

Rags to Riches

Project Proposal

Software Engineering

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CONTENTS

1 TEAM PROFILE	4
1.1 Alejandro Aguilar	4
1.2 Arjun Ohri	4
1.3 Deep Patel	4
1.4 Kartik Patel	4
1.5 Elisa-Michelle Rodriguez	4
1.6 William He	4
1.7 Bryan Benalcazar	4
2 PROJECT PROPOSAL	5
2.1 Problem Diagnosis	5
2.2 Proposed Treatment	5
2.3 Typical Customers	6
2.4 Functional Features	6
2.4.1 User Account Management	6
2.4.2 Social Media Integration	6
2.4.3 Educational Tools	6
2.4.4 Administrative Tools	6
2.4.5 League	6
2.4.6 League Management	7
2.4.7 Message Board	7
2.4.8 Portfolio Management	7
2.4.9 Transaction Performance Tools	7
2.4.10 Achievements	7
3 PRODUCT OWNERSHIP	8
3.1 Plan Of Work	8
3.2 Group 1: Alejandro and Arjun	8
3.3 Group 2: Elisa-Michelle, Bryan, and William	9
3.4 Group 3: Kartik and Deep	9
3.5 Measure of Success	9

1 TEAM PROFILE

1.1 Alejandro Aguilar

Alejandro is familiar with C, C++, and Java. He tends to be well organized and handles tasks swiftly allowing him to be comfortable managing a team. He will serve as the **project lead**.

1.2 Arjun Ohri

Arjun is familiar with C++ and Java. He is able to collaborate and innovate with others, and is also able to multitask.

1.3 Deep Patel

Deep is familiar with C++, Java, Python, Javascript, and SQL. He is experienced with working with others in a group environment to fulfill project deadlines.

1.4 Kartik Patel

Kartik is familiar with Java, Python, and JavaScript. He has experience with relational databases, JavaScript frameworks, Android development, server management, and an extensive knowledge of web development.

1.5 Elisa-Michelle Rodriguez

Elisa-Michelle is familiar with C++ and Python. Elisa-Michelle is very familiar with working in a team and understands the responsibility of working on several smaller tasks.

1.6 William He

William is familiar with C++ and C#. He has experience with scripting and making games. He has worked in a group before to complete a game before a deadline.

1.7 Bryan Benalcazar

Bryan is familiar with C++ and Java while familiar in PHP, Python and SQL. He works well with others and is able to provide some creative thinking to the team.

2 PROJECT PROPOSAL

2.1 Problem Diagnosis

Technology has made it very easy to access new information. Learning new skills with the use of the internet is an important way to assimilate knowledge. While the internet does provide quick access to knowledge, the best way to learn something new is with experience. However, it may not always be possible to learn through experience due to a variety of factors. Many times this limitation arises from monetary issues.

It is undeniably true that the stock market is an important aspect in our lives because of the influence that shareholders may have on businesses that we interact with everyday. Those familiar with the stock market have learned through their experience how to use the stock market for monetary gains. Many people, a lot of who are uninformed about the stock market, do not have at their disposal extra income that they could use to invest in the stock market. With the impact the stock market has in our lives, everyone should have the ability to learn how it functions and prepare for future investments without sacrificing anything beforehand.

2.2 Proposed Treatment

Our platform will serve as an educational tool in the form of a game. It will be designed to introduce users to the basic concepts behind tradable assets while competing with other users in a league. The users will be given a certain amount of virtual currency as a starting capital and will be encouraged to buy and sell assets in the stock market with the end goal being to make the most money possible. The game will follow the real world stock market patterns and so the users will be able to use real news sources and actual events as information to help them in their decision making processes. Over time the users will be able to see the rewards and consequences as a result of their investments and be able to change these investments accordingly.

Since the users will be competing in a league format, they will be able to see how they stack up against other users and see why other user's investments succeeded or failed. By adding a competitive element to the game, users will be more inclined to manage their investments they can be at the top of the league. An achievement system will also be included into the game and novel rewards will be provided to users for hitting certain milestones.

2.3 Typical Customers

The best use of this application will be for schools and teaching students about the stock market. Many students do not have adequate knowledge of the stock market and they do not have the disposable income to invest in real stocks. The game format and competitive drive will be able to retain the students' interests as they strive to outperform their classmates. The rewards gained from achievements will be sought after by all students as only the best will be able to achieve them. By going through this simulation and providing an entertaining experience, students will become more familiarized with investment strategies and smart decision making that they would not be able to get through traditional education.

