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StockSense

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Vision Statement

A world for stock marketers and investors to explore, our vision is to make the stock market easier, predictable, and more beneficial for the clients.

Mission Statement

To make the best AI model that predicts the stock market, providing the best service for our customers, and encourage them to invest in the market with the lowest risks.

Objectives & Goals

- Accuracy: predict the stock market's rises and falls.
 - Risk Management: notifying the users and showing them how minor/ major the risk is when buying or selling.
 - Adaptability: The AI saves data so it can adapt and learn from the changes that happened in the past and utilizes machine learning which can adapt and improve using the market data.
 - User Friendly: The GUI of our application and site will be clear and easy for everybody to use.
-

SWOT Analysis

STRENGTHS	<ul style="list-style-type: none">• Accuracy: High prediction percentage that helps the user's decision• User-friendly GUI, easy-to-use application, and website.• Continuous learning: Upgrades and learns from the users and the data of the market.
WEAKNESSES	<ul style="list-style-type: none">• Dependency: Early months it will solely rely on the data of the market because the AI will not have user data so it will not give solid advice until it collects that data.• Market changes: Our AI has a high prediction percentage but some unpredictable changes may occur on the market.
OPPORTUNITIES	<ul style="list-style-type: none">• Expanding: include other markets yet to be discovered.• Education: Educate our customers more about the market and how they can use our technology most efficiently.
THREATS	<ul style="list-style-type: none">• Competitors• User Trust: If the user had a bad experience with one of his investments, he might stop using and recommending the AI.• Weak Market: if the stock market crashes like the 2008 incident we will lose users.

Business Case

The project revolves around an AI model that is an expert in stock trading, due to the huge amount of data sets that it's been trained on. The purpose of this AI model is to provide users with the knowledge/advice they need to invest properly and ensure profit. Moreover, after some time, the AI will recognize your pattern in investing and will suggest what to buy/sell, advise you what to invest in after extensive research, provide possible outcomes from simulated trading sessions to the user, and even invest on your behalf during inactive hours after studying your pattern through machine learning.

The purpose of this project is to make sure that users can utilize the power of AI to get the most out of investing. Since the AI can analyze the market and give you advice based on the data sets it has studied, it can predict what will happen to certain companies and their stocks, preventing users from taking unnecessary risks and saving them money.

In our personal opinion, the pros of making this project outweigh the cons, but some risks are worth mentioning, such as incorrect information in the data sets that may lead to the AI giving wrong advice/predictions for the users, which may lead to a catastrophic result, so we need to make sure to obtain a great data set from trusted parties to avoid these complications.

Not doing this project will deprive users, especially newcomers to the investing world, of the guidance they need to learn how to invest properly, trading alone without any help, whether it's an AI model or a professional stock trader, can be quite challenging.

Preliminary Overview

Understand the problem or opportunity

Our company's mission is to make the best investment experience for our clients, and it's all about predicting the stock market prices and the rises and falls using our advanced technologies and methodologies in AI; which provide guides and courses on how to use our AI in the best way possible so that the user can benefit the most from the stock market, all of this works using the data that is collected from the user over time and provided by the companies.

We do not have many competitors now, but we will make sure to gain a patent for our project to make it safer, all types of people can use our AI but it will focus more on investors.

The project scope and constraints

We are aiming to serve the investors and people who want to get into the stock market specifically in Jordan and our goal is to expand throughout the Middle East. During the launching phase, we will have a website and afterward, we will launch an application for smartphones, tablets, etc.

MUST DO	SHOULD DO	COULD DO	WON'T DO
Develop a functional website and application.	Gain intellectual property or patent for the project.	Update the website and application to increase performance.	Share our customer's data.
Protect and secure the data of our users and general security.	Easy to use website and application.	Expanding the AI to include other markets.	Will not advise if we are uncertain.
Gain governmental acceptance to be legitimized.	Gain the trust of our customers.	Expand the application to be worldwide.	Make any transaction without the permission of the user.

Some of this project's constraints:

- **Data quality:** incomplete or inaccurate data may affect the decisions of the AI model.
- **Ethical considerations**
- **Continuous Model Improvements:** having a system that improves based on evolving market dynamics and user feedback is challenging and hard to implement.

Feasibility Study

Operational Feasibility

Investors who are interested will always support our project and it might be the starting point for a lot of people to start investing in the stock markets, our system is engaging for everyone even anybody who has no experience and wants to start investing in the

stock market or interested in it will benefit from our project. However, with the rise of technology, we might have competitors in the future and raise the competition.

One of the major impacts of doing this project is that it will increase the workforce investing in the stock market.

The future users' involvement will help mainly in planning the new system and its website and app design, this will improve the users' experience later, where all required

and desired functionalities are available to them. However, getting feedback in the early stages from the users will be the most beneficial for us so we know what to change or implement into our project before it goes live. Implementing a website and application makes our services more reachable, no matter what device or operating system you use, you just need to be connected to the internet and get full access to our AI.

