CMPE 352 – Milestone 1 Report

Group 12 Members

İsmail Levent Baş

1. Executive Summary

TradeMe is a social trading platform where people who are interested in trading and investing in financial markets can connect with other finance enthusiasts and at the same time invest in any trading equipment. Users of this platform will be able to follow and trade indices, stocks, ETFs, commodities, currencies, funds, bonds, and cryptocurrencies while interacting with other users by following them, commenting on their shared posts and trending trading equipment.

1.1. Project Status Summary

In the beginning of the project, the one and only member of the Group 12 has tried to cope with heavy workload while maintaining the repository of the project. He decided to start from scratch and get acquainted with the project as soon as possible since time would be of utmost importance dealing with deadlines alone. After creating the repository of the project with the necessary issue management education gained from several articles and the course material, he worked on understanding important and necessary requirements of the project. This was the hardest assignment by far since in order to create requirements thoroughly, one should understand the project description as well as possible. Mockups and user stories were created with much more enthusiasm. There were 3 user stories and 3 corresponding mockups. 2 Mobile mockups and 1 Web mockup were created. After that, Group 12 tackled a very hard problem: drawing diagrams. Sole member of the Group 12 has started writing the use case diagram first since it describes a higher level view of the system with the user interactions. Then, he designed and drew the class diagram and sequence diagrams. He came up with a name for the project and also a logo. Along the way, he had to make many decisions alone and he likes to think that he has done well so far, even though no feedback was provided to the Group 12 whatsoever.

1.2. Planned Changes

Group 12 would like to revise requirements first and the revise the mockups, use case diagram, class diagram and sequence diagrams. After some feedback (hopefully) to the material presented in repository, only member of this group thinks that he will we able to make revisions much easier.

2. List and Status of Deliverables

#	Deliverable	Due Date	Status
1	Repository Set Up	Feb 18, 2019	Done
2	Requirements	Feb 25, 2019	Done
3	User Stories	Mar 4, 2019	Done
4	Mockups and User Scenarios	Mar 4, 2019	Done
5	User Diagram	Mar 18, 2019	Done
6	Class Diagram	Mar 18, 2019	Done
7	Sequence Diagrams	Mar 18, 2019	Done

3. Summary of Work Done

Group Member	Contribution
İsmail Levent Baş	Created and modified the README file. Studied git and documented the related research. Created labels with different colors. Explored GitHub repositories. Showed team members in README file. Made adjustments to home wikipage. Created the first version of requirements page. Wrote user stories and user scenarios. Created web and mobile mockups. Created use case diagram. Created class diagram. Created sequence diagrams.

4. Requirements

<u>Glossary</u>

Annotation: A metadatum attached to a data in order to explain what the data is about.

Article: Documents which are shared by users explaining their opinion about a particular subject.

Basic user: A user in system who can follow other users, chase certain events, read and comment on articles and trace their favorite commodities.

Comment: User's idea about a certain article or a trading equipment.

Downvoting: An action taken in order to show that a certain article is disliked by the user.

Economic Event: An event which has an impact on economy.

Follow: An action taken by the user in order to see all of another user's posts in their own content feed.

Guest: A user that is unregistered to the system.

Moving Averages: Mean of time series data (observations equally spaced in time) from several consecutive periods.

Password: A string of characters that allows access to an user account.

Prediction Success Rate (PRS): A rate on user's profile page that shows what percent of user's predictions were successful.

Previous Close: Price of a stock or market index was when the market closed.

Semantic Search: A searching technique in a which a search query aims to not only find keywords, but to determine the intent and contextual meaning of the the words a person is using for a search.

Trading Equipment: Trade indices, stocks, ETFs, commodities, currencies, funds, bonds, and cryptocurrencies.

Trading User: A user who has all the privileges of a basic user and also investment privileges.

Upvoting: An action taken in order to show that a certain article is liked by the user.

