USE CASES

**Use Case 1: User Authentication**

* **Actor**: User
* **Description**: Users log in or sign up to access their stock portfolio.
* **Preconditions**:
  + The user has a valid username and password (for login).
  + The system supports user signup.
* **Main Flow**:
  + The user provides login credentials (username and password).
  + The system validates the credentials.
  + Upon success, the user is granted access to their account.
* **Alternate Flow**:
  + **Forgot Password**: If the user forgets the password:
    1. They request a password reset.
    2. The system sends a reset link to the registered email.
* **Postconditions**:
  + The user is successfully authenticated or informed of invalid credentials.

**Use Case 2: View Portfolio**

* **Actor**: User
* **Description**: Users view the details of their stock portfolio.
* **Preconditions**:
  + The user is logged in.
* **Main Flow**:
  + The user selects the "View Portfolio" option.
  + The system fetches and displays the list of stocks, values, and overall portfolio performance.
* **Postconditions**:
  + The portfolio details are displayed correctly.

**Use Case 3: Edit Portfolio**

* **Actor**: User
* **Description**: Users add, update, or remove stocks in their portfolio.
* **Preconditions**:
  + The user is logged in.
* **Main Flow**:
  + The user selects the "Edit Portfolio" option.
  + They choose to add, update, or remove stocks.
  + The system validates the changes and updates the database.
* **Postconditions**:
  + The portfolio reflects the latest changes.

**Use Case 4: Fetch Reports**

* **Actor**: User
* **Description**: Users generate performance reports for their portfolio.
* **Preconditions**:
  + The user is logged in and has an active portfolio.
* **Main Flow**:
  + The user selects the "Fetch Reports" option.
  + The system generates a detailed report based on the portfolio data.
* **Postconditions**:
  + A report is displayed to the user.

**Use Case 5: Download Reports**

* **Actor**: User
* **Description**: Users download performance reports in a chosen format.
* **Preconditions**:
  + A report has been generated.
* **Main Flow**:
  + The user selects the "Download Reports" option.
  + The system prompts the user to choose a format (e.g., PDF, Excel).
  + The system downloads the report to the user's device.
* **Postconditions**:
  + The report is downloaded successfully.

**Use Case 6: View Stock Data**

* **Actor**: User
* **Description**: Users view current stock data to make investment decisions.
* **Preconditions**:
  + Stock data is available in the system.
* **Main Flow**:
  + The user selects the "View Stock Data" option.
  + The system fetches and displays real-time stock information.
* **Postconditions**:
  + The stock data is displayed.

**Use Case 7: Manage User Accounts**

* **Actor**: Admin
* **Description**: Admins manage user accounts, including adding, updating, or removing users.
* **Preconditions**:
  + The admin is logged in with appropriate privileges.
* **Main Flow**:
  + The admin selects "Manage User Accounts."
  + The system allows the admin to add, edit, or remove user details.
* **Postconditions**:
  + The user account changes are reflected in the system.

**Use Case 8: Manage Stock Database**

* **Actor**: Admin
* **Description**: Admins manage stock data, including adding, updating, or removing stock details.
* **Preconditions**:
  + The admin is logged in with appropriate privileges.
* **Main Flow**:
  + The admin selects "Manage Stock Database."
  + The system allows the admin to add, edit, or remove stock details.
* **Postconditions**:
  + The stock database is updated.

**Use Case 9: Stock Data Prediction**

* **Actor**: User
* **Description**: Users generate predictions on stock performance using machine learning.
* **Preconditions**:
  + A machine learning model is available in the system.
* **Main Flow**:
  + The user selects the "Stock Data Prediction" option.
  + The system runs the ML model on selected stock data and displays predictions.
* **Postconditions**:
  + Predictions are generated and displayed to the user.

**Use Case 10: Manage ML Model**

* **Actor**: Admin
* **Description**: Admins update or retrain the machine learning model to improve predictions.
* **Preconditions**:
  + The admin is logged in with appropriate privileges.
* **Main Flow**:
  + The admin selects "Manage ML Model."
  + The system allows the admin to update or retrain the ML model.
* **Postconditions**:
  + The ML model is updated.