PROJECT

(2019-2020)

E-COMMERCE WEBSITE (FabBasket)

(Web Development)

PROJECT REPORT

Department of Computer Engineering and Applications

Institute of Engineering and Technology

SUBMITTED TO:

Mr. Sharad Gupta
(Assistant Professor)

SUBMITTED BY:

KABIR KARARIA (171500150)
ANUKRITI PATHAK (171500056)
ADITYA VIKRAM SINGH (171500021)
GITANSH SEHGAL (171500110)

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Kabir Kararia

(171500150)

Anukriti Pathak

(171500056)

Gitansh Sehgal

(171500110)

Aditya Vikram Singh

(171500021)

ABSTRACT

FabBasket is a web application where user can buy products in wholesale quantities. The e-commerce has transformed the way business is done in India. Much growth of the industry has been triggered by increasing internet and smartphone penetration. An ecommerce website is a website which allows your business to sell products and services to their online audience. There are two types of E-commerce websites: Retail & Wholesale. The project is related to Wholesale market. From the website we will be able to order multiple items in one go. The interface will be easy to use & website will quickly scale with increasing traffic load. All the services like Hosting, Authentication, Cloud Functions will be given by Firebase. Firebase acts Platform as a Service (PaaS). The customer will be able choose products from long list and order them easily. Security is a big concern after seeing the recent cyber-attacks on big e-commerce websites. So, for authentication we will have password-based service, this safeguards that every mail id from which products are purchased is genuine one. The database will be Realtime Database which is a NoSQL DB offered by firebase. After an order is placed, the customer will get an email receipt confirming the placement of his/her order. Every email receipt has unique ID to track each order.

CONTENTS

GitHub Repo: https://github.com/kabir-02/Mini-project-Sem-6-

Live Website: https://y-shopping.firebaseapp.com/

CHAPTER 1
INTRODUCTION

1.1 General Introduction

An ecommerce website is a website which allows your business to sell products and services to their online audience. There are two types of E-commerce websites: Retail & Wholesale. The project is related to Wholesale market. The Indian e-commerce market is expected to grow to US$ 200 billion by 2026 from US$ 38.5 billion as of 2017. An E-commerce platform will play an important role to push Indian economy. An e-commerce website gives us a broader audience and hence possibility of better overall sales.

We can be open 24/7 which helps you to make more sales. Having an ecommerce platform helps you to increase your conversion rate since people get a chance to immediately buy from you rather than wait to visit the store.

1.2 Area of Computer Science

This project mainly covers the Area of Web Development of Computer Science. Through this project, we are trying to climb one step in this vast field of Computer Science. It is totally of web development project.

Web development is a specialized type of computer programming focused on websites and web applications. Web development deals with building technical front-end and/or back-end code that informs site function. Web developers may work exclusively on front-end code, back-end code, or both. Employment can involve independent freelance work or working in an organization's marketing or IT department.

1.3 Hardware and Software Requirements

- Hardware

1. Personal computer with 2GB RAM
2. Internet Connection

- Software

1. Bracket (Text Editor)
2. Node.js Server

CHAPTER 2

PROBLEM DEFINITION

The motivation for the problems faced for this project came from our self-experience. E-commerce website can be open 24/7 which helps you to make more sales. Having an ecommerce platform helps you to increase your conversion rate since people get a chance to immediately buy from you rather than wait to visit the store. The Indian e-commerce market is expected to grow to US$ 200 billion by 2026 from US$ 38.5 billion as of 2017. An E-commerce website will play an important role to push Indian economy. An e-commerce platform gives us a broader audience and hence possibility of better overall sales.

The e-commerce has transformed the way business is done in India. Much growth of the industry has been triggered by increasing internet and smartphone penetration. An ecommerce website is a website which allows your business to sell products and services to their online audience. There are two types of E-commerce websites: Retail & Wholesale. The project is related to Wholesale market. E-commerce transactions can be either B2B, B2C, C2C, or C2B.

Flipkart is one of the pioneers among India's successful e-commerce startups. Founded in 2007, it was the brainchild of Sachin and Binny Bansal, both IIT-Delhi graduates. Though they started as an online bookseller, they gradually expanded their base with more retail options such as apparels, electronic gadgets, and household items. With multiple payment options and huge discounts, Flipkart slowly grew its customer base. It even became the first e-commerce portal to launch its mobile app version. It even went on to acquire competitors Myntra for $280 million and Jabong for $70 million, and more. According to reports, Flipkart's revenue rose up to 34% in the year 2015-16.

The e-commerce boom in India has not only changed the face of consumer business but also opened many doors in terms of career and job opportunities. With several ecommerce startups launching every year and the market growing by leaps and bounds, the e-retail trend is here to stay.

CHAPTER 3

OBJECTIVES OF THE PROJECT

The e-commerce industry in India is growing fast, booming, and expanding at a larger rate. The concept of online shopping has attracted the Indian population tremendously. Exposure to Internet has been highly instrumental in the e-commerce success.

The following objectives could be fulfilled by this project:

1. From the website we will be able to order multiple items in one go
2. The interface will be easy to use & website will quickly scale with increasing traffic load
3. The customer will be able choose products from long list and order them easily.
4. For authentication we will have password-based service, this safeguards that every mail id from which products are purchased is genuine one
5. After an order is placed, the customer will get an email receipt confirming the placement of his/her order.
6. Every email receipt has unique ID to track each order.

CHAPTER 4

ANATOMY OF A DYNAMIC WEBSITE

Front End: A front-end developer is a web developer that codes the front end of a website. While web design is the way a website looks, front end development is how that design gets implemented on the web. The "front-end" of a website refers to the technology involved in the visual rendering of data in the client's web browser. There are many elements that come together to make this happen including, but not necessarily limited to:

- HTML (Hypertext Markup Language)
- DOM (Document Object Model)
- CSS (Cascading Style Sheets)
- JavaScript/jQuery (or another client-side API/Framework)
- Mobile Device Design Optimization

HTML: The primary purpose of HTML in a web document is to structure the data into something that the browser can read from and then render the read data into a visual format for a user.