We need to ensure that we have the user's trust because it's all that matters, the AI will give advice, predictions, and a percentage of success for each operation it will be challenging when unexpected things occur in the stock market so the user needs to understand that the stock market is always changing, it's hard to predict the market so when he uses our services he must know that there are risks in investing in the stock market, on the other hand we will provide guides so we can teach the user how to eliminate or reduce some of these risks.

The security of the user is one of our priorities starting from creating his account to the stocks and data he invests in and providing safe investing service. However, our company's standards and policies will meet the federal law requirements and rules, as also every transaction, or activity offered by our organization will be recorded and documented in our database.

Technical Feasibility

Our company will be working with professional hardware suppliers to provide us with the best hardware for our project, we will hire professional software developers to meet the system requirements we ask for and that will deliver it the best way possible, we will also make our website manageable and upgradeable. We need to create a prototype to design the initial version of our app and website. We will involve users in the web and app development to ensure the interface is user-friendly, we will use our information system with our IT department's help to ensure reliability and fix any bugs. Our system is compatible with various operating systems whether on a PC, mobile, or tablet. User requirements guide our development, making our system adaptable for future transactions and company growth.

Economic Feasibility

Employee's salaries will be given to them at the end of each month. We will hire the most professional hardware company to provide the equipment that every employee needs based on his role in the company. To gain the best productivity from our employees, we will consider applying the needed formal and informal training for our employees. For the federal law side, we will consider hiring a law-related firm that will

hold license fees and consulting expenses and that represents the company in front of the government while providing our company with needed facility costs.

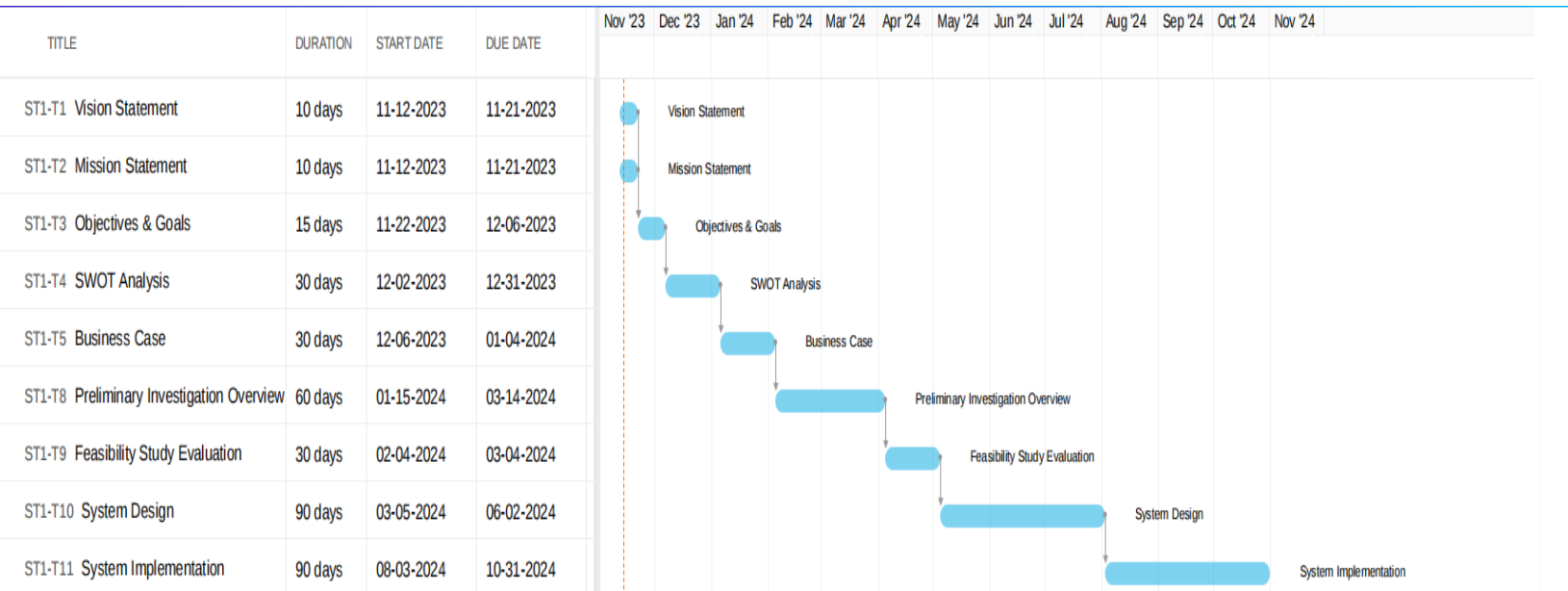
An additional budget has been allocated to address potential delays that may affect the development process or result in its postponement.

Finally, we will use financial tools to control the company's spending, manage the budget, and plan for future financial growth.

Schedule Feasibility:

The Company and its IT team ensure schedule feasibility by setting a solid timetable and completing tasks ahead of deadlines. Each task must meet system requirements and address various constraints to achieve optimal functionality. Rushing the schedule could lead to resource shortages and unacceptable issues in the project. To maintain control, we will assign a project manager who will guide us through each step using effective project management techniques.

