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An E-Commerce Application Using Mean Stack

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ABSTRACT: The web development deals with the ways to talk or interact with the client side, so we have chosen to make such application with the latest technology MEAN (Mongo, Express, Angular, Node). The MEAN utilises Node.js as platform, Express to design the framework, Angular to design front end client side and mongoDB as backend to store the database (An RDBMS can also be used as an alternative). MEAN technology is the latest and fastest combined technology with which we can develop a faster SPA (Single Page Application).

At the backend side Javascript is used while TypeScript is used at the front-end side along with HTML+CSS. The choice of JS makes the application much faster. There will be hierarchical level of privileges hence the admin will have more privileges which includes add ,remove, update the product whereas the client can buy it on that platform. Different inbuilt module for the project like express js to achieve the simplicity and flexibility, like body-parser, cors, etc. are used.

KEYWORDS: node.js, express.js, mongodb, angular.js, server side, client side, etc.

I. INTRODUCTION

This paper is based on the most advanced technology in the recent times that are employed to build a full stack e-commerce web application. The basic fundamental concepts of the MEAN stack are thoroughly explained along with the advanced features as well as their usage in the application as to how we can develop highly optimized website which can load quickly and ensure complete security from cyber threats like SQL injections.

an entire dynamic web project. It expands as follows: -

MongoDB: - For Database: A document-based database.

Express.js: - For back-end: A server-side JavaScript based web application framework

Angular.js: -For front-end: A client-side JavaScript based web application framework

Node.js: -For server-side runtime environment: A JavaScript based server-side runtime environment.

II. LITERATURE SURVEY

E-commerce sites usually provides an easy platform for different users to buy or sell their products online as a result of which there is a cutthroat competition among all these sites. When users land on an e-commerce site, they expect to find what they are looking for quickly and easily. However, the users most of the time end up being confused about their exact requirements of what to buy or sell on online platform. Furthermore, half of the users don't find the website fast enough to make multiple purchases especially on those e-commerce websites that deals with all sorts of stuffs right from daily household needs, to, rare equipment limited to particular platforms only. Traditionally, web development has been done using technologies such as JAVA servlets, PHP(Hypertext Preprocessor), ASP.NET(Active Server Pages), ruby etc.

III. PROBLEM STATEMENT

To create an e-commerce web application that implements the MEAN technology to develop a much faster and better interface for users. The MEAN stack, a Javascript based framework will be utilized to create an efficient platform where users can buy multiple products easily, without any delay, due to faster loading webpages.



IV. OBJECTIVES OF THE PROPOSED WORK

To create a fully functional end-to-end e-commerce application, all the major technological aspects of MEAN stack will be utilized.

This includes AngularJS, NodeJS, MongoDB and many more which have been recently developed to fulfil today's need for a better alternative.

The MEAN stack has the advantage of Node's package network, npm or the node package manager, which is the most huge ecosystem of open source libraries. Furthermore, it is a prevalent development style since it makes use of V8 JavaScript engine that is much comparatively more efficient.

V. MOTIVATION

Websites dealing with a lot of resources are usually slow consuming a lot of time in loading successive pages right from "adding to cart" till "purchase". But utilizing Single Page Applications (SPA), the webpage loading time is considerably reduced since the web pages are dynamic and only specific parts gets rewritten from web server. Therefore, building such an application with the best performance benchmark with the latest technology as compared to previous technologies helps us to give an edge in these online e-commerce site.

VI. PROPOSED SYSTEM

The MEAN.js is designed or developed to make a vigorous framework that allows developers use efficient practices while they are working with the popular JavaScript components, which in turn helps in supporting usual development needs, and solving common issues by connecting to MongoDB, Express.js, Node.js, AngularJS frameworks.

The whole application is going to be built on a NodeJS platform which is the runtime environment of JavaScript. Old applications were used to build on the different platforms which were used to be run by their own compilers like java, ruby c#, python etc. these were the languages used at backend which slowdowns the performance as compared to the MEAN, because of absence of rendering JavaScript engine. Now JavaScript introduced at the backend too which is asynchronous, lightweight, faster as compare to other programming languages in web applications.

