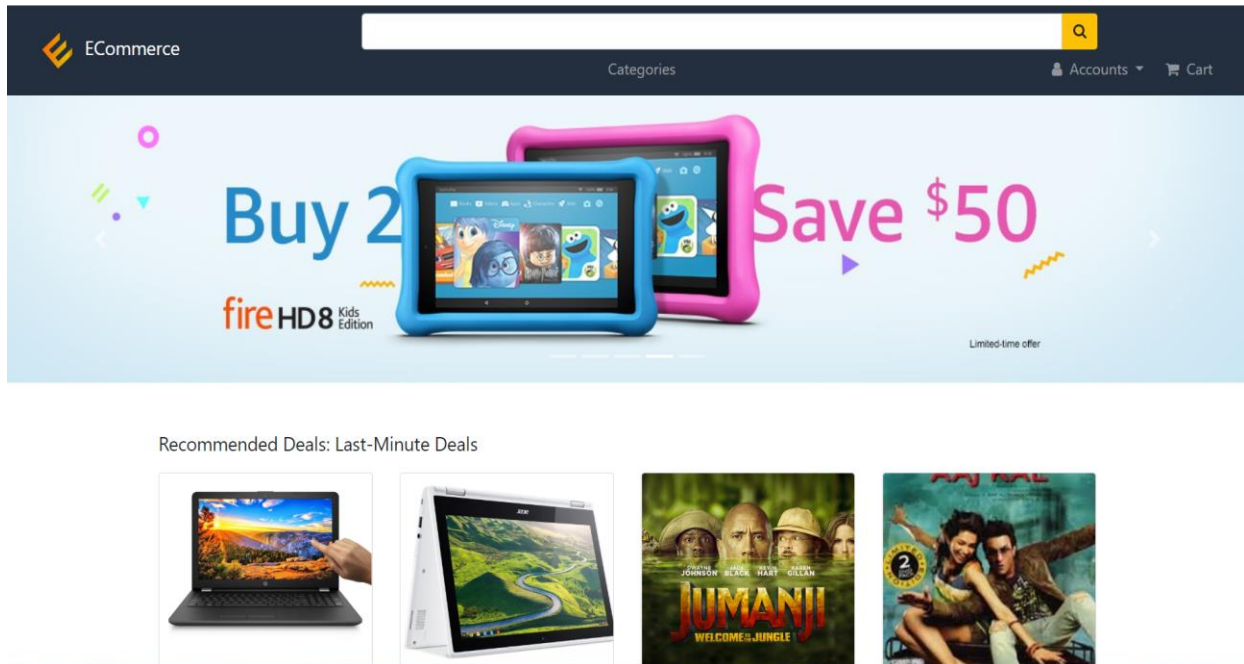# ECOMMERCE

5/6/2018

Table of Contents

1. Introduction:

The project is "e-commerce" web application which provides a platform for buying and selling of e-commerce products such as books, electronic items, software etc.

As part of e-commerce platform, Users can sign up and log-in into the application using a general email-id or through social networking platform such as Facebook. Once logged in, Users will then be able to add products to their cart and then checkout for final shipping. Users can also provide review and ratings to the products which they bought. Users can search products based on categories and are made aware of products with special discount offers.

2.   E Commerce
2.1   Overview:

- E Commerce is one of the two modules which was developed as a part of our project.
- It is a platform form where users can buy products such as books, electronic items, etc.
- Users can register as sellers if they want to sell products on this platform.
- Registration can be done with email signup.
- There is a search bar, where we can search the desired products.
- After logging in, users can add the products to their cart and checkout.
- There is also a provision for ratings and review for the products bought by the users.
- Customers also can track their products.
- ChatBot is also designed for allowing customers to interact when they have doubt regarding the products and any issues.
- For front-end (user interface) part, we used HTML, CSS, Bootstrap, Angular JS.
- For back-end part, which include connections between different modules and database connections we used Node JS, Express JS, MongoDB(Database).
- Used Stripe API for payments.
- Images are stored in the cloud resource (Amazon S3 bucket).
- Used Mlab for database hosting.

2.2   Technologies used:

Front-end: HTML, CSS, Bootstrap, AngularJS
Back-end: NodeJS, ExpressJS, MongoDB, Stripe
Data-Base service: Mlab

HTML: Hyper Text Markup Language is used to create the main structure of a webpage, which outlines the important components in the webpage which we see.

CSS: Cascading Style Sheets is used to define styles of HTML. All the styles, which we see on the webpage can be given credit to CSS.

Bootstrap: CSS and Java Script library. It is a free and open source front end library for designing web applications. Bootstrap has some pre-defined styles, which we can use directly by copying the respective code.

AngularJS: AngularJS is a Java Script based front-end web development framework. It is very useful to create single-page applications. AngularJS was developed by Google.

