

Stock Portfolio Management System

This is a Spring Boot-based Stock Portfolio Management System that allows users to manage their investments, track their holdings, and get real-time updates. The project integrates with Swagger for seamless API documentation and testing.

Project Objectives

- Manage user registration and authentication .
 - Track stock holdings and portfolio performance.
 - Enable buying and selling of stocks through the API.
 - Set price alerts for specific stock symbols.
 - Document and test APIs using Swagger UI.
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Tech Stack

Layer	Technology
Backend	Spring Boot
ORM	Spring Data JPA (Hibernate)
DB	MySQL (configurable)
Docs	Swagger (Springfox)
Build Tool	Maven
Testing	JUnit

Features

- User Registration & Login
 - Portfolio Management (Buy/Sell stocks)
 - Alert System for stock price changes
 - Database integration using Spring Data JPA
 - Unit testing with JUnit
 - Scheduled background tasks
 - API documentation with Swagger UI
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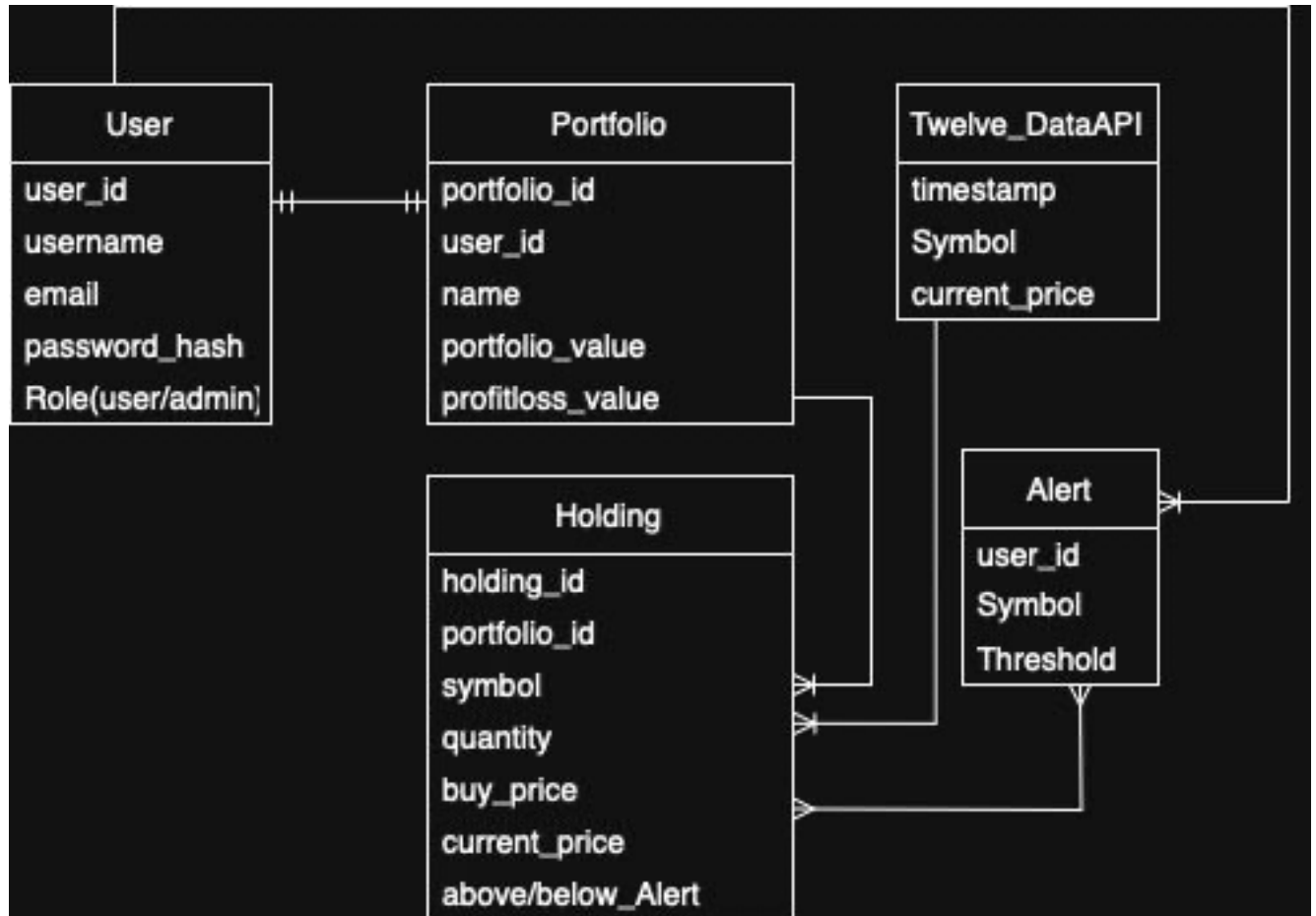
Project Flow