DOM*:* The Document Object Model is the representation of the HTML structure as objects that can be manipulated using client-side scripting languages like CSS or JavaScript.

CSS*:* Cascading Style Sheets are an extremely powerful and effective tool for adding client-side styling and functionality like image rollovers, once only accomplished using JavaScript.

JavaScript/jQuery/Client-Side API: JavaScript is a client-side scripting language that enables developers to deliver a "rich" user experience. This "rich" experience is based on many elements aside from client-side scripting, such as clear and easy navigation, but the term has become hitched to the concept of dynamic mouse-over effects, smooth transitions, and AJAX interaction. jQuery is a powerful JavaScript API library that allows you to create complex JavaScript effects with very little effort and will be chosen for this article.

Mobile Device Design Optimization: Most web searches are now, and have been for years, conducted on mobile devices. While web development for desktop platforms will continue to thrive, it has become a requirement to create an alternate layout that is optimized for small screens and touch based user input.

Client-Side vs Server-Side: By design, and for security reasons, the client-side languages like JavaScript are not able to access the server and perform server-related tasks. Therefore, there are server-side languages like PHP and client-side languages like JavaScript.

Databases & Data Storage: Another key component to the back-end is the storage and retrieval of data. There are markup style formats like XML and JSON that allow you to store and organize data in text files. With the correct functions in PHP you can access the data in those text files much like you would records in a database

CHAPTER 5

ANATOMY OF AN E-COMMERCE APPLICATION

1) Multimedia Content for E-Commerce Applications
2) Multimedia Storage Servers & E-Commerce Applications
    - 1.1) Client-Server Architecture in Electronic Commerce
    - 1.2) Internal Processes of Multimedia Servers
    - 1.3) Video Servers & E-Commerce
3) Information Delivery/Transport & E-Commerce Applications
4) Consumer Access Devices

Multimedia Content for E-Commerce Applications

•Multimedia content can be considered both fuel and traffic for electronic commerce applications.

•The technical definition of multimedia is the use of digital data in more than one format, such as the combination of text, audio, video, images, graphics, numerical data, holograms, and animations in a computer file/document. See in Fig.

•Multimedia is associated with Hardware components in different networks.

•The Accessing of multimedia content depends on the hardware capabilities of the customer.

Multimedia Storage Servers & E-Commerce Applications

•E-Commerce requires robust servers to store and distribute large amounts of digital content to consumers.

•These Multimedia storage servers are large information warehouses capable of handling various content, ranging from books, newspapers, advertisement catalogs, movies, games, & X-ray images.

•These servers, deriving their name because they serve information upon request, must handle large-scale distribution, guarantee security, & complete reliability

1.1 Client-Server Architecture in Electronic Commerce

•All e-commerce applications follow the client-server model

•Clients are devices plus software that request information from servers or interact known as message passing

•Mainframe computing , which meant for "dump"

•The client server model allows client to interact with server through request-reply sequence governed by a paradigm known as message passing.

1.2. Internal Processes of Multimedia Servers

•The internal processes involved in the storage, retrieval & management of multimedia data objects are integral to e-commerce applications.

•A multimedia server is a hardware & software combination that converts raw data into usable information & then dishes out.

•It captures, processes, manages, & delivers text, images, audio & video.

•It must do to handle thousands of simultaneous users.
•Include high-end symmetric multiprocessors, clustered architecture, and massive parallel systems.

1.3 Video Servers & E-Commerce

The electronic commerce applications related to digital video will include

1. Telecommunicating and video conferencing
2. Geographical information systems that require storage & navigation over maps

3. Corporate multimedia servers
4. Postproduction studios
5. shopping kiosks.

•Consumer applications will include video-on-demand.

•The figure which is of video–on demand consist video servers, is a link between the content providers (media) & transport providers (cable operators)

Information Delivery/Transport & E-Commerce Applications

•Transport providers are principally telecommunications, cable, & wireless industries.

CHAPTER 6
SEMANTIC UI

About Semantic UI

Semantic allows developers to build beautiful websites fast, with concise HTML, intuitive JavaScript, and simplified debugging, helping make front-end development a delightful experience. Semantic is responsively designed allowing your website to scale on multiple devices. Semantic is production ready and partnered with frameworks such as React, Angular, Meteor, and Ember, which means you can integrate it with any of these frameworks to organize your UI layer alongside your application logic.

Semantic empowers designers and developers by creating a shared vocabulary for UI. It is an open source tool with 46.9K GitHub stars and 4.9K GitHub forks. Semantic is a UI framework designed for theming.

As you can see, Semantic UI is not only meaningful and well-structured in terms of naming its classes but also in naming, defining, and describing its components. This structure is much more semantic compared to that found in Bootstrap or Foundation.

The second unique thing about Semantic UI is that it provides some exclusive features and components not present in other frameworks. For example, Feed and Comment in the UI Views components or Sidebar and Shape from the UI Modules. Also, when interacting with Semantic UI components you get real-time debug output. Just open your web console and you'll see your components communicating exactly what they're doing.

Another strength of Semantic UI is that it uses minimal and neutral styling, leaving customization open to you. It includes important and useful things while leaving out additional features that you'll probably never use. Plus, the framework's components are portable and self-contained so you can grab and use only those you need.

The framework uses em and rem units for its elements, making it fully responsive and adaptive to any size. You need only to change the base font and all other elements will adjust accordingly.

Finally, Semantic UI is very well documented, and the website provides many examples for the different components. In addition, it has a style guide with techniques and directions on how to write your code. All this makes learning the framework a pain-free experience.

Key Features of Semantic UI

1) **Concise HTML:** Semantic UI treats words and classes as exchangeable concepts. Classes use syntax from natural languages like noun/modifier relationships, word order, and plurality to link concepts intuitively.

2) **Intuitive JavaScript:** Semantic uses simple phrases called behaviors that trigger functionality. Any arbitrary decision in a component is included as a setting that developers can modify.

