

Portfolio Manager

*Bhanu Pratap Yadav, **Anisha BS

*Information Science, RV College of Engineering, Bengaluru

Email: bhanupy.is18@rvce.edu.in

**Information Science, RV College of Engineering, Bengaluru

Email: anisha@rvce.edu.in

Abstract:

Portfolio management is the process of managing money. Other terms commonly used to describe this process are investment management, asset management, and money management.

Professional portfolio managers rely to varying degrees on portfolio analytics for identifying investment opportunities, keeping portfolios aligned with investment objectives, and monitoring portfolio risk and performance which organizations must embrace in order to extract the maximum value from their project investments. [1]

The portfolio manager assists clients by analyzing their stock portfolios and making buy/sell recommendations. [2] Portfolio analysis can be very time-consuming. With the number of clients growing at a rapid rate, portfolio managers need tools to help analyze client portfolios efficiently. [3]

Keywords—Absolute return, Annualized return, Tingo , JSON.

I. INTRODUCTION

Portfolio manager is a portfolio analyzer to visualize stocks of multiple traders. will be building a stock analyzer tool for portfolio managers to help them manage their clients trades. The Spring framework is used to build the Java backend for Portfolio manager. [4]

The frontend, on the other hand, is written in React- a JavaScript framework. It is not uncommon in web-based applications to have the frontend and backend written in different languages. In order to communicate seamlessly between the frontend and backend, a standard data interchange format is hence required.

JSON is a popular text-based format used by machines to achieve this. Working with JSON is made simpler in Java by using the Jackson library. It helps translate data between different formats. Jackson’s ObjectMapper class can be used to map Java objects to JSON (this process is called serialization) and back (deserialization). [5]

• Absolute return — It is the module which outputs

the tells about how much you have gained or lost since the purchase of a particular stock. [6]

• Annualized return — It is a module from which will be tested for return which is compounded over a period of time to give you the annual gain year after year. [7]

Contributions: In this paper we make the following contributions :

- Build the Portfolio Manager back-end from scratch and implemented comparisons based on profit. [8]
- Created UI for better view of stocks in descending order.

II. DOMAIN KNOWLEDGE

A. Spring- It is one of the most famous frameworks for developing applications in java. It makes J2EEE development easy by enabling POJO based programming. It is very lightweight and supports various other frameworks such as Struts, Hibernate, Tapestry etc.[9]

III. DESIGN AND ARCHITECTURE

B. Spring Boot- Spring Boot is an open source Java-based framework used to create a micro Service. It is developed by Pivotal Team and is used to build stand-alone and production ready spring applications. [10], It's basically used to create standalone applications that can directly run without relying on any external web services.

C. Jackson- It is a very popular and efficient java based library to serialize and map java objects to json and vice -versa, It provides a high level facade to simplify commonly used use cases. It provides default mapping for most of the objects to be serialized.

D. Junit- JUnit is a unit testing framework for the Java programming language, It has been important in the development of test-driven development and is one of a family of unit testing frameworks collectively known as x-Unit, that originated with JUnit.

It is basically a creative procedure which includes the description of the system organization, and establishes that it satisfies the functional and non-functional system requirements. The detailed design of modules which are designed in the stock and the responsibilities of the module input and output of the module and their dependencies and different elements. [11] [12]

A. Javascript- The Portfolio manager application will be built using java, the Portfolio Manager takes the JSON and parses it and then runs through to convert text. This is a long process and takes time. Downloading the json file will also take time since the data is collected from the internet. So, the possible evaluation metrics can be done easily.

B. Visual Studio- IDE used for developing the project. It includes testing framework where the testing can be done easily, a sample graph generated for a particular user for different stocks symbols over a period of time. This graph can be used analyze how the stocks are performing for sort term and in long run like 5 years and compare it.

C. GitHub- It is used for code maintenance Different industries will use different coding conventions based on the languages used for developing and the company's practice.

D. Coding Conventions- Different industries will use different coding conventions based on the languages used for developing and the company's practice. These coding conventions will increase the readability of the code and helps in maintaining the code and adding tools in future

E. Spring boot- It is one of the most famous frameworks for developing applications in java. It makes J2EEE development easy by enabling POJO based programming, It is very lightweight and supports various other frameworks such as Struts, Hibernate. [9] Spring framework provides templates so setting up the projects is easier and are loosely coupled because of dependency injection.