Requirements

A. Functional Requirements

1. User Requirements

1.1. Registered User Requirements

1.1.1. Signing Up

   1.1.1.1. Users shall be able to choose between basic user and trading user while signing up.

1.1.1.2. Basic users shall be able to sign up by providing their e-mail address, password, name, surname and location.

1.1.1.3. Trading users shall be able to sign up by providing their identity number and IBAN, additionally.

1.1.1.4. Users shall be able to sign up via their Google accounts.

1.1.1.5. E-mail addresses shall be unique.

1.1.1.6. E-mail addresses and passwords shall be used for authentication.

1.1.1.6.1. A link shall be sent to the users' e-mail address for verification.

1.1.1.6.2. Users shall be able to sign in to their accounts upon clicking the provided link.

1.1.1.7. Users shall be able to specify their location through Google Maps.

1.1.2. Signing In

1.1.2.1. Users shall be able to sign in to their accounts by entering their e-mail address and password.

1.1.2.2. Users shall be able to sign in via their Google accounts.

1.1.3. User Interactions

1.1.3.1. Users shall be able to follow other users and trading equipment of their liking.

1.1.3.2. Users shall be able to read and share articles regarding a subject they choose.

1.1.3.3. Users shall be able to comment on trading equipment and other users' articles.

1.1.3.4. Users shall be able to rate other user's articles and comments in terms of upvoting and downvoting.

1.1.3.5. Users shall be able to set alerts for different levels of trading equipment and economic events.

1.1.4. User Profiles

1.1.4.1. Users shall have at least one portfolio in their profile.

1.1.4.1.1. Users shall be able to rename their portfolio.

1.1.4.1.2. Users shall be able to add any trading equipment to their portfolio.

1.1.4.1.3. Users shall be able to share their portfolio.

1.1.4.2. Users shall have a profit/loss section in their profile.

1.1.4.2.1. Profit/loss section will be private to the user.

1.1.4.2.2. Users should be able to see their profit/loss amount in terms of the currency they choose.

1.1.4.2.3. Users shall be able to manually enter investments to see calculated profit/loss.

1.1.4.3. Users shall have an event section in their profile.

1.1.4.3.1. Users shall be able to chase economic events with different significance levels.

1.1.4.3.2. Users shall be able to filter economic events according to their country and significance level.

1.1.4.4. Trading users shall have an investment section in their profile.
1.1.4.4.1. Trading users shall be able to invest on any trading equipment, make a buy order for a specified rate and set stop/loss limits.

1.1.4.5. Basic users shall be able to upgrade to a trading user.

1.1.4.6. Users shall have profiles which are either public or private to the other users.

1.1.4.6.1. Users shall have to follow the user who has a private profile in order to see the contents of the profile.

1.1.4.6.2. Users shall be able to see all the contents of a public profile.

1.1.4.7. Users shall have their prediction success rate in their profile and it will be visible to all of the users regardless of their privacy status.

1.1.4.8. Users shall have an article section where they can create and share articles.

1.1.4.9. Users shall have followings and followers sections in their profile.

1.1.4.10. Users shall have a notification section in their profile.

1.1.4.10.1. Created alerts for events shall be displayed in notification section.

1.1.4.10.2. When another user rates or comments on an article the user wrote, the user shall be notified and shall be able to see the notification in the notification section.

1.2. Unregistered User Requirements

1.2.1. Guest users shall not be able to have a profile page.

1.2.2. Guest users shall be able to only read the articles and comments, however, they shall not be able to add any comment or write any article.

1.2.3. Guest users shall not be able to follow other users or any trading equipment.

1.2.4. Guest users shall be able to view events.

2. System Requirements

2.1. Searching Requirements

2.1.1. System shall provide searching functionality for users to search for other users, trading equipment, economic events and articles.

2.1.2. Searching functionality shall consider all the information available in user profiles and trading equipment.

2.1.3. System shall allow semantic search which will try to show semantically similar search results based on the context information provided in the semantic tags.

2.1.4. System shall support location-based search.

2.2. Recommendation Requirements

2.2.1. System shall include a recommendation system.
2.2.2. System shall recommend articles or trading equipment to the users based on their histories.

2.3. Notification Requirements

2.3.1. The system will notify users in accordance with their alerts.

2.3.2. The system will notify users when they are followed by other users.

2.4. Trading Equipment Requirements

2.4.1. System shall provide trading equipment with following functionalities:

2.4.1.1. Previous close.

2.4.1.2. Percentage change with previous close.

2.4.1.3. Amount change with previous close.

2.4.1.4. Day's range.

2.4.1.5. Moving averages.

2.5. Event Requirements

2.5.1. System shall provide events which have different significance levels.

2.5.2. System shall support event searching and filtering based on significance level and country.

B. Non-functional Requirements

1. Availability & Accessibility

1.1. System shall be accessed by a native web application and a native Android application.

1.2. Application shall be able to be deployed on a remote and manually configurable server.

1.3. System shall be available %99 of the time.

1.4. System shall be available in English.

1.5. System shall support Turkish characters.

2. Performance

2.1. Response time for a request should be less than 2 seconds.

2.2. System shall support search requests and handle them in less than 2 seconds.

3. Annotation

3.1. System shall support W3C Web Annotation Data Model and W3C Web Annotation Protocol so that the contents can be annotated by users.

4. Security

4.1. System shall prevent any unauthorized access to data by encoding it.

4.2. Passwords shall contain minimum of 8 characters, having at least one upper case letter, one lower case letter and one number.

4.3. System shall store passwords in database using encryption.

4.4. System shall check user queries against SQL injection attacks.

5. Privacy

5.1. System shall ask for permission of users on sharing their own private data via a privacy policy agreement.

5. Mockups

Pamir Alkan - New Basic User

Pamir signs up to tradeMe using his e-mail address.

- Pamir is greeted by a welcome screen since he is a new user.
- He is asked about what he is interested in seeing in his homepage.

- He takes a tour in the platform and checks out certain sections in the system.
- According to what he selected in the welcoming page, popular articles and users and trading equipment is seen in his homepage.