3) **Simplified Debugging:** Performance logging lets you track down bottlenecks without digging through stack traces.

Basic Elements of Semantic UI

1) A **UI Element** is a basic building block. It can appear alone or in uniform groups. For example, a button can be independent or put in a button group.
2) A **UI Collection** is a group of different kinds of elements that are interdependent. For example, a web form can have buttons, inputs, checkboxes, icons, and so forth.
3) A **UI View** represents a common piece of website content. For example, a feed or comments section.
4) A **UI Module** is a component with interactive JavaScript-based functionality. Examples include an accordion, dimmer, modal, and so on.
5) A **UI Behavior** is a component that can't exist independently, but instead is used to inject functionality into other components. For example, the Form Validation behavior provide validation functionality for the Form component.

Companies using Semantic UI

1) Snapchat
2) Accenture
3) Google Cloud
4) LeVego

CHAPTER 7

FIREBASE

Firebase Services can be divided into two groups:

a) Develop & test your app:

1) Realtime Database:

• The Firebase Realtime Database is a cloud-hosted NoSQL database that lets you store and sync between your users in real-time.

• With just a single API, the Firebase database provides your app with both the current value of the data and any updates to that data.

• The Realtime Database is just one big JSON object that the developers can manage in Realtime.

2) Authentication:

• Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app.

• By using Firebase, we can set up the entire system in under 10 lines of code that will handle everything for you, including complex operations like account merging.

3) Cloud Functions:

• Cloud Functions for Firebase let you automatically run backend code in response to events triggered by Firebase features and HTTPS requests.

• Our code is stored in Google's cloud and runs in a managed environment. There's no need to manage and scale your own servers.

• In addition to listening for events with a background function, we can call functions directly with an HTTP request or a call from the client.

4) Cloud Storage:

• Cloud Storage for Firebase is a powerful, simple, and cost-effective object storage service built for Google scale.

• The Firebase SDKs for Cloud Storage add Google security to file uploads

and downloads for your Firebase apps, regardless of network quality.

• We can use SDKs to store images, audio, video, or other user-generated content. On the server, we can use Google Cloud Storage, to access the same files.

5) Hosting:

• Firebase Hosting provides fast and secure hosting for your web app, static and dynamic content, and microservices.

• Firebase Hosting is production-grade web content hosting for developers. With a single command, we can quickly deploy web apps and serve both static and dynamic content to a global CDN (content delivery network).

• We can also pair Firebase Hosting with Cloud Functions or Cloud Run to build and host microservices on Firebase.

b) Grow & Engage

1) Google Analytics:

• Google Analytics is a free app measurement solution that provides insight on app usage and user engagement.

• Analytics integrates across Firebase features and provides you with unlimited reporting for up to 500 distinct events that we can define using the Firebase SDK.

• Analytics reports help you understand clearly how your users behave, which enables you to make informed decisions regarding app marketing and performance optimizations.

2) Cloud Messaging:

• Firebase Cloud Messaging (FCM) is a cross-platform messaging solution that lets you reliably deliver messages at no cost.

• Using FCM, you can notify a client app that new email or other data is available to sync.

3) Invites:

• Firebase Invites are an out-of-the-box solution for app referrals and sharing via email or SMS.

• Firebase Invites ensures that recipients of links have the best possible experience for their platform and the apps they have installed.

4) Remote Config:

• Change the behaviour and appearance of your app without publishing an app update, at no cost, for unlimited daily active users.

• When using Remote Config, you create in-app default values that control the behaviour and appearance of your app.

5) App Indexing:

• Firebase App Indexing gets your app into Google Search. If users have your app installed, they can launch your app and go directly to the content they're searching for.

CHAPTER 8
IMPLEMENTATION DETAILS

The project is related to Wholesale market. From the website we will be able to order multiple items in one go. Security is a big concern after seeing the recent cyber-attacks on big e-commerce websites. So, for authentication we will have password-based service, this safeguards that every mail id from which products are purchased is genuine one. The database will be Realtime Database which is a NoSQL DB offered by firebase. After an order is placed, the customer will get an email receipt confirming the placement of his/her order. Every email receipt has unique ID to track each order.

All the services like Hosting, Authentication, Cloud Functions will be given by Firebase. Firebase acts Platform as a Service (PaaS). Firebase provides services for broad range of applications including compute, storage, databases, networking, analytics, machine learning and application development, deployment, and management. Firebase easily supports MEHN, MERN & MEAN Stacks. Millions of customers —including the fastest-growing startups, largest enterprises, and leading government agencies—trust Firebase (GCP) to power their infrastructure, become more agile, and lower costs.

The Firebase is a Backend-as-a-Service (BaaS) that offers the developers a wide spectrum of tools and services to develop high-quality apps at a much faster pace. To define the BaaS, it is a cloud computing service model using which the web app and mobile app developers can connect their applications with backend cloud storage and APIs rendered by the backend applications.

The various benefits that Firebase offers to the app developers:

1. Real-time Database Helps to Store and Synchronize Data
2. Fast and Secured Web Hosting
3. Firebase Authentication
4. Firebase Allows the Content Storage (Google Storage Service) with Ease

Some glimpses from the project-

Home Page

It includes various navigation bars like login & items. User can directly click on the navigation bars to see their interested content like about us will display about what the project is, furthermore items will. The home page also includes the animation (lets an element gradually change from one style to another). To use animation, we must first specify some keyframes for the animation. Keyframes hold what style the element will have at certain times. The language used is CSS and HTML.CSS is used to provide proper styling by making various classes and elements called pseudo class and pseudo elements. The help navigation bar will direct a person who is new to this project.

