being low quality, insecure, or malicious. NPM exposes statistics including number of downloads and number of depending packages to assist developers in judging the quality of packages.

In NPM version 6, the audit feature was introduced to help developers identify and fix vulnerability and security issues in installed packages. The source of security issues was taken from reports found on the Node Security Platform (NSP) and has been integrated with NPM since NPM's acquisition of NSP.

For Version Control, we have used Git. Git is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows (thousands of parallel branches running on different systems). Git was created by Linus Torvalds in 2005 for development of the Linux kernel, with other kernel developers contributing to its initial development. Since 2005, Junio Hamano has been the core maintainer. As with most other distributed version control systems, and unlike most client–server systems, every Git directory on every computer is a full-fledged repository with complete

history and full version-tracking abilities, independent of network access or a central server. Git is free and open-source software distributed under GNU General Public License Version 2.

Cloud Firestore is a cloud-hosted, NoSQL database that your iOS, Android, and web apps can access directly via native SDKs. Cloud Firestore is also available in native Node.js, Java, Python, Unity, C++ and Go SDKs, in addition to REST and RPC APIs.

Following Cloud Firestore's NoSQL data model, you store data in documents that contain fields mapping to values. These documents are stored in collections, which are containers for your documents that you can use to organize your data and build queries. Documents support many different data types, from simple strings and numbers, to complex, nested objects. You can also create subcollections within documents and build hierarchical data structures that scale as your database grows. The Cloud Firestore data model supports whatever data structure works best for your app.

Additionally, querying in Cloud Firestore is expressive, efficient, and flexible. Create shallow queries to retrieve data at the document level without needing to retrieve the entire collection, or any nested subcollections. Add sorting, filtering, and limits to your queries or cursors to paginate your results. To keep data in your apps current, without retrieving your entire database each time an update happens, add real-time listeners. Adding real-time listeners to your app notifies you with a data snapshot whenever the data your client apps are listening to changes, retrieving only the new changes.

Protect access to your data in Cloud Firestore with Firebase Authentication and Cloud Firestore Security Rules for Android, iOS, and JavaScript, or Identity and Access Management (IAM) for server-side languages.

A common misconception is that NoSQL databases or non-relational databases don't store relationship data well. NoSQL databases can store relationship data—they just store it differently than relational databases do. In fact, when compared with SQL databases, many find modelling relationship data in NoSQL databases to

be *easier* than in SQL databases, because related data doesn't have to be split between tables. NoSQL data models allow related data to be nested within a single data structure.

For payment gateway, we have used stripe API. Stripe's API gives developers access to the company's features. Invoices are sent, payments are accepted, subscription billing is managed, and account history is edited and managed are all examples of API.

Feasibility

Technical Feasibility: Virtual Mall is a web-based dashboard which will visualize the data fetched from firestore of firebase. Main technologies associated with Virtual Mall are: React, JS, Sass, HTML. Each of these technologies are freely available and technical skills required are manageable.

Product/Service Marketplace: Virtual Mall will surely help everyone to purchase clothes online. It will help anyone anywhere in the world to view the products and can place an order.

Operative Feasibility: After successfully completing this project, the dashboard would work smoothly and have a very user-friendly interface. It will surely satisfy its purpose.

Scope/Objective

If we have a physical store, we are limited by the geographical area that you can service within. With an e-commerce website, the whole world is our playground. Also, the advent of e-commerce on mobile devices has dissolved every remaining limitation of geography. Physical retail is driven by branding and relationships things. In addition to these, online retail is also driven by traffic from search engines. It is not unusual for customers to follow a link in search engine results and land on an e-commerce website that they have never heard of. It remains open all the time. Generally, the customers travel a long distance to reach the physical store. But, with the help of e-commerce they can visit the exact same store virtually, just by a few clicks.

Chapter 3: Analysis , Activity Time Schedule (PERT)

Analysis

There are some traditional metrics that often come to mind at the mention of 'ecommerce web analytics'—and rightly so, because a lot of traditional metrics are useful for measuring your site's performance, and for gaining a general understanding of how your website is used.

For example, here are just three of the traditional ecommerce metrics you should check and analyse regularly, and what they mean for your ecommerce site:

Bounce rates: Your site's bounce rate is the percentage of sessions that result in a bounce—which is what happens when a user lands on your site and exits without interacting in a meaningful way, like clicking on a call to action (CTA) or navigating to another page on your site. What bounce rate means for your ecommerce site: since the success of your site depends on users visiting more than one page—for example going through a sales funnel like homepage → product page → shopping cart → checkout—if visitors bounce from your homepage without converting, it may indicate an issue that needs investigating, possibly with page design or user experience (UX). Bounce rate is a metric that shouldn't be analysed out of context. When you check bounce rates for your ecommerce site, keep in mind that the metric is only a starting point for investigating user behaviour (more on how to do this later).

Exit rates: Your site's exit rate tells you how often users exit after visiting any number of pages on your website. What exit rate means for your ecommerce site: monitoring exits helps you understand how specific pages are performing; high exit rates on certain pages could potentially alert you to usability issues. For example, if your ecommerce site has a high exit rate on the last page of a sales funnel (i.e., the payment or checkout page), that could be a sign that something's going wrong on the page which is preventing visitors from converting. Important note: exit rate is another metric that shouldn't be analysed out of context, considering the fact that 100% of your visitors will exit your site at some point. When you check exit rates for your

ecommerce site, keep in mind that the metric is only a starting point for investigating user behaviour—exit rate alone won't tell you why visitors leave when they do.

Average order value (AOV): Average order value (AOV) measures the average total of every order placed with your online shop over a specified amount of time. What AOV means for your ecommerce site: measuring and monitoring AOV can help drive business decisions around topics like ad spend, pricing, and campaign building (like upselling, cross-selling, or offering promotional deals and discounts). Knowing your ecommerce site's AOV can also bring up questions around conversion rate optimization (CRO), which can lead to improvements to the user experience (UX) like an updated site design or shop layout. Traditional website analysis can answer questions like how many? Or how often? And the answers are typically numerical—the data can be measured. Depending on which tool(s) you use, you can track different types of data to analyse performance: traffic sources, conversion rates, average order value, checkout flow, and session duration (to name a few). Traditional website analysis will tell you which pages people visit on your site, or which buttons they click, but it won't show you how they got from point A to point B, and if they experienced any blockers, website bugs, or other issues along the way.

An Ecommerce website analysis report is a tool that helps you learn what is going on in your ecommerce site and how to improve your user experience in order to gain new customers, and improve the conversion rate of your e-commerce store. You can track your online store's ecommerce analytics with multiple different reports, a Google Analytics report, an ecommerce report, an email campaign report, and much more. An ecommerce website analysis report contains all the KPIs you need to track your online store's performance.

With user-driven site analysis, you can gain more actionable insights. The tool for the job here is session recordings (also known as session replays or visitor recordings), which lets you watch how real, anonymized users interact with different elements and pages across your site. Session recording software shows you people's mouse movements, hovers, clicks, and taps, so you can see how your visitors interact with each page, and how they move from one page to the next.

Smart businesses know the value of loyal customers. Being able to retain

customers pays dividends in the long run. Always have in mind that acquiring new customers is way more expensive than retaining existing ones. On top of that, increasing customer retention rates by 5% increases profits by 25% to 95%, according to research done by Frederick Reichheld of Bain & Company. Studying your customers and web visitors based on characteristics and traits like values, desires, goals, interests, and lifestyle choices helps you learn what is most important to them when it comes to their journey across your brand. Using research techniques to gain a better understanding of your target market can help you design better products, improve the overall user experience, reach quality leads, and increase conversion rates. Observing web users' behaviour to test your site's design and functionality can reveal whether your users understand how to navigate your site or if they can carry out tasks across its pages. You can also see how they react when they encounter pain points in their customer journey. Collecting feedback from your customers lets you learn directly from them in their own words—and it doesn't have to come just from website surveys, like we showed you above: you can also get on a call with your customers, or read through Customer Support tickets and/or Customer Success calls notes. You can use what you learn to improve your products, sales funnels, and the overall customer experience. When you combine qualitative and quantitative data about your visitors, you can see how and why they interact with elements or pages on your site. Understanding the full picture of your visitors' experience will help you pinpoint the changes that need to be made to your site to improve it.

Activity Time Schedule (PERT)

Each work package at the bottom of the WBS is decomposed into smaller pieces known as schedule activities. These schedule activities represent the effort needed to complete the work packages. Each activity is small enough to be estimated, managed, monitored and controlled. Once these schedule activities are defined, they are sequenced in the order in which they must be performed .The resource requirements and the activity durations are then estimated for these activities. Finally, the project schedule is created which shows when each activity is scheduled to begin and end.

The project schedule also shows the planned start date and planned finish date for the overall project. The entire schedule activities that are scheduled and performed on the project are compiled into a single list of activities called the activity list. The usefulness of the activity list depends upon its accuracy and completeness. It is an essential input for building the schedule. Therefore, it is important for project managers to involve the team in defining the activity list so that the estimates are more accurate.

The scope baseline, which comprises of the WBS, WBS Dictionary and the Project Scope statement, is an important input while creating the activity list .Each activity in the activity list should be mapped to one and only one work package. However, a single work package can be decomposed into one or more activities. Activity list is generally defined by elements like an identifier (Activity Name, Activity ID), name of those who are responsible for the work and description of each activity in sufficient detail so that the scope of the work can be thoroughly understood by the project team members. The activity list is used as a basis for the following five-time management processes outlined in the PMBOK guide: Sequence Activities, Estimate Activity Resources, Estimate Activity Durations, Develop Schedule and Control Schedule.

Month 1: We have created the design of the project. Collected image's URL and data merged them in a json file. Installed all the dependencies required for the project. Designed the dashboard of the e-commerce website. Built SASS file for the dashboard and implemented effects. Shop page and category page created with routing to the dashboard. Made sign up form and implemented Google authentication for sign in/sign up using firebase.

Month 2: Using Redux and Hooks for the state management. For local storage using persistent that saves the item of the cart even if the user closes the website and reopen it. Database provided by firebase called as fire-store to store the item dynamically. Used Stripe API for the payment gateway that provides the facility to user to make payment using credit card and debit card. Heroku will be used to host the website for the public usage.

Chapter 4: Design

1. Goal identification: Where I work with the client to determine what goals the new website needs to fulfil. I.e., what its purpose is.
2. Scope definition: Once we know the site's goals, we can define the scope of the project. I.e., what web pages and features the site requires to fulfil the goal, and the timeline for building those out.
3. Sitemap and wireframe creation: With the scope well-defined, we can start digging into the sitemap, defining how the content and features we defined in scope definition will interrelate.
4. Content creation: Now that we have a bigger picture of the site in mind, we can start creating content for the individual pages, always keeping search engine optimization (SEO) in mind to help keep pages focused on a single topic. It's vital that you have real content to work with for our next stage:
5. Visual elements: With the site architecture and some content in place, we can start working on the visual brand. Depending on the client, this may already be well-defined, but you might also be defining the visual style from the ground up. Tools like style tiles, board, and element collages can help with this process.
6. Testing: By now, you've got all your pages and defined how they display to site visitor, so it's time to make sure it all works. Combine manual browsing of the site on a variety of devices with automated site crawlers to identify everything from user experience issues to simple broken links.
7. Launch: Once everything's working beautifully, it's time to plan and execute your site launch! This should include planning both launch timing and communication strategies — i.e., when will you launch and how will you let the world know? After that, it's time to break out the bubbly.

