

Frontend Development with React.js

1. Introduction

Project Title :Store Manager: Keep Track of Inventory .

Team Members :

R.Harshini(HEAD)-ROLE-(Project Coding and Documentation)

S.Divya-ROLE-(Project Documentation)

S.Durka-ROLE-(Project Coding)

R.Gobika-ROLE-(Demo Video)

2. Project Overview

Purpose:

The purpose of the Inventory Management System is to streamline the process of managing product stocks, sales, and customer purchases. It ensures accurate inventory tracking, reduces the chances of overstocking or stockouts, and improves overall store efficiency by automating updates and maintaining real-time records.

Features:

- **Inventory Management:** Inventory Management helps maintain healthy stock levels in a store and acquire them in time.
- **Stock Updates:** Stock will automatically update on sale of products, and it can be updated on adding new stock.
- **Cart:** Products can be added to cart for a particular sale and quantity can be added to each product.
- **Checkout at Cart:** Upon checkout, cart is cleared, inventory is updated, and a sale record is made.
- **Adding New Products to Inventory:** New products can be added to the inventory by providing product name, image URL, price, stock, tags.
- **Alert View for Depleting Stock:** Depleting stocks are shown in red background, and alert count can be updated as per requirement.

- **Search Functionality for Products:** Products in inventory and product catalog can be searched.

Sale Records: All sale records are stored with sale value, products and datetime.

3.Setup Instructions

Pre-Requisites :

Here are the key prerequisites for developing a frontend application using React.js:

- **Node.js and npm:**

Node.js is a powerful JavaScript runtime environment that allows you to run JavaScript code on the local environment. It provides a scalable and efficient platform for building network applications.

Install Node.js and npm on your development machine, as they are required to run JavaScript on the server-side.

- Download: <https://nodejs.org/en/download/>
- Installation instructions: <https://nodejs.org/en/download/package-manager/>

- **React.js:**

React.js is a popular JavaScript library for building user interfaces. It enables developers to create interactive and reusable UI components, making it easier to build dynamic and responsive web applications.

Install React.js, a JavaScript library for building user interfaces.

- Create a new React app:

```
npx create-react-app my-react-app
```

Replace my-react-app with your preferred project name.

- Navigate to the project directory:

```
cd my-react-app
```

- Running the React App:

With the React app created, you can now start the development server and see your React application in action.

- Start the development server:

```
npm start
```

This command launches the development server, and you can access your React app at <http://localhost:3000> in your web browser.

- **HTML, CSS, and JavaScript:** Basic knowledge of HTML for creating the structure of your app, CSS for styling, and JavaScript for client-side interactivity is essential.
- **Version Control:** Use Git for version control, enabling collaboration and tracking changes throughout the development process. Platforms like GitHub or Bitbucket can host your repository.
 - Git: Download and installation instructions can be found at: <https://git-scm.com/downloads>
- **Development Environment:** Choose a code editor or Integrated Development Environment (IDE) that suits your preferences, such as Visual Studio Code, Sublime Text, or WebStorm.
 - Visual Studio Code: Download from <https://code.visualstudio.com/download>
 - Sublime Text: Download from <https://www.sublimetext.com/download>
 - WebStorm: Download from <https://www.jetbrains.com/webstorm/download>

To get the Application project from drive:

Follow below steps:

Install Dependencies:

- Navigate into the cloned repository directory and install libraries:

```
cd store
```

```
npm install
```

- **Start the Development Server:**

- To start the development server, execute the following command:

```
npm start
```