Gantt Chart



Requirements Collection Methodology

The first method that we will be using for requirements collection and fact findings will be interviewing, we will interview people who are considered professionals in the stock market to ask them about the features we should provide in our system which would make their work more user friendly while using our system, also we will interview other people who are interested in the stock market and our system so we can find out the fastest way to teach them about our system and the stock market, in general, to make them profit through our system.

The second method that we will be using is the survey methodology, the benefit of using this method is that we can ask everyone by spreading the surveys so we will be able to gather a lot of information to help us in our system, the survey will be user-friendly that has clear instructions and questions about our system and the stock market in general, the survey will focus on understanding the needs, preferences of investors, and stock market professionals concerning these systems.

Functional Requirements

FR-1: The system should allow the users to create accounts, authenticate themselves, and store their information.

FR-2: The system should have an AI that can analyze and predict the stock market for the users.

FR-3: The system should collect data from the user experience and the market data to store it in the database.

FR-4: The system should allow the users to buy, sell, and invest in the stock market.

FR-5: The system should tell the user the risks upon investing in the market.

FR-6: The system should recommend the user some investments based on how low the risks are.

FR-7: The system should notify the user of the perfect selling /buying opportunity.

FR-8: The system should provide real-time updates on transaction status and update itself.

Non-Functional Requirements

NFR-1: The system should have a user-friendly GUI.

NFR-2: The system should be responsive and load fast, also should be available and accessible at all times.

NFR-3: The system should offer user support channels, such as chatbots and customer service.

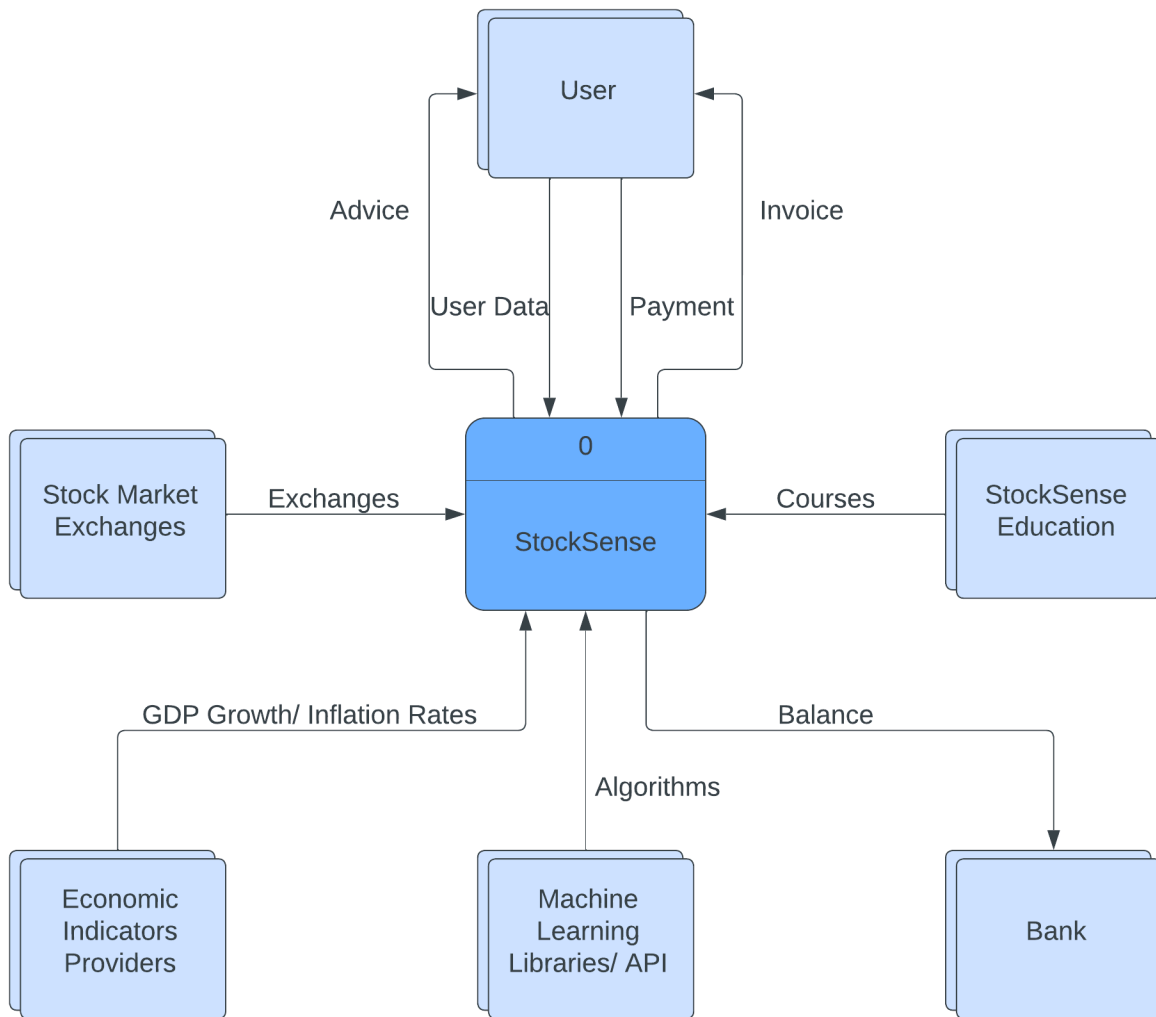
NFR-4: The system should work well on a variety of devices, including smartphones, tablets, and desktop computers.