NodeJS: NodeJS is an open-source and cross-platform Java Script run-time environment which executes JavaScript code server-side.

ExpressJS: It is a web application framework, which is used for NodeJS. ExpressJS can be used for designing web applications and APIs.

MongoDB: MongoDB is an open-source, cross platform database system. It is a No-SQL database and uses Java Script Object Notation -like documents with schemas.

Stripe: Stripe is the payment processing API which we used here.

Mlab: mLab is a fully managed cloud database service that hosts MongoDB databases.

2.3   Architecture:

- The technologies which are used for building ecommerce are MongoDB, ExpressJS, AngularJS, NodeJS. This stack is popularly called MEAN stack.
- The architectural work flow of MEAN stack is as follows:
  - If client makes a request, it is processed by AngularJS. Now, after AngularJS processes the request, NodeJS takes control.
  - In NodeJS, the request is processed by ExpressJS and this makes request to the database.
  - Here, MongoDB will get the data and returns it to ExpressJS
  - ExpressJS will now send the data to NodeJS and then the data is received by AngularJS, which is responsible for displaying the result.

The main architecture that lies under this entire flow is the Model View Controller, which is popularly called MVC architecture.
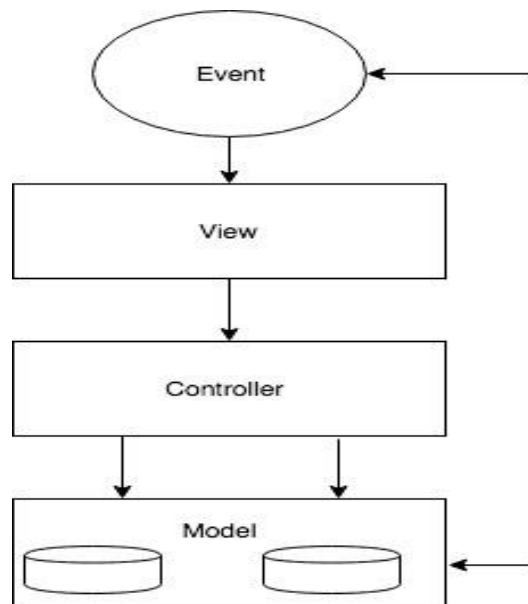
- Model:
  - Model manages application data and it responds to the requests made from views, also listens to the instructions from controller.
- View:
  - View is the portion which we see in the web application. View is responsible to display the data to user.
- Controller:
  - Controller is very important because it controls the interactions between Model and Views. Controller responds to user input and performs interactions on the models. This also validates input.
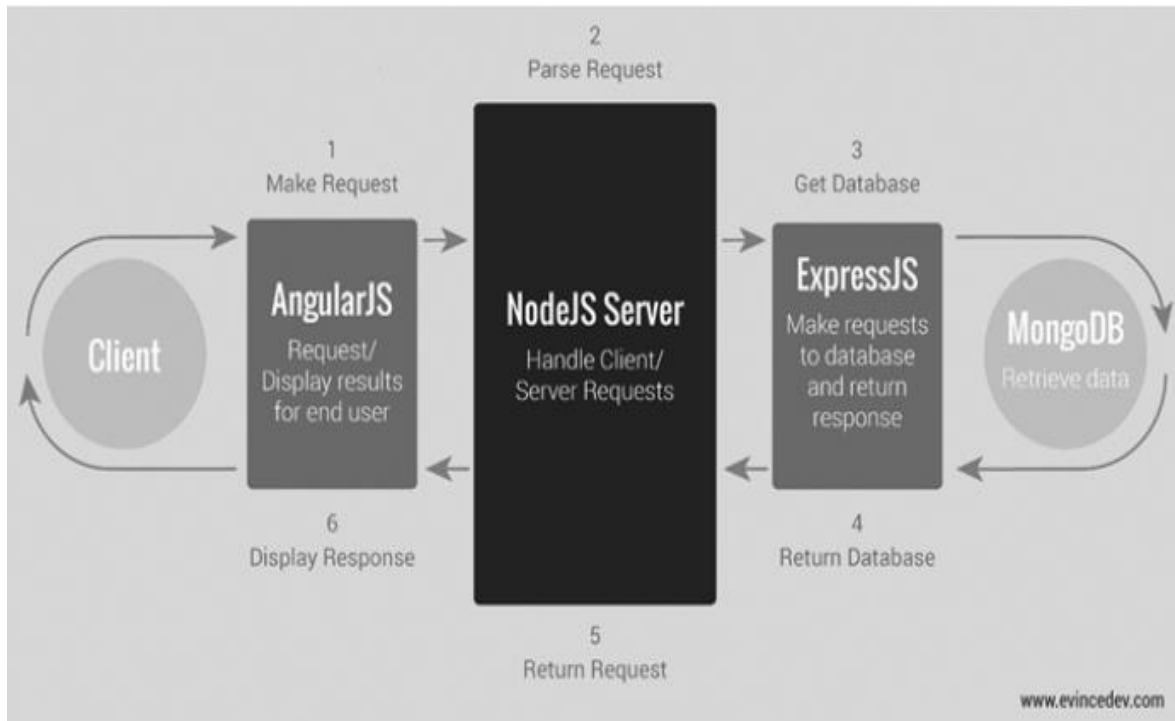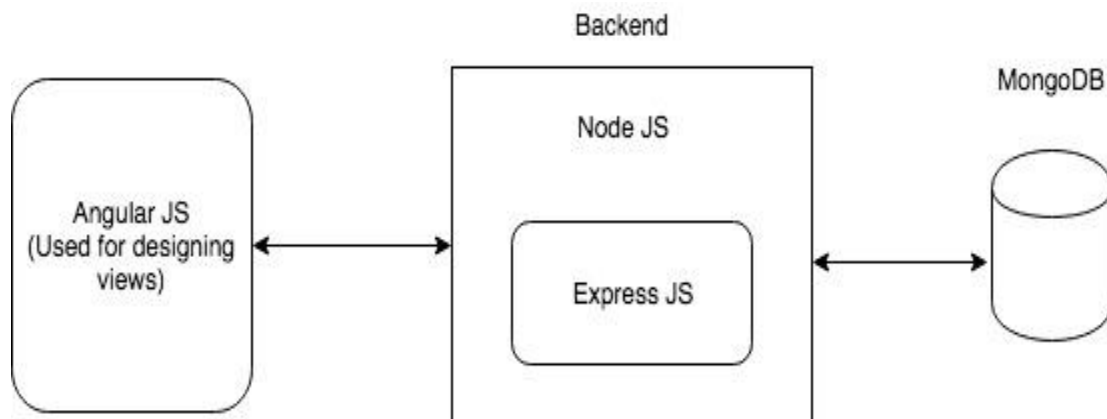
Fig: Request – Response Model.