- He scrolls down the homepage.

tradeMe

https:trademe.com

| Home | Profile | Settings | Sign out |

Popular Users

Aydın Çotanak
Prediction Success Rate: 92%
View Profile
Follow

Mustafa Doğan
Prediction Success Rate: 88%
View Profile
Follow

Serpil Açık
Prediction Success Rate: 90%
View Profile
Follow

Buse Özvaran
Prediction Success Rate: 87%
View Profile
Follow

Show More

tradeMe

https://trademe.com

| Home | Profile | Settings | Sign out |

Economic Events

| Yesterday | Today | Tomorrow | Next Week | 📅 |

Time	Cur.	Signifance.	Event	Actual	Forecast	Previous
00:30	JPY	★ ★	Tertiary Industry Activity Index (MoM)	0.4%	-0.3%	-0.5%
04:00	EUR	★ ★	Spanish CPI (YoY) (Feb)	1.1%	1.1%	1.0%
04:00	EUR	★	Spanish CPI (MoM) (Feb)	0.2%	0.2%	-1.3%
04:00	EUR	★ ★	Spanish HICP (YoY) (Feb)	1.1%	1.1%	1.1%
04:00	EUR	★ ★ ★	Spanish HICP (MoM) (Feb)	0.2%	0.2%	-1.7%

Show More

https://trademe.com

tradeMe
TRADE EM ALL

search

Home | Profile | Settings | Sign out

Real Time Financial Markets

World Indices

Name	Last	Chg.	Chg.%	Adv.	Dec
Dow 30	25702.8	+148.23	+0.58%	28	2
S&P 500	2810.92	+19.40	+0.69%	395	94
DAX	11572.41	+48.24	+0.42%	23	7
S&P/TSX	16149.97	+13.31	+0.08%	123	107
Nikkei 225	21290.2	-213.45	-0.99%	32	185
S&P/ASX	6169.60	+8.40	+0.14%	98	86

Commodities

Name	Month	Last	Chg. %
Gold	Apr 19	1309.45	+0.01%
Crude Oil WTI	Apr 19	58.36	+0.17%
Silver	May 19	15.457	+0.01%
Natural Gas	Apr 19	2.843	+0.28%
US Soybeans	May 19	901.50	+0.61%
US Wheat	May 19	447.50	0.00%

Show More

- He opens his profile and clicks "My Portfolios" section.

https://trademe.com

tradeMe
TRADE EM ALL

search

Home | Profile | Settings | Sign out

My Portfolios | Events | Profit/Loss | Followings | Followers | Articles | Notifications   PRS: 0

You currently have no portfolio.

⊕ Add new portfolio

- He clicks the "Events" section in his profile and clicks an event he is interested in.

tradeMe

https://trademe.com

tradeMe
TRADE EM ALL

search

| Home | Profile | Settings | Sign out |

My Portfolio | Events | Profit/Loss | Followings | Followers | Articles | Notifications   PRS: 0

You haven't added any events. Here are some popular events you may be interested in:

Yesterday | Today | Tomorrow | Next Week | 📅

Time	Cur.	Signifance	Event	Actual	Forecast	Previous
00:30	JPY	★ ★	Tertiary Industry Activity Index (MoM)	0.4%	-0.3%	-0.5%
04:00	EUR	★ ★	Spanish CPI (YoY) (Feb)	1.1%	1.1%	1.0%
04:00	EUR	★	Spanish CPI (MoM) (Feb)	0.2%	0.2%	-1.3%
04:00	EUR	★ ★	Spanish HICP (YoY) (Feb)	1.1%	1.1%	1.1%
04:00	EUR	★ ★ ★	Spanish HICP (MoM) (Feb)	0.2%	0.2%	-1.7%

⊕ Add an economic event

- He reads the event details and decides to create an alert for that event.

tradeMe

https://trademe.com

tradeMe
TRADE EM ALL

search

Home | Profile | Settings | Sign out

My Portfolio | Events | Profit/Loss | Followings | Followers | Articles | Notifications   PRS: 0

Japan Tertiary Industry Activity Index MoM   🔔 Create Alert

Latest Release | Actual | Forecast | Previous
Mar 13, 2019   0.4%   -0.3%   -0.5%

The Tertiary Industry Index measures the change in the total value of services purchased by businesses. It is a leading indicator of economic health.

A higher than expected reading should be taken as positive/bullish for the JPY, while a lower than expected reading should be taken as negative/bearish for the JPY.

Significance level: ★ ★
Currency: JPY

Go Back | Unfollow this event

Country: Japan

- He decides to write his first article and clicks the article section in his profile.

tradeMe

https://trademe.com

tradeMe
TRADE EM ALL
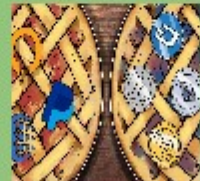
search

Home | Profile | Settings | Sign out

My Portfolio | Events | Profit/Loss | Followings | Followers | Articles | Notifications   PRS: 0

You currently have no written articles.

