|  |  |  |
| --- | --- | --- |
| **Phase** | **Task** | **Description** |
| **Backend Development** | Install Node.js and npm |  |
|  | Create a project directory and initialize it as a Node.js project | npm init |
|  | Install the necessary dependencies for chosen backend framework |  |
|  | Define the database schema for application | user, product, order |
|  | Create a database connection and implement data access methods for CRUD operations |  |
|  | Implement email notification using a Nodemailer library | Nodemailer or SendGrid |
|  | Implement payment processing using a payment gateway | PayPal or Stripe |
|  |  |  |
|  |  |  |
| **Frontend Development** | Create a React project for the frontend application |  |
|  | Define the React components for the user interface | Signup, login, product list, product detail, product review, cart, checkout, edit product, add product, profile |
|  | Use React Router to handle routing between different pages |  |
|  | State management |  |
|  | Create API calls to the backend to fetch data and perform actions |  |
|  |  |  |
|  |  |  |
| **Integration** | Deploy the backend application to a server |  |
| **Integration** | Configure the frontend application to point to the deployed backend URL |  |
|  |  |  |
| **Testing and Deployment** | Test after every function implementation |  |

**# Specs**

**## Admin**

- Predefined in system

- CRUD products

- Process orders

- Receive notification by email if products are not available

- Receive notification by email if products are not available when a product is reviewed

**## Customers**

- Signup

- View all products

- Search specific products

- View the details of a product

- Add products to cart

- checkout cart. If the cart is checking out successfully, it should be cleared out

- Review products

- Check status of orders

- Check previous orders

- Update profile

**# System Design**

**## Front End: React**

\* Customers:

- Signup

- Login

- ProductList: Show name/price of products

- Product: name/price of a product. Button: Review, Add To Card

- ProductDetails: More information about the products. Button: Review, Add To Card

- Review: comment, rating

- Cart: See all added products, be able to update the quantity

- Checkout

- Logout

\* Admin

- Login

- ProductList, AddProduct, UpdateProduct

- Delete product: Need to confirm

**## BE**

\* CRUD Users

\* CRUD products

\* Create/Read/Update orders

**## Database**

```JavaScript

const user = {

  \_id: ObjectId

  username: string,

  email: String,

  password: string

  role: string, //admin or customer

  deleted: boolean

};

const product = {

  \_id: ObjectId,

  name: String,

  description: String,

  price: Number,

  quantity: Number,

  images: [], //should be url

  category: String,

  averageRatings: number,

  reviews: [

    {

      userId: ObjectId,

      text: String,

      rating: number

    }

  ],

  deleted: boolean

};

const order = {

  \_id: ObjectId,

  userId: ObjectId,

  items: [

    {

      productId: ObjectId,

      quantity: Number,

      price: Number

    }

  ],

  totalAmount: Number,

  orderDateTime: string,

  payment: {

    method: string, //cash, debit, credit

    amount: number

  },

  status: string, //ordered, processing, delivered, canceled

};

```

- Check how to implement payment with Paypal

- Email notification with nodejs