

Project Management Plan

1 Group member Contribution:

Name	Idea Creation	Report Writing
Siddhartha Srinadhuni	25%	25%
Pratheek Vasireddy	25%	25%
Vinay Kumar Vennu	25%	25%
Akshay Jilla	25%	25%

Table 1: Group member's Contribution

2. Introduction

2.1 Investment Banking Industry (IBI)

The investment banking industry is not anything new to the global markets. IBI has been existing since the 18th century and the origin marks in Atlantic trade importing commodities that European and mostly English manufacturers required.

- They are full service firms which provide technical trading businesses and have only attained the importance that they have, in the 1980s To give insights as to how globalized IBI is, recent studies have shown [1] that national investment banking lobbies have been setting up in Sweden, UK, France and Italy and aim to create a single financial services market across all of Europe.
- With vision that big, the IBI groups have been very keen on developing an independent management team in Europe [2].
- The investment banking industry has their relevant firms/clients that engage in activities relating to selling, distributing and issuing of securities. The functions of IBI also includes cutting edge features like providing merger and acquisition advisory services and other research coverage [3].

IBI have been subjected to exponential changes over the course of time. The current fashion of investment banking has also been changing [3].

2.1.1 Role of IBI

The traditional role of investment banking is to underwrite initial public offerings and other roles such as Sales/trading, Strategic advisory, Forecasting and other dynamics which play a rather prominent role in a financial spectrum [4] [5]. These roles have been evolved and now are the basic primary functions of the tools, of the respective enterprises.

2.2. Description of the system:

Developing an integrated and a sophisticated platform with regards to investment banking is our project plan. This system, has a potential to replace a human banker and thus resulting in saving various resources with implementing the same or rather, enhanced security. We, for the starters have aimed to help different stakeholders to make the right decision whilst investing in an asset. As we are considering to develop this platform for an investment bank, the users can purchase it off of the enterprise portal.

2.2.1. Scope

This document gives an overview as to how we plan way forward to develop the one-of-a-kind product. The features of the investment and trading platform include managing wealth, sales and trades and electronic trading. These features' objectives are to aid the users with users to manage their financial assets

and securities from the scratch. Apart from customer satisfaction, our primary aim is to enhance the management of financials of the customer.

Additionally, this document also briefs about the software development life cycle that we plan to use to develop the product. The functionalities of the features have also been clearly mentioned. In order to give insights, we have portrayed a Gantt chart to show the development over a course of time. Furthermore, quality assurance criteria and the risk management plan have also been defined in the latter parts of the document.

2.3 Goals and Objectives

Goal:

To cater the individuals with a user friendly platform that can manage every investment an individual makes thereby enhancing her economic stability.

Objectives:

- Apart from a user friendly environment that helps the user to navigate through the web application, our objective is also to provide the user with a set of options to meet their requirements.
- For instance, the user is free to navigate between our features such as electronic trading, forecasting earnings, wealth management and other generic features.
- Congregate the feedback from the customer to make sure that our product is actually meeting their requirements.
- Furthermore, another objective is to make realistic effort estimation for the features of the product using planning poker depending on the complexity of the task and the client's value
- Segregating the tasks for the implementation of the product's features between three sprints to form the sprint backlogs.
- The above mentioned objectives are done on the basis of the prioritization of the customer, estimation of efforts, time, technologies and the market.
- Incorporating a quality criterion to regulate the product's quality and enhancing it over the course of time marks the end of our objectives

2.3.1 Project Deliverables:

- Web Application. Typically, a web portal, hosted online.
- Project Management Plan: Depicts as to how our product is taken its shape, over the given time. Emphasises mostly on requirements, Risk management plan and the quality assurance criterion

3. Stakeholders

The diversified stakeholders identified for the investment banking system are as follows: Government, rating agencies, marketing and communication(media), clients, investors, developers, testers, customers, analysts, software development team, software project management team, UI designers, brokers, financial advisors, peer banks, fund managers and stakeholders [6]. Out of all the stakeholders, the key prominent ones, their claims and advocacies are described below.

1. **Government:** The government is one of our prime stakeholders and its influence on our system depends on the gratification of the rules and regulations imposed by the governing body. Our system needs to be transparent and should adhere the rules and regulations. The formulated policies should have transparency in terms of agreement with the stakeholders such as investors, customers and clients. By satisfying the above needs government may offer tax and other financial incentives which aids our system. Pristine Transparency of our system ensures the speed-up of debt negotiations. Due to several reasons such as inadequacy in policy makings, false claims in

terms of taxes and informal negotiations with peer banks and companies may negatively affect the system [7].