➕ Create a new article
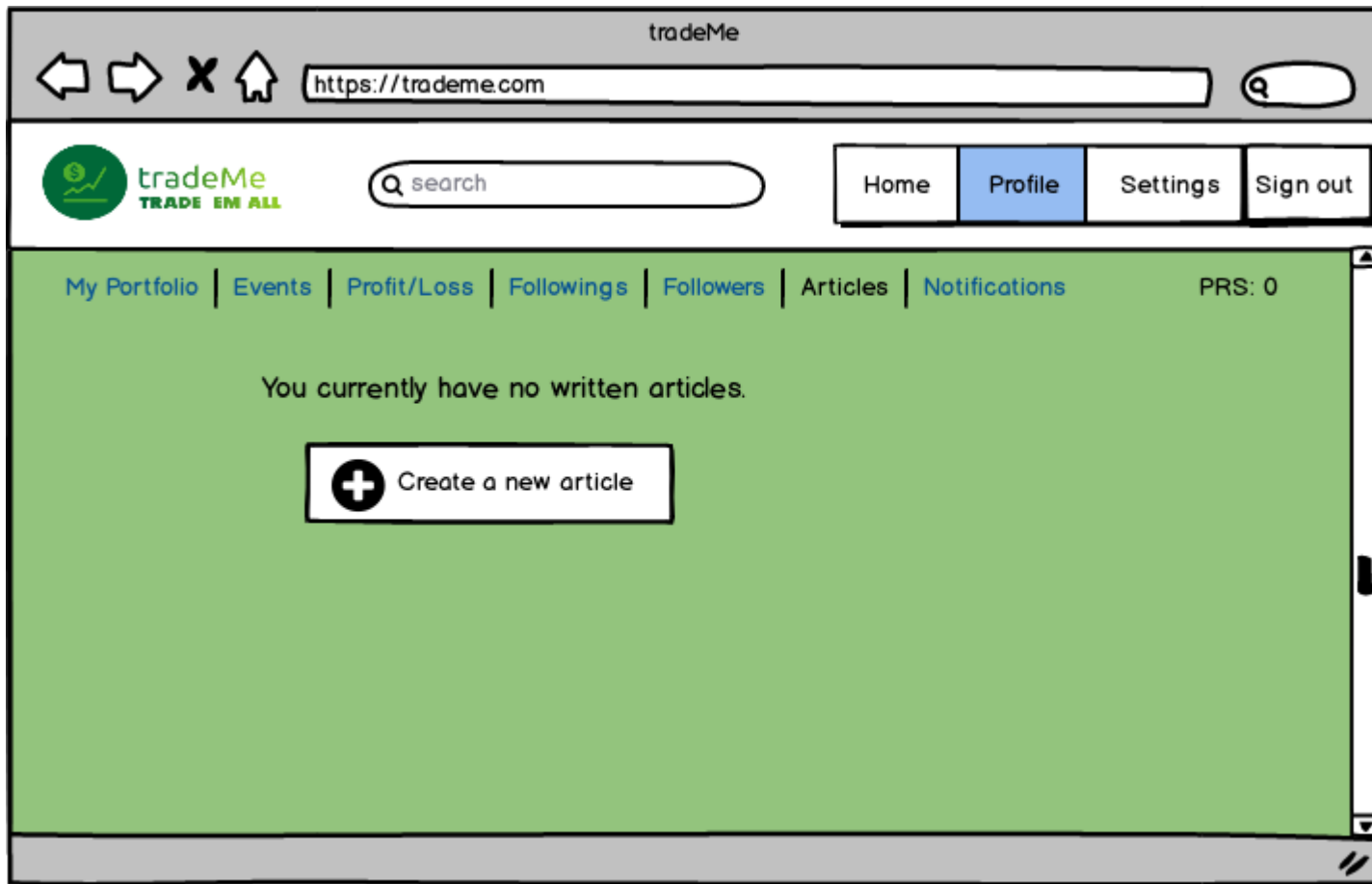
- He writes and shares the article.

https://trademe.com

tradeMe
TRADE EM ALL

search

Home | Profile | Settings | Sign out

My Portfolio | Events | Profit/Loss | Followings | Followers | Articles | Notifications   PRS: 0

B *I* U S̶ style ▼ ≔ ≣ ↺ ↻ 🖼 ☺

Wall Street slides in New Year as China shuts down and oil tumbles

Wall Street stocks have dropped to a three-month low in the New Year as oil prices tumbled, China halted companies from trading and its yuan currency plunged in value. The mainland China blue chip index - the CSI 300 - dropped almost 7% on Wednesday alone.

This movement had an impact overseas. The US market fell by 1.6% on Thursday morning, the second consecutive sharp fall this week, and European markets were hit harder, with the Euro Stoxx 600 index down 2.8% and London's FTSE 100 shedding 2.4%.The jitters across world markets have prompted billionaire investor George Soros to make comparisons with the financial crash of 2008.

Share Article

User Story 2

Serpil Çakmakçı - Basic User

- Serpil is greeted by her homepage.

- Serpil goes to the settings section.

tradeMe
TRADE EM ALL   Home | Profile | Settings | Search

Name/Surname:	Serpil Çakmakçı	Change
Username:	serpilckmc	Change
E-mail Address:	splc@gmail.com	Change
Username:	serpilckmc	Change
Privacy:	Public	Change
User Type:	Basic	Change
Change Password		Forgot Password
Location	Istanbul	Change