- AngularJS is a client-side language which is written in JavaScript. So, at first the client request is processed.
- After that, the client request then enters the server (Node.js). Node.js acts as a server-side language written in JavaScript.
- ExpressJS then makes the request to the database.
- After receiving a request, MongoDB then retrieves the data and returns the response back to the ExpressJS.
- The response from Express.js is sent back to the Node.js, after which it is forwarded to the AngularJS by Node.js for displaying the final result.

SYSTEM ARCHITECTURE

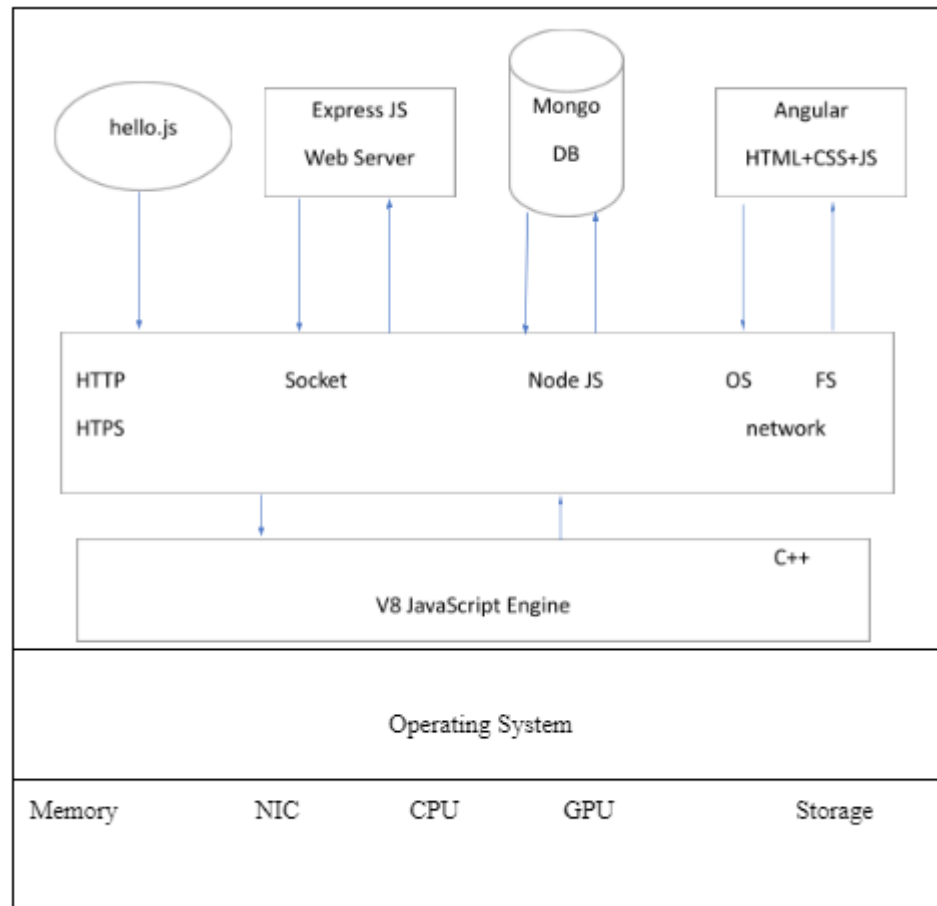


Fig 1: System Architecture

ARCHITECTURE DESCRIPTION (ExpressJS)

After the user procedures and sends a request via AngularJS then that request is at first retrieved by the NodeJS. The ExpressJS then hosts the website that is shaped for the NodeJS. NodeJS and ExpressJS are both server-side languages.

Architecture Description (MongoDB)

In MongoDB, data is represented as a collection of JSON documents.

MongoDB's querying process is object-oriented, which basically means we can pass MongoDB a document explaining whatever needs to be queried. Joins are not supported by MongoDB, however, it usually supports multi-dimensional data types, which includes documents and arrays.

MongoDB, will only have an collection of different comments and a collection of posts present within a post

One of the noteworthy feature of MongoDB is that, we don't have to define the schema for the database.