2. **Media and communication:** The influence of media on our system is of two folds. The propaganda of our system to the public is achieved due to media which increases the reputation of our firm which attracts more investors and companies. This is achieved by providing information and hosting interactive events, press releases via trade channels and social networking platforms. Involvement of media provides strong potential and positive influence on our system.
3. **Investors:** Investors are the backbone of our system, their influence is the same as the above one both positive and negative. The framed policies and wealth management structure should be viable to an investor and should be negotiable while acquisition and merging of different companies. This incorporates the rise of stake in trading and acquisition while leads to the positive impact in our system. Modification and transition of the policies in accordance to the pitch of the investors will reduce the negative impact of the investors on our system.
4. **Clients:** The clients of our firm should be provided with adequate information of the sales and trading aspects of our firm. The briefing on the wealth management and further trading aspects should be vivid and negotiable with the clients satisfying their needs. Our system should not be hesitant in informing the clients about the future state of the present shares and by providing incentives by instituting feasible subscription periods will create a positive impact on our system.
5. **Software project management team:** The software project management team is liable in recruitment of the management team which is responsible for resource allocation, budgeting and time allotment which comply the practice of agile scrum principles. The prime focus of the system is to satisfy the requirements in given time and budget adhering to the customer needs and satisfaction. The effectiveness in implementation of the above principles ensures the positive impact on our system.
6. **Scrum team:** The Scrum team is responsible for determining the quality attributes of the system. The team ensures reliability and maintainability, when new features and add-on modules are added to the system, which are feasible and applicable to the system in accordance to the requirements which are pristine and vivid. The clear functioning of the above aspects ensures positive impact on our system. Inadequacy in implementing the complex attributes of the features and lack of team management will lead to the negative influence of our system.

4. Product Backlog

Putting forth the product backlog features has been our high priority since the first meeting the group has had. After defining the scope of the project, prior to the first sprint, planning regarding the features that have to be integrated has started. These features have specifically designed to meet the customer and stakeholders' requirements triangulating every perspective possible. The scrum development team has taken it forward by deriving the information from our stakeholders and implementing them in the form of the user stories starting from the highest priority, in the sprint planning. Below in the table given to portray the project backlog along with the user stories and their rationales.

Features	User Story	Rationale
<i>Feature 1:</i> Strategic Advisory	The investment banking platform would need a reliable strategic advisory feature which would help the customers and other stakeholders navigate through the firms which are available for	If a firm arbitrates to acquire another firm depending on company valuation in the market, share prices, trends in the market and the market sentiment, this feature helps the stake holders to derive useful insights as to which firm is relevant and

	acquisition. This feature acts as a medium to help the customer finalize the purchase price, strike a deal and usually makes sure to have a smooth transaction.	likely to yield profits. Hence this is our prime motivation behind implementing this feature.
<i>Feature2: Capital Raising</i>	This platform will also require capital raising as a priority feature. For raising capital, purchasing the bond offering and looking for buyers in the markets, through predictive analysis [8] is implemented. The complete risk is assumed by this platform and hence does not question the reliability [9]	Predictive analysis is chosen for implementation of this feature. Adopting the available big data analytics so that huge quantities of information can be processed with less or rather no human involvement. This enhances and empowers the firms to make better analysis of the options available for raising the capital [8]
<i>Feature3: Electronic Trading</i>	The trading systems in the investment banking platform, tracks the markets for better prospects of the stakeholders. This feature has a Financial information eXchange [FIX] [10] protocol integrated using direct market access to enhance the delivery of trading applications	The basic functionality that can be expected from an IBI is to trade the shares and this is implemented by using FIX system to ensure that the trade costs are minimized and enhancing the efficiency of the transaction of shares. This can be implemented using the equipping with FIX repository [11] [10].
<i>Feature4: Electronic Institutional Sales</i>	This feature is implemented with considerable priority as institutional sales will help develop the business relationships with much larger institutional investors like mutual funds or hedge funds. This feature will help the customers to depict the firms that are in the league.	Determining and displaying the sales and the pricing of the shares is the objective of this feature. For implementation of this feature, sophisticated trading systems are used. They explicitly refer to other markets' pricing and sales activity [12].
<i>Feature5: Research</i>	The research feature may rank less on the priority list and yet has its own significant importance. This feature, for enhanced analysis, will use Oracle predictive analysis tool [13]. This tool forecast companies' earnings and recommends stocks and bonds when the customer prompts this feature	Having insights as to where an individual or a firm should invest will result in productive investments and ensures economic stability. In order to achieve this, the team has come up with using Oracle predictive analysis tools. Assuming reality, analysing what happens in a stable situation is important to implement this feature [13].
<i>Feature6: Wealth Management</i>	This particular feature acts as a private wealth management agent depending on the customer's assets. This feature also suggests the best optimal investment that the customer makes, and falls under investment management division.	The major rationale behind wealth management system is providing the customers with a window that manages the individual or firms' earnings and provides with estimates that can yield in better profits in the financial spectrum.