Sign Out   Delete Account
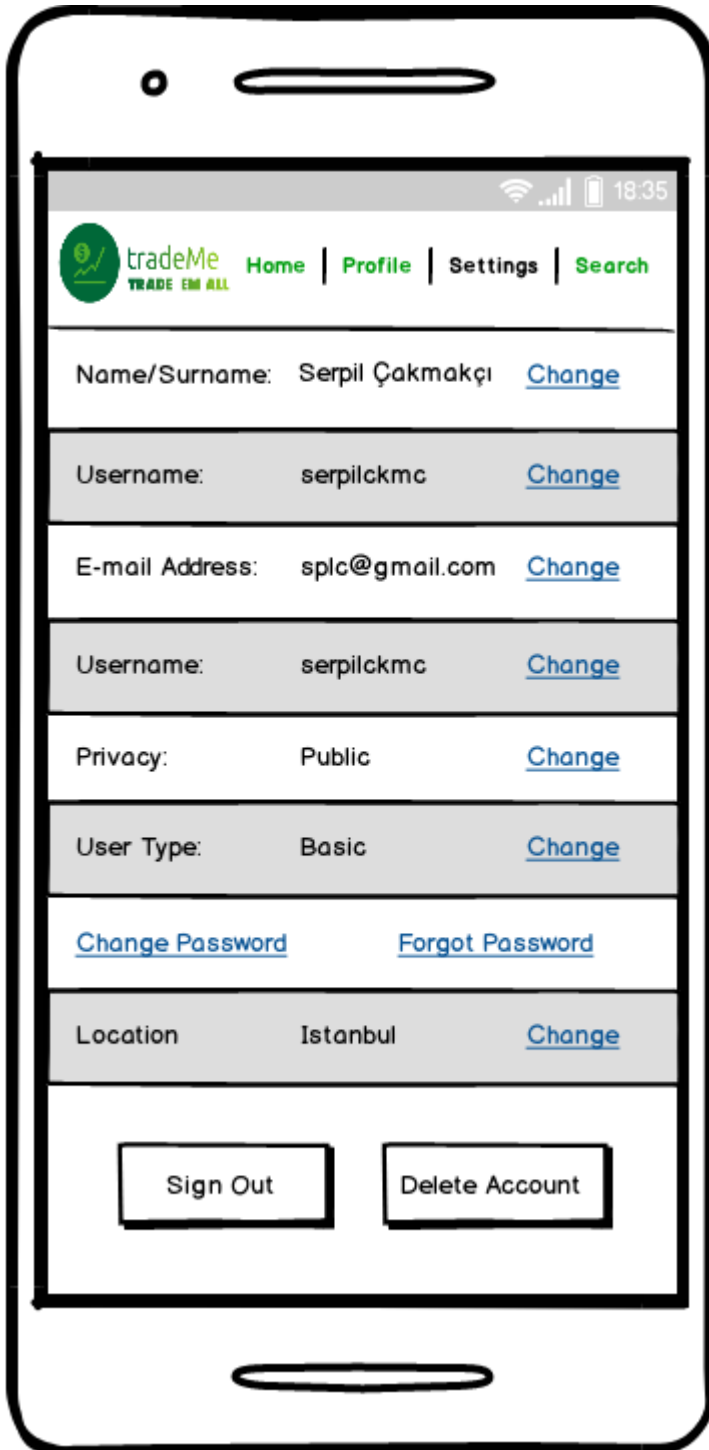
- She makes her profile private

18:52

Name/Surname:	Serpil Çakmakçı	Change
Username:	serpilckmc	Change
E-mail Address:	splc@gmail.com	Change
Username:	serpilckmc	Change
Privacy:	Private	Change
User Type:	Basic	Change