1. **User** interacts via Swagger UI .
 2. **Controller Layer** handles HTTP requests.
 3. **Service Layer** processes business logic.
 4. **Repository Layer** interacts with the database.
 5. **Entity Layer** maps to DB tables.
 6. **DTOs** carry structured data.
 7. **Scheduler** performs timed tasks.
 8. **Utilities** support reusable operations.
 9. **Exception Handling** ensures clear errors.
 10. **Swagger Config** provides UI for API testing.
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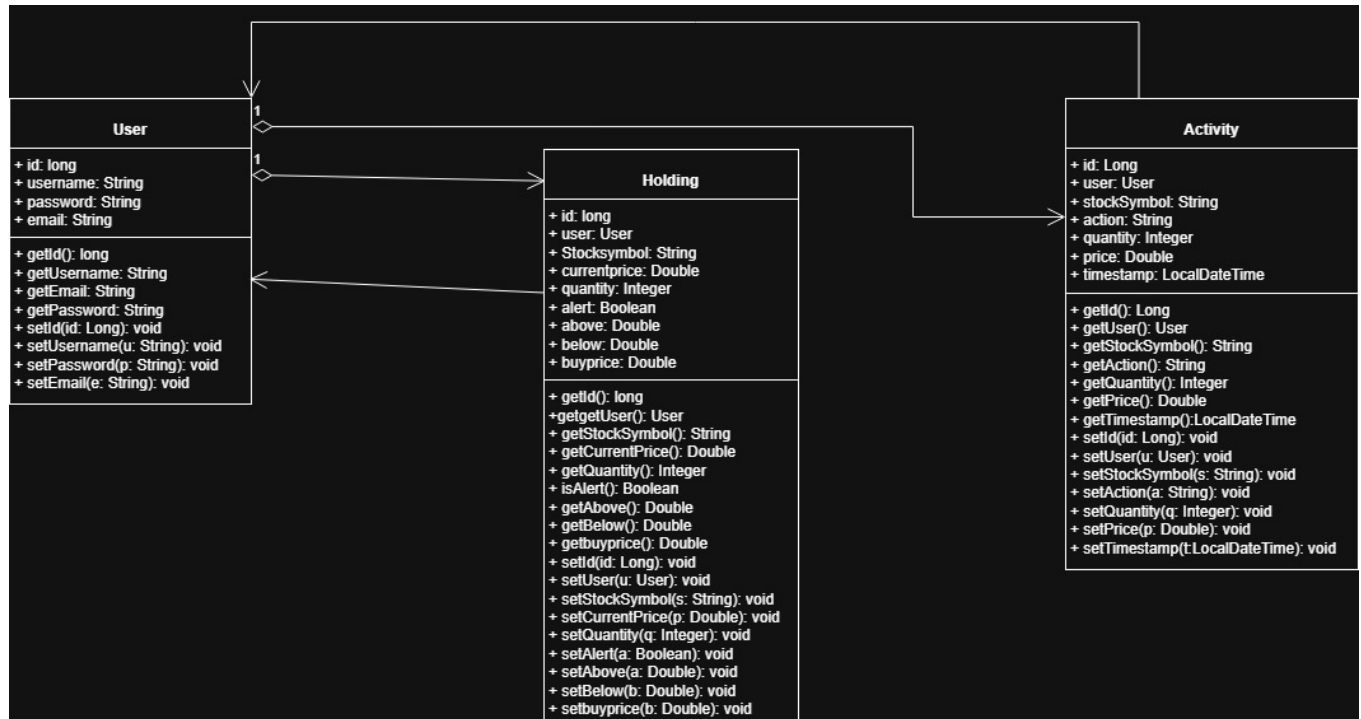
Key Modules

1. **User** – Represents the registered individual using the portfolio management system.
 2. **Portfolio** – Aggregates a user's stock holdings and tracks overall investment performance.
 3. **Twelve_Data_API** – Integrates with the external Twelve Data API to fetch real-time stock prices.
 4. **Holdings** – Stores information about stocks owned by a user, including quantity and purchase price.
 5. **Alert** – Allows users to set notifications for stock price targets or conditions.
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ER Diagram



Class Diagram



Project Structure

```
Stock-Portfolio/
├── src/
│   ├── main/java/com/stockportfolio/
│   │   ├── controller/
│   │   ├── service/
│   │   ├── repository/
│   │   ├── dto/
│   │   ├── entity/
│   │   ├── exception/
│   │   ├── config/
│   │   ├── util/
│   │   └── scheduler/
│   └── resources/
├── test/
│   └── java/com/stockportfolio/
├── pom.xml
└── README.md
```

API Documentation

Once the application is running, access the Swagger UI at:

`http://localhost:8080/swagger-ui/index.html`

1. Mail Controller

`POST /mail/send` – Send an email.

2. User Controller

`POST /api/register` – Register a new user.

`POST /api/login` – User login.

`POST /api/holdings/sell` – Sell holdings.

`POST /api/holdings/buy` – Buy holdings.

`GET /api/holdings/portfolio/{userId}` – Get portfolio details of a user.

`GET /api/activity/user/{userId}` – Get user activity.

3. Alert Controller

`POST /alert/update-price/{id}` – Update alert price by ID.

`POST /alert/toggle/{id}` – Enable or disable an alert by ID.

How to Run

1. Clone the repository

```
git clone https://github.com/your-username/stock-portfolio.git
cd stock-portfolio
```

2. Build the project

```
./mvnw clean install
```

3. Run the app

```
./mvnw spring-boot:run
```

Authors

- Vishal Umasankar U
 - A Harish
 - Karthikchidambaram
 - Sudarsan S
 - SibiSugan K
 - P Jayarama Surya
 - Utkarsh Upathyay
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