- When the user sends a request to through AngularJS then that request is firstly accessed by the NodeJS threading is done in the NodeJS and then it is sent to the ExpressJS.
- ExpressJS sends the request to MongoDB.
- MongoDB processes the request and send back to ExpressJS.
- NodeJS retrieves data from ExpressJS.
- Now, AngularJS receives data from NodeJS and updates the views and users can see the updated data.
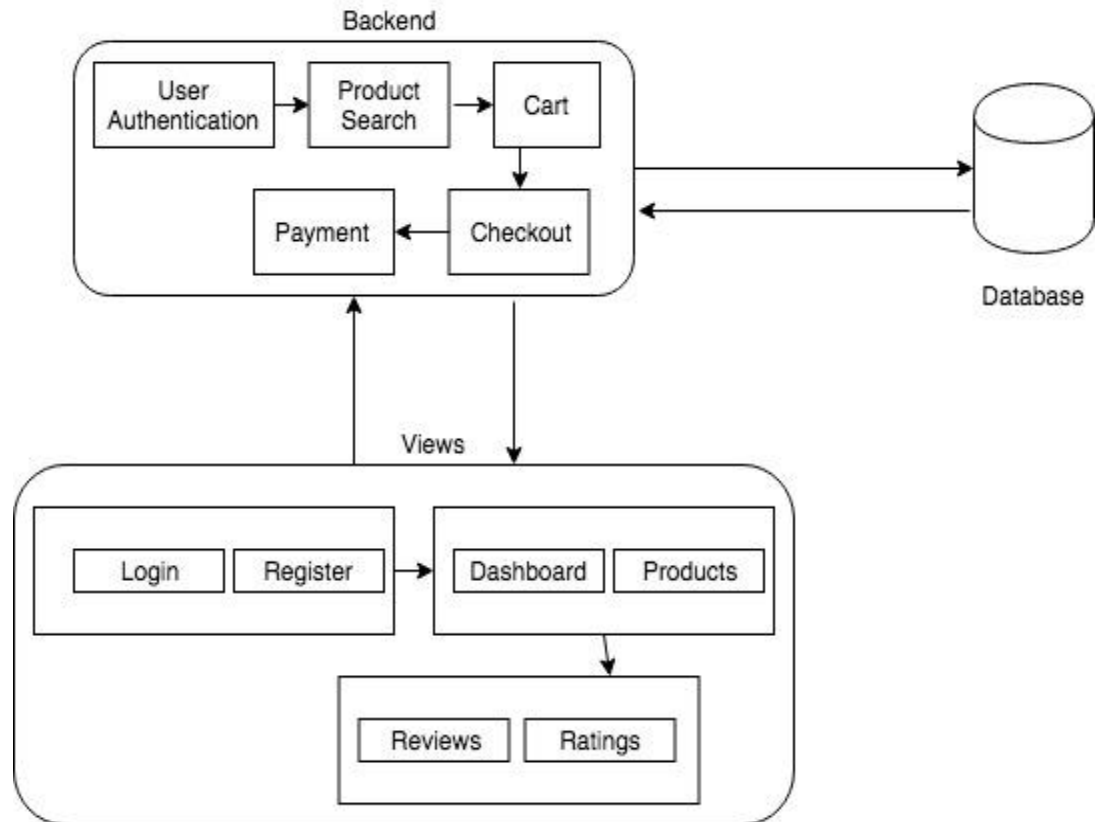
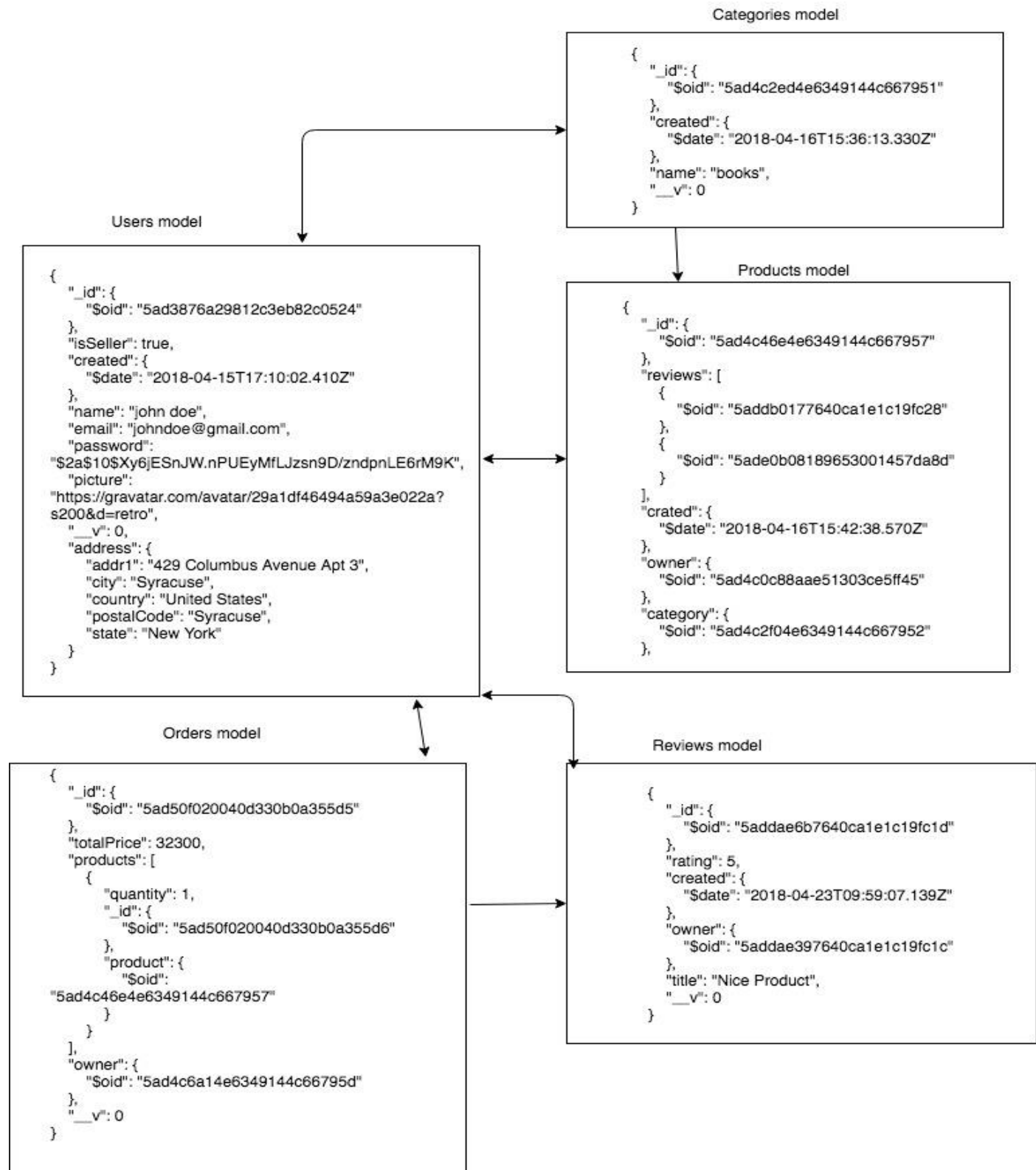The architecture control flow is as follows:

Front-end architecture flow:

- New user registers with email and logs in. After logging in, the user can search for products.
- If the user is registered as seller, then he can also post products.
- There is a dashboard, which contains all the products which were ordered, and we can also track the products.
- Users can leave reviews for the items they bought and also ratings.
- The ratings and reviews are dynamically updated firstly by AngularJS and once they are posted, they are saved to the Database.

Back-end architecture flow:

- On the backend part NodeJS sees that all the data is dynamically updated in MongoDB with the help of Express.js.
- Users are authenticated, and only authenticated users can place orders.
- The users who are authenticated can add items to the cart and checkout.
- At the time of checkout, stripe payment API is used to make the payment possible.
- NodeJS keeps in contact with MongoDB to update the data dynamically. ExpressJS framework helps NodeJS in achieving this.
  Mlab is the cloud database service which we used here, and this keeps updating the data of the application in real time.

2.4   Schema Design:

Overall schema design for Ecommerce Application

Categories model

```
{
    "_id": {
        "$oid": "5ad4c2ed4e6349144c667951"
    },
    "created": {
        "$date": "2018-04-16T15:36:13.330Z"
    },
    "name": "books",
    "__v": 0
}
```

Users model

```
{
    "_id": {
        "$oid": "5ad3876a29812c3eb82c0524"
    },
    "isSeller": true,
    "created": {
        "$date": "2018-04-15T17:10:02.410Z"
    },
    "name": "john doe",
    "email": "johndoe@gmail.com",
    "password":
"$2a$10$Xy6jESnJW.nPUEyMfLJzsn9D/zndpnLE6rM9K",
    "picture":
"https://gravatar.com/avatar/29a1df46494a59a3e022a?
s200&d=retro",
    "__v": 0,
    "address": {
        "addr1": "429 Columbus Avenue Apt 3",
        "city": "Syracuse",
        "country": "United States",
        "postalCode": "Syracuse",
        "state": "New York"
    }
}
```

Products model

```
{
    "_id": {
        "$oid": "5ad4c46e4e6349144c667957"
    },
    "reviews": [
        {
            "$oid": "5addb0177640ca1e1c19fc28"
        },
        {
            "$oid": "5ade0b08189653001457da8d"
        }
    ],
    "crated": {
        "$date": "2018-04-16T15:42:38.570Z"
    },
    "owner": {
        "$oid": "5ad4c0c88aae51303ce5ff45"
    },
    "category": {
        "$oid": "5ad4c2f04e6349144c667952"
    },
}
```

Orders model

```
{
    "_id": {
        "$oid": "5ad50f020040d330b0a355d5"
    },
    "totalPrice": 32300,
    "products": [
        {
            "quantity": 1,
            "_id": {
                "$oid": "5ad50f020040d330b0a355d6"
            },
            "product": {
                "$oid":
"5ad4c46e4e6349144c667957"
            }
        }
    ],
    "owner": {
        "$oid": "5ad4c6a14e6349144c66795d"
    },
    "__v": 0
}
```

Reviews model

```
{
    "_id": {
        "$oid": "5addae6b7640ca1e1c19fc1d"
    },
    "rating": 5,
    "created": {
        "$date": "2018-04-23T09:59:07.139Z"
    },
    "owner": {
        "$oid": "5addae397640ca1e1c19fc1c"
    },
    "title": "Nice Product",
    "__v": 0
}
```