Change Password   Forgot Password

Location	Istanbul	Change

Sign Out   Delete Account
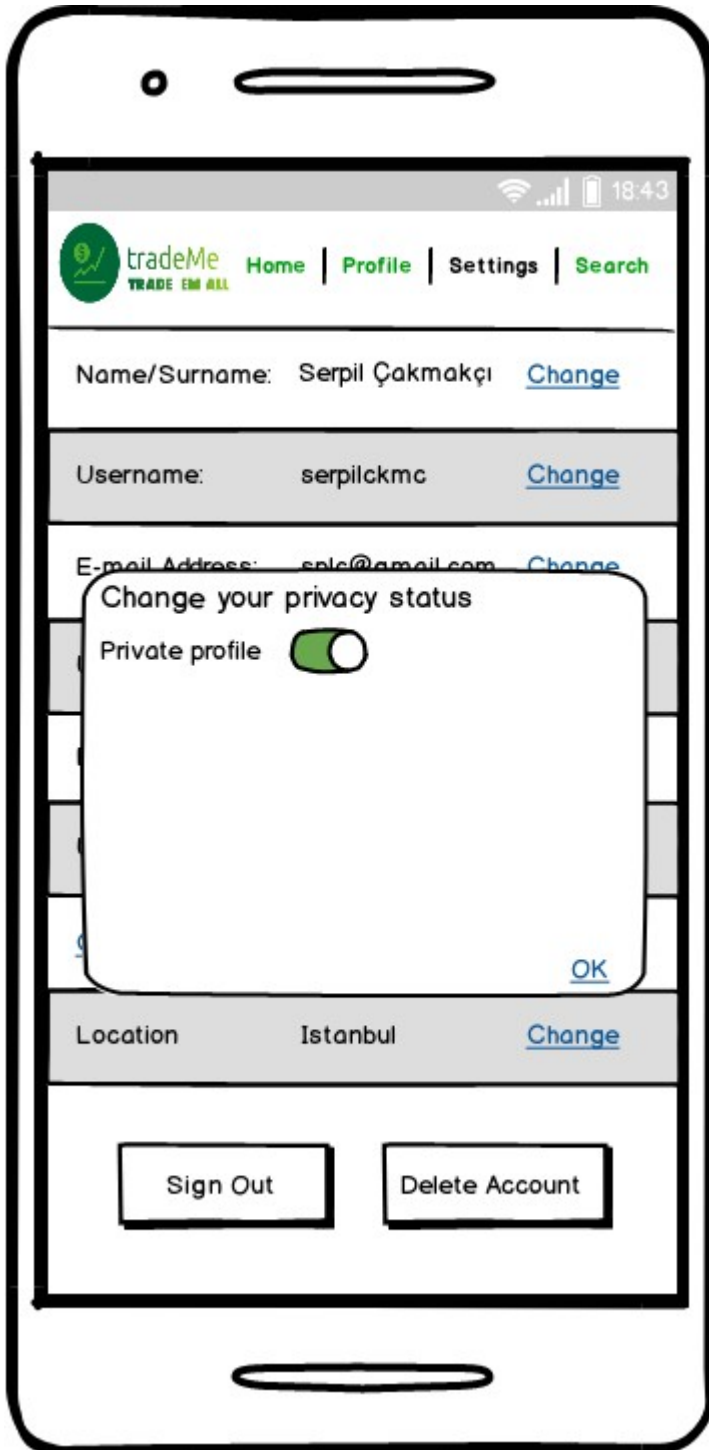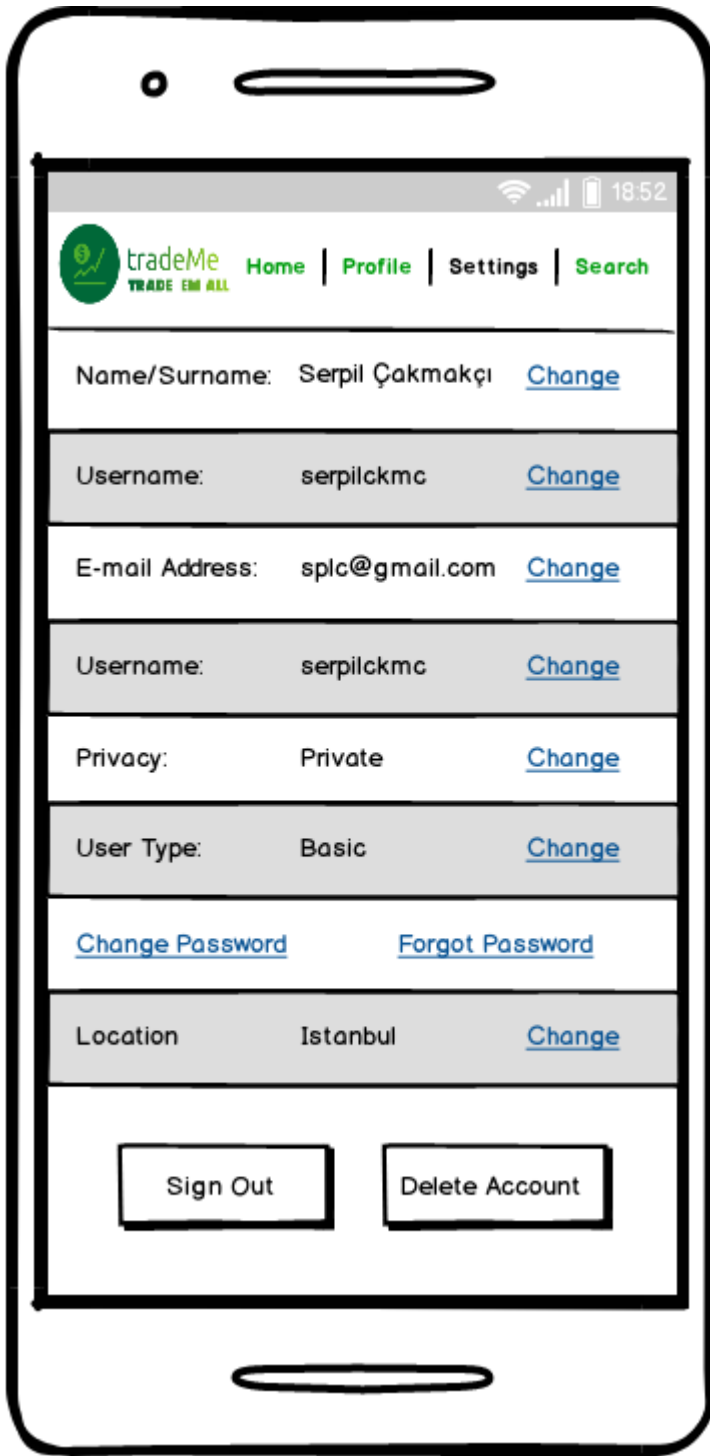
- She clicks "Change" to change her user type.
- She is directed to a page where she can upgrade to a trading user.

tradeMe
TRADE EM ALL
Home | Profile | Settings | Search

Name/Surname: Serpil Çakmakçı   Change

Use   nge

Congratulations!

You have become a trading user.
Now you can make new
investments and enjoy our platform
even more! Check out your new "My
Investments" section in your
profile.