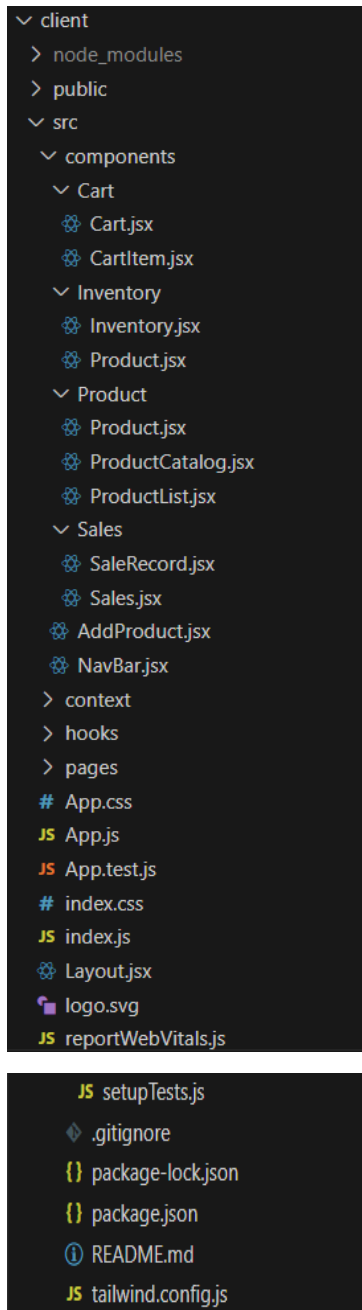
Access the App:

- Open your web browser and navigate to <http://localhost:3000>.
- You should see the application's homepage, indicating that the installation and setup were successful.

You have successfully installed and set up the application on your local machine. You can now proceed with further customization, development, and testing as needed.

4. Folder structure

The image is of the folder structure which shows all the files and folders that have been used in project development.



5. Project Development

- **Setting Up Context and Reducers**
 - **Step 1: Create context files for Inventory, Cart, and Sales.**
 - Use createContext() and define default states.
 - **Step 2: Define reducers for state management.**
 - Inventory Reducer: Handle stock addition, updates, and sales.

- Cart Reducer: Manage adding/removing items and quantities.
- Sales Reducer: Track sales records.
- **Step 3: Set up ContextProvider components.**
 - Wrap the app in these providers in index.js or App.js.
- **Step 4: Persist data in localStorage.**
 - Save and load context states to/from localStorage.

Milestone 3 - Developing Core Components

- **Step 1: Build the Inventory Component.**
 - Display a list of products with stock details.
 - Implement search and alert value input.
- **Step 2: Build the Product Component.**
 - Show product details, including an image, price, and stock.
 - Add functionality to update stock.
- **Step 3: Build the Cart Component.**
 - Display items added to the cart with quantity and total value.
 - Add buttons for incrementing, decrementing, and removing items.
 - Include checkout functionality to update inventory and create sales records.
- **Step 4: Build the Sales Component.**
 - Display a list of sales records with details like date, cart items, and total sale value.
 - Sort records from the latest to the oldest.

Milestone 4 - Implementing Utilities

- **Step 1: Create reusable helper functions.**
 - Format currency.
 - Sort or filter data.
- **Step 2: Add input validation.**

- Prevent invalid values for stock or cart quantities.
- **Step 3: Handle edge cases.**
 - Avoid negative stock updates.
 - Restrict checkout when the cart is empty.

Milestone 5 - Styling with TailwindCSS

- **Step 1: Create responsive layouts.**
 - Use flexbox (flex, flex-wrap) and grid utilities.
- **Step 2: Style individual components.**
 - Inventory: Add hover effects and responsive search bar.
 - Cart: Highlight selected products and display alerts on low stock.
 - Sales: Use a clean table or card layout for sale records.
- **Step 3: Ensure consistency.**
 - Apply a theme or consistent color palette.

Milestone 6 - Testing and Debugging

- **Step 1: Test individual components.**
 - Ensure correct rendering and functionality.
- **Step 2: Test context and reducers.**
 - Verify state updates and interactions with localStorage.
- **Step 3: Debug UI/UX issues.**
 - Check for responsiveness and usability.