These days, we do just about everything online—and that includes shopping. Which is why there's never been a better time to be in ecommerce. Nowadays, if you're selling anything—whether that's sneakers, salad dressing, or something in between—you need to hop on board the ecommerce website train. An ecommerce site offers you the chance to build your brand, connect with more customers, and sell more products—but only if you've got the right website design. Web design is critical when creating an ecommerce website.

Good ecommerce web design is all about using the right colours, fonts, images, words and graphics to convince visitors to make a purchase. Your ecommerce website design should attract potential customers, provide great user experience and present your shop in the best light. So, not only does your site have to look good and feel on-brand, but it also needs to drive your website visitors to take action and, you know… buy your products. But how, exactly, do you do that? How do you design the kind of ecommerce site that will have products flying off your virtual shelves?

The average Internet user has a low attention span and does not want to spend a lot of time going through hoops – especially if they know exactly what they are looking for. If your customer wants to buy a specific product, you want to make it as quick and painless as possible for them to find it. Anything else along the way is very rarely delightful and quite often distracting, or worse, off-putting.

Web development can range from developing the simplest static single page of plain text to the most complex web-based internet applications, electronic businesses, and social network services. A more comprehensive list of tasks to which web development commonly refers, may include web engineering, web design, web content development, client liaison, client-side/side scripting, web server and network security configuration, and e-commerce development. Among web professionals, "web development" usually refers to the main non-design aspects of building web sites: writing markup and coding. Most recently Web development has come to mean the creation of content management systems or CMS. These CMS can be made from scratch, proprietary or open source. In broad terms the CMS acts as middleware

between the database and the user through the browser. A principal benefit of a CMS is that it allows non-technical people to make changes to their web site without having technical knowledge.

While your Search function should, of course, have basic functionality that allows for searching based on keywords and tags, you can also take it a step further by refining suggestions and results.

The second type of potential customers are those who only have a vague idea of what they are looking for or they just want to browse through your product range and take their time. What they need is a navigation system that gives them a sense of everything on offer and lets them move easily between product categories. Your navigation should be easy-to-use and consistent throughout the website and allow for intuitively refining and reversing choices.

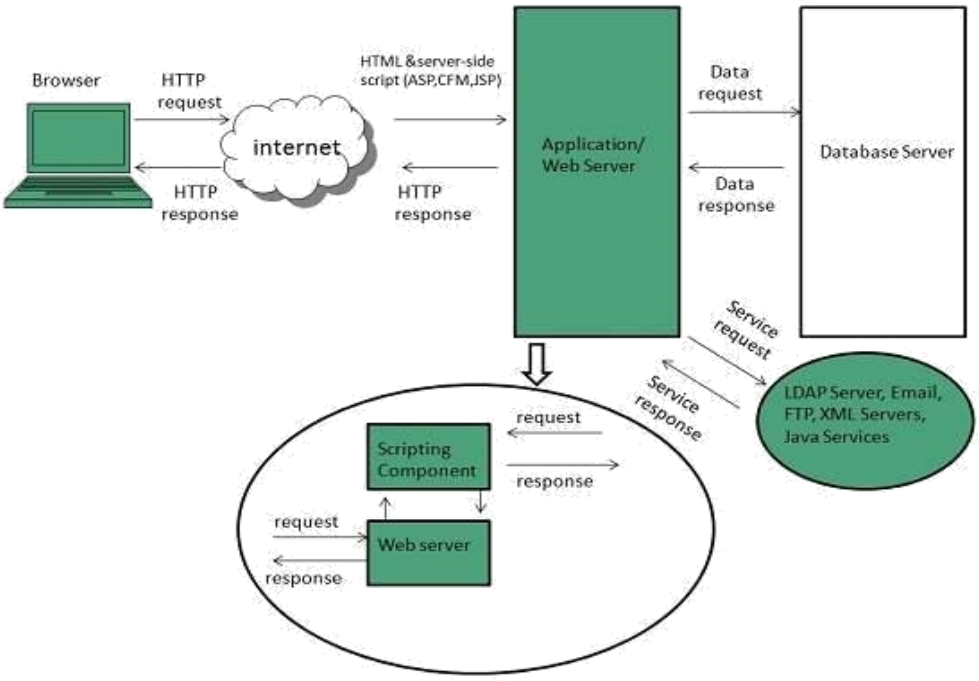


Figure 2 Scripting

Chapter 5: Implementation & Testing

Implementation

For Front End: After opening the website, first we will see the dashboard, there will be navigation bar that contains Shop, Sign In, and Cart modal. Google sign-in is also provided using firebase API. Then User may go to Shop page or to specific category like hat, jackets, sneaker, etc. User will select his/her needed item and move it into the cart. Then the user will go to checkout page and make the payment. The whole front part is built on the React JavaScript framework.

A virtual DOM is a lightweight JavaScript representation of the DOM used in declarative web frameworks such as React, Vue.js, and Elm. Updating the virtual DOM is comparatively faster than updating the actual DOM, since nothing has to be rendered onto the screen. Thus, the framework is free to make unnecessary changes to the virtual DOM relatively cheaply. The framework then finds the differences between the previous virtual DOM and the current one, and only makes the necessary changes to the actual DOM. Svelte does not have a virtual DOM, and its creator Rich Harris calls the virtual DOM "pure overhead". Related techniques include Ember.js' Glimmer and Angular's incremental DOM.