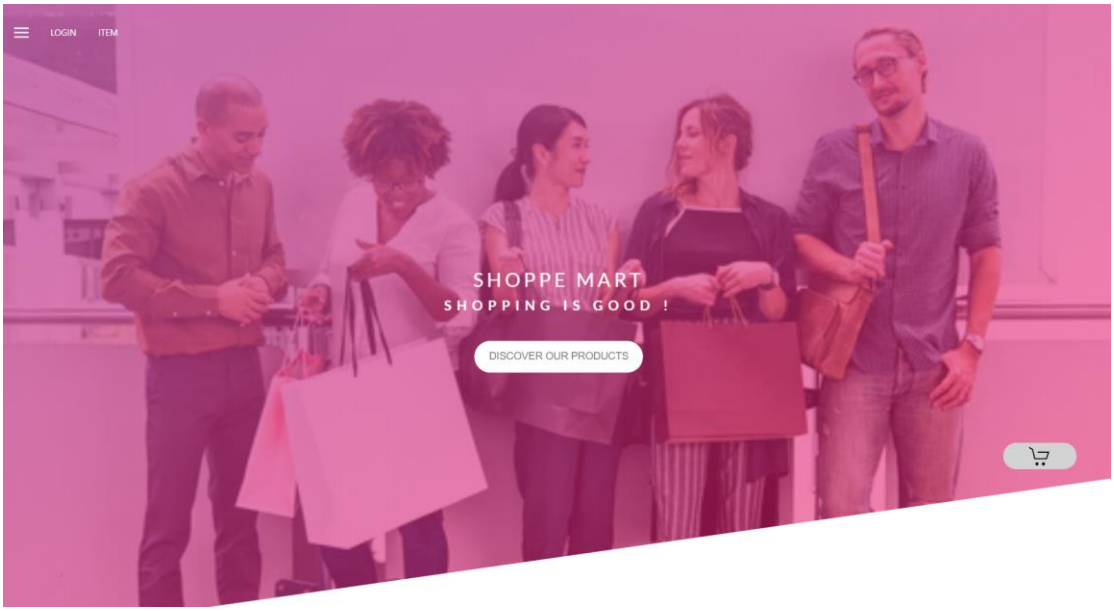

Fig 8.1 Homepage (part 1)

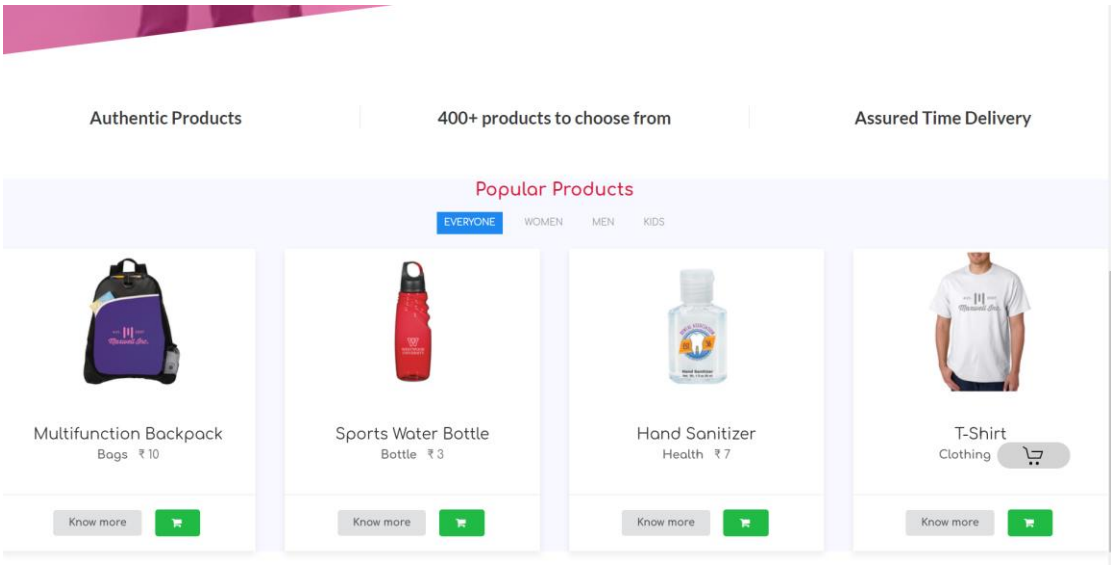

Fig 8.2 Homepage (part 2)

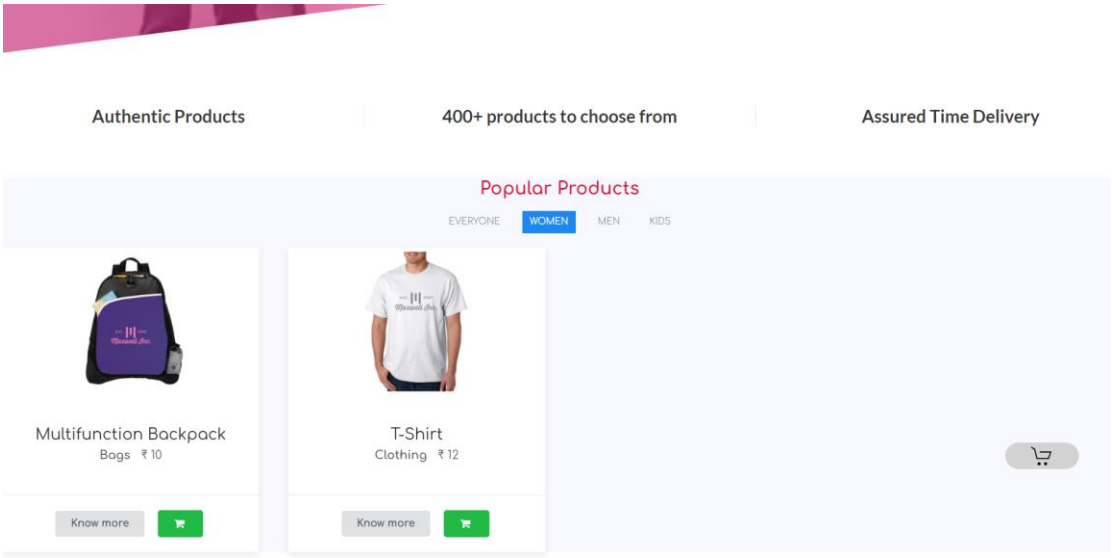

Fig 8.3 Homepage (part 3)

Product Page

It allows user to know about the product. User can see the price & its category. Also, they can easily add it to the cart by pressing the add to cart button. By clicking on the visit cart button, we can go to the cart & see what products are already there.