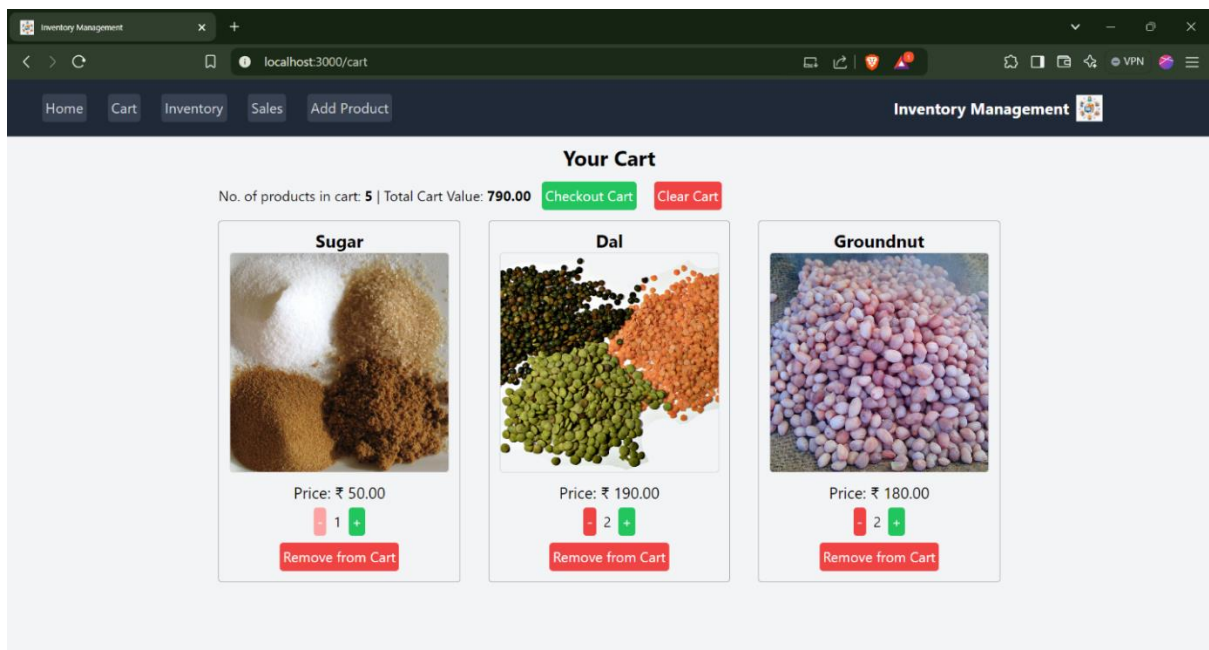
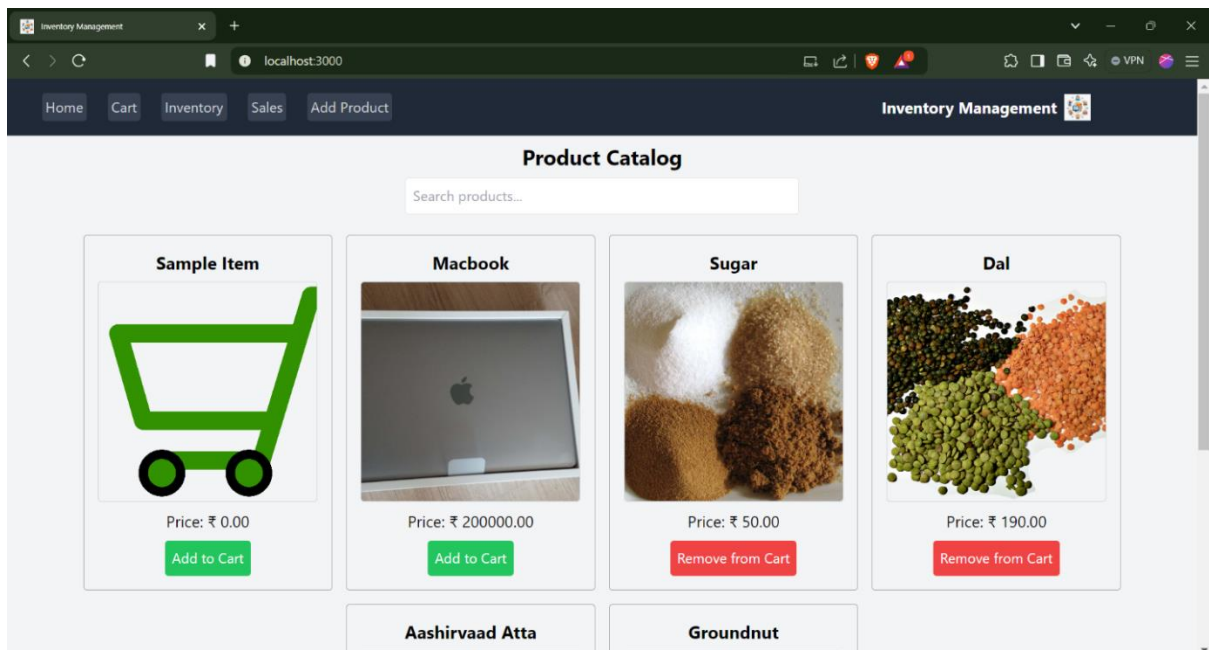
6. Running the Application