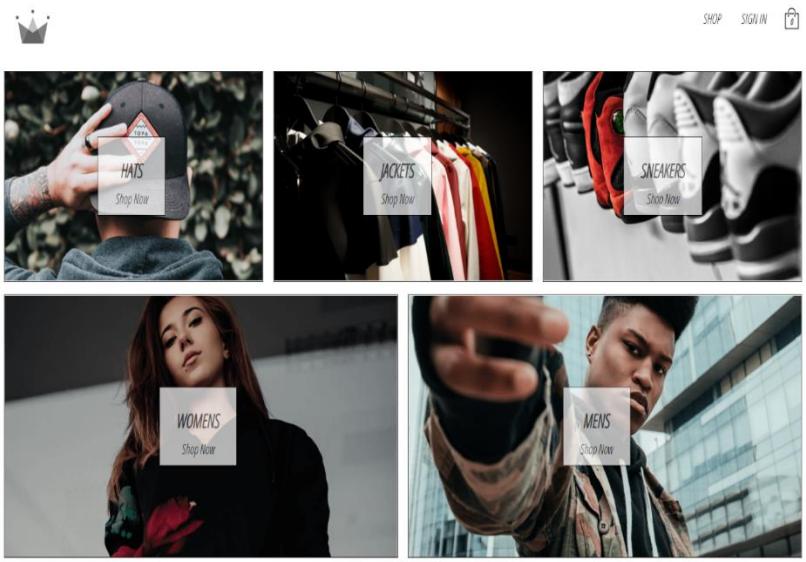


Figure 3. Dashboard

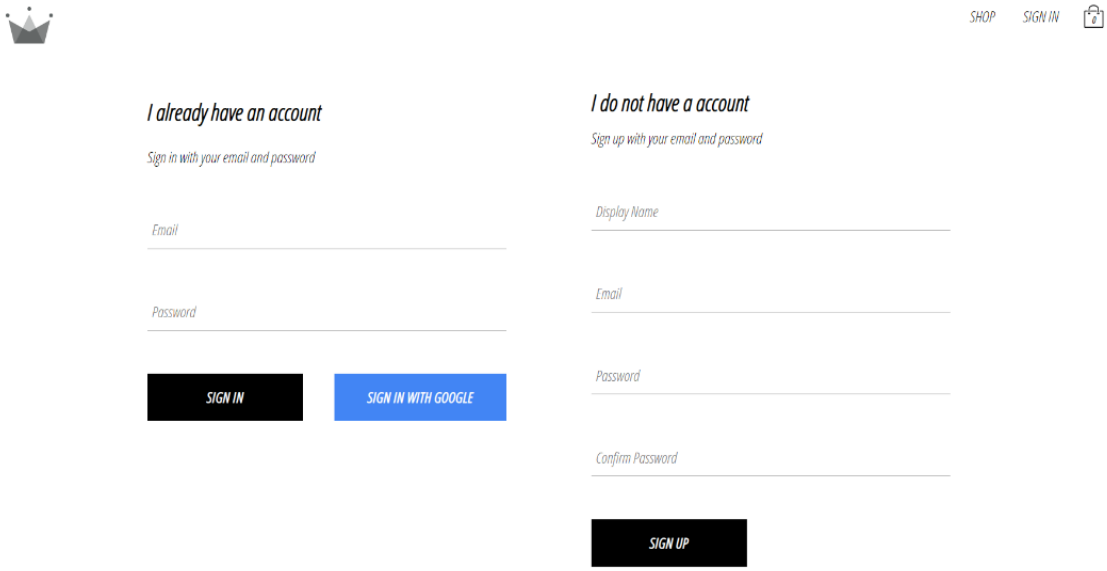


Figure 4. Sign-in/Sign-up

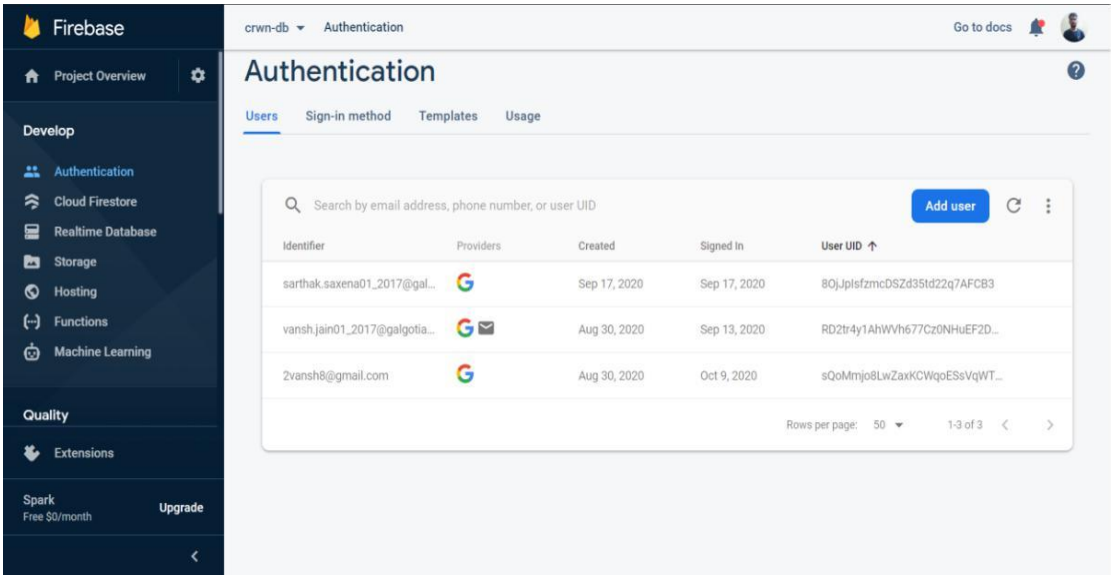
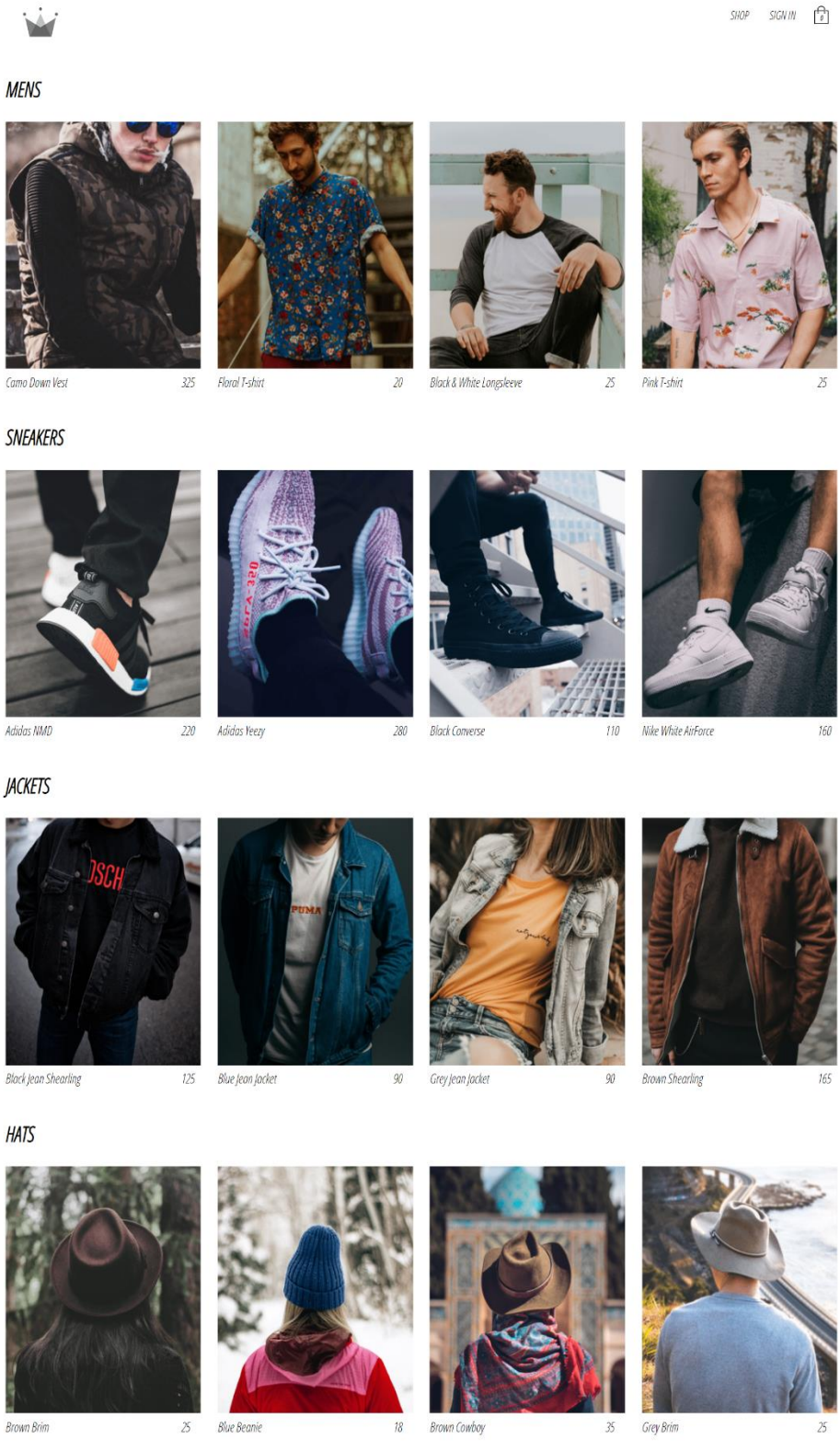