NFR-5: The system should have recovery processes in place to ensure data is not lost when system failure occurs.

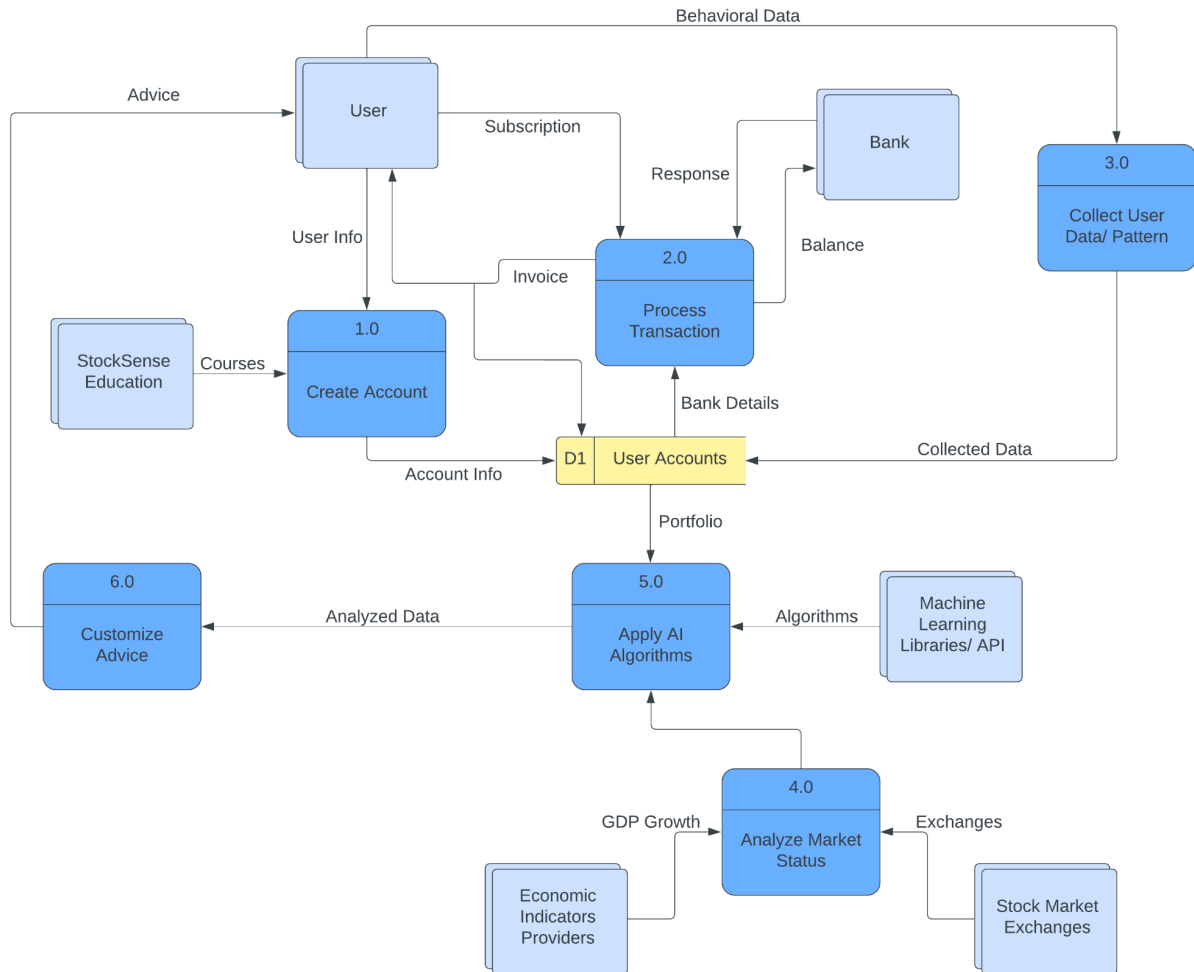
NFR-6: The system should be secure and protect the privacy of user data.

NFR-7: The system should have recovery processes in place to ensure data is not lost when system failure occurs.

