



PROJECT DOCUMENTATION

GROUP 33

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Project Documentation Authorization Memorandum

I have carefully assessed the Project Documentation for D4C Systems, Inc.'s E-Commerce Website Project. This document has been completed in accordance with the requirements of System Development Methodology.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

☒ The document is accepted.

☐ The document is accepted pending the changes noted.

☐ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

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10th January 2022
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1.0 GENERAL INFORMATION

1.1 Business Case

E-commerce is essentially the buying and selling of products or service over the Internet. With the rapid development of information technology, businesses are now able to conduct transactions across geographical boundaries, across time zones and at a high efficiency. It has sort of become the market trend of the century.

Life is fast paced these days. Odd working hours, hectic schedules and time constraints have changed how people shop. E-Commerce has become the preferred method of shopping for many people. It provides an easy way to sell products to a large customer base. The purpose of any e-commerce website is to help customers narrow down their broad ideas and enable them to finalize the products. The motivation boils down to a few key factors: a streamlined shopping experience, an appropriate number of choices along the way and social proof to boost confidence.

The economic prospects of an e-commerce store are very appealing. Many small local businesses usually just sell their products offline, which may not necessarily be always profitable. Selling products online allows these SMEs to tap a huge market of people who are willing to buy products & services from the comfort of their homes. But often times, it can be quite difficult for said businesses to find a service that satisfies all their requirements in a cost-effective manner. With the growing discontent of people towards big tech companies who provide e-commerce services, people look to support local businesses and order products from them. However, with quite many of them following an offline-only approach, it can be a bit difficult for the business to find customers and vice-versa. Our project aims to provide a general e-commerce website that is free for business owners to set up on their own while ensuring that it is easy to use for the customer as well as the business owner. A wide variety of features have been implemented in the website that improves the accessibility, efficiency and reliability.

A. Brief intro to our project

DFour-Commerce is an installable e-commerce app built using the MERN stack, Redux.js, Bootstrap 5 that specifically caters to independent business owners who have an offline presence and would like to take the next step and launch their businesses online. The app implements user authentication and PayPal payment gateways are integrated to provide payment options, and the it includes an admin panel to keep track of all products, orders and users.

- It has been built from scratch using the MERN stack with the client side using a redux store as well. Bootstrap 5 is used along with some custom styling.
- The client side uses React hooks along with Redux.js and redux-thunk middleware

-
- The server side is built using the express framework of node.js.
 - The database used to store the users, orders, products and refresh tokens is the free tier of the cloud-based MongoDB Atlas.
 - The user authentication and authorization has been implemented using the JSON web tokens (JWT), which are used to verify each new registered user.
 - The workflow for ordering the items is very simple and quick. The status tracker helps keep track of the number of steps left before placing the order.
 - The product page implements an image magnifier on hover.
 - The user can review a product only once, after the placing an order for it.
 - There is an admin panel built into the app, that can help the admin set any order as being delivered, and also allows the admin to add/update/delete any product.
 - The admin panel also provides information regarding all orders and users.
 - The app has a PayPal payment option and can accept payments from any PayPal account and the react-paypal-button-v2 is used in the client side to initiate the payment process, but the app still uses sandbox credentials, so you can make payments using any sandbox client accounts.

B. Features

1. Responsive Design

- Bootstrap 5 is used in the form of the latest version of react-bootstrap and a theme from bootswatch helps in maintaining a colour palette.
- Additional styling is included to format various smaller elements throughout the app.
- The app has been created using create-react-app and has opted in for using service workers.
- The Favicons are extracted with the help of Favicon.io
- The navbar is not built using the nav elements for toggling, instead it is rendered differently based on display classes offered by bootstrap.

2. Easy Workflow for Ordering Items

- The app has been designed and built in a manner that makes it very easy to order items once they are added to the cart.
- There is a status bar implemented that can help keep the user informed about the number of steps left in placing an order.

3. Admin Panel

- The admin panel view is meant to handle all the orders, products and registered users
- An order can be marked as delivered, after the user has completed the payment
- The admin can create a product for the shop, which makes it easier to add/remove more products to replicate a real-world e-commerce site
- The user's details can be altered, only by setting them as admin or not. Other than this, the admin cannot change any other detail about the registered user.
- Helps give an estimate of the total number of orders and users on the app.
- Visualizations in the form of pie charts have been implemented to give the administrator an easy overview of the inventory and stock details.

4. Miscellaneous

- The app makes use of react-helmet-async to add a custom HTML title for different pages.
- A user can submit a review for any product only if he/she has placed an order for the product, and hasn't already submitted a review.
- The cart page makes it very easy to alter the quantity of the products, and the cart size is indicated to the user at all instants.
- The product carousel in the home page fetches the top-rated products and provides the details.
- Pagination is also implemented to be server side rendered list of products/orders.

C. Installation

Installing required dependencies (frontend & backend):

This project requires some pre-requisites. The installation steps for the same are as follows:

```
npm install
cd frontend
npm install
```

Initializing environment variables:

Create a .env file in then root and add the following:

```
NODE_ENV = development
PORT = 5000
MONGO_URI = Your MongoDB Atlas URI (for this project:
mongodb+srv://fosablanca:group33%40d4c@cluster0.9pxa8.mongodb.net/d4com
m?retryWrites=true&w=majority)
JWT_SECRET = 'abc123'
PAYPAL_CLIENT_ID = Your PayPal Client ID (for this project:
AUqUkKRYn6jSo9rbRdtWmSIwGOEtM0UKdUz1D01oBXwWkmpY5NYI1j9VbbvLisbCXbqCqvL
_29Ila5vV)
```

Running the project:

```
# Run frontend (Port:3000) & backend (Port:5000)
npm run dev

# Run backend only
npm run server
```

Seeding the database:

The following commands can be used to seed the database with some sample users and products as well as destroy all data present in it.

```
# Import data
npm run data:import

# Destroy data
npm run data:destroy
```

D. Technologies Used

- **MongoDB Atlas:** It provides a free cloud service to store MongoDB collections.
- **React.js:** A JavaScript library for building user interfaces.
- **Node.js:** A runtime environment to help build fast server applications using JS.
- **Express.js:** A popular Node.js framework to build scalable server-side for web applications.
- **Redux.js:** A predictable & global state container for React apps.
- **Mongoose:** An ODM (Object Data Modelling) library for MongoDB and Node.js
- **JSON Web Tokens or JWTs:** A standard to securely authenticate HTTP requests
- **Bootstrap 5:** A popular framework for building responsive, mobile-first sites.
- **React Bootstrap:** The most popular front-end framework, rebuilt for React.
- **Multer:** Node.js package that help in dealing with file uploads.

END OF PROJECT DOCUMENTATION