Figure 5. Authentication



Ffigure 6. Shop

Figure 7. Jacket's Page

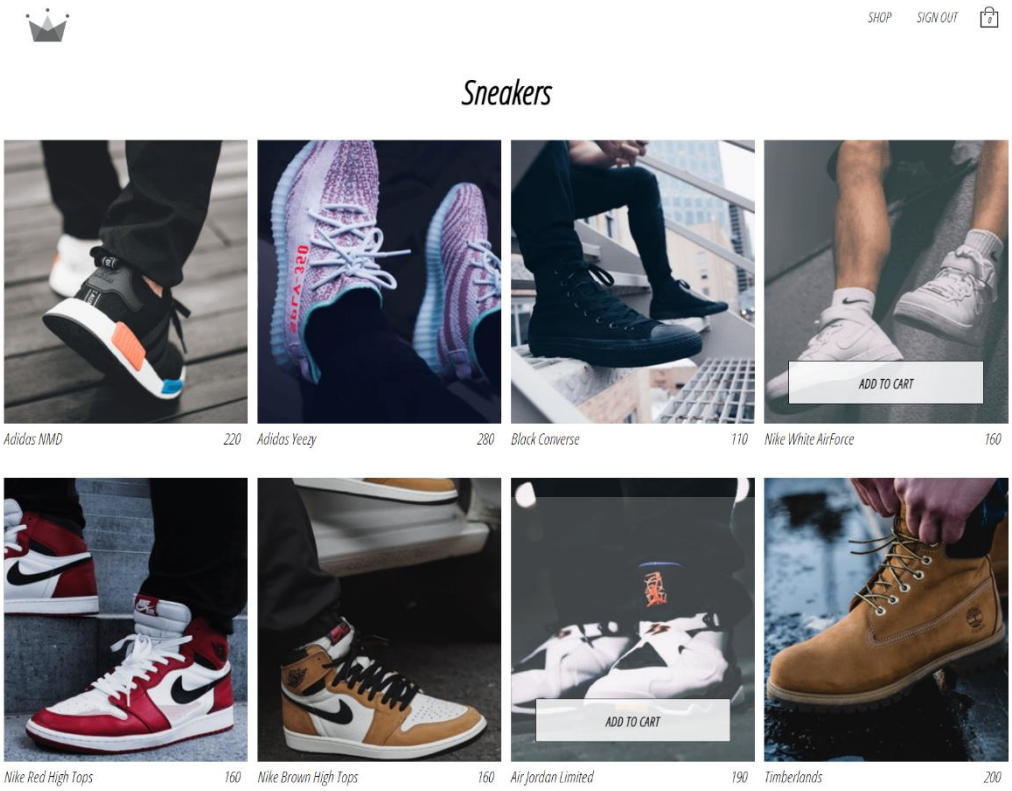


Figure 8. Sneaker's Page

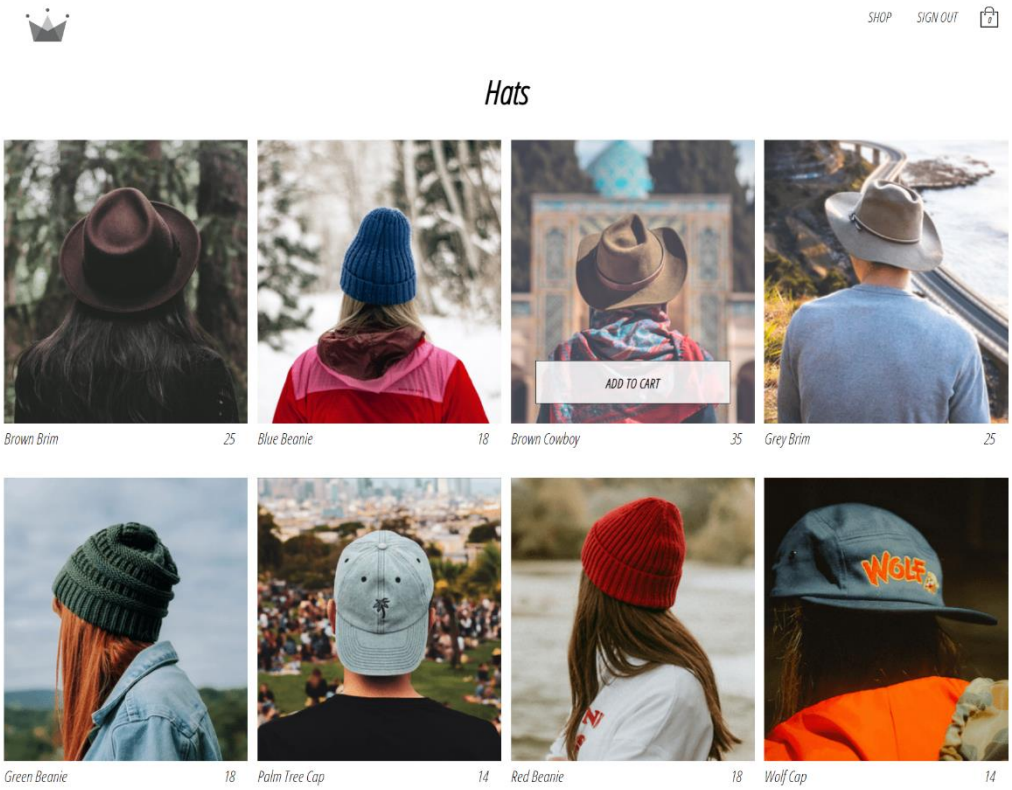


Figure 9. Hat's Figure

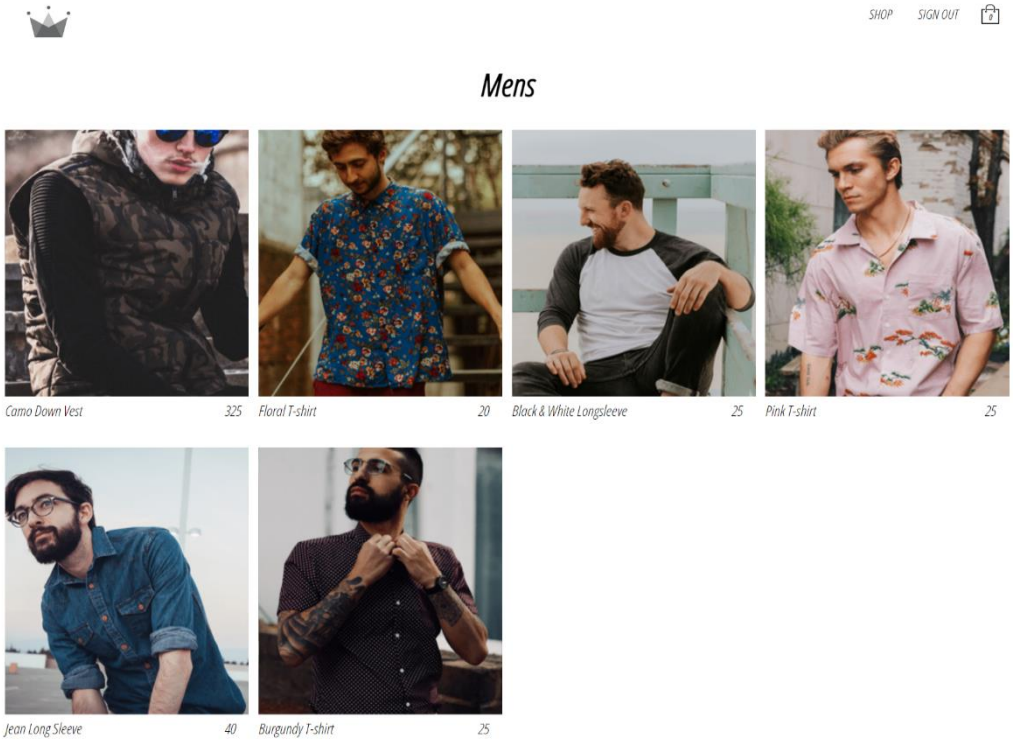


Figure 10. Men's Page

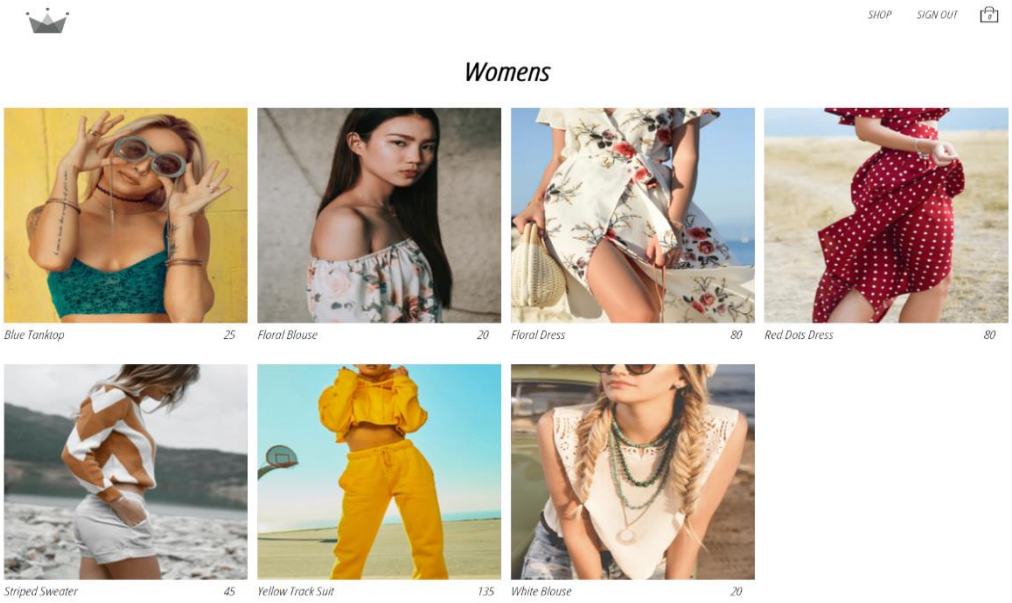


Figure 11. Women's Page

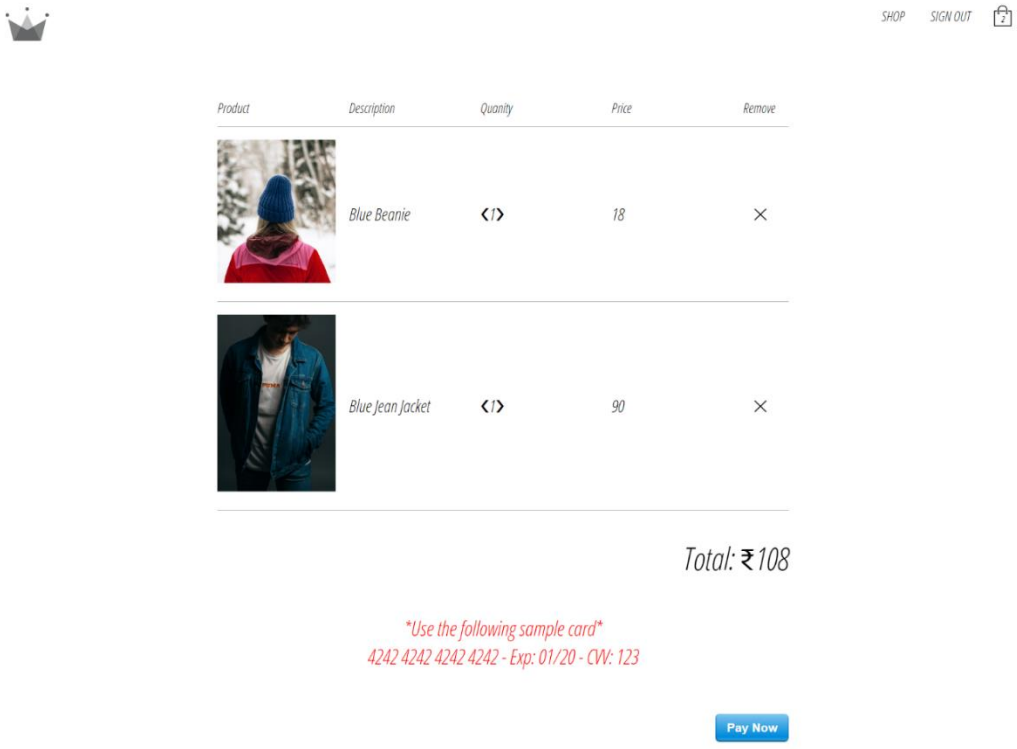


Figure 12. Checkout Page

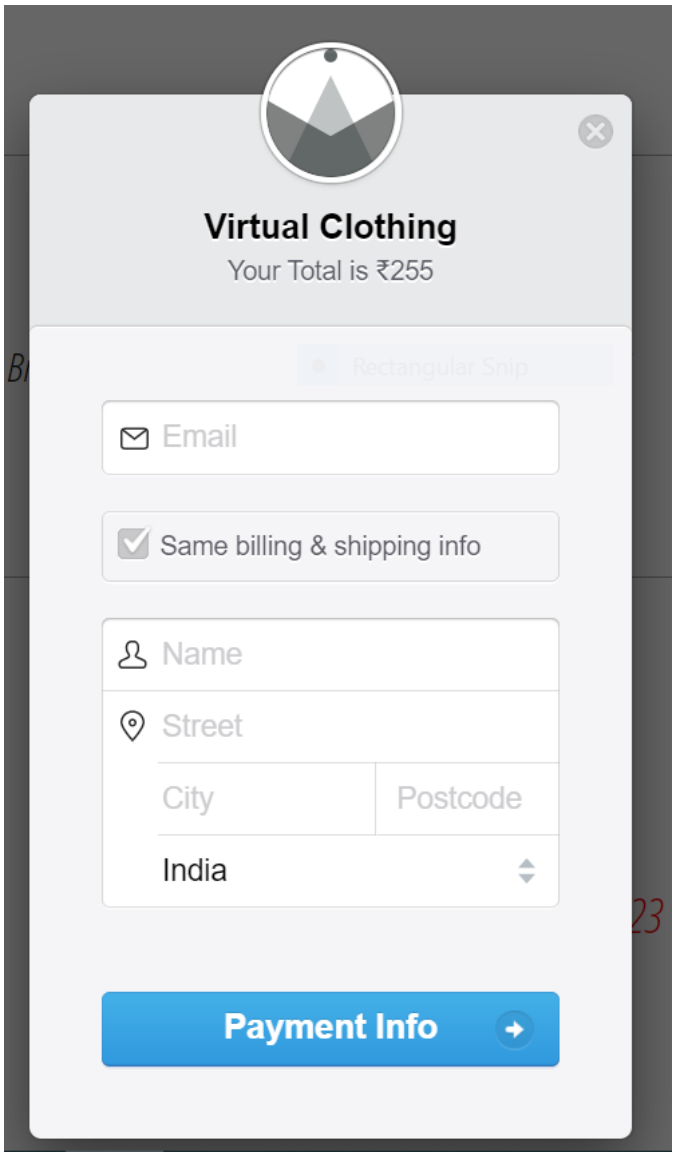


Figure 13. Payment Page

For Back-End: Google Sign-in, normal Sign-in and Sign-up is done using the firebase. It saves the credentials once the user sign-up. It also provides the facility of storage via fire store, that store the particular item details. Stripe API used to handle the payment gateway. Cloud Firestore is a cloud-hosted, NoSQL database that your iOS, Android, and web apps can access directly via native SDKs. Cloud Firestore is also available in native Node. You can also create subcollections within documents and build hierarchical data structures that scale as your database grows.

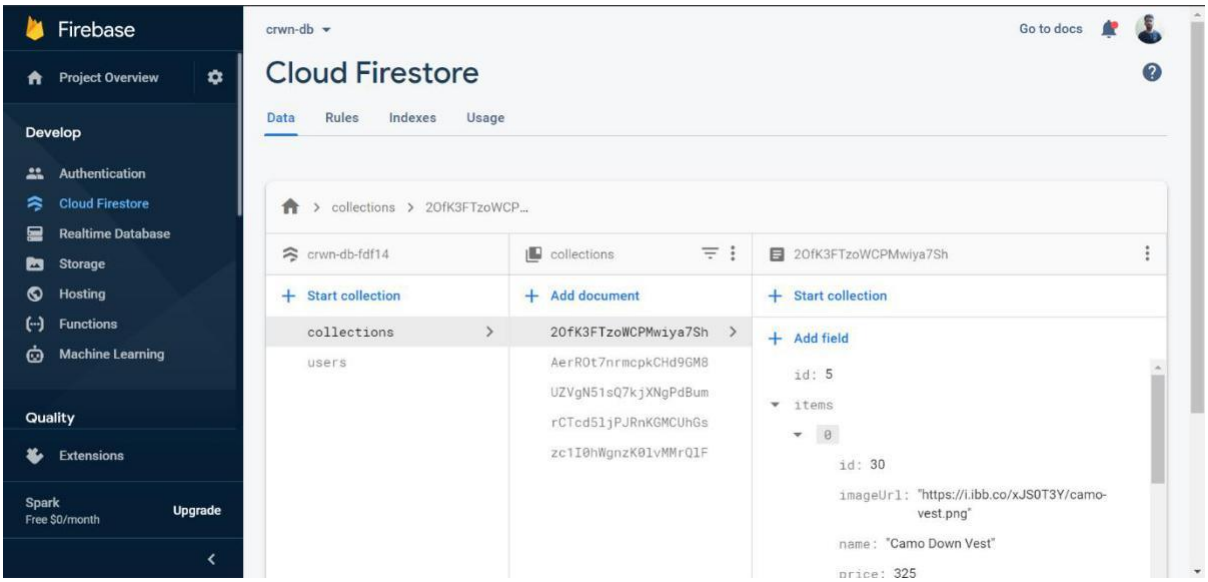


Figure 14. Firestore

Testing

The testing phase involves making changes to hardware, software, and documentation to support its operational effectiveness. It includes making changes to improve a system's performance, correct problems, enhance security, or address user requirements. To ensure modifications do not disrupt operations or degrade a system's performance or security, organizations should establish appropriate change management standards and procedures.