CLASS DIAGRAM

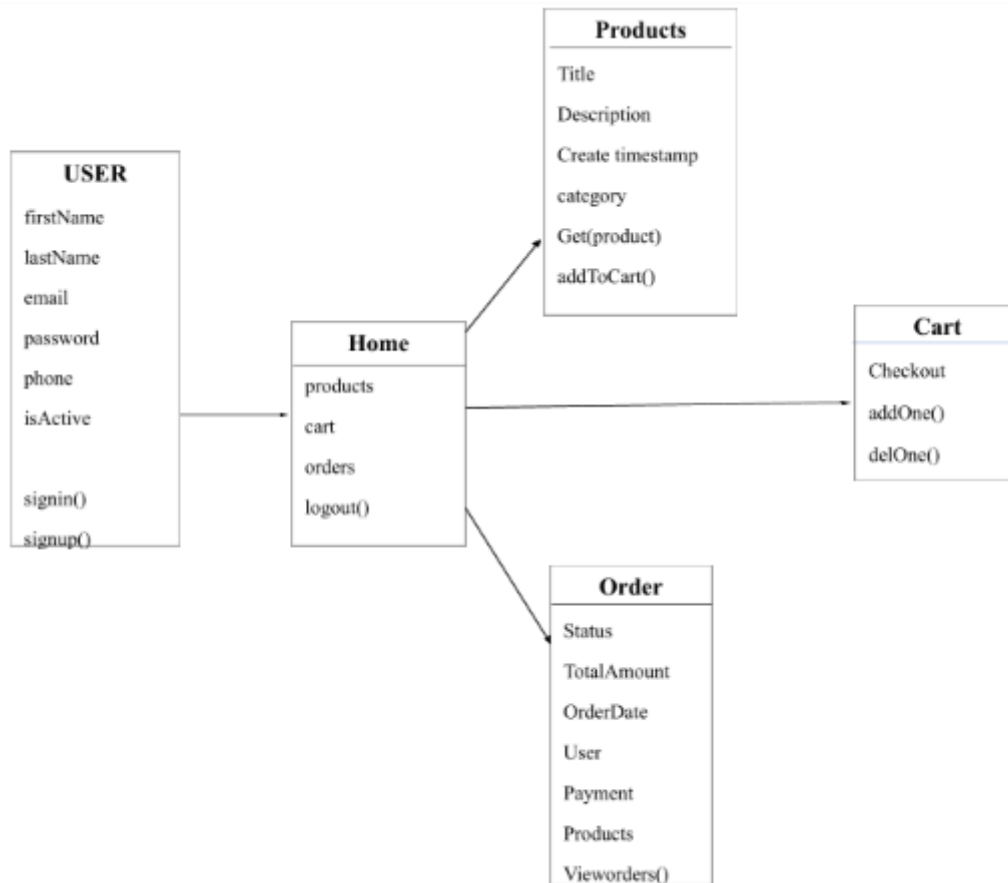


Fig 2: Class Diagram

APPLICATIONS

1. Retail and Wholesale
2. Finance
3. Auctioning
4. Marketing
5. Online Shopping

ADVANTAGES

1. Portability: The website is platform independent and the user can access it from all the major operating systems like Windows, Linux.
2. Usability: The website's interface is pretty user friendly and easy to use and can be viewed by anyone.

OUTPUTS:

