**Real-Time Stock Dashboard**

**Overview:**

This project is a **Real-Time Stock Dashboard** built with:

* **Frontend:** React.js (with WebSockets & Axios)
* **Backend:** Node.js, Express, Socket.io
* **Stock Data API:** [Alpha Vantage](https://www.alphavantage.co/)
* **Styling:** Bootstrap

It allows users to:

* Fetch real-time stock prices.
* Subscribe to stocks and receive live updates via WebSockets.
* Toggle between light and dark themes.

**Project Structure**

stock-dashboard/

λ− frontend/ # React frontend

λ− backend/ # Express & Socket.io backend

λ− README.md # Project documentation

**Prerequisites**

* Node.js
* npm (Installed with Node.js)
* Alpha Vantage API Key (Sign up at [Alpha Vantage](https://www.alphavantage.co/support/#api-key))

**Step 1: Setup the Backend**

1. Go into the backend folder:
2. cd backend
3. Install dependencies:
4. npm install
5. Create a .env file inside backend/ and add:
6. PORT=5000
7. API\_KEY=YOUR\_REAL\_ALPHA\_VANTAGE\_API\_KEY
8. Start the backend server:
9. node server.js

Server running on port 5000

Client connected

**Step 2: Setup the Frontend**

1. Open a new terminal and go to the frontend folder:
2. cd frontend
3. Install dependencies:
4. npm install
5. Create a .env file inside frontend/ and add:
6. REACT\_APP\_API\_KEY=YOUR\_REAL\_ALPHA\_VANTAGE\_API\_KEY
7. Start the frontend React app:
8. npm start

Browser should open http://localhost:3000/ with the Stock Dashboard.

**Features**

* Search for stock prices using a stock symbol
* Real-time WebSocket updates
* Light/Dark Theme Toggle
* Previous search history displayed

**API & WebSocket Details**

* The backend fetches stock prices using Alpha Vantage API.
* WebSockets (socket.io) stream live stock price updates every 5 seconds.