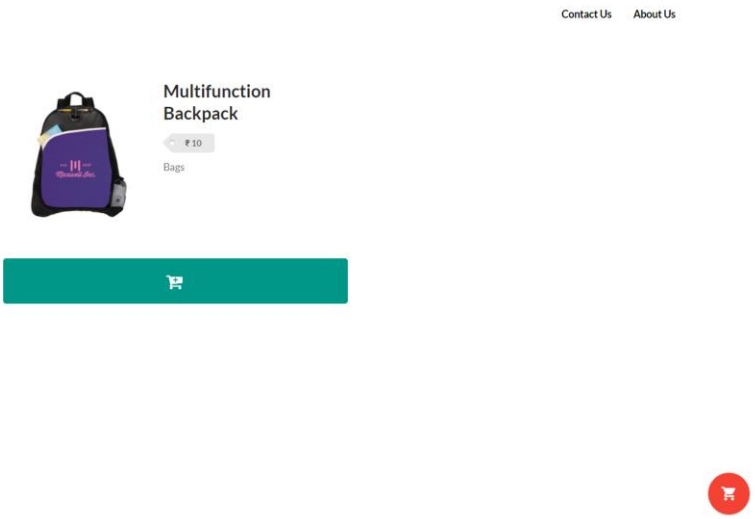

Fig 8.4 Product Page

Login page

Once the database is maintained by the database administrator, user and admin can freely access the products.

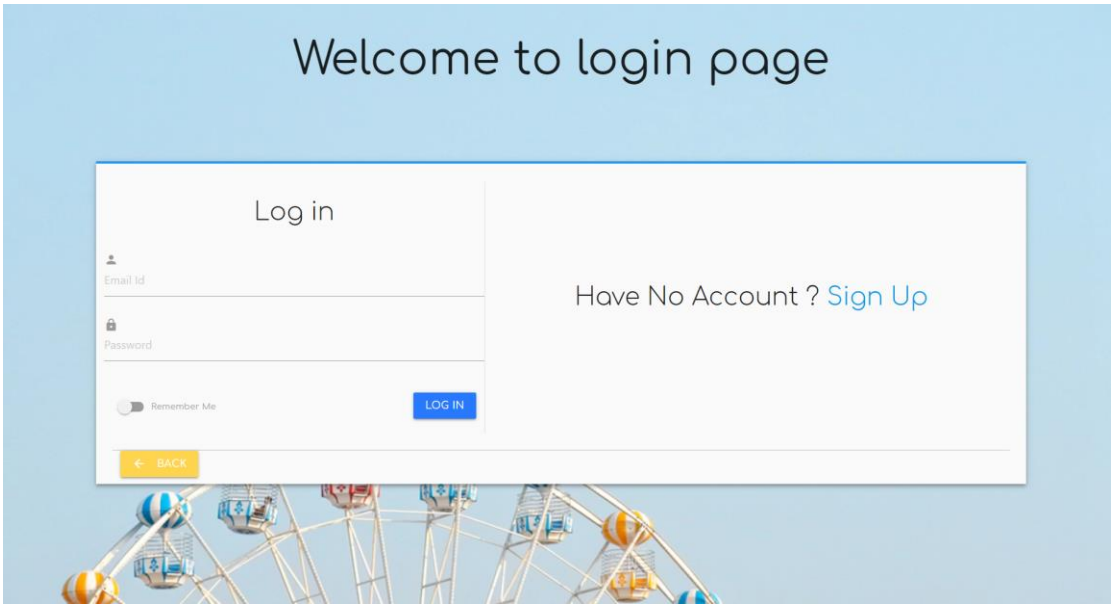

Fig 8.5 Login Section

If user or admin don’t have account, they must just create an account in order to get logged into the system. For this purpose, we have used Realtime DB as a database where we have created tables in order to store data.

Sign-up page

If the customer doesn't have an account, they can easily create one. After they sign up, a verification mail goes to that customer before they can login in.