2.4 Functional Features

2.4.1 User Account Management

The end user will be able to register, login, and manage their account settings.

2.4.2 Social Media Integration

The end user will be provided with recommended messages (eg. achievements) to push to their social media accounts and will be able confirm whether or not they would like to post those messages.

2.4.3 Educational Tools

Since this is an educational application, there will be descriptions and examples available for various investment terminology that can be accessed by the end-user through pop-up dialogs.

2.4.4 Administrative Tools

The application administrators will be able to manage application-wide settings, edit leagues, delete leagues, and ban users.

2.4.5 League

The end user will be able to view leagues they are a member of. They will be able to see recent transactions in the league, recent market news and information, and the league leaderboard.

2.4.6 League Management

The league administrator will be able to create a league, invite users, remove users, edit league settings (eg. starting capital, start date, end date), start the league, and end the league.

2.4.7 Message Board

The members in a league will be able to post on a message board to communicate with other members of the league. Administrative posts will be distinguished from regular user posts.

2.4.8 Portfolio Management

Once a league has commenced, the end user will be able to buy, sell, short, stop, and limit on any tradable asset on the chosen markets. The end user will also be shown any trending asset recommendations.

2.4.9 Transaction Performance Tools

The end user will be provided tools and information to help them make the best decisions in the game. They will be able to see a history of their transactions as well as interactive graphs that compare their portfolio performance to major stock indexes.

2.4.10 Achievements

Achievements will be a set of predetermined thresholds that a user can aim to achieve. The user will be shown their achievement completion progress and will be rewarded with novel rewards for each achievement they unlock.

3 PRODUCT OWNERSHIP

3.1 Plan Of Work

Our plan of work will be dividing into three sub teams, each responsible for a “mini project”. This stack organization is much more effective than a chain organization in that it allows less dependency on other teams and less communication overhead. In turn, this allows for more creative software development.

Our team size is appropriate to develop such an app with this many functionalities. Every member of our team has their own particular strengths, therefore each subgroup will focus on development on a particular functionality of the project. A smaller team would not be able to design and implement a project of this breadth and one that includes this number of features.

The main objective for the next few weeks is to develop the core components of our project. We want to make sure that we have a base build of our project before branching off and developing the additional features. The additional features are to make the game more enjoyable for the user and even though that is important, we need to make sure the barebones version of our app will function first. Each group will be working on the most important aspects of their sections of the project. The specific short term goals of each group are outlined below.

3.2 Group 1: Alejandro and Arjun

The first group in our team will focus on various portions of the project having to do with the user account management, educational info, and social media.

User Interfaces: Homepage, Login screen, Settings screen, and Administration screen

Functional Features: User Account Management, Social Media Integration, Educational Tools, Administrative Tools

Short Term Goals: The plan is to focus on user account creation, user account storage, and account settings.

3.3 Group 2: Elisa-Michelle, Bryan, and William

The second group in our team will focus on various portions of the project having to do with viewing the leagues, league management, and the messaging system.

User Interfaces: League Homepage, League Leaderboards page, League Management page, and Message Boards

Functional Features: League, League Management, Message Board

Short Term Goals: The plan is to focus on league creation, league storage, and league management tools, such as inviting users.

3.4 Group 3: Kartik and Deep

The third group in our team will focus on various portions of the project having to do with user stock inventory, buying/selling stocks, and achievements.

User Interfaces: User Portfolio page, User Performance pages, Transaction page, and Achievements page

Functional Features: Portfolio Management, Transaction Performance Tools, Achievements

Short Term Goals: The plan is to focus on storage and retrieval of a user's inventory, retrieval of stock data from API, and calculations on the stock data.

3.5 Measure of Success

The success of the application in educating the user will be determined quantitatively by the user's wealth at the end of a league. If the user was able to increase their wealth from their starting capital, then they demonstrated that they were able to understand and apply good investment strategies.

Furthermore, the amount of achievements a user has gotten also demonstrates the degree to which they understand the investment concepts. If a user is able to reach one of the achievements we have laid out for them, then they will have reached that "checkpoint" of understanding the material, and hopefully continue to reach higher and higher achievements until they have a complete grasp of investment strategies.