- To start the development server, execute the following command:

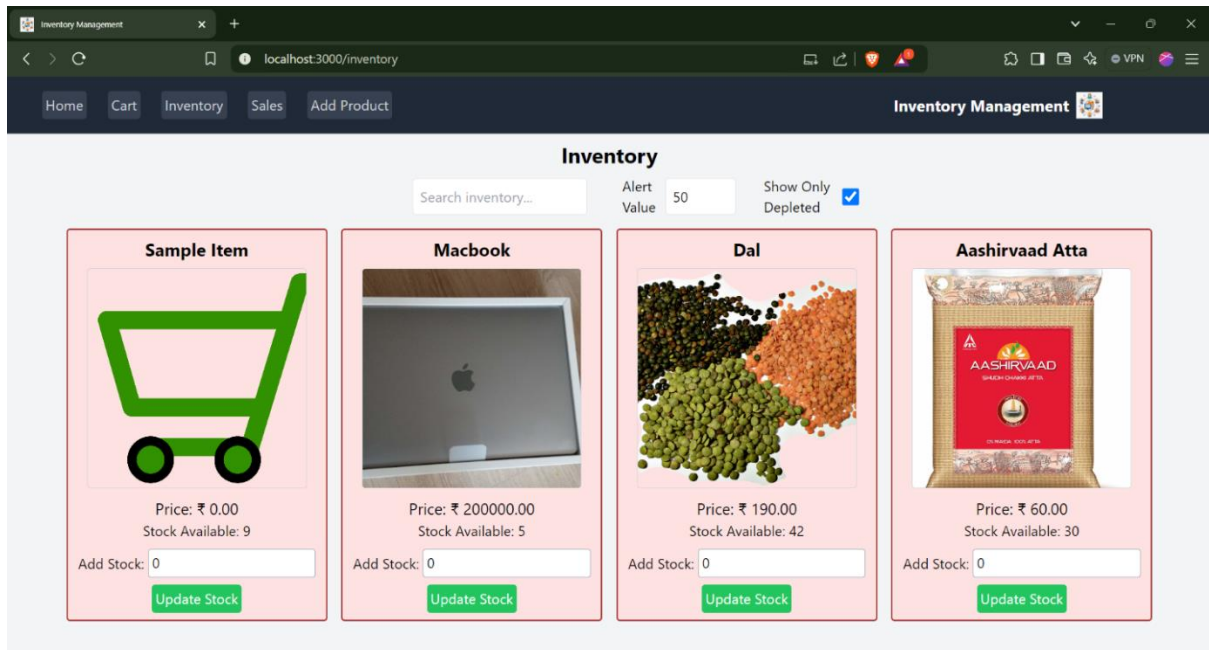
```
npm start
```

7. Screenshots or Demo

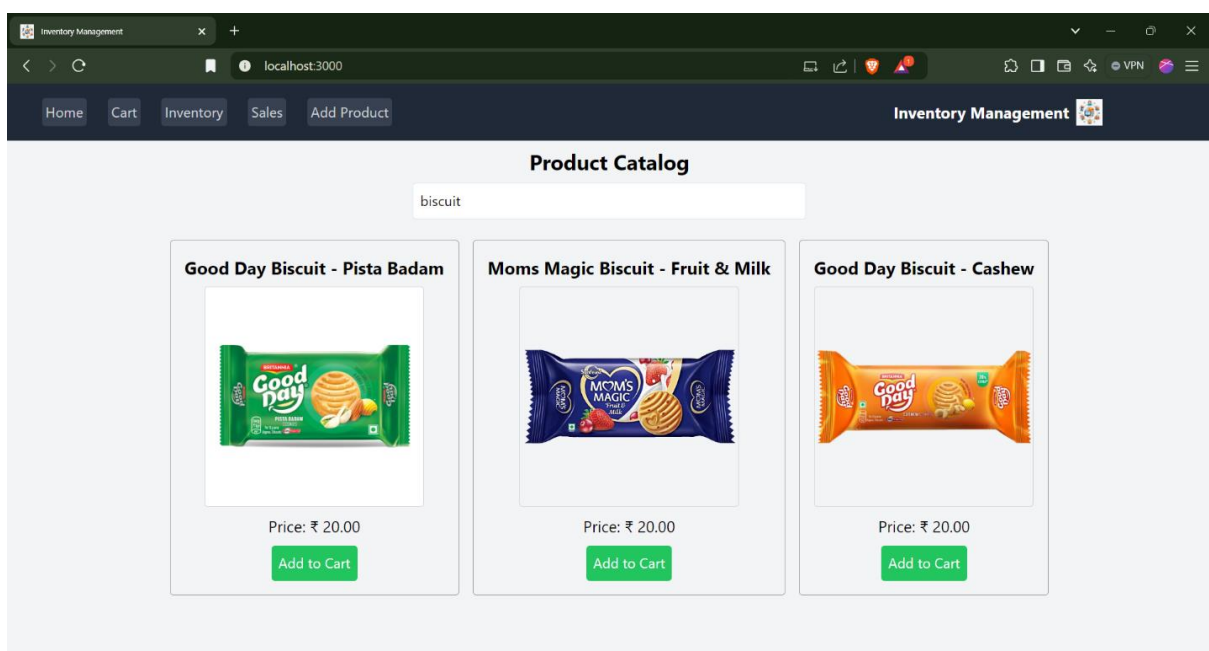
Product Catalog:



Deleted stock



Search Functionality :



Sales :

The screenshot shows the 'Sales Record' page of the 'Inventory Management' application. The browser address bar indicates the URL is 'localhost:3000/sales'. The application's navigation bar includes links for 'Home', 'Cart', 'Inventory', 'Sales', and 'Add Product'. The 'Sales Record' section displays three individual sales entries, each with a title, total value, and a list of items in the cart details.

Sale ID	Total Sale Value	Cart Details	Timestamp
Sale #1	₹100.00	Sugar (2) - ₹100.00	1/3/2025, 4:10:46 PM
Sale #2	₹4000000.00	Macbook (20) - ₹4000000.00	1/3/2025, 4:16:32 PM
Sale #3	₹650.00	Dal (2) - ₹380.00 Aashirvaad Atta (2) - ₹120.00 Sugar (3) - ₹150.00	1/3/2025, 4:45:37 PM

Add product :

The screenshot shows the 'Add New Product' form in the 'Inventory Management' application. The browser address bar indicates the URL is 'localhost:3000/add-product'. The application's navigation bar includes links for 'Home', 'Cart', 'Inventory', 'Sales', and 'Add Product'. The form is titled 'Add New Product' and contains five input fields for product details, followed by a green 'Add Product' button.

Add New Product

Product Name
Enter product name

Product Image URL
Enter image URL

Price
Enter price

Stock
Enter stock

Tags (comma-separated)
Enter tags, separated by commas

Add Product

Future Enhancements

- **Barcode/QR Code Integration**
 - Enable faster product scanning for sales and stock updates.
- **Supplier Management**
 - Track supplier details, automate reordering, and manage purchase histories.
- **Detailed Analytics & Reports**
 - Generate sales reports, profit analysis, and stock usage trends for better decision-making.