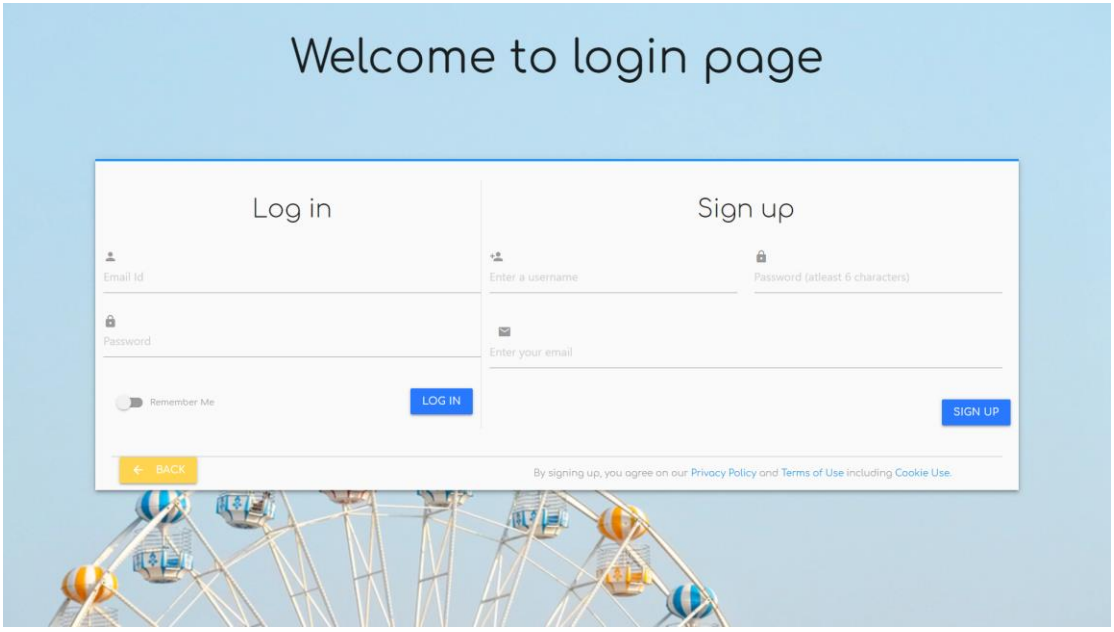

Fig 8.6 Sign-up Section

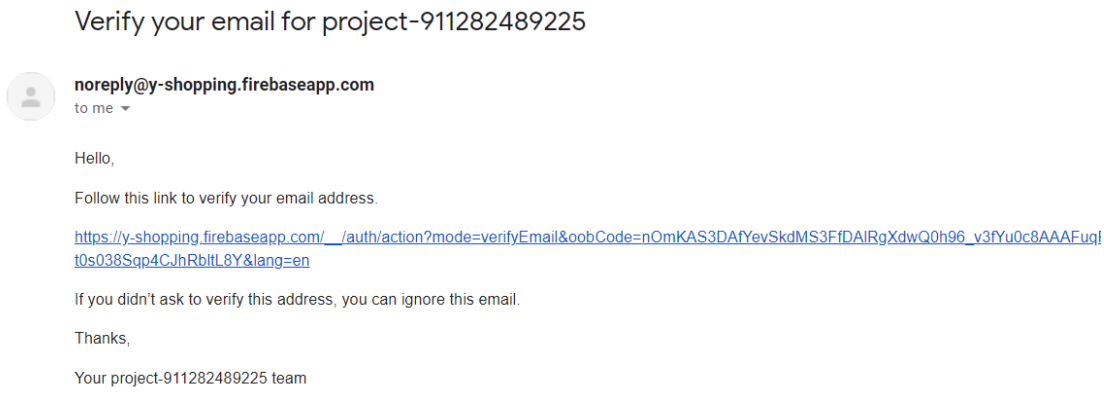

Fig 8.7 Email Verification

After clicking on the link, it will take to new page where we will be verified.

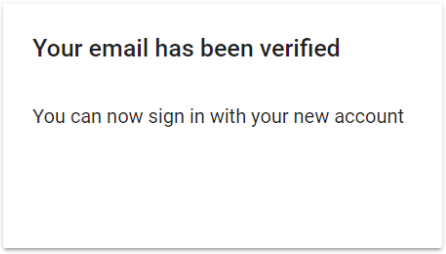

Fig 8.8 Verification Confirmation page

If the login credentials are wrong, an error message will be displayed to sign up.

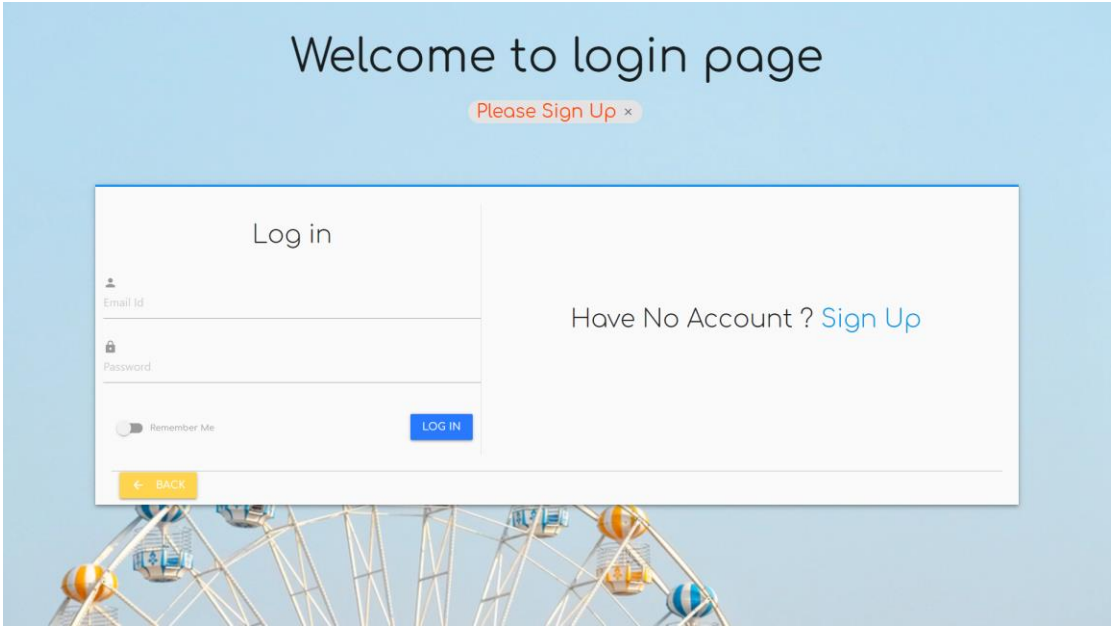

Fig 8.9 Sign up message displayed

Cart Page

Cart is the most important part of any e-commerce website. We can put as many items as we want in the cart. If there are no items present, then an empty cart will be displayed to the customer. Also, a cart is accessible only after the customer login in our system.

Fig 8.10 Empty Cart Page

If we click on Shop Now Button, we can add more products in our Cart.

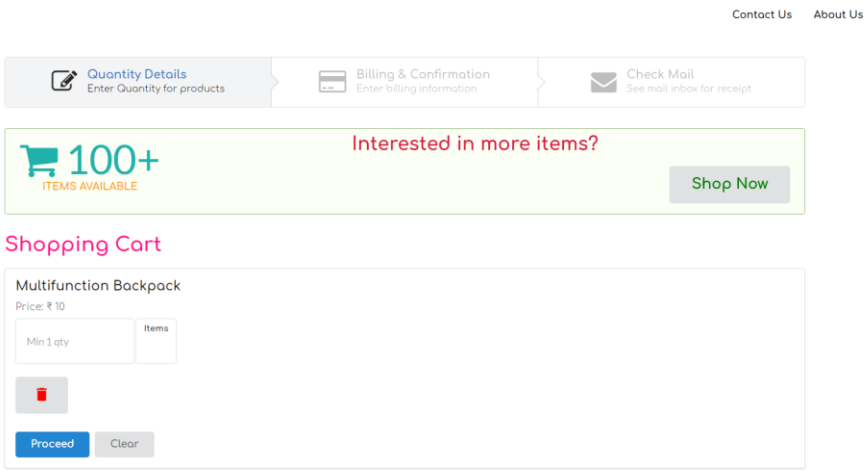

Fig 8.11 Cart Page with one item

After we add our desired products, we need to enter the number of each items we want to purchase. We can also easily delete the items from the cart.

