

Advanced Software Engineering Topics

Inception Phase Report for Spondulator

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Artifacts of Inception Phase Report: -

1. Vision and Business Model:

- The high-level goal is to develop a stock market learning tool using which users will be able to learn and experience the stock market in a virtual environment.
- By doing so, the users will gain more confidence and knowledge in the real-world stock market without investing the real money.
- The high-risk involved in developing the application is a lack of technical knowledge. That is the timeline feasibility to learn and integrate the cloud functionality in the system. Moreover, the business case of the application is to develop the tool mainly for students of high school.

2. Use Case Model:

The functional requirements for the system to work correctly and efficiently are as follow:

- The users can get the information on any stock in real-time.
- The system will give the users initial virtual money using which they can buy and sell the shares, and also display the calculated profit or loss on the total committed money by the user.
- The system will also display the record of transactions to users.

3. Supplementary specification:

The following are the key non-functional requirements that can impact the architecture of system:

- The system should abide by the legal and regulatory requirements, and thereby meeting the application standards.
- The system should support and perform well when more people try to access the system concurrently.

- The look and feel of the application should be user friendly, and it must be responsive in nature by adjusting content to different screen sizes.

4. Glossary:

- It will contain different terminologies used in the stock market such as portfolio, virtual money, bull market, bare market, volatility.
- It can be used to develop tables in a database and user-interface of software.

5. Risk List and Management Plan:

Every project has risks. The projects become successful only when they recognize the risks and handle them head on. In this project, the risk that can occur is that a hacker can manipulate the database by injecting the malicious code into the URL. Such kind of SQL-injection attack can be prevented by clearing out using special characters in the user's input. When we allow multiple users to access the system at the same time, then it may result into a race condition problem and thus the performance of the system might degrade. This risk can be prevented by using the concept of SQL transactions which will help to lock the database and thus, the system will allow only one user to access the database at a given time.

6. Prototypes and proof of concepts:

It is simple yet conceptual architecture that clarifies the vision and determines the feasibility of the system, and thereby helps mitigating the risks involved in the inception phase only.

The link to prototype developed is: <https://sonikalpit.github.io/Spondulator/>

7. Iteration Plan:

The Iterative plan shows the list of activates and tasks that are to be done in a specific period of time. In this project, the high priority features which are required to be developed are as follows:

- Authentication (login and logout)
- Users can buy/sell the stocks by examining the current and past stocks using virtual money.
- Always allow the users to access the application

8. Phase Plan and software development plan:

- In this phase of activity, all the requirements which are essential to carry out the project will be gathered. The phase wise plan will also be prepared in order to decide the set of activities to perform in each task.
- To commence, as the core requirements are to have authentication, provide a virtual platform to the users to play with, and using API to fetch data and show the past trend. At this phase, new technologies, tools or methods such as, how to connect the application to API, how to make virtual environment as easy as possible for end-users and last but not the least, to ease the development, Django will be used and developers need to get the idea about this framework, how to use Postgres database or any other tools to complete these requirements will be learned.

9. Development Case:

This phase describes the actual development process will be chosen to be followed for the entire project. However, it is not stable, it gets updated by customizing UP steps to refine the process such as adding or removing some activities if they are not worthy.

- It mainly focuses upon the next steps to carry out to proceed with the project.
- To be more clear, who will be responsible for developing front-end?
- Who will design the database and other diagrams?
- Who will implement business logic and connect the front-end to back-end?
- And many more activities will be discussed and their performers as well.

The list of tasks objective will be prepared and responsibility will be assigned to the project team.