Table 2: Product Backlog Table

4.1 Effort estimation for features (planning poker):

Effort estimation is performed on the basis of predicted complexity and customer value. Planning poker is a process used to estimate the effort in person hours required for each user story. In this process the developers

will be given index cards with numbers 0.5, 1, 2, 3, 4 and >4 written on them [14]. After the initial discussion, the developers are asked to estimate and show the cards at the same time. If there is a large difference in the estimation of a particular user story, then the developers will be asked to debate about that particular user story in the later discussions until they come to a single conclusion.

User story	Predicted complexity	Customer value	Estimated effort in person hours
Strategic advisory	Medium	High	155
Wealth management	High	Low	245
Electronic Institutional Sales	Low	Medium	113
Capital raising	Medium	High	167
Research	High	Low	289
Electronic Trading	Low	Medium	124

Table 3: Effort Estimation of user stories

5. List of Activities

The IBP (Investment Banking Platform) will be developed in a Scrum frame work of three sprints consisting of the user stories mentioned in the product backlog. These features are distributed equally among the three sprints based on the observed complexity and customer. Each sprint cycle lasted for about three weeks.

Daily Scrum meetings:

Daily Scrum meetings are held every day during the first hour and lasts for about 15 minutes where the team clarifies their doubts and discusses about the progress of the ongoing project and the work to be done on that particular day. A Kanban chart will be used to maintain the progress of the up-coming, in progress and completed tasks [15]. This will help the team to visualize the pace of the project during that point of time.

Sprint planning:

Sprint planning is done before the start of each sprint. This lasts for about six to eight hours and consists of two meetings [15]. The user stories will be reviewed and decomposed into smaller step by step tasks to be developed. During the session the user stories assigned to this sprint are prioritized on a scale of high to low and corresponding tasks will be assigned to the team members.

Sprint 1:

In the first sprint the user stories 1, 4 are included as they are the sub-characteristics of the traditional investment banking division (IBD) and the client's priority is also high. These features are in line with each other as they are:

Resource allocation for Sprint 1:

Four developers, two testers, two designers, one scrum master would be the human resources needed for this particular sprint.

Sprint 2:

The second sprint is incorporated with the user stories 3, 6. Sale and trading have been the major ground breaking features of investment banking since the inception. Both are market centric features and would requires same amount of effort to implement and are also in line with each other.

Resource allocation for Sprint 2:

One scrum master, two developers, two designers, two testers would be required for developing the two user stories in this particular sprint.

Sprint 3:

The third sprint will be developed the user stories 2, 5. For these two user stories, involvement of analytic tools is significant. Analysis as to forecast individual's or firms' earnings with respect to the assets available is done and hence analogous technical efforts are to be implemented. Since the two user stories are in line they are included in this sprint.

Resource allocation for Sprint 3:

One scrum master, two developers, one designer, two testers would be required to develop the user stories defined in this particular sprint

Sprint review meeting:

After the end of each sprint, a sprint review meeting is held where the team combined discusses about the product backlog items they have completed to the Scrum product owner and the Scrum master. The tasks which remained incomplete are re-estimated and adjusted in the remaining scrums.

Sprint retrospective meeting:

Sprint retrospective meeting is performed just after the Sprint review meeting where the whole development team, Scrum master, product owner takes part. During the meeting, the scrum master takes the feedback from the members of the development team as to make changes the further sprints for their successful completion.