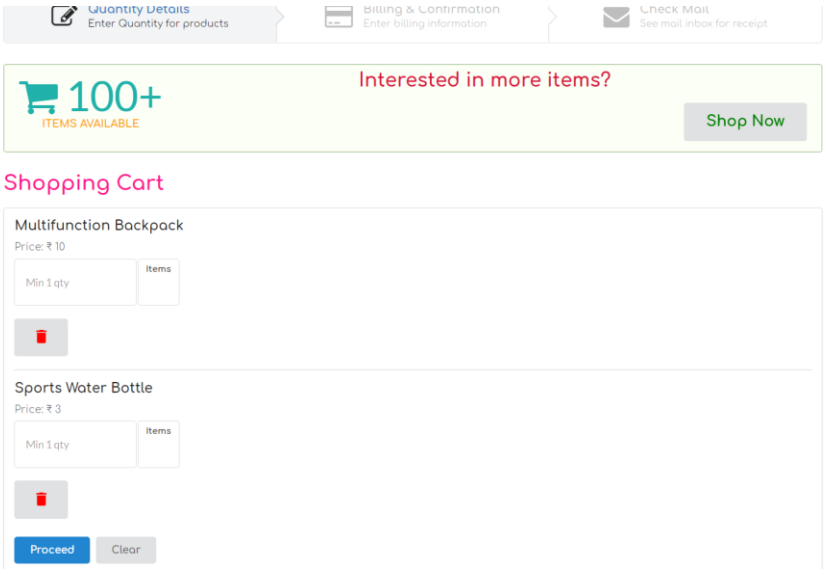

Fig 8.12 Cart Page with more than one item

On the top we have a stepper, which shows the steps we have completed. After we go to next page, we will see the purchased list along with individual & gross total. Here we need to add Shipping Details.

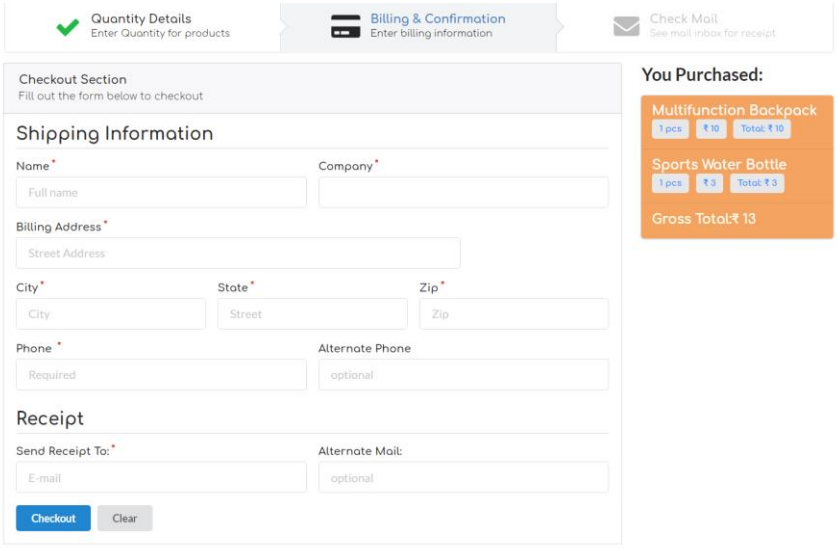

Fig 8.13 Add Shipping Details Page

After we enter the shipping details, we will be taken to next page which will prompt us to check our mail for Receipt.