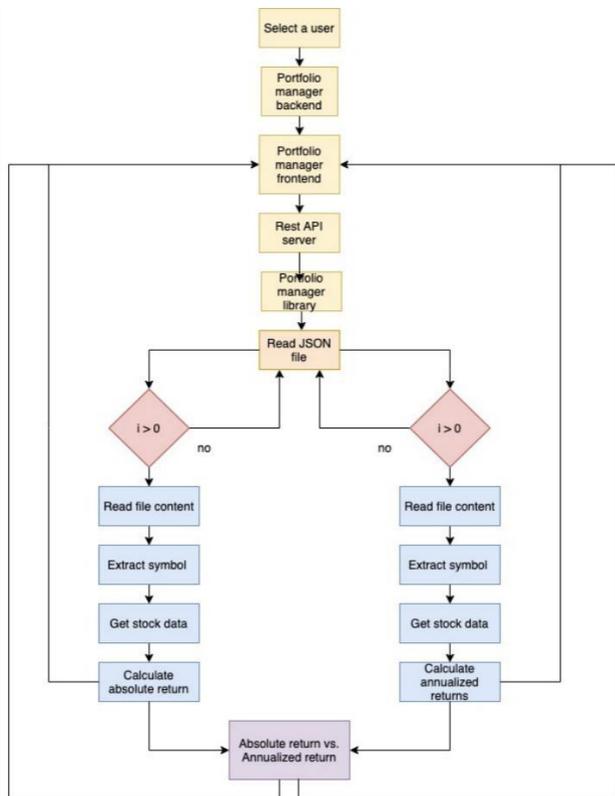


Fig. 1. Flowchart:- the flowchart of data flow in Portfolio Manager

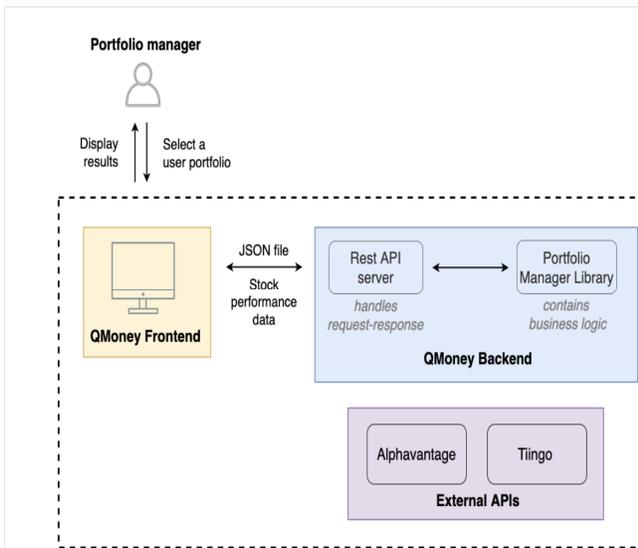


Fig. 2. High Level Design of the Portfolio Manager which shows the proposed system.

The comparison [13] between absolute and annualised returns which is calculated on short term and long term basis. [6] Absolute return is the profit that tells how much you have gained or lost since the purchase of a particular stock. [7] The Annualized return is compounded over a period of time to give you the annual gain year after year. [14]

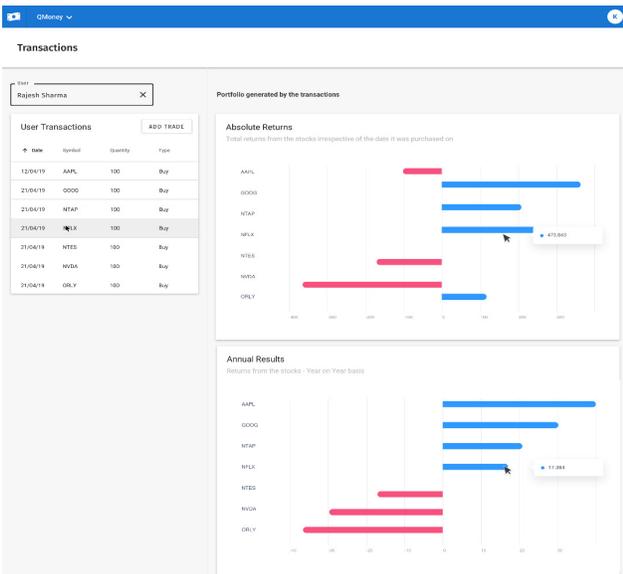


Fig. 3. Absolute return and Annualised return comparison.

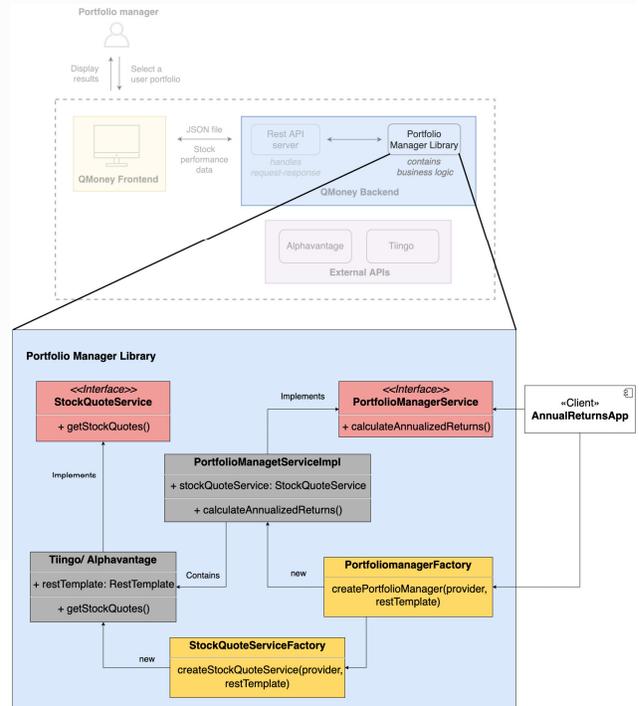


Fig. 4. Detailed design of the proposed system with the internal communication.