2.5 Features:

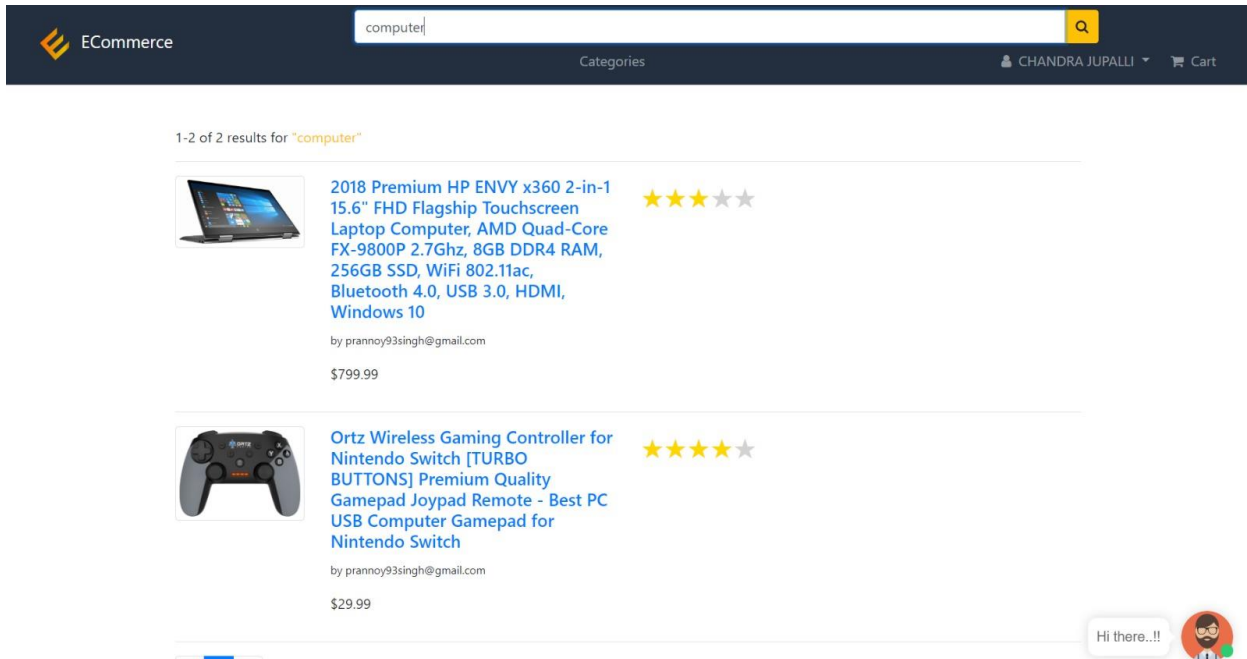i) User authentication:
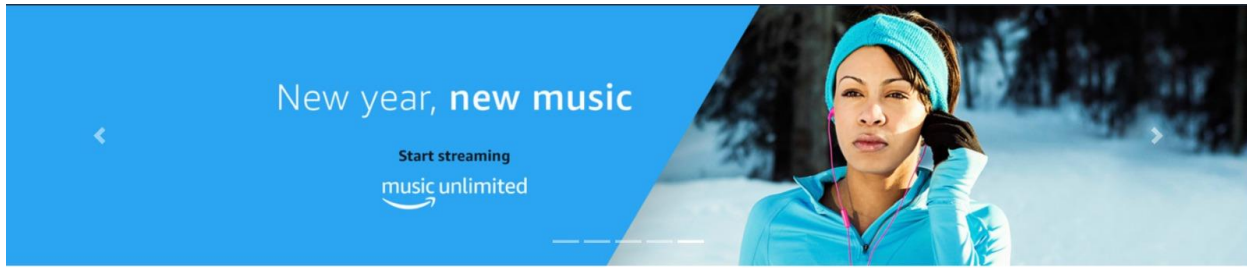
Login:

Register:

ii)   Recommended Deals:

Recommended Deals: Last-Minute Deals

HP 15.6-Inch HD
Touchscreen Laptop
$323.00

Acer Chromebook R
11 Convertible
$289.99

Jumanji: Welcome To
The Jungle
$18.99

Love Aaj Kal (English
subtitled)
$4.00

Hi there..!!

iii)   Search functionality:

ECommerce   computer   🔍

Categories   CHANDRA JUPALLI ▾   🛒 Cart

1-2 of 2 results for "computer"

2018 Premium HP ENVY x360 2-in-1
15.6" FHD Flagship Touchscreen
Laptop Computer, AMD Quad-Core
FX-9800P 2.7Ghz, 8GB DDR4 RAM,
256GB SSD, WiFi 802.11ac,
Bluetooth 4.0, USB 3.0, HDMI,
Windows 10
by prannoy93singh@gmail.com

★★★☆☆

$799.99

Ortz Wireless Gaming Controller for
Nintendo Switch [TURBO
BUTTONS] Premium Quality
Gamepad Joypad Remote - Best PC
USB Computer Gamepad for
Nintendo Switch
by prannoy93singh@gmail.com

★★★★☆

$29.99

Hi there..!!