Context Diagram



Level 0



Data Dictionary

Data Flow

Name	Description	Alias	Origin	Destination	Volume & Frequency
User Info	User's name, email, password, number, and bank details are delivered to Create Account process	User Personal Information	User Entity	Create Account Process (1.0)	Around 40 - 70 per day

Data Process

Name	Description	Number	Input/ Output Description
Customize Advice	This process collects the analyzed data that was produced after applying certain algorithms and customizes advice for users depending on the received data.	Process (6.0)	Input: Analyzed Data Output: Advice

Data Store

Name	Description	Alias	Attributes	Volume & Frequency
User Accounts	Stores User Accounts and uses the provided data in other processes	User Portfolio	Name (string/ length<=20) Email (string/ length<=20) Password(string/length>=8) Bank Details	Around 40 - 70 per day

External Entity

Name	Description	Alias	Input/ Output Description
User	The user entity provides processes with crucial info to be used for their benefit, and pay for our subscription-based service.	New User	Input: Advice, Invoice Output: User Info, User Data, Payment

Data Record

Name	Description	Alias	Attributes
Account Info	The information stored for each individual in their account after providing their info	N/A	Name (string/ length<=20) Email (string/ length<=20) Password(string/length>=8) Bank Details

Process Description Tools

Create an Account

When user decides to create a new account with StockSense, they will be required to provide e their personal information, which the system takes and follows a certain logical path:

1. The system checks if the Email/ Password/Phone Number/ Age are acceptable and within constraints.
2. After validating those attributes, they will need to verify both Email and Phone Number through certain methods such as OTP and verification emails sent to their inbox, as a security measure.
3. When the user confirms the eligibility of their info they will be prompted to provide their bank details and choose a payment method (MasterCard, Paypal, CliQ...) which requires another process, however, this is optional.
4. If any of the provided information is not valid, or the OTP/ verification links were not clicked, the user will be met with an error message showing them the reason for not creating their account.

Structured English

```
1  if (Email is Valid){
2      if (Password is Valid){
3          if (PhoneNumber is Valid){
4              if (Age is Valid){
5                  Account is Created
6              else Account Not Created
7          }
8          else Account Not Created
9      }
10     else Account Not Created
11 }
12 else Account Not Created
13 }
```

Decision Table

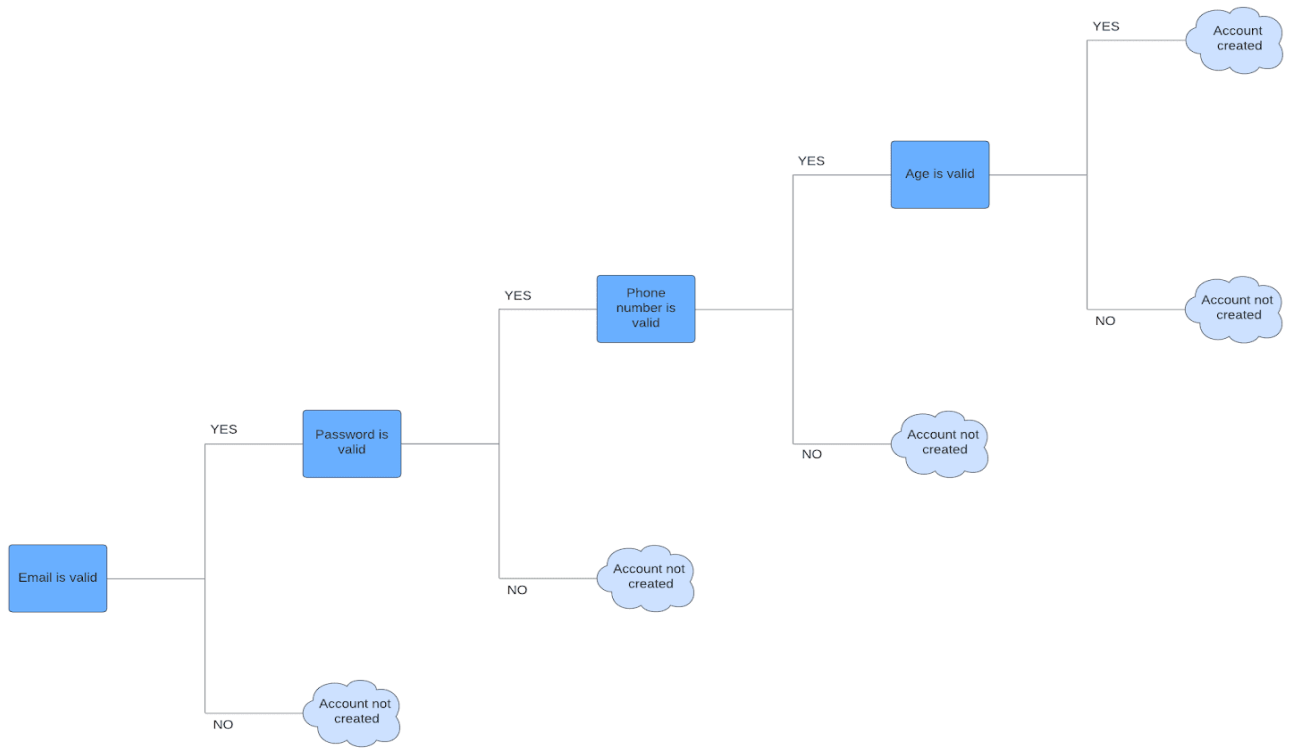
[illegible]

Account is not created	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
-------------------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