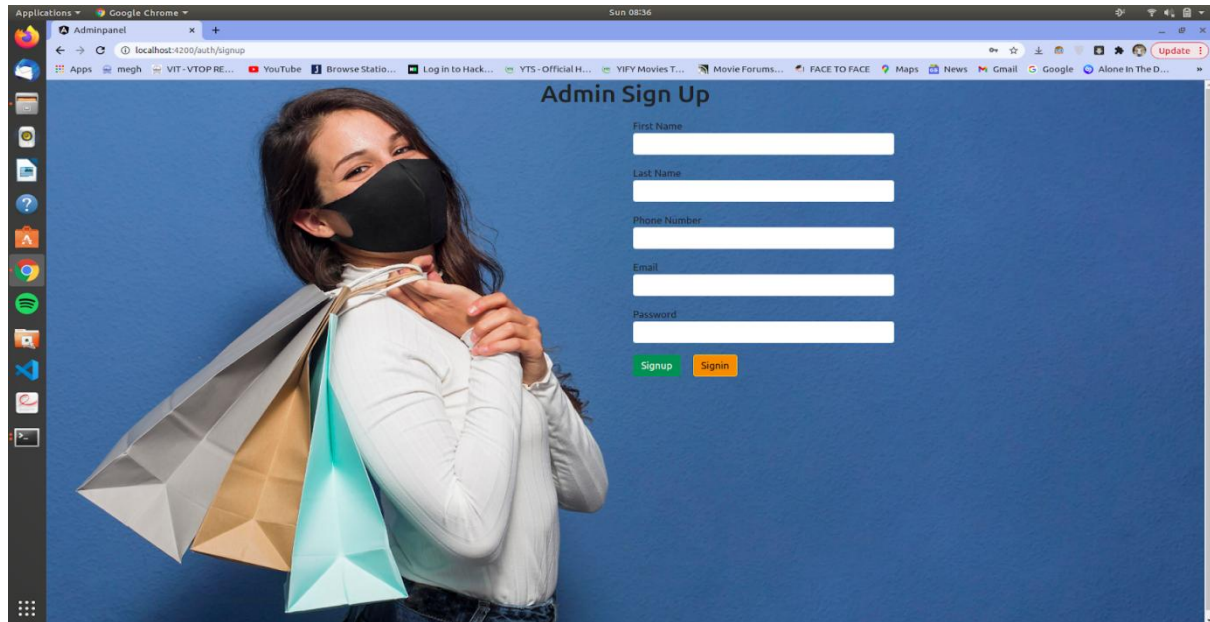


Fig 3: Admin signup page