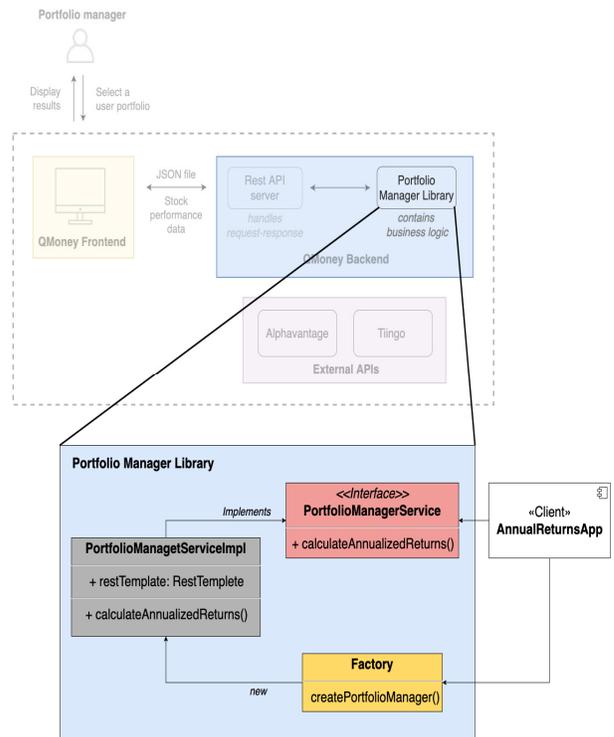


Fig. 5. Detailed design of the proposed system.

```

"symbol": "GOOGL",
"quantity": 50,
"tradeType": "BUY",
"purchaseDate": "2019-01-02"
}
}
<response [200]>
{
  "name": "Annual",
  "annualizeReturns": [
    {
      "symbol": "MSFT",
      "annualizeReturn": 0.5073118070837384,
      "totalReturns": 1.822581255559427
    },
    {
      "symbol": "GOOGL",
      "annualizeReturn": 0.4320017053092617,
      "totalReturns": 1.479396763239874
    },
    {
      "symbol": "AAPL",
      "annualizeReturn": -0.024856657863372743,
      "totalReturns": -0.85971980114920367
    }
  ],
  "calculationDate": "2021-07-13"
}

```

Fig. 7. Absolute and Annualised return in JSON format.

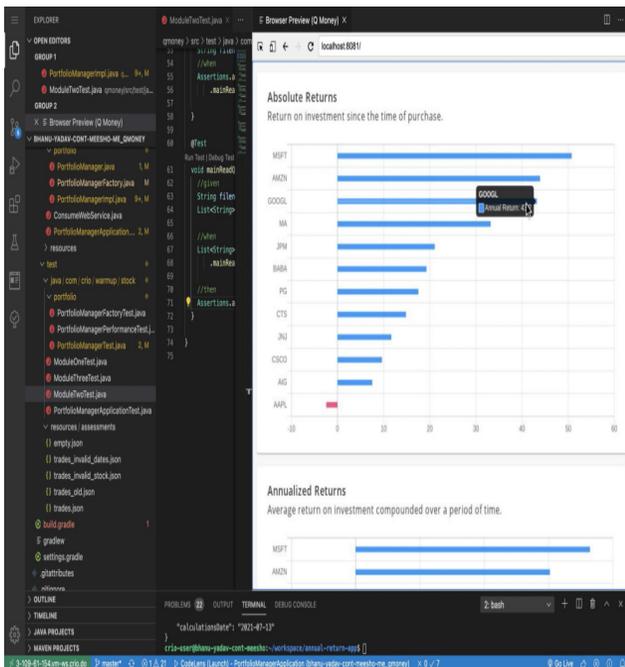


Fig. 8. Absolute and Annualised return in descending order of profit.

IV. CONCLUSION

Portfolio Manager is an web application program that functions within a time frame that the user senses as immediate or current. The latency must be less than a defined value. The Portfolio Manager shows stocks of a user and by going through this a user can understand how the stocks are performing

[14] on a sort term and on a long term. The application is built using spring-boot, it's an application framework that helps to build Java stand-alone applications with all bells and whistles really fast. The application uses Tingo API to collect stocks symbols and Rest-Assured helps to get the API requests. Suggestion based on past transaction will be sent to help the user to invest in continuously profit giving stocks. [15]

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