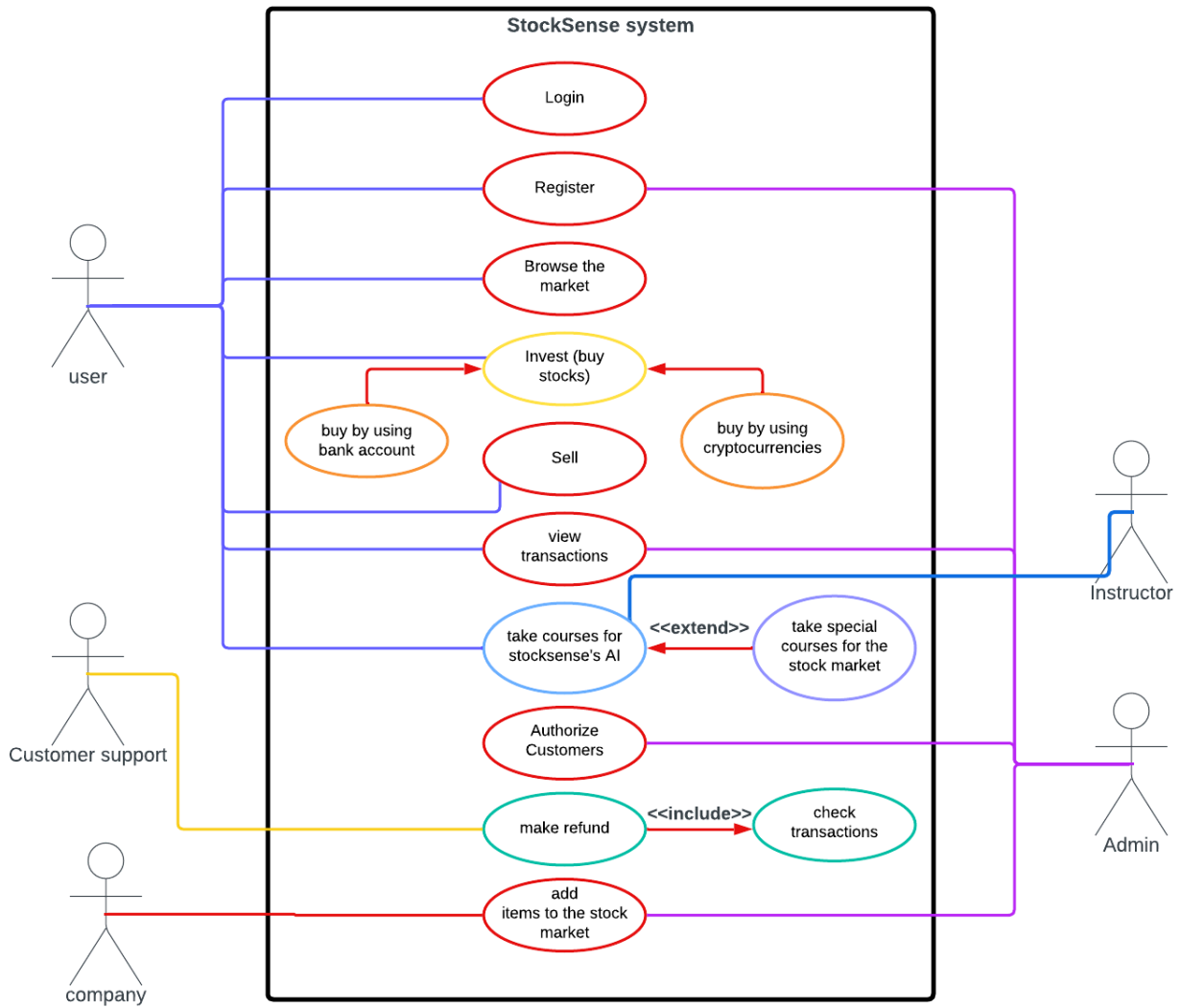
Condensed Version

Conditions					
Email is valid	N	-	-	-	Y
Password is valid	-	N	-	-	Y
Phone is valid	-	-	N	-	Y
Age is valid	-	-	-	N	Y
Actions					
Account is created					X
Account is not created	X	X	X	X	