Routine changes are not as complex as major modifications and can usually be implemented in the normal course of business. Routine change controls should include procedures for requesting, evaluating, approving, testing, installing, and documenting website modifications. Maintaining accurate, up-to-date hardware and software inventories is a critical part of all change management processes. Management should carefully document all modifications to ensure accurate system inventories. Management should coordinate all technology related changes through an oversight committee and assign an appropriate party responsibility for administering software patch management programs.

Chapter 6: Limitations and Future Scope of the Project

As the project is not funded so we have used the limited resources. The database facility we are getting from firebase gives us trial version. Stripe API used for payment is also not set up for real payment as it requires proper documents to start payment.

According to business world an estimate of near about Sixty thousand new jobs will be created for the internet world alone in the next two years. E-Commerce transactions are expected to cross the Rs. 3500 crore milestones in 2010-11, a jump of around 350 percent from the 2008-09 figure of Rs. 1000 crore. eBay said that consumers were trading goods worth almost three crore rupees every day, across the globe.

E-commerce has bloomed over the years and is one of the fastest-growing domains in the online world. Though it took some time for this to be accepted by the end-users, today we are at a point where the majority of the people love to shop online. There were numerous concerns revolving around online shopping at its launch, but over years people tend to have started trusting E-commerce for all their shopping needs.

In India, people prefer shopping online these days rather than having to visit the physical store. The payment features that are smart and secure as well as the cash on delivery (COD), which makes the payment, even more, safer with hassle-free shipping, easy returns and reach out.

Let us check out the development or growth of this e-commerce sector in India. We have specifically collected substantial data from across the web after analysis and inferences of information acquired from authentic sources. In the year 2013, around 8 million people have been shopping online. And, the most interesting factor is that they have done shopping from some of the major online shopping sites. And, the number 8 million had risen to around 100 million by the year 2016. The new shoppers (customer base) accounting to around 50% came from the tier one and tier two towns of India. Today, we can proudly say that India is one of the places where online shopping has been booming and will continue to do so. This means that online shopping has a lot of prospects in the future.

Conclusions

We have successfully implemented the site ‘Virtual Mall. With the help of various links and tools, we have been able to provide a site which will be live soon and running on the web. We have been successful in our attempt to take care of the needs of both the user as well as the administrator. Finally, we hope that this will go a long way in popularizing. E-commerce is a great way for businesses and consumers to interact internationally. The future of E-Commerce will drastically progress over the years as the amount of internet users among businesses and consumers grows drastically every year.

REFERENCES

i) React documentation:- https://reactjs.org/docs/getting-started.html

ii) Javascript documentation:- https://www.developer.mozilla.org/en-US/docs/Web/Javascript

iii) Firebase documentation:- https://firebase.google.com/docs/web/setup

iv) Stripe documentation:- https://stripe.com/docs

Annexure –III

Paper8006

By Vansh

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E-Commerce WebApp Using React Js

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***Abstract* — Electronic commerce or E-Commerce is a way to do business online using computer, mobile or electronic gadgets. Anyone with access to a computer or a mobile device can use the Internet to buy or sell goods. E-commerce is being implemented to improve access to global mark[8]s for firms in developing countries to increase the use of e-commerce in developing countries. Advancement in the field of e-commerce is critical for a developing country. Electronic commerce (e-commerce) is a paradigm shift that affects both advertisers and consumers. E-commerce, on the other hand, is more than a means of altering current business practices. The traditional business model is undergoing a complete transformation. This significant shift in the business model has resulted in tremendous growth all over the world, including India. E-commerce has grown in popularity as a result of widespread internet use, and this option is increasingly being used by start-ups as a differentiating business model. Furthermore, E-Commerce has significant environmental consequences. The research strategy demonstrates the importance of e-commerce for business in developing countries. Several businesses have already had a lot of success. [1] COVID-19 has had a huge impact on cross-border e-commerce. What was once a gentle slope has now become a steep incline. The rate of conversion has now reached a sharp and steep incline, necessitating the search for new approaches to increase the rate of conversion. In this context, web usability has taken center stage and is regarded as the most important factor. Any interactive application's quality and success are influenced by this factor. There is now a sizable body of knowledge dedicated to the usability of computer-based applications. [2] Corporations who wish to be in industry for a long time develop customer-satisfying habits and cultivate long-term partnerships. Consumers can shop more easily and safely, especially when shopping online, where the business specifies certain rules, the confidentiality of the roles of the parties, and customer information. In cases at which product consumers wish to purchase does not fit the product online, problems occur or product details is inaccurate, contributing in consumer disappointment. In such cases, customers who have not had their needs met choose to return the goods they have purchased. As a result, client satisfaction with return management is required, even as the value of distribution and logistics operations grows. [3] The project we are working on will be made up of React Js which is a library of JavaScript.**

Keywords:- React Js, Firebase, Stripe API, Heroku, Virtual DOM, Single Page Application.

I. Introduction

Although the term "e-commerce" is commonly associated with the modern era, it was first coined in the 1960s, and fifty years later, it has revolutionized the way people buy and sell goods and services. [4]. The first online sale occurred on August 11, 1994, when a man sold a CD by the band Sting to a friend through his website Net Market, an American retail portal. This is the first instance of a customer purchasing a product over the Internet through "e-commerce," as we know it today. Since then, e-commerce has evolved to make it easier for online retailers and marketplaces to find and purchase products. E-commerce has benefited independent freelancers, small businesses, and large corporations alike, allowing them to market their products and services on a scale that traditional offline retail could not. In recent years, technological advances have resulted in the development of modern business structures. One of the most revolutionary forms of technology is the internet. It has altered the industry and had a significant impact on e-transactions (e-commerce). E-commerce has been one of the most popular penny stocks, as well as a lucrative investing opportunity. The world's Amazon and Alibaba have primarily led to the misconception that e-commerce is exclusive to the sale of physical and digital products, but the term is often extended to activities such as online auctions, online ticketing, and all other types of online commercial transactions, including banking [5]. E-commerce and online shopping are also used interchangeably, but at the heart, e-commerce is a term for doing business online and includes a variety of services such as making online orders, scheduling flights, and so on. People used to prefer buying products online because

of lower prices – running an online store is much less expensive than running an offline store – accessibility and convenience – unlike an offline store, customers can access an e-commerce website 24 hours a day – and a wider selection – customers are not limited by the availability of specific products in their locality because items can be sourced and shipped globally. Businesses market their goods online because of greater margins, scalability, and consumer insights. Setup costs and operating costs such as rent and power are minimized or avoided. With ever-increasing industry competition, the types of goods and services offered by retailers are increasingly merging. Amazon, for example, is gradually developing and selling its line of products while remaining largely a marketplace for third-party retailers. Despite the ever-increasing rivalry, more and more firms are turning to e-commerce because of the flexibility it provides.

II. Literature Review

E-commerce has evolved as a result of a mix of evolutionary and scientific breakthroughs. E-commerce became off somewhere in the early 1980s with the emergence of the World Wide Web and applications, despite the fact that the World (which played a crucial role in the transformation) first existed in the early 1960s. E-commerce began in the early 1970s with innovations such as electronic funds transfer (EFT), which allows money to be transferred electronically from one company to another. Electronic data interchange (EDI) is a method for electronically exchanging regular records that has evolved to encompass more than just financial transactions. Inter-organizational mechanism (IOS) – a system that allows for the electronic exchange of knowledge between organisations in order to create a desired supply-chain management system that allows for the growth of competitive organisations. [6]
The periods mentioned herein relate to historic events in e-evolution: commerce's:

1984: ASC X12 standardized EDI, In 1984, EDI (electronic data interchange) was introduced. This meant that companies will do trade with each other with trust.
1992: CompuServe began offering clients online ordering items in 1992. During the first time, users can buy goods straight through their device.
1994: Netscape is launched in 1994. Providing users with a simple Safe Sockets Layer (SSL) is a secure web communication technique that enables a Web browser.
1995: Amazon.com and eBay.com, two are most well-known organization at the time of their launch.
1997: DSL, or Digital Subscriber Line, is introduced in California, providing subscribers with high-speed, always-on Internet access. People are more likely to more time and money spent online as a result of this.
1999: As per the survey by an organization, expenditure in this year reaches around twenty billion dollars.
2000: In the year 2000, the US government recently declared that the ban on Web taxes would be extended until at least 2005. The advancement of technology seems to have had a major effect on e-commerce production. It has the power to engage the wider populace, expanding its scope well beyond big businesses.[7]

But the main problem with the existing eCommerce web application is the usage of old libraries and frameworks. Today many of them use Vanilla JavaScript which does not support declarative view nor component-based logic.[8]

Why get off if you can simply put a shipment, choose a delivery form, and sit around waiting for your shipment to arrive at your doorstep? Nevertheless, there are some pitfalls of e-commerce, including such logistics challenges, security risks, customer confidence, international regulations such as quotas, and spec sheets failures. With the advent of much better technology shortly, these drawbacks may be overcome. Every aspect of a business has its own set of strengths and weaknesses, and how one manages the disadvantages while reaping the benefits of technology is entirely dependent on personal preferences.
Experts predict that eCommerce will have a bright and prosperous future in the twenty-first century. In the not-too-distant future, eCommerce will solidify its position as a major sales channel. Effective e-commerce can become inseparably connected to the internet as e-shopping becomes more mainstream and convenient. Asynchronously, extreme rivalry in the area of e services would hasten their growth. The latest Internet shopping boom is setting the foundation for a promising future in e-commerce. The “volume to performance” pattern in e-commerce has become more and more evident as the Network has removed regional variables from the selling determines affordability. So, if the shop is in New York, London, or a rural community, it no longer matters. To live, entrepreneurs would have to respond successfully to the new circumstances. To draw more buyers, e-store stakeholders will need to place more emphasis to factors such as product elegance, user-friendliness, and compelling marketing look of products, and, as a consequence, they would have to incorporate new technology for their companies to want to be a part of e-commerce future. This one has been noticed that the e-commerce industry will continue to grow if all of the benefits are provided to the average consumer.[9][10]

III. Merits of E-commerce

Ecommerce was a boon in the time of the COVID-19 period. It helps us to get our needful items with contactless delivery which helped to maintain social distancing. If the person goes to a shop to purchase an item, he has to perform various steps to purchase the item from the shop like taking public/private vehicle, then reaching market

while maintaining social distancing with other people, after purchasing item returning home. Whereas in one click on laptop desktop, we can get our items easily.
The fact that the goods and services are available 24 hours a day, seven days a week is one of the highlights. As a result, the vendor will sell his item anytime and wherever he wishes. Customers are still present on an e-commerce marketplace, and they are most likely to visit for repeat orders due to the conveniences they get. Free shipping, expedited distribution, special offers and sales, and subscription benefits are just a few of the perks. They also write reviews on the products they buy. Positive ratings result in two extra business benefits.
Cost saving is one of the most significant advantages of e-commerce for companies, which keeps sellers interested in selling online. Many sellers would spend a significant amount of money to keep their physical shop open. They would have to spend more money up front for things like leasing, renovations, shop construction, inventory, and so on. Many sellers do not produce the required income and ROI despite investing in services, inventory, upkeep, and a workforce. The ability for sellers to provide flexibility to customers is a significant benefit of e-commerce for businesses. The fact that the goods and services are available 24 hours a day, seven days a week is one of the highlights. As a result, the vendor will sell his item anytime and wherever he wishes. Customers are still present on an e-commerce marketplace, and they are most likely to visit for repeat orders due to the conveniences they get. Free shipping, expedited distribution, special offers and sales, and subscription benefits are just a few of the perks. They also write reviews on the products they buy. Positive ratings result in two extra business benefits. One is that the number of positive reviews gives buyers confidence in your store. The other benefit is that it can assist you in identifying your best-selling products.

