# Portfolio Management System

Amber House Team 4 LittleBankXA



### Team Members











**C Kelvin Chang** 

**O Richard Wang** 



Database & Backend

System
Architecture &
Frontend

API Integration &Backend

Frontend & Testing

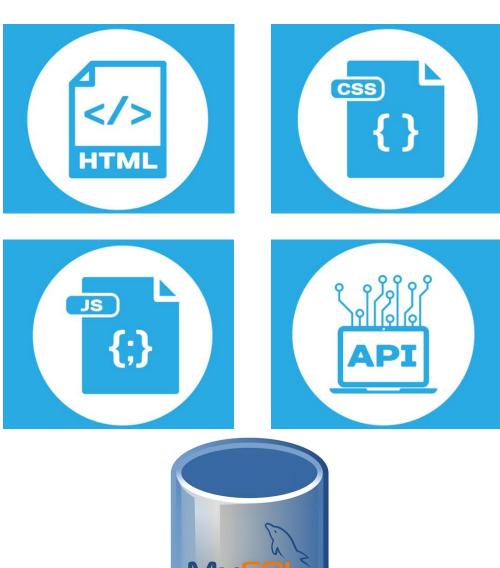
## Project Introduction

- Goal
- Develop a financial portfolio management web app.
- Manage stocks and bonds portfolios.
- RESTful API backend; responsive web frontend.
- Real-time asset tracking, trade simulation, interactive charts.



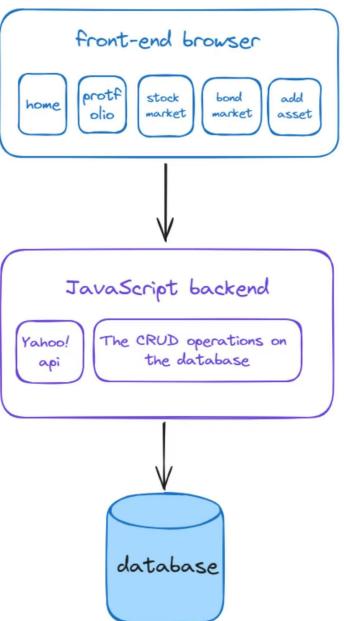
# System Flow

- 1. Frontend: HTML/CSS/JS interface.
- 2. API Requests: Fetch API calls.
- 3. Backend: Node.js (Express.js) processes requests.
- 4. Database: MySQL CRUD operations.
- 5. External Data: Yahoo Finance API integration.
- 6. Response: JSON data updates UI dynamically.



# System Architecture

- Three-Tier Architecture
- Presentation Layer:
   HTML/CSS/JavaScript
- Application Layer: Node.js,
   Express.js, REST API
- Data Layer: MySQL database



## Database Design•

#### portfolio\_history

id: INT PRIMARY KEY

 $user\_id:INT\;FK$ 

date : DATE

total\_value : DECIMAL(15,2)

#### user

id: INT PRIMARY KEY

username :VARCHAR NOT NULL

total\_assets : DECIMAL(15,2)

stock\_value : DECIMAL(15,2)

bond\_value : DECIMAL(15,2)

cash\_balance : DECIMAL(15,2)

total\_return\_rate: DECIMAL(15,2)

created\_at : TIMESTAMP

#### portfolio

user\_id : INT PRIMARY KEY FK

asset\_type : ENUM('stock', 'bond', 'cash')

asset\_id : INT FK

quantity: DECIMAL(10,4)

purchase\_price : DECIMAL(10,2)

purchase\_date : DATE

status: TINYINT

#### stocks

id: INT PRIMARY KEY

symbol: VARCHAR NOT NULL UNIQUE

name: VARCHAR

current\_price: DECIMAL(10,2)

change\_percent: DECIMAL(5,2)

volume: BIGINT

market\_cap: BIGINT

created\_at : TIMESTAMP

#### bonds

id: INT PRIMARY KEY

symbol: VARCHAR NOT NULL UNIQUE

name:VARCHAR

face value: DECIMAL(10,2)

coupon\_rate: DECIMAL(5,2)