iv)   Categories:
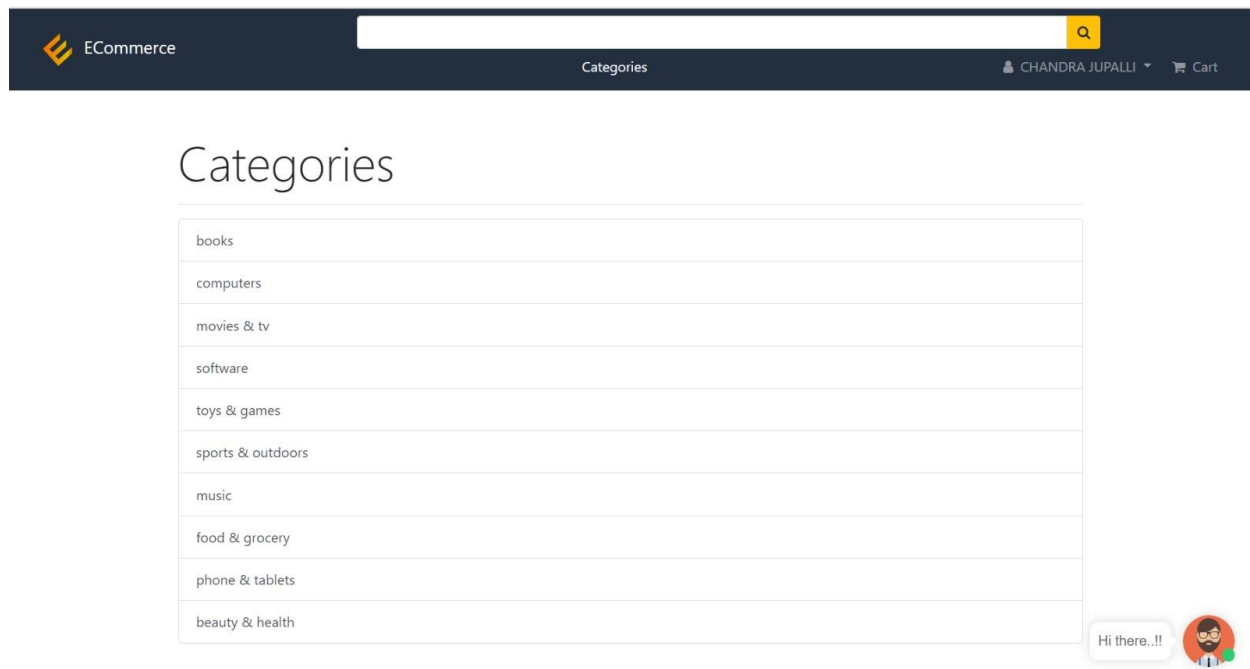
v)   Cart:
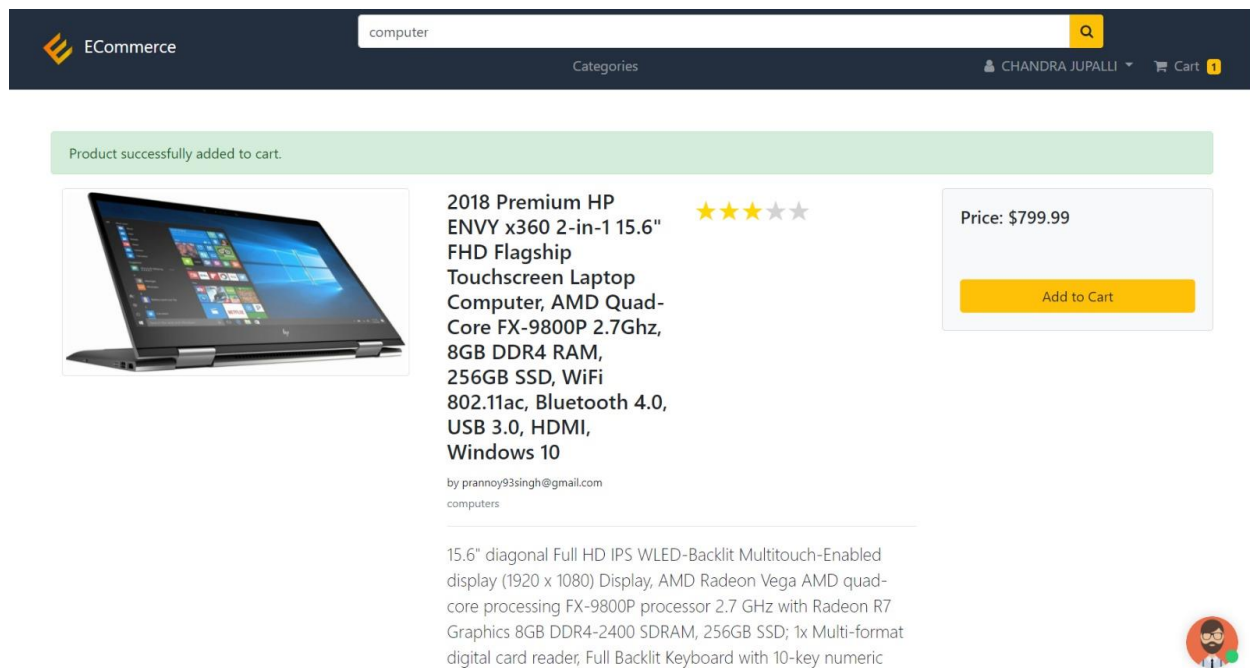
vi)   Payment:
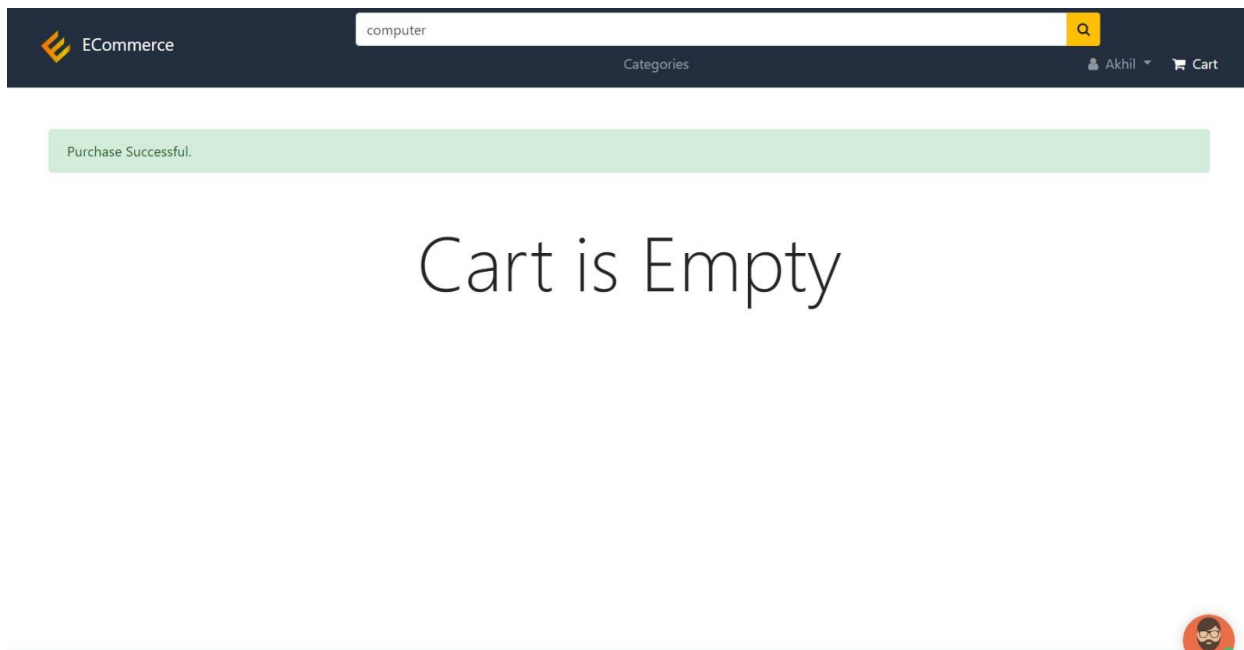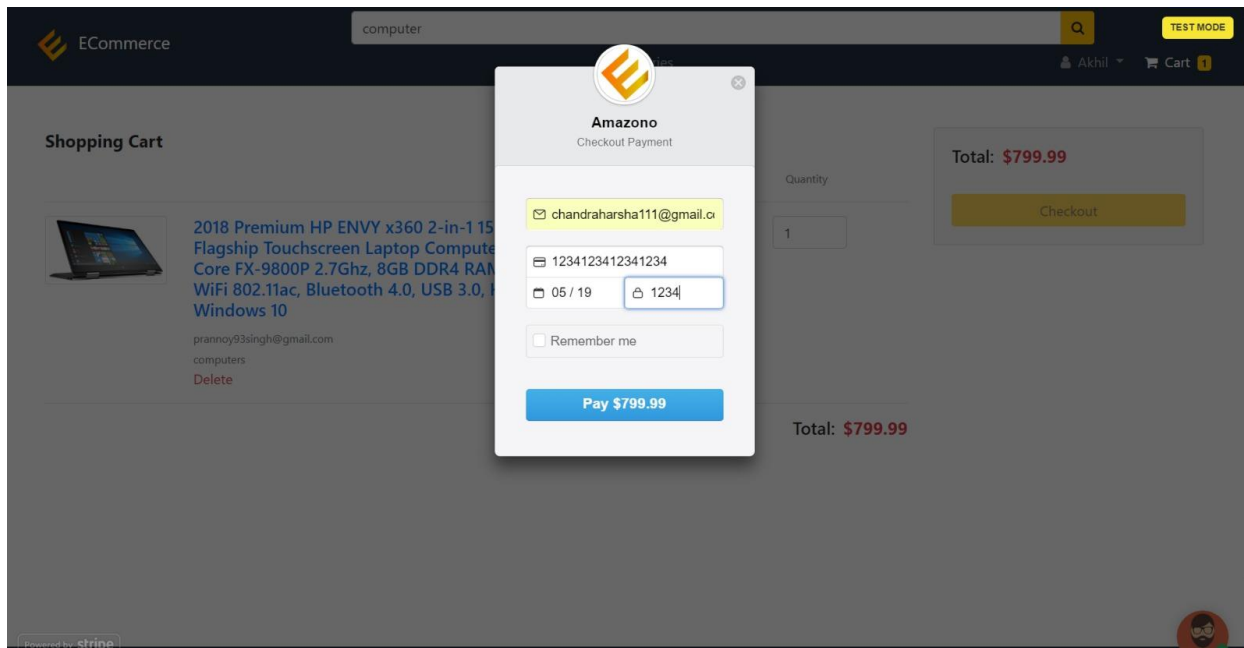
vii)   Reviews:

Reviews

customer

★★★★☆ **Average**

customer

★★★★☆ **Average**

rahul kadam

★★★★★ **Awesome product**

viii)   Track Orders:

ix)   Change account settings:

x)   Chatbot