IV Proposed work

Amazon, Flipkart, and other e-commerce platforms do not have features of single-page applications. They are built on the older versions of JavaScript and using outdated technology. Amazon e-commerce website is built in JavaScript, typically abbreviated as JS, is multi-paradigm, elevated, and usually merely compiled. JavaScript, together with html code and CSS, are some of the most important innovations mostly on internet. JavaScript is a crucial component of communication technologies that makes for web blogs. It's APIs for working with text, times, dynamic typing, conventional information structures, and the like Document Object Model (DOM). Nevertheless, the language does not support any input/output (I/O) functions such as telecommunications, memory, or multimedia since those APIs are provided by the host environment (usually a digital browser). Primarily, JavaScript algorithms were mostly found in web applications; however, they're also embedded in certain servers, mostly via Node.js, and they're also incorporated in a kind of frame-based programme. like lepton and Cordova. While there are certain parallels across JavaScript and Java, such as language names, grammar, and specific standard libraries, the two languages are quite different and have a lot of stylistic differences.

Flipkart and some other e-commerce websites built on PHP were created by Danish-Canadian software PHP code is typically processed on an internet server by a PHP interpreter enforced as a module, a daemon, or as a standard entrance Interface (CGI) feasible. On an internet server, the results of the understood and dead PHP code – which can be any variety of knowledge, like generated markup language or binary image knowledge – would type the full or a part of AN protocol response. Varied net model systems, website management systems, and net frameworks exist which may be used to orchestrate or facilitate the generation of that response. Discretional PHP code may also be understood and dead via a command-line interface (CLI).

Node.js is associated with American Standard Code for Information Interchange computer file, JavaScript runtime environment that executes JavaScript code outside of a web browser and is cross-platform. Node.js allows developers to use JavaScript as a code editor and for server-side scripting, which involves running scripts on the server to include complex website material until the page is sent to the user's programme. As a result, Node.js reflects a "JavaScript everywhere" model, putting web application development together around a common linguistic communication rather than two different languages for server-side and client-side scripts. Despite the fact that Js is the most common extension for JavaScript programming, the term "Node.js" has no particular significance in this sense and is merely the product's name. Node.js also has an event-driven style that allows for asynchronous I/O. These fashionable options are intended to improve production and quantifiability in net applications with numerous input/output operations, as well as for large-scale net applications.

But in our project, we are gone use React Js which is a library of JavaScript and firebase as a backend. Facebook created and maintains A JavaScript module called React JS. However according Jordan Walke, the developer of React JS, "React is an effective, expressive, and modular open-source JavaScript library for creating quick, easy, and customizable frontends of web services." From its emergence, it has occupied the front-end infrastructure facilities.. A JavaScript module called React JS. However according Jordan Walke, the developer of React JS, "React is an effective, expressive, and modular open-source Development kit for creating quick, easy, and customizable frontends of web services." From its emergence, it has occupied the front-end infrastructure facilities. React programming is easy to manage and more versatile than other frontend implementations due to its modular nature. As a result of this versatility, businesses save a considerable amount of funds. React JS was developed with high efficiency in mind. A virtual DOM software and database rendering are two of the framework's main features, allowing complex applications to run incredibly quickly.

Google's Firebase platform allows developers to create mobile and web applications. It started out as a stand-alone business in 2011. Google bought the platform in 2014, It

also their exclusive software creation service.[11] Since May 2016, at Google I/O, the audited financial developer summit, Firebase unveiled Firebase Data analysis and revealed that it was extending its capabilities to become a single back - end (BaaS) network for novice programmers. To give engineers more choices and scope, Firebase also connects with a host of certain other Google apps, including Google App Engine, AdMob, and Google Adwords. Firebase Cloud Communication, a Firebase product that introduced the ability to deliver push alerts to all iOS and web browsers, has replaced Google Cloud Notifications, the Google software for sending automatic updates to Handsets. Google bought Twitter's Software and Crashlytics in January 2017 and plans to merge them into Firebase. In October 2017, Firebase released Cloud Firestore, a legitimate document archive, as a sequel to the existing Firebase Default Configuration.[12]

V Methodology

a. Dashboard

In our project, we have created an e-commerce website for purchasing clothes. What we did is that we have created the dashboard first using ReactJS and SASS for styling and animation. Our dashboard has the navigation bar containing the logo, shop icon, sign-in/sign-out option, and cart icon. Below the navigation bar, we have 5 categories that are Hats, Jackets, Sneakers, and clothes for women and men.

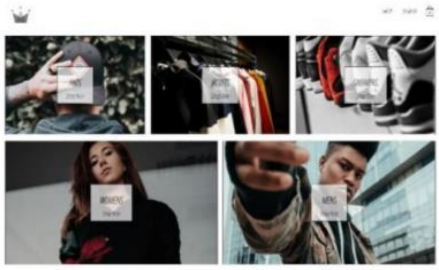

Fig 1 Dashboard

b. Main Shopping Page

If we click on the Shop option on the navigation bar, the screen will show all the categories earlier mentioned having four items each. That means the men category will show 4 items, the women category will show 4 items, sneakers will show 4 items, jackets will show 4 items, and the hats category will show 4 items.

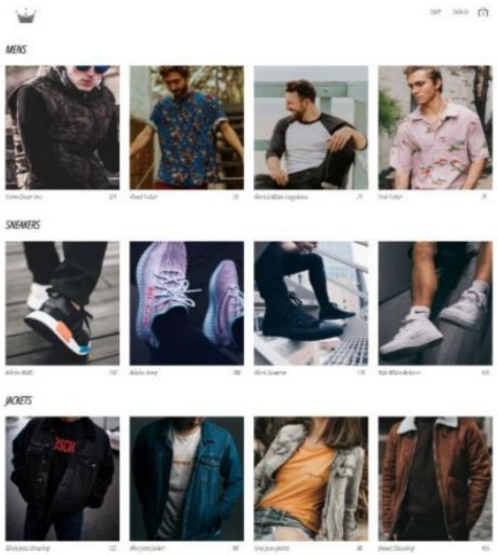

Fig 2 Shop

If we click on the sign-in option on the navigation bar, a page will open having two columns, one for the user who already has their account and another for the new users to create an account. There is two option for creating an account either using Google account or by filling the sign-form. Google sign-in feature is provided via firebase. Firebase is a website created by Google for creating smartphone and net applications. It was founded in 2011 as a freelance business with an associate's degree. Google purchased the network in 2014, and it is now their main product for software growth.

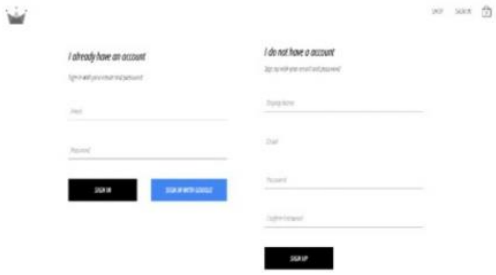

Fig 3 Sign-In/Sign-Up

c. Checkout Page

If we click on any categories shown on the dashboard of men, women, hats, sneaker, and jackets. It will show all

the items associated with the category. In this project, we have 9 items for hats, 5 items for jackets, 8 items for sneakers, 7 items for the women, and 6 items for the men. Every item will have an option "Add to Cart" over it. If we click on the add the cart option, our cart icon on the navigation bar will get updated. Then the cart icon will show all the items and associated quantity with them. Our checkout page will show the items in the cart and a "Pay now" option will appear for the payment.

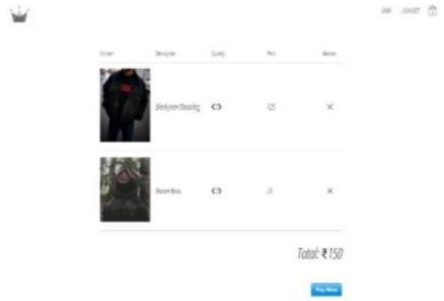

Fig 4 Checkout Page

d. Payment gateway

The payment setup has been created using Stripe API. Stripe's API gives developers access to the company's features. Invoices are sent, payments are accepted, subscription billing is managed, and account history is edited and managed are all examples of API. Stripe is a service that allows users, particularly developers, to accept payments online. Users can keep track of payments, search past payments, set up recurring charges, and keep track of customers using the Stripe app.

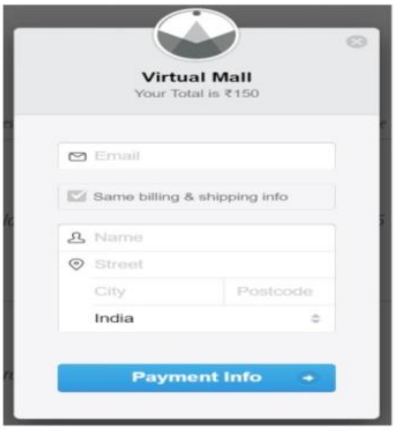

Fig 5 Payment Gateway

After filling in payment info and card details, our order will be placed. For deployment, we have used the Heroku platform to publish our website for the public. Heroku is a that supports a variety of programming languages. Since June 2007, Heroku, a groundbreaking cloud platform, has been in making, initially supporting only Ruby[13][14]. As a result, It is also referred to as a polyglot platform because it allows developers to develop, execute, and enlarge applications in a same way over a variety of languages. Salesforce.com purchased the Heroku in early 2011 for the cost of two hundred twelve dollars.[15]

VI Conclusion

So, we conclude that our project which is made up of React Js internally optimizes the performance and boosts productivity. Hence our project will be better in performance comparing the existing web apps. A developing country may perhaps arrange to be progressive if it introduces e-commerce effectively and with efficiency. it'll improve its output and result in its competitive advantage. data Technology (IT) has elated eCommerce worldwide. Currently, it's comfortable to enter a replacement market and marketers' will simply assess their product and company's performance. The problems associated with E-commerce are on the increase that is a heavy threat to its tall future and then demands the proper methods on a part of marketers. The analysis works on E-commerce propose a decent variety of variables to be taken care of if marketers get to achieve success during this new business model.[16]