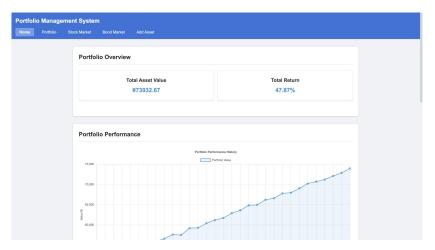
maturity date: DATE

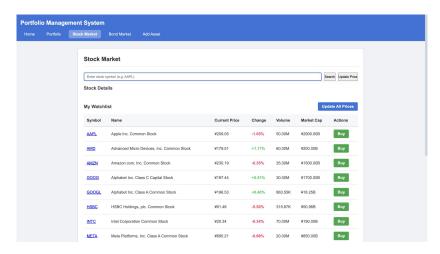
current price: DECIMAL(10,2)

change\_percent: DECIMAL(5,4)

updated at: TIMESTAMP

# Application Screenshots







### **Portfolio Detail View**



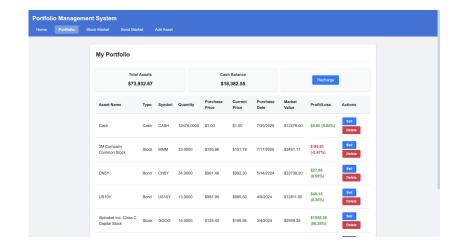
### **Historical Chart**

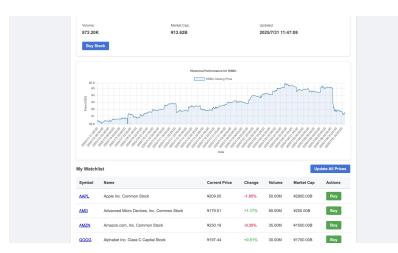




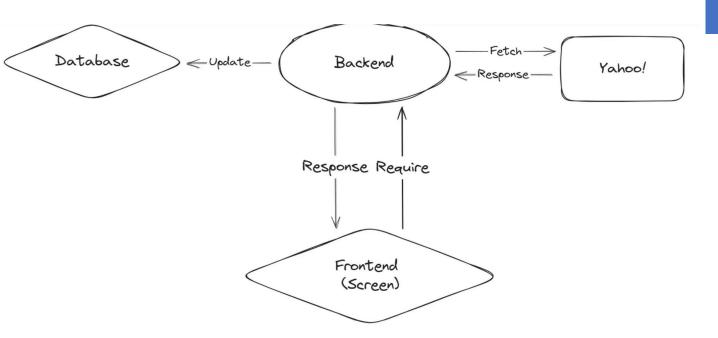