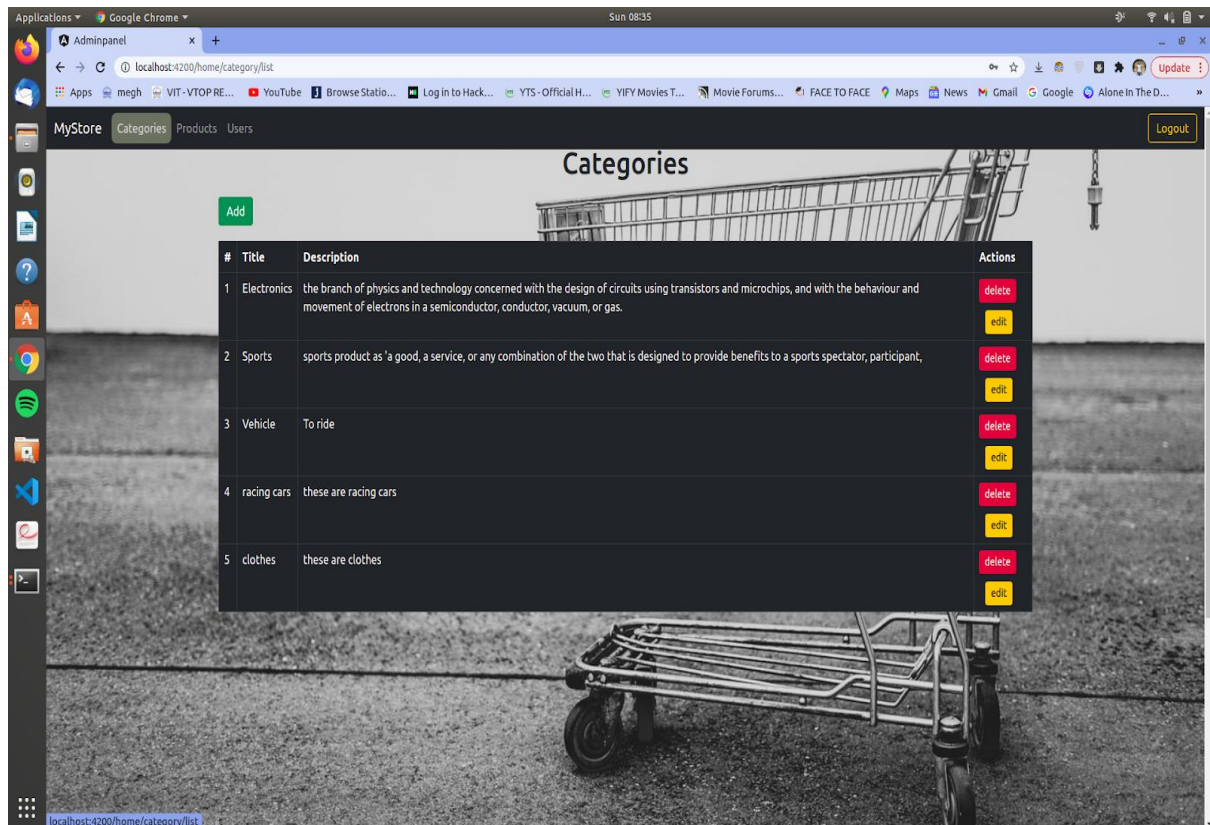