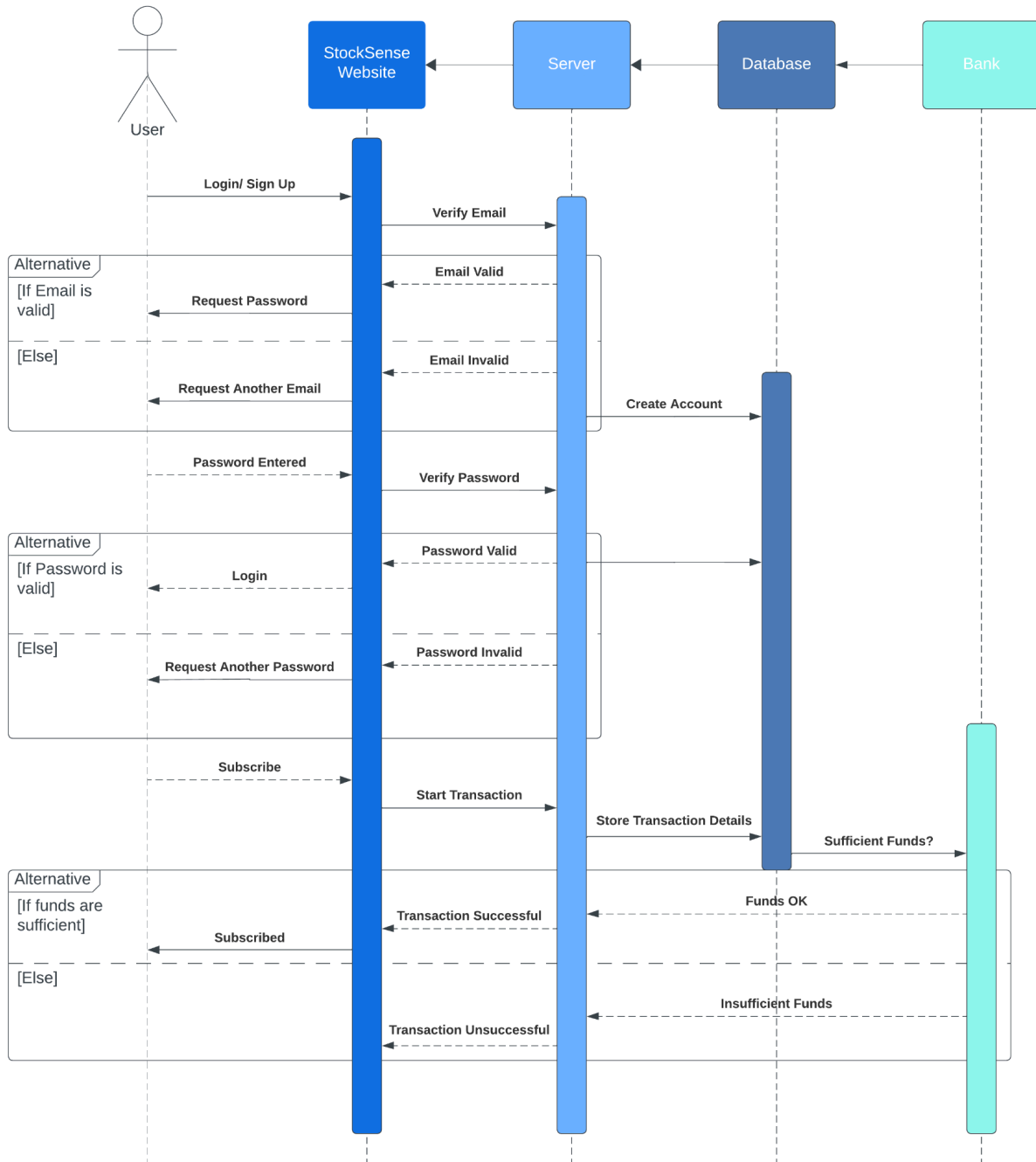
Decision Tree



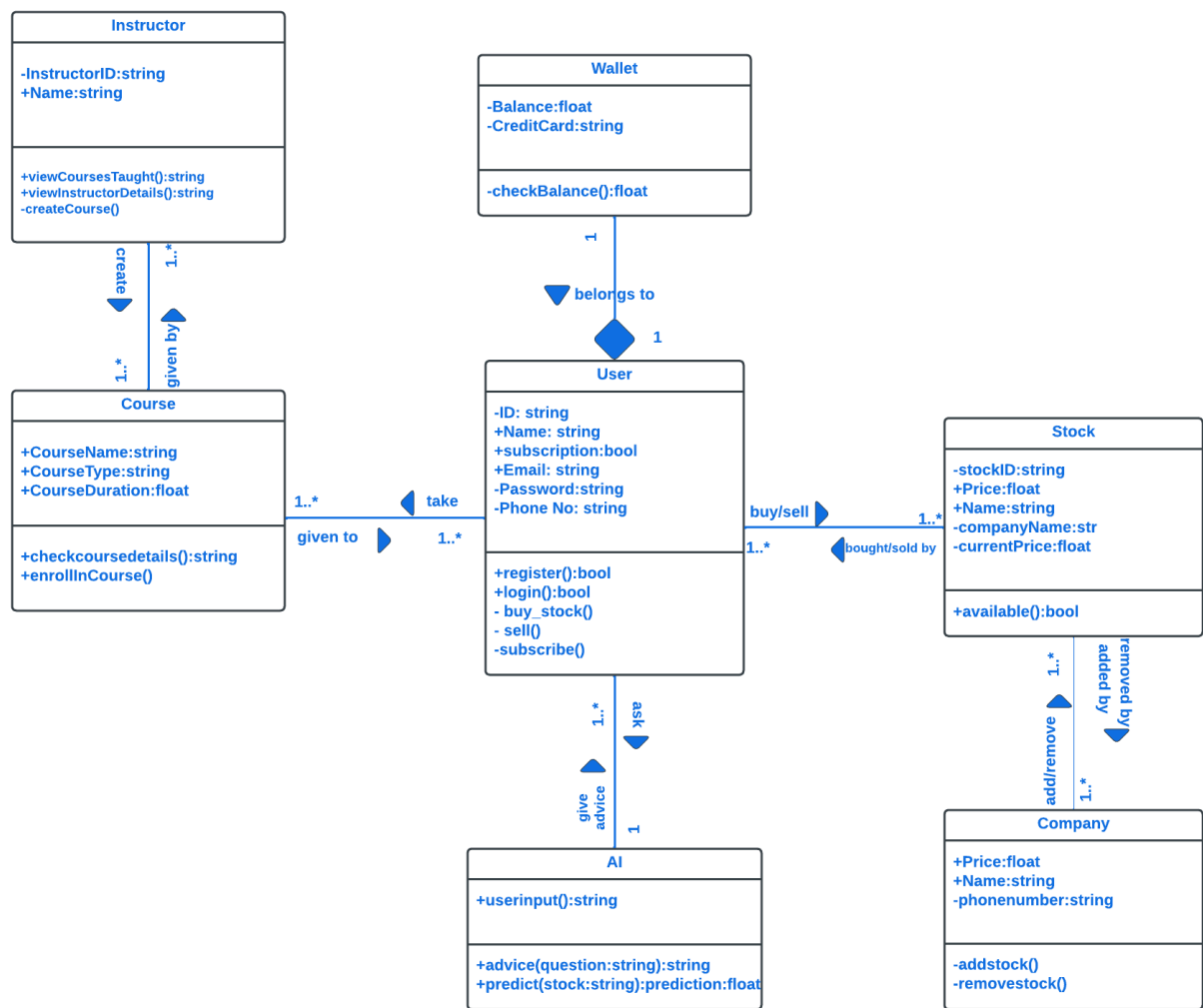
Use-case diagram



Sequence Diagram



Class Diagram



Report

Meeting 1:

Location: Online Meeting

Date: Nov 12th, 2023

Time: 7:00 p.m - 9:00 p.m

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Divide & Conquer
 - Divided the work between team members.
 - Each member expressed their strong suit and what they should work on.
 - Discussed how the project should look, and ensured it met the criteria.
- Setting Deadlines
 - Set a personal deadline for each member depending on the work they were assigned.
 - Agreed upon the priorities of each task.

Next steps:

- Tag up on the deadline date and show your work.
-

Meeting 2:

Location: Online Meeting

Date: Nov 17th, 2023

Time: 6:30 p.m - 10:00 p.m

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Tag up
 - Each member displayed their accomplishments.
 - Any delays were acknowledged and the members teamed up on certain tasks.
- Feedback
 - Feedback was given to adjust certain points to meet the criteria.

Next steps:

- Tag up on the deadline date and show your work.
-

Meeting 3:

Location: Online Meeting

Date: Nov 21st, 2023

Time: 9:00 p.m - 10:30 p.m

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Proofreading
 - All members were present to do a complete check up on the project and made sure everything we wanted was included.
 - Made sure there were no errors or mistakes that went unnoticed.

Next steps:

- Submit Phase 1.
-

Report (phase 2)

Meeting 1:

Location: Online Meeting

Date: Dec 24th, 2023

Time: 3:00 p.m - 4:00 p.m

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Divide & Conquer