REFERENCES

[1] James Morris "What Is E-Commerce? An Introduction to the Industry".
[2] Angel Flores "What Is E-Commerce? An Introduction to the E-Commerce".
[3] Nilpa Shah, Ray Dawson " E-commerce Strategy".
[4] Pathagama Kuruppuge Tharindu, Ravindra Koggalage," USABILITY OF E-COMMERCE WEBSITES: STATE OFTHE ART AND FUTURE DIRECTIONS".
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[6] R.G.Javalgi et al, "The dynamics of global e-commerce: an organizational ecology perspective", International Marketing Review, Vol.22, Iss.4, pp.420-435, 1983.
[7] Stephen Hawk, "The development of Russian e-commerce: the case of Ozon", Management Decision, Vol. 40, Issue 7, pp. 702-709, 1967
[8] ReactJs documentation https://reactjs.org/

[9] Dominique Hautain, “Proton World and CEPS: the best of both worlds”, European Business Review, Vol. 99, no.4, pp. 271-273, 1999.
[10] Randall S. Sexton et al, “Predicting internet/e-commerce use”, Internet Research, Vol. 12, Issue. 5, pp. 402 – 410, 1991
[11] "Firebase - Crunchbase". CrunchBase. Retrieved August 1, 2020.
[12] "Google launches Cloud Firestore, a new document database for app developers". *TechCrunch*. Retrieved 2018-07-16.
[13] "Heroku". Crunchbase. Retrieved March 2, 2016.
[14] "About Heroku". Stack Overflow. Retrieved March 2, 2016.
[15] Salesforce.com Buys Heroku For $212 Million In Cash https://techcrunch.com/2010/12/08/breaking-salesforce-buys-heroku-for-212-million-in-cash/
[16] Stripe API https://www.programmableweb.com/api/stripe

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Annexure –IV

E-Commerce Web Application Using React Js

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Abstract. Electronic commerce or E-Commerce is a way to do business online using a computer, mobile or electronic gadgets. Anyone with access to a computer or a mobile device can use the Internet to buy or sell goods. Electronic commerce (e-commerce) is a paradigm shift that affects both advertisers and consumers. E-commerce, on the other hand, is more than a means of altering current business practices. The traditional business model is undergoing a complete transformation. This significant shift in the business model has resulted in tremendous growth all over the world, including India. E-commerce has grown in popularity as a result of widespread internet use, and this option is increasingly being used by start-ups as a differentiating business model. Furthermore, E-Commerce has significant environmental consequences. The research strategy demonstrates the importance of e-commerce for business in developing countries. Several businesses have already had a lot of success. COVID-19 has had a huge impact on cross-border e-commerce. What was once a gentle slope has now become a steep incline. The rate of conversion has now reached a sharp and steep incline, necessitating the search for new approaches to increase the rate of conversion. In this context, web usability has taken centre stage and is regarded as the most important factor. Any interactive application's quality and success are influenced by this factor. There is now a sizable body of knowledge dedicated to the usability of computer-based applications. Corporations who wish to be in the industry for a long time develop customer-satisfying habits and cultivate long-term partnerships. Consumers can shop more easily and safely, especially when shopping online, where the business specifies certain rules, the confidentiality of the roles of the parties, and customer information. In cases in which the product consumers wish to purchase does not fit the product online, problems occur or product details are inaccurate, contributing to consumer disappointment. In such cases, customers who have not had their needs met choose to return the goods they have purchased. As a result, client satisfaction with return management is required, even as the value of distribution and logistics operations grows. The project we are working on will be made up of React Js which is a library of JavaScript.

Keywords: React Js, Firebase, Stripe API, Heroku, Virtual DOM, Single Page Application

1. Introduction

Although the term "e-commerce" is commonly associated with the modern era, it was first coined in the 1960s, and fifty years later, it has revolutionized the way people buy and sell goods and services [1-4]. The first online sale occurred on August 11, 1994, when a man sold a CD by the band Sting to a friend through his website Net Market, an American retail portal. This is the first instance of a customer purchasing a product over the Internet through "e-commerce," as we know it today. Since then, e-commerce has evolved to make it easier for online retailers and marketplaces to find and purchase products. In recent years, technological advances have resulted in the development of modern business structures. One of the most revolutionary forms of technology is the internet. It has altered the industry and had a significant impact on e-transactions (e-commerce). E-commerce has been one of the most popular penny stocks, as well as a lucrative investment opportunity. The world's Amazon and Alibaba have primarily led to the misconception that e-commerce is exclusive to the sale of physical and digital products, but the term is often extended to activities such as online auctions, online ticketing, and all other types of online commercial transactions, including banking [5-7]. Businesses market their goods online because of greater margins, scalability, and consumer insights. Setup costs and operating costs such as rent and power are minimized or avoided. With ever-increasing industry competition, the types of goods

and services offered by retailers are increasingly merging. Amazon, for example, is gradually developing and selling its line of products while remaining largely a marketplace for third-party retailers. Despite the ever-increasing rivalry, more and more firms are turning to e-commerce because of the flexibility it provides.

2. Literature Review

E-commerce has evolved as a result of a mix of evolutionary and scientific breakthroughs. E-commerce became off somewhere in the early 1980s with the emergence of the World Wide Web and applications, despite the fact that the World (which played a crucial role in the transformation) first existed in the early 1960s. Electronic data interchange (EDI) is a method for electronically exchanging regular records that have evolved to encompass more than just financial transactions. Inter-organizational mechanism (IOS) – a system that allows for the electronic exchange of knowledge between organizations in order to create a desired supply-chain management system that allows for the growth of competitive organizations [8].

The periods mentioned herein relate to historic events in e-commerce:

1984: ASC X12 standardized EDI, in 1984, EDI (electronic data interchange) was introduced. This meant that companies will do trade with each other with trust.

1992: CompuServe began offering clients online ordering items in 1992. During the first time, users can buy goods straight through their device.

1994: Netscape is launched in 1994. Providing users with a simple Safe Sockets Layer (SSL) is a secure web communication technology that enables a Web browser.

1995: Amazon.com and eBay.com, two are of the most well-known organizations at the time of their launch.

1997: DSL, or Digital Subscriber Line, is introduced in California, providing subscribers with high-speed, always-on Internet access. People are more likely to more time and money spent online as a result of this.

1999: As per the survey by an organization, expenditure in this year reaches around twenty billion dollars.

2000: In the year 2000, the US government recently declared that the ban on Web taxes would be extended until at least 2005. The advancement of technology seems to have had a major effect on e-commerce production. It has the power to engage the wider populace, expanding its scope well beyond big businesses [9].

But the main problem with the existing eCommerce web application is the usage of old libraries and frameworks. Today many of them use Vanilla JavaScript which does not support declarative view nor component-based logic [10].

Why get off if you can simply put a shipment, choose a delivery form, and sit around waiting for your shipment to arrive at your doorstep? Nevertheless, there are some pitfalls of e-commerce, including logistics challenges, security risks, customer confidence, international regulations such as quotas, and spec sheet failures. With the advent of much better technology shortly, these drawbacks may be overcome. Every aspect of a business has its own set of strengths and weaknesses, and how one manages the disadvantages while reaping the benefits of technology is entirely dependent on personal preferences.

Experts predict that eCommerce will have a bright and prosperous future in the twenty-first century. In the not-too-distant future, eCommerce will solidify its position as a major sales channel. Effective e-commerce can become inseparably connected to the internet as e-shopping becomes more mainstream and convenient. Asynchronously, extreme rivalry in the area of e-services would hasten their growth. The latest Internet shopping boom is setting the foundation for a promising future in e-commerce. The “volume to performance” pattern in e-commerce has become more and more evident as the Network has removed regional variables from the selling determines affordability. So, if the shop is in New York, London, or a rural community, it no longer matters. To live, entrepreneurs would have to respond successfully to the new circumstances. To draw more buyers, e-store stakeholders will need to place more emphasis on factors such as product elegance, user-friendliness, and compelling marketing look of products, and, as a consequence, they would have to incorporate new technology for their companies to want to be a part of e-commerce future. This one has been noticed that the e-commerce industry will continue to grow if all of the benefits are provided to the average consumer [11-12].

3. Merits of E-commerce

Ecommerce was a boon in the time of the COVID-19 period. It helps us to get our needful items with contactless delivery which helped to maintain social distancing. If the person goes to a shop to purchase an item, he has to perform various steps to purchase the item from the shop like taking public/private vehicle, then reaching market while maintaining social distancing with other people, after purchasing item returning home. Whereas in one click on laptop or desktop, we can get our items easily.

The fact that the goods and services are available 24 hours a day, seven days a week is one of the highlights. As a result, the vendor will sell his item anytime and wherever he wishes. Customers are still present on an e-commerce marketplace, and they are most likely to visit for repeat orders due to the conveniences they get. Free shipping, expedited distribution, special offers and sales, and subscription benefits are just a few of the perks. They also write reviews on the products they buy. Positive ratings result in two extra business benefits.

Cost-saving is one of the most significant advantages of e-commerce for companies, which keeps sellers interested in selling online. Many sellers would spend a significant amount of money to keep their physical shop open. They would have to spend more money upfront for things like leasing, renovations, shop construction, inventory, and so on. Many sellers do not produce the required income and ROI despite investing in services, inventory, upkeep, and a workforce. The ability for sellers to provide flexibility to customers is a significant benefit of e-commerce for businesses. The fact that the goods and services are available 24 hours a day, seven days a week is one of the highlights. As a result, the vendor will sell his item anytime and wherever he wishes. Customers are still present on an e-commerce marketplace, and they are most likely to visit for repeat orders due to the conveniences they get. Free shipping, expedited distribution, special offers and sales, and subscription benefits are just a few of the perks. They also write reviews on the products they buy. Positive ratings result in two extra business benefits. One is that the number of positive reviews gives buyers confidence in your store. The other benefit is that it can assist you in identifying your best-selling products.

4. Proposed work

Amazon, Flipkart, and other e-commerce platforms do not have features of single-page applications. They are built on the older versions of JavaScript and using outdated technology. Amazon e-

commerce website is built in JavaScript, typically abbreviated as JS, is multi-paradigm, elevated, and usually merely compiled. JavaScript, together with HTML code and CSS, are some of the most important innovations mostly on the internet. JavaScript is a crucial component of communication technologies that make for web blogs. It's APIs for working with text, times, dynamic typing, conventional information structures, and the like Document Object Model (DOM). Nevertheless, the language does not support any input/output (I/O) functions such as telecommunications, memory, or multimedia since those APIs are provided by the host environment (usually a digital browser). Primarily, JavaScript algorithms were mostly found in web applications.

Flipkart and some other e-commerce websites built on PHP were created by Danish-Canadian software PHP code is typically processed on an internet server by a PHP interpreter enforced as a module, a daemon, or as a standard entrance Interface (CGI) feasible. On an internet server, the results of the understood and dead PHP code – which can be any variety of knowledge, like generated markup language or binary image knowledge – would type the full or a part of AN protocol response. Varied net model systems, website management systems, and net frameworks exist which may be used to orchestrate or facilitate the generation of that response. Discretional PHP code may also be understood and dead via a command-line interface (CLI).