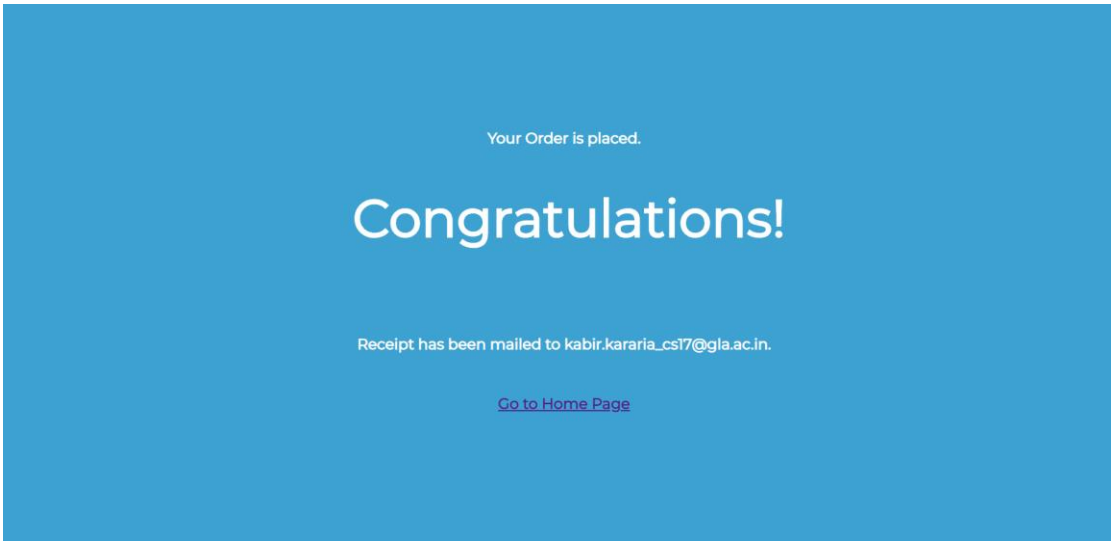

Fig 8.14 Order Placed Page

About Us Page

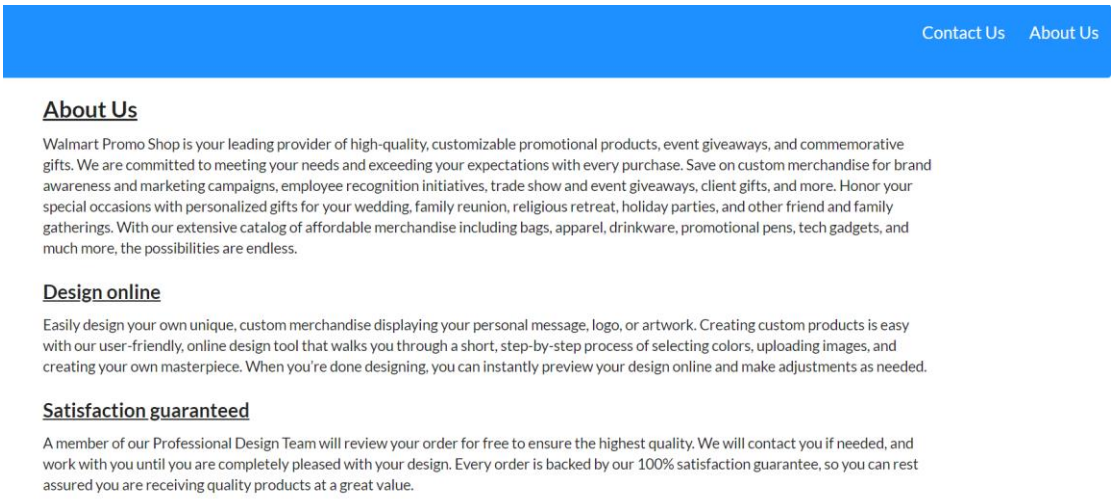

Fig 8.16 About Us Page

Contact Us Page

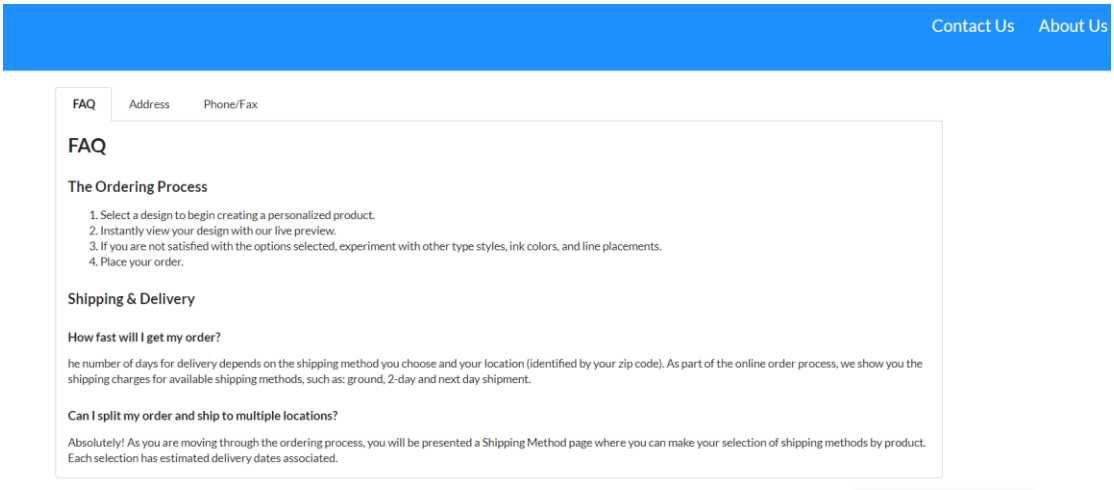

Fig 8.17 Contact Us Page

CHAPTER 9

TESTING

Software testing is the process of executing a program with Intension of finding errors in the code. It is a process of Evolution of System or its parts by manual or automatic means to verify that it is Satisfying specified or requirements or not. Generally, no system is perfect due to communication problems between user and developer, time constraints, or conceptual Mistakes by developer. To purpose of system testing is to check and find out these errors or faults as early as possible so losses due to it can be saved.

Testing is the fundamental process of software success.Testing is not a distinct phase in system development life cycle but Should be applicable throughout all phases i.e. design development and maintenance phase. Testing is used to show incorrectness and considered to success when an error is detected.

CHAPTER 10
FUTURE SCOPE

Electronic commerce is the mode of purchasing goods or services through the internet. When the internet is the principle technology being used, websites are the obvious interface for furthering the transaction. Therefore, E-commerce website development has emerged as a prosperous business endeavor for most companies.

With the advent of the Internet as a business enhancer, e-commerce websites have been quick to cash in on this trend. More and more websites are being designed which provides customers with the benefit of availing the desired product and services at one click of the mouse.

The advent of mobile devices has energized the Internet with mobility. It is now available to the consumer wherever and whenever required. Moreover, the emergence of responsive designs and other more technologically advanced web designs have enabled the e-stores to be easily available on your smart phones, tablets and other mobile devices.

Thus aided, it is sufficiently geared to provide customers with secured transaction processing, thereby helping to establish their popularity.

ECommerce websites are also the best way to showcase your product and service portfolio. In other words, it is the best way to highlight your online presence to your potential clients and customers.

CHAPTER 11

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4. https://www.wikipedia.org/

GitHub Repo: https://github.com/kabir-02/Mini-project-Sem-6-

Live Website: **https://y-shopping.firebaseapp.com/**

CHAPTER 12
CONCLUSION

We have successfully implemented our project “E-Commerce Website (FabBasket) ”, through which customers can purchase various products. We had used languages like HTML, CSS, JAVASCRIPT, NODE.JS and for database we have Realtime Database.

From the website we will be able to order multiple items in one go. The interface will be easy to use & website will quickly scale with increasing traffic load. All the services like Hosting, Authentication, Cloud Functions will be given by Firebase.