Activities in the project plan	Effort estimation (in days)
1. Product backlog a) Prioritization of the customer requirements in the form of user stories	4
2. Sprint backlog: 2.1. Sprint 1 2.1.1. Daily scrum meetings 2.1.2. Sprint planning 2.1.2.1. User story 1 a) Strategic advisory 2.1.2.2. User story 4 a) Capital raising	17
2.1.3. Sprint review meeting	
2.1.4. Sprint retrospective meeting	
2.2. Sprint 2 2.2.1. Daily scrum meetings 2.2.2. Sprint planning 2.2.1.1. User story 3 a) Electronic Institutional Sales 2.2.1.2. User story 6 a) Electronic Trading	12
2.2.3. Sprint review meeting	
2.2.4. Sprint retrospective meeting	
2.3. Sprint 3 2.3.1. Daily scrum meetings	24

2.3.2. Sprint planning	
2.3.1.1. User story 2	
a) Wealth management	
2.3.1.2. User story 5	
a) Research	
2.3.3. Sprint review meeting	
2.3.4. Sprint retrospective meeting	
3. Testing and software release a) Integration regression testing b) Release of the software	32

Table 4: Effort Estimation of activities

6.Gantt Chart:

For the Gantt chart of our project management plan, kindly refer to Appendix- A.

7.Risk Management Plan

To tackle the risks that are to exist whilst planning, we have come up with a risk management plan that ceases the risks that are proposed by Boehm in [16]. As a team, after each iteration of sprint meetings, we have identified different risks that will definitely be a part of our product. Adding to that, as we are using scrum methodology, management of the project risks will not be described. Therefore, there is a need of exhaustive planning in this context. Below is the list of risks that we are taking into consideration. For each of the risk that the team has diagnosed, we have collectively rated its probability of occurrence and its impact [16] on a scale of 1-10. The severity of the risks is shown by risk exposure which in turn is the multiplication product of **probability** of occurrence and **Impact** of the risk. The risk id is shown as R.ID.

ID	Risks	Probability	Impact	Risk Exposure	Mitigation/Reduction Strategy
R.ID 1	Targeted users do not find the completed product effective.	7	9	63	Subject the customer to different experiments to validate against software assumptions.
R.ID 2	Unrealistic effort estimations for each sprint which can in turn lead to incomplete feature implementation.	5	8	40	Since there is a usage of planning poker involved for effort estimation. Reserving time for unexpected workload in the next sprints.
R.ID 3	Risk of unclear responsibilities and roles involved.	3	8	24	Discussions and brainstorming sessions among the team will be implemented and additionally, strengths, weaknesses, opportunities and threats will be listed down.

R.ID 4	Lack of commendable skills in the development team.	5	7	35	Electing a leader for the team anonymously, who will help the team in training the skill set required in the development team. Additionally, if the budget of the project is frugal, a consultant can also be hired.
R.ID 5	Lack of knowledge in the implementation of scrum methodology which will lead to procrastination of development.	6	8	48	Our team is believed to have already worked in the scrum environment and have efficient knowledge of scrum development. In every other case scrum master ensures that the team has at least pre requisite knowledge of scrum development and help with enhancing the skills in this area
R.ID 6	New cutting edge technologies might be efficient but can be unstable as well.	4	3	12	A comprehensive analysis is done, before adoption of the SWOT analysis, to gain insights as to how technologies adopted are performing in various cases related to our product
R.ID 7	Risk of not meeting the quality standards that we have set.	8	9	72	Going by what Boehm has proposed, the review of sprints, responsibility and self-managing nature of the scrum team will help mitigate or regulate this task to a larger extent.
R.ID 8	Risk of not having an organizational maturity, given the team size is small which can also result in conflicts among the team.	9	9	81	Setting professional goals and qualitative timelines for the processes will help to mitigate this task.
R.ID 9	Bugs generated during the integration regression testing before the release of the product.	4	7	28	Integrating the sub tasks continuously as soon as they are created and iterating this procedure for the coming sub tasks will help mitigate this risk.
R.ID 10	Risk of not seeking proper feedback from the customers and implementing new features from the feedback.	3	8	24	High engagement activities which involve efficient communication will be implemented. These interpersonal relations will be implemented by the product owner and the customer.

Table 5: Risk management Plan

8. Quality Criteria:

For quality criteria, the team has made a consensus decision to set the standards as per ISO 9126 [17] and ISO 9126 PART 3. The ISO 9126 standard dictates that there are 6 of the major software quality characteristics that are to be met along with their sub characteristics. Wherein ISO 9126 PART 3, there are metrics as well to measure each sub characteristic of software quality. Hence these are the quality attributes that the team has chosen.

