Capital Gain

Requirement

Design a software solution to calculate capital gains tax for a specified period from the provided transaction data. The design must make use of solid design principles. Unit testability is a key concern here. Document the MVP system test cases to validate your design/solution. State any assumptions made, spell out the NFRs and callout any limitations of your design

Solution

Approach

Creating a web application using spring-boot java.

Service Layer

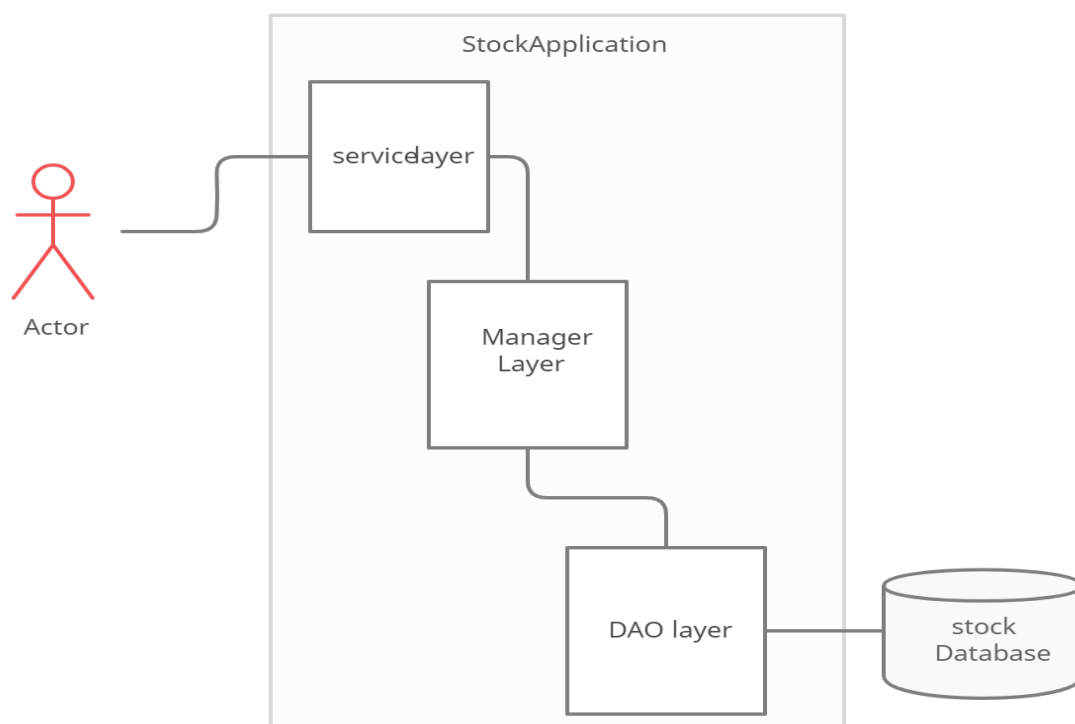Service layer will provide the number of end-points to perform different request.

Manager Layer

This is the main layer who will contains all the business logics. And responsible to communicate with DAO layer.

DAO Layer

As we need to communicate with database so introduce DAO layer where only DTO objects can transit and this class will perform direct database query using JDBC Template.

Approach Diagram

Service Information

URL	Parameters	Status Code	Response
/stock/{fy}	Path Param: fy Ex: 07-08	200 – Ok 400 – Bad Request 500 – Internal Service Error	Json Object with transaction details. Ex: [{ "dateOfTransaction": "2007-04-02 13:00:00", "stock": "CETFNI", "type": "Buy", "price": 1966.0, "quantity": 3 }]
/stock/profit/{fy} Or /stock/loss/{fy}	Path Param: fy Ex: 07-08	200 – Ok 400 – Bad Request 500 – Internal Service Error	Double value for price Positive value means Profit and Negative means the loss. Ex: 15465.539999999997

Appendix

Used Technology

Sr No	Technology	Version
1.	Java	1.8
2.	Spring-boot	2.5.4
3.	Postgres	42.2.23
4.	TestNG	6.8.21
5.	H2	1.4.200

FAQ

How To change database

Change database properties in "application.properites" file.

Location: capital-gain/src/main/resources/application.properties

Property Key	Sample Value	Description
spring.datasource.driverClassName	org.postgresql.Driver	Drive class for database connection.
spring.datasource.url	jdbc:postgresql://localhost:5432/all	URL of database.
spring.datasource.username	Username	Username for database credential
spring.datasource.password	Password	Password for database credential