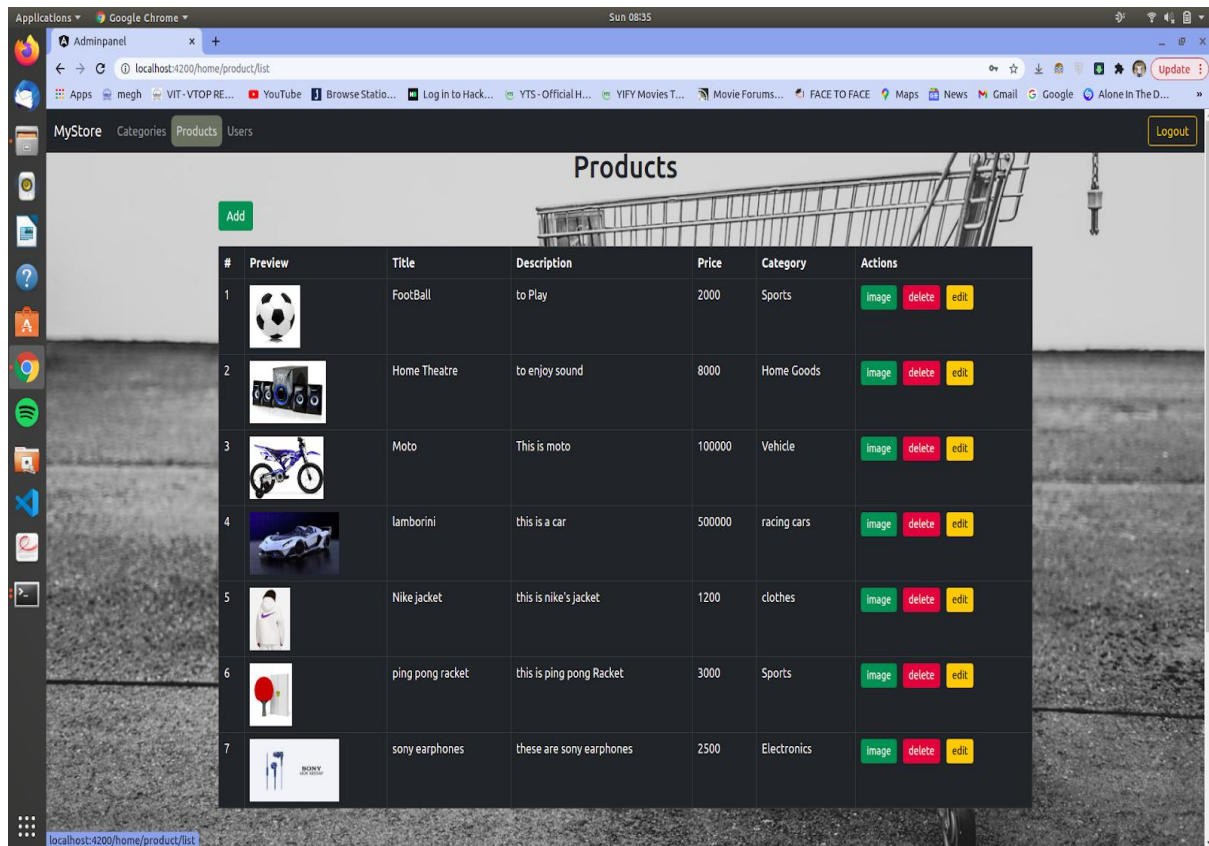
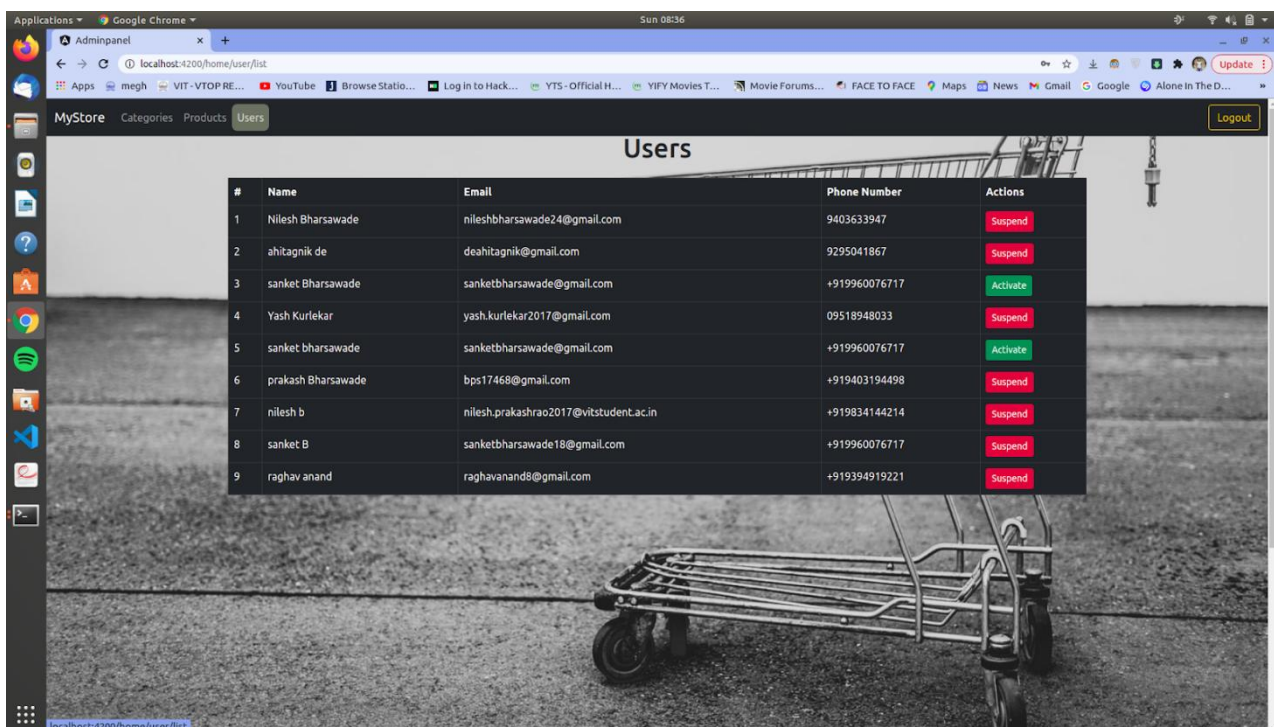