Features	Quality Criteria	Sub- Criteria	Metric	Metric Description
<i>Feature 1:</i> Strategic Advisory	Functional suitability	Suitability	Functional implementation coverage	It checks for the correctness of the functional implementation
		Interoperability	Data exchangeability	It ensures the correctness of the formats of the data in the UI
<i>Feature 2:</i> Wealth Management	Functionality	Security	Access controllability	Checks the validity of the customers' ID and its access in our website
	Reliability	Fault tolerance	Incorrect operation avoidance	It ensures the exactness of the data inputted into the system
<i>Feature 3:</i> Electronic Institutional Sales	Efficiency	Resource utilization	I/O Utilization Message Density	To ensure the different stocks related to different companies are displayed at the same time
		Time behaviour	Throughput time	To check the amount of tasks performed in a unit of time
<i>Feature 4:</i> Capital rising	Reliability,	Fault tolerance	Failure avoidance	To ensure there aren't any fault values in terms of bonds and taxes
	Functionality	Accuracy	Precision	To forecast the correctness of the data for example, the prices of the bonds should be accurate day to day
<i>Feature 5</i> Research	Efficiency	Time behaviour	Turnaround time	To ensure the group of tasks related to forecasting and executed at the similar time in a parallel manner
	Reliability	Maturity	Test adequacy	To check the number of test cases generated and executed at certain unit of time
	Maintainability	Analysability	Readiness of diagnostic function	To ensure that the given functions are tested and diagnosed, and rectify the faults in it
<i>Feature 6</i> Electronic Trading	Efficiency	Resource utilization	I/O Utilization	To ensure the utilization of input/output functions for a given task

			I/O Utilization Message Density	To check whether parallel tasks are executed in a right way, such as multiple shares in the system can be bought at the same time
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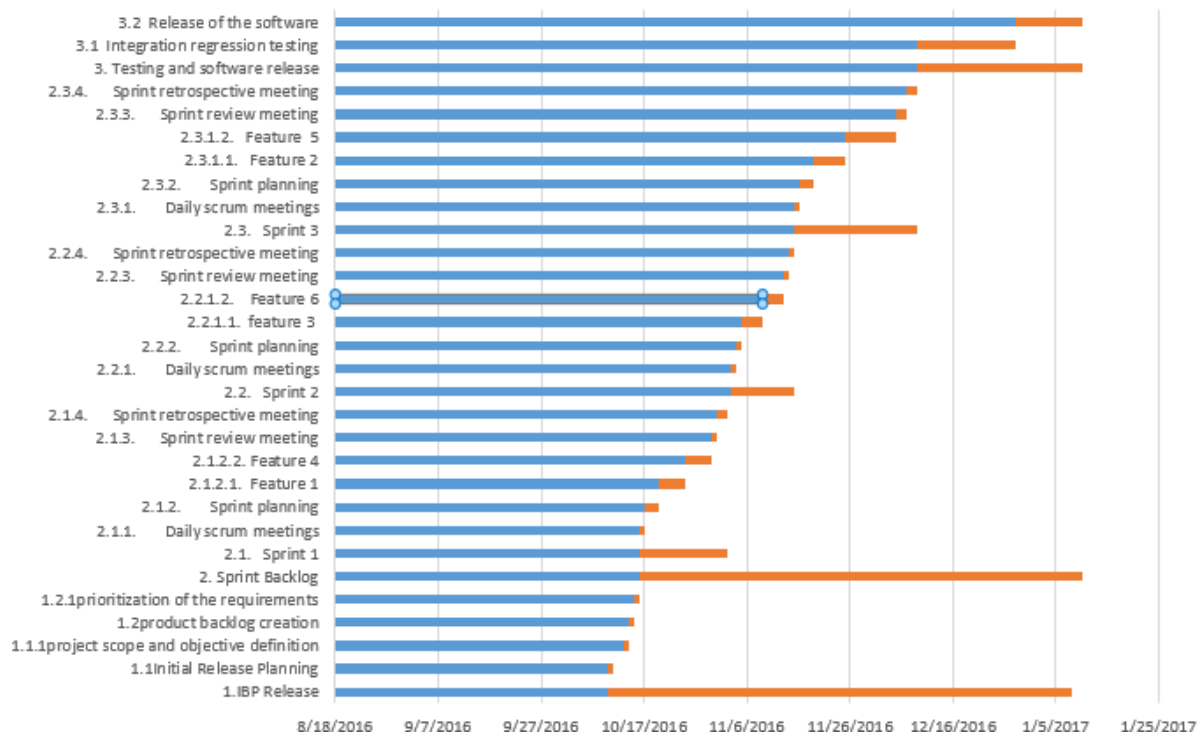
Table 6: Quality Criteria Table

9. References

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APPENDIX- A

-Picture showing Gantt chart



-Details of Gantt chart

[illegible]