### **Stock Market Page**





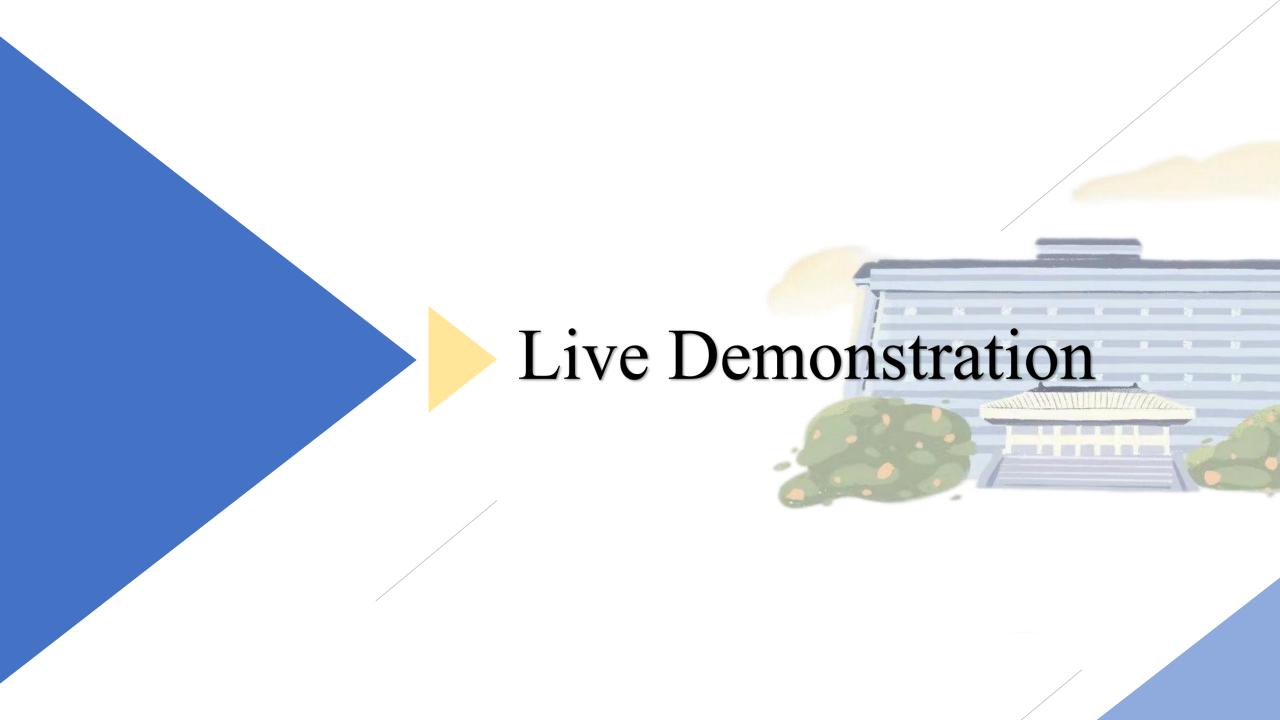


### Call The External API

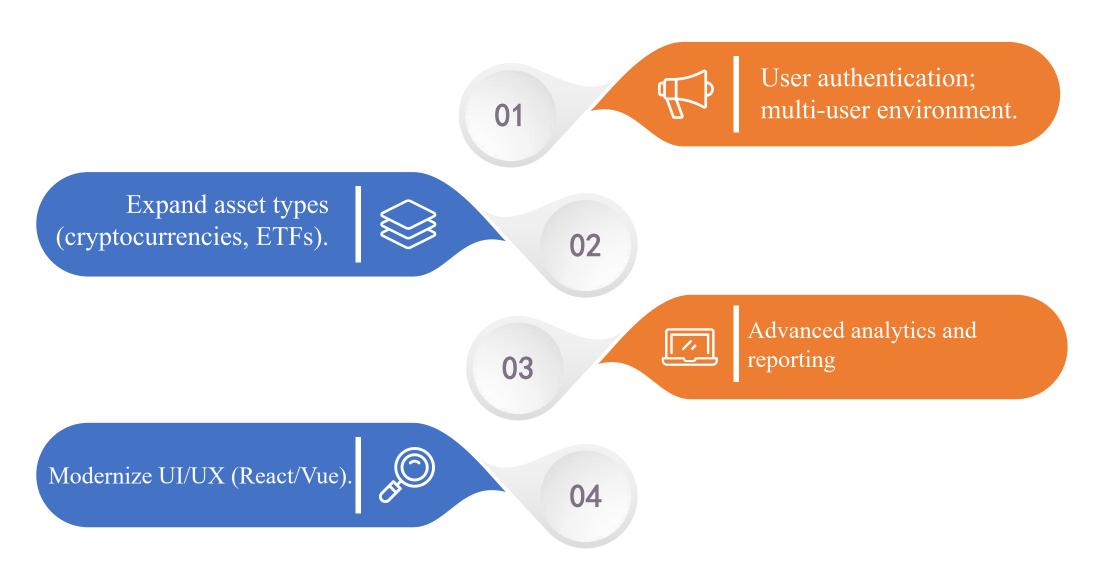


#### Yahoo Finance API

The Yahoo! API delivers global financial market data covering stocks, bonds, forex, and cryptocurrencies, including real-time quotes, historical data, and financial statements.



# Conclusion & Next Steps



# Thank you!