Fig 5: Categories Page



#	Preview	Title	Description	Price	Category	Actions
1		FootBall	to Play	2000	Sports	  
2		Home Theatre	to enjoy sound	8000	Home Goods	  
3		Moto	This is moto	100000	Vehicle	  
4		lamborini	this is a car	500000	racing cars	  
5		Nike Jacket	this is nike's jacket	1200	clothes	  
6		ping pong racket	this is ping pong Racket	3000	Sports	  
7		sony earphones	these are sony earphones	2500	Electronics	  

Fig 6: Products Page



#	Name	Email	Phone Number	Actions
1	Nilesh Bharsawade	nileshbharsawade24@gmail.com	9403633947	
2	ahitagnik de	deahitagnik@gmail.com	9295041867	
3	sanket Bharsawade	sanketbharsawade@gmail.com	+919960076717	
4	Yash Kurlekar	yash.kurlekar2017@gmail.com	09518948033	
5	sanket bharsawade	sanketbharsawade@gmail.com	+919960076717	
6	prakash Bharsawade	bps17468@gmail.com	+919403194498	
7	nilesh b	nilesh.prakashrao2017@vitstudent.ac.in	+919834144214	
8	sanket B	sanketbharsawade18@gmail.com	+919960076717	
9	raghav anand	raghavanand8@gmail.com	+919394919221	

Fig 7: Users Data

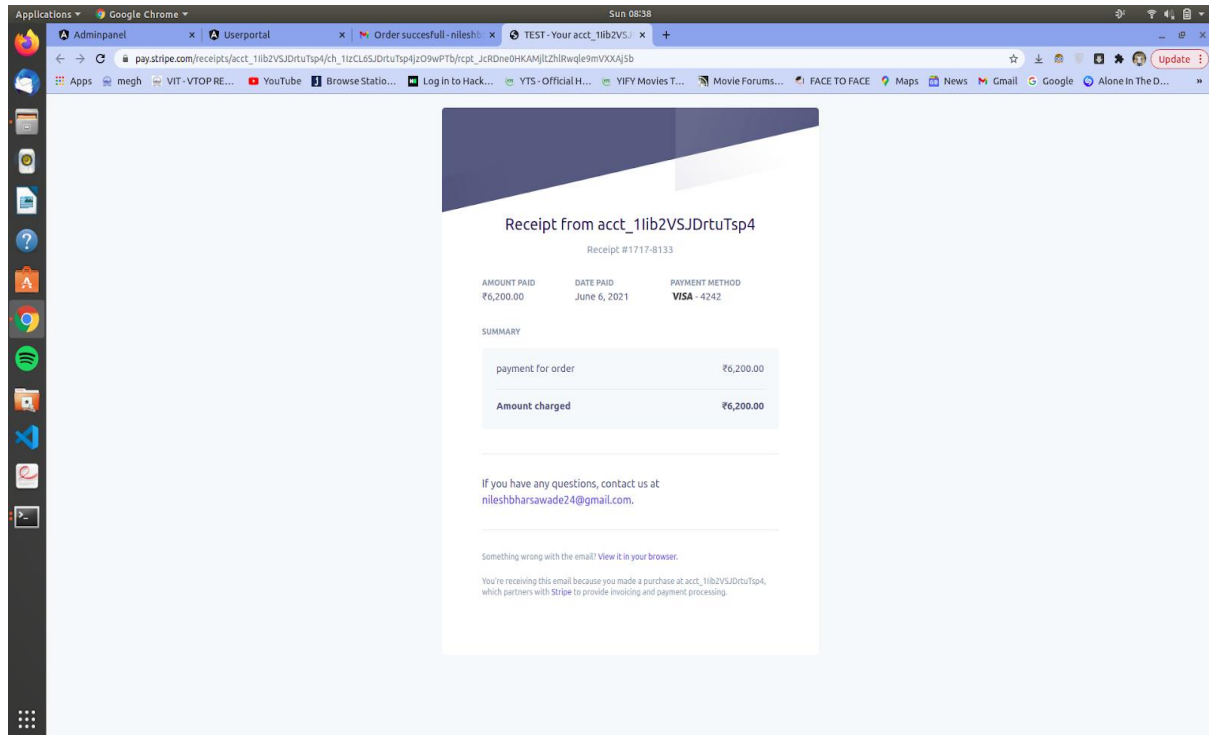


Fig 8: Payment Receipt

VII. CONCLUSION

E-commerce applications are not usually built with any other existing stacks like MERN or Java application based. So using MEAN stack gives us an edge over other existing applications, mainly in terms of high computation potential, high performance benchmark and being lightweight.

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