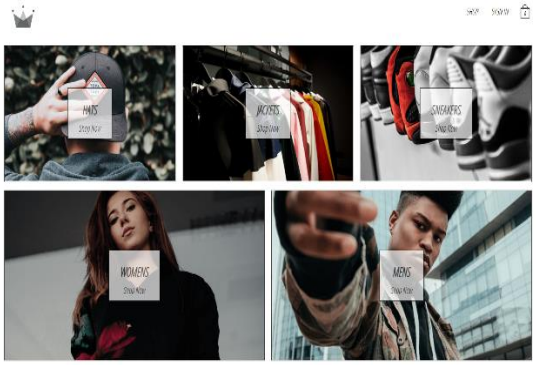
Node.js is associated with American Standard Code for Information Interchange computer file. Node.js allows developers to use JavaScript as a code editor and for server-side scripting, which involves running scripts on the server to include complex website material until the page is sent to the user's program. As a result, Node.js reflects a "JavaScript everywhere" model, putting web application development together around a common linguistic communication rather than two different languages for server-side and client-side scripts. Despite the fact that Js is the most common extension for JavaScript programming, the term "Node.js" has no particular significance in this sense and is merely the product's name. Node.js also has an event-driven style that allows for asynchronous I/O.

But in our project, we are gone use React Js which is a library of JavaScript and firebase as a backend. Facebook created and maintains A JavaScript module called React JS. However according to Jordan Walke, the developer of React JS, "React is an effective, expressive, and modular open-source JavaScript library for creating quick, easy, and customizable frontends of web services." From its emergence, it has occupied the front-end infrastructure facilities. A JavaScript module called React JS. However according to Jordan Walke, the developer of React JS, "React is an effective, expressive, and modular open-source Development kit for creating quick, easy, and customizable frontends of web services." From its emergence, it has occupied the front-end infrastructure facilities. React programming is easy to manage and more versatile than other frontend implementations due to its modular nature. As a result of this versatility, businesses save a considerable amount of funds. React JS was developed with high efficiency in mind. A virtual DOM software and database rendering are two of the framework's main features, allowing complex applications to run incredibly quickly.

Google's Firebase is a platform to host websites and provide various features to support web and mobile application development. It is also their exclusive software creation service.[13] Since May 2016, at Google I/O, the audited financial developer summit, Firebase unveiled Firebase Data analysis and revealed that it was extending its capabilities to become a single backend network for novice programmers. To give engineers more choices and scope, Firebase also connects with a host of certain other Google apps, including Google App Engine, AdMob, and Google Adwords. Firebase Cloud Communication, a Firebase product that introduced the ability to deliver push alerts to all iOS and web browsers, has replaced Google Cloud Notifications, the Google software for sending automatic updates to Handsets. Google bought Twitter's Software and Crashlytics in January 2017 and plans to merge them into Firebase [14-15].

5. Methodology

a. Dashboard



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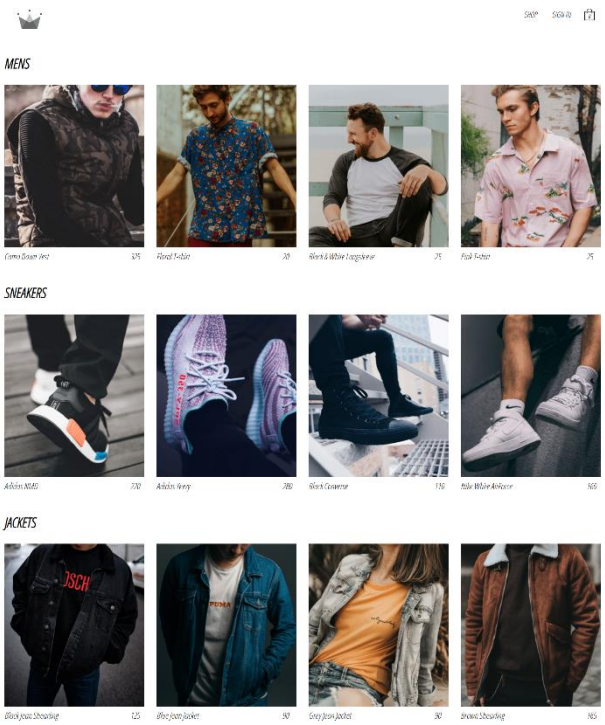
b. Main Shopping Page

If we click on the Shop option on the navigation bar, the screen will show all the categories earlier mentioned having four items each. That means the men category will show 4 items, the women category will show 4 items, sneakers will show 4 items, jackets will show 4 items, and the hats category will show 4 items in figure 2.



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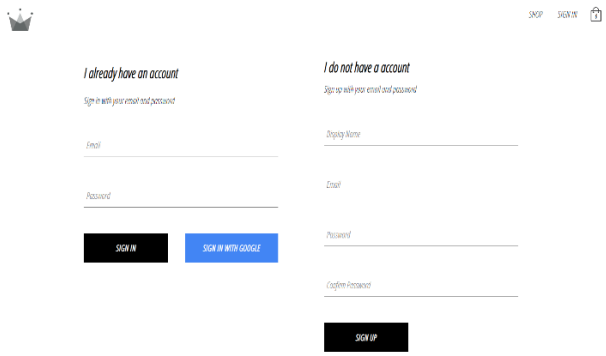

Figure. 3 Sign-In/Sign-Up

c. Checkout Page

If we click on any categories shown on the dashboard of men, women, hats, sneaker, and jackets. It will show all the items associated with the category. In this project, we have 9 items for hats, 5 items for jackets, 8 items for sneakers, 7 items for the women, and 6 items for the men. Every item will have an option "Add to Cart" over it. If we click on the add the cart option, our cart icon on the navigation bar will get updated. Then the cart icon will show all the items and associated quantity with them. Our checkout page will show the items in the cart and a "Pay now" option will appear for the payment.

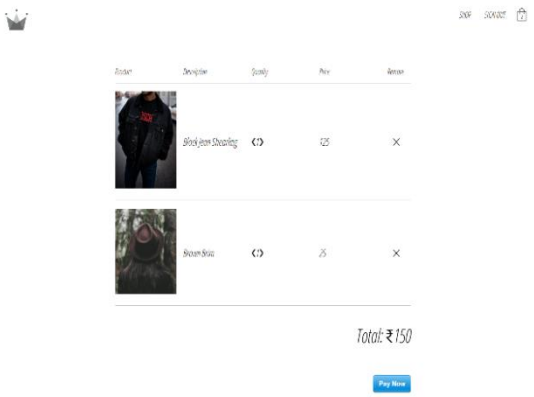

Figure. 4 Checkout Page

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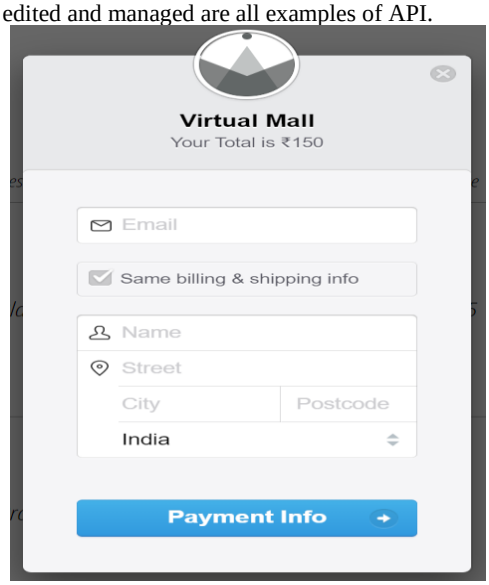

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6. Experimental Analysis

Testing is an operation where we check our application on every parameter and hence, we have tested our application.

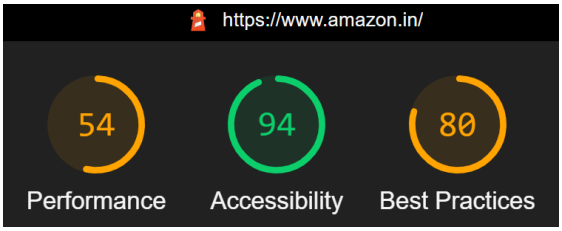

Figure 7. Amazon Performance Report

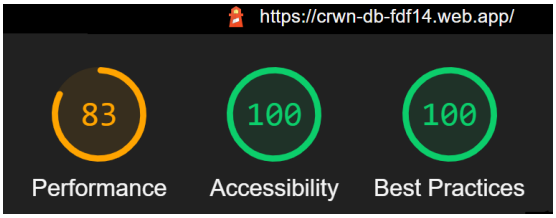

Figure 8. Our Project Performance Report

Above figure 7 and 8 performance report is taken through lighthouse which is a google chrome extension. So, we can compare both the performances and can say that our project is better than other active projects.

7. Conclusion

So, we conclude that our project which is made up of React Js internally optimizes the performance and boosts productivity. Hence our project will be better in performance comparing the existing web apps. A developing country may perhaps arrange to be progressive if it introduces e-commerce effectively and with efficiency. it'll improve its output and result in its competitive advantage. data Technology (IT) has elated eCommerce worldwide. Currently, it's comfortable to enter a replacement market and marketers' will simply assess their product and company's performance. The problems associated with E-commerce are on the increase that is a heavy threat to its tall future and then demands the proper methods on a part of marketers. The analysis works on E-commerce propose a decent variety of variables to be taken care of if marketers get to achieve success during this new business model.

Acknowledgment

We would like to express my special thanks of gratitude to our guide Mr. Sudeept Singh Yadav as well as our reviewer Mrs. Deepika Sherawat who allowed us to do this wonderful project on the topic, which also helped us in doing a lot of research and we came across many new things. We are thankful to them.

REFERENCE

[1] James Morris "What Is E-Commerce? An Introduction to the Industry".

[2] Angel Flores "What Is E-Commerce? An Introduction to the E-Commerce".

[3] Nilpa Shah, Ray Dawson " E-commerce Strategy".

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[6] K. P. Arjun, A. Achuthshankar, M. K. Soumya, N. M. Sreenarayanan, V. V. Priya and K. A. Faby, "Privacy: Protecting image privacy in social networking sites using reversible data hiding", Intelligent Systems and Control (ISCO) 2016 10th International Conference on, pp. 14. 2016 January

[7] Joy Gupta, Ishita Singh and KP Arjun, "Artificial Intelligence for Blockchain 1', Blockchain, Internet of Things, and Artificial Intelligence. CRC Press, Vol. 6, April 2021.

[8] R.G.Javalgi et al, "The dynamics of global e-commerce: an organizational ecology perspective", International Marketing Review, Vol.22, Iss.4, pp.420-435, 1983.

[9] Gracie, Carrie (8 September 2014). "Alibaba IPO: Chairman Ma's China – BBC News". BBC News. Retrieved 13 February 2017.

[10] ReactJs documentation https://reactjs.org/

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[13] "Firebase - Crunchbase". CrunchBase. Retrieved August 1, 2020.

[14] "Google launches Cloud Firestore, a new document database for app developers". TechCrunch. Retrieved 2018-07-16.

[15] "Top retail websites by global traffic 2020". Statista.

[16] "Heroku". Crunchbase. Retrieved March 2, 2017.

[17] "About Heroku". Stack Overflow. Retrieved March 2, 2017.

[18] Salesforce.com Buys Heroku For $212 Million In Cash https://techcrunch.com/2010/12/08/breaking-salesforce-buys-heroku-for-212-million-in-cash/

[19] Stripe API https://www.programmableweb.com/api/stripe