 - Divided the work between team members:
 - Yousef: points 1,6.
 - Yazeed: points 2,3,7.
 - Saeed: points 4,5.
 - Discussed how the project should look, and ensured it met the criteria.
- Setting Deadlines
 - Set a personal deadline for each member depending on the work they were assigned.
 - Agreed upon the priorities of each task.

Next steps:

- Tag up on the deadline date and show your work.
-

Meeting 2:

Location: Online Meeting

Date: Nov 27th, 2023

Time: 6:00 p.m - 7:00 p.m

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Tag up
 - Each member displayed their accomplishments.
 - Discussed the work of each member.
 - Feedback
 - Feedback was given to adjust certain points to meet the criteria.
 - Final Touches
 - Made sure the design looked as professional as possible.
 - Double-checked context, relevancy, and spelling.
 - **Next step:**
 - Submit Phase 2.
-

Report (Phase 3)

Meeting 1:

Attendance:

- Yousef - in attendance
- Saeed - in attendance
- Yazeed - in attendance

Agenda items:

- Divide & Conquer
 - Divided the work between team members:
 - Yousef: points 3
 - Yazeed: points 1, 4
 - Saeed: points 2, 5
 - Discussed how the project should look like, and made sure it met the criteria.
- Setting Deadlines
 - Set a personal deadline for each member depending on the work they were assigned.
 - Agreed upon the priorities of each task.

Next steps:

- Tag up on the deadline date and show your work, give each other feedback, and submit the final project.
-

Tools & Resources:

<https://www.lucidchart.com/pages/>

<https://www.geeksforgeeks.org/data-dictionaries-in-software-engineering/>

Systems Analysis and Design, Scott Tilley, Harry Rosenblatt. 11th edition.