E-m   nge

Use   nge

Priv   nge

Use   nge

                                                    OK

Change Password   Forgot Password

Location   Istanbul   Change

Sign Out   Delete Account

- She becomes a trading user.
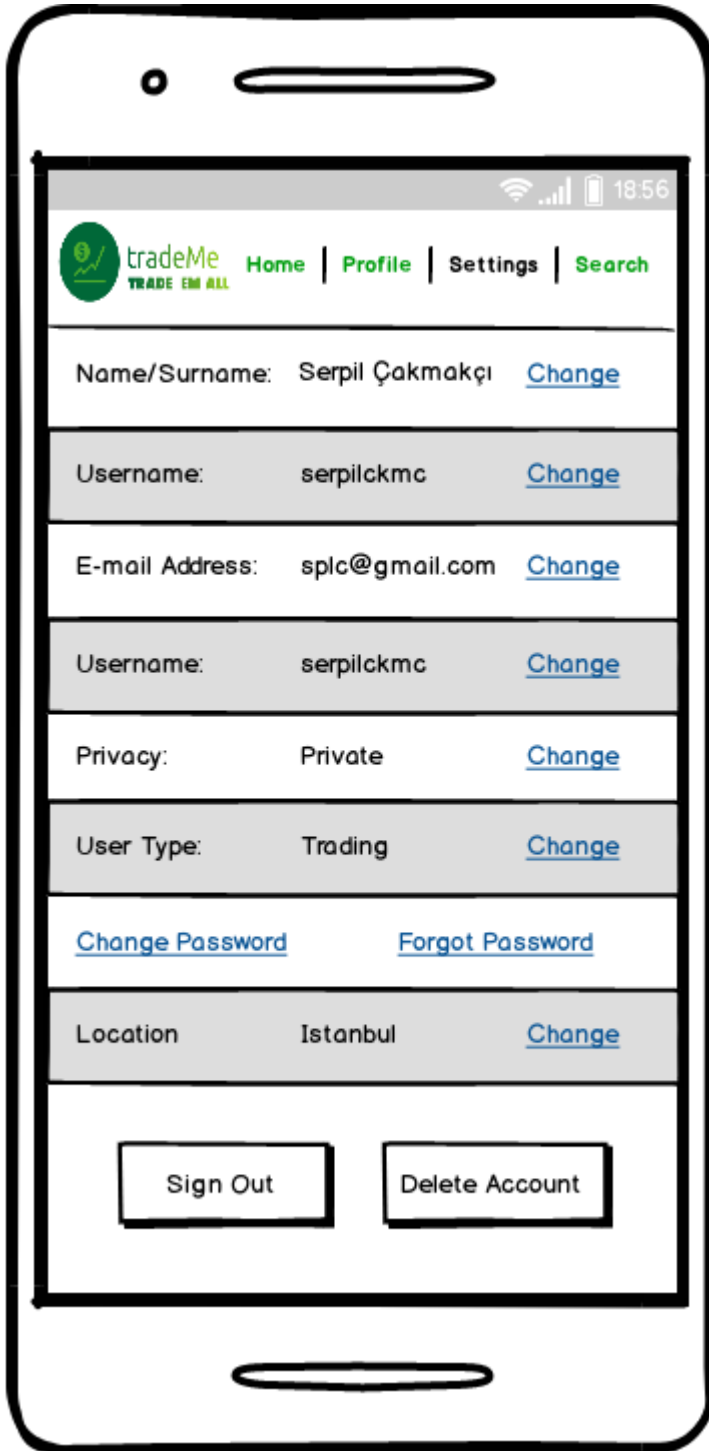
- She clicks the profile section in the application.

- She clicks "My investments" section in her profile.

- She makes an investment.

My Investments

Make a new investment

Indices: Choose ▼

Place Order

Apple   AAPL   +58.28

Number of Stocks
Buy Quantity   30

Available Funds   20,000 ₺

Buying Capacity   364

*Total Debit   2,721 ₺

* Transaction total includes trade commision fees.

No   Yes
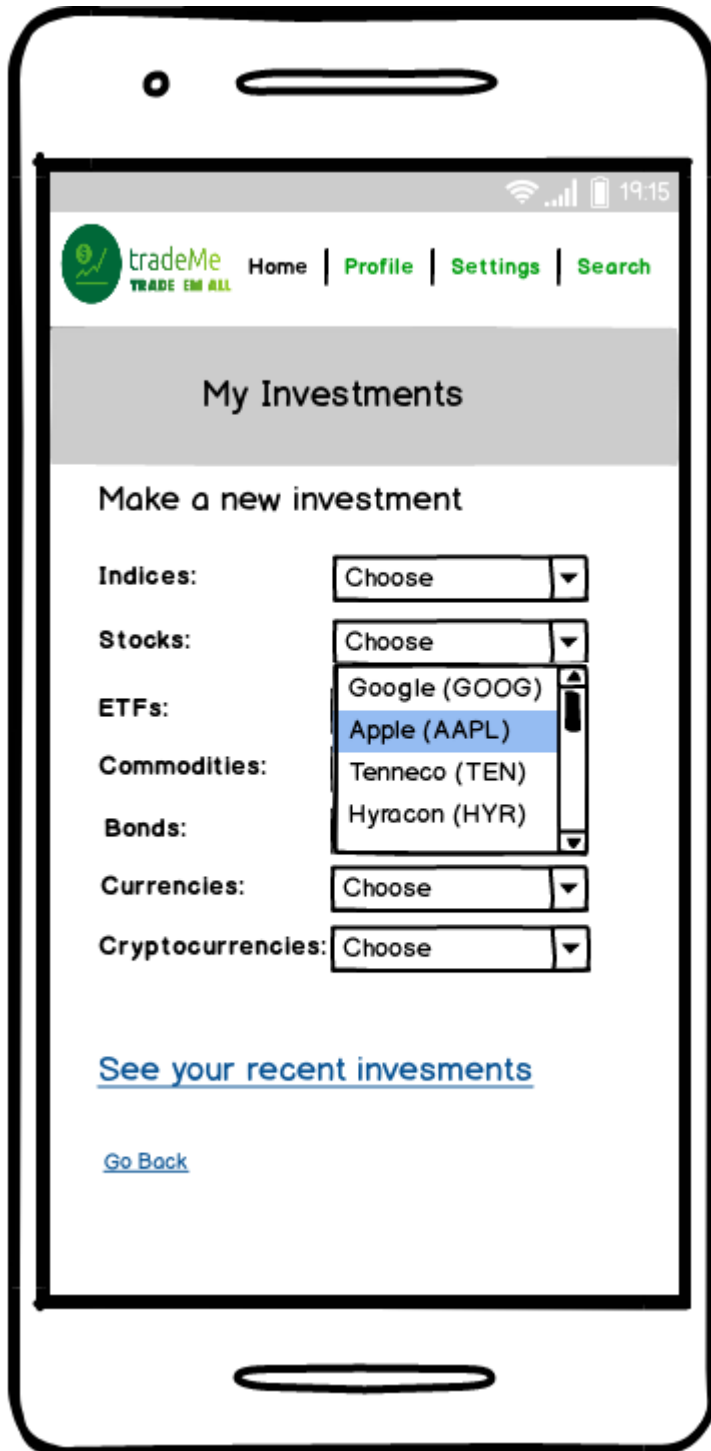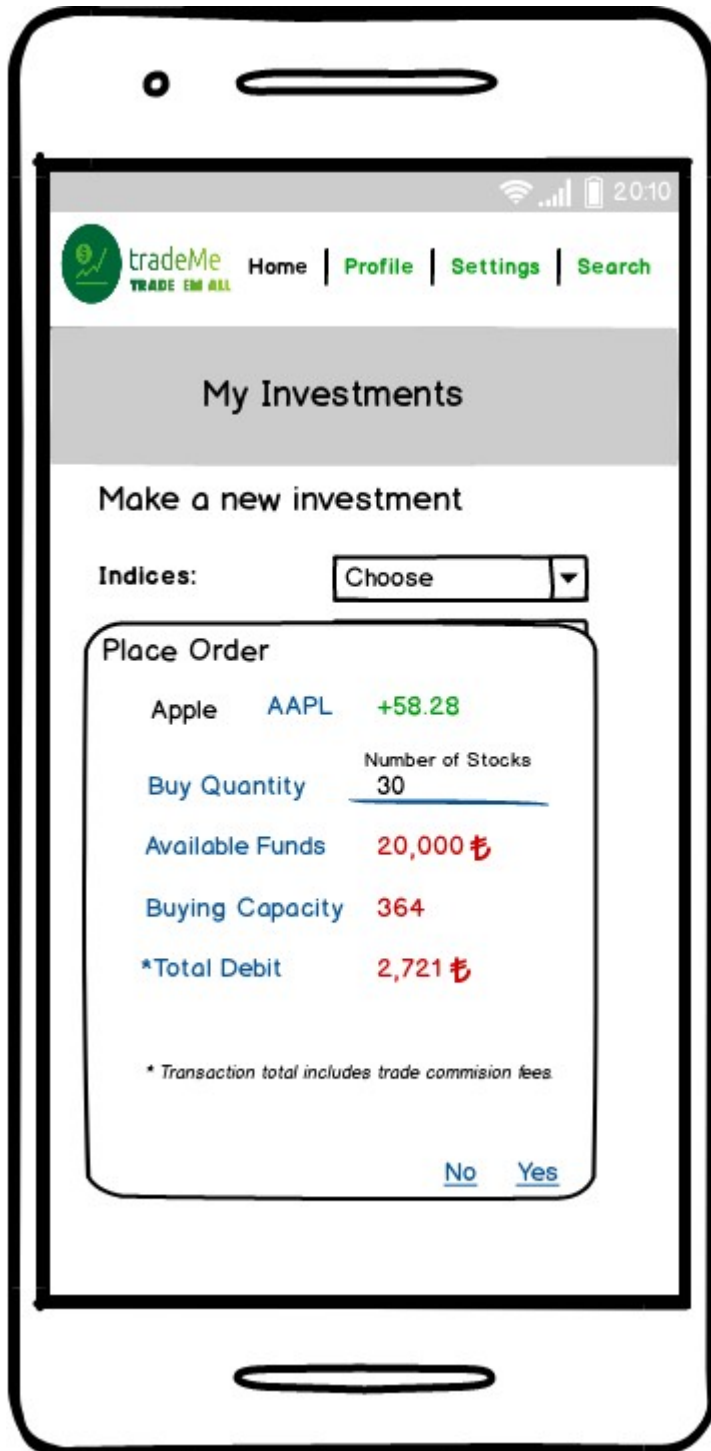
User Story 3

Nevin Kuru - Basic User

- Nevin is greeted by her homepage.

- She goes to the search section of the application.

- She enters "Dollar" in the search bar.
- She sees relevant query results about the word "Dollar".
- She clicks an article that she is interested in.

- She reads the full article.

6. Design

6.1 Use Case Diagram

6.2 Class Diagram

Legend

RegisteredUser, BasicUser, TradingUser, GuestUser, Investment, PredictionSuccesRatio, Prediction, ProfitLoss, TradingEquipment, Portfolio, Comment, Event, Article, Notification, Recommendation, Annotation, Search, ProfitLossTradingUser

We calculate *predictionSuccessRate* attribute value with operation *setPredictionSuccessRate* by sending *predictedTrue* attribute of class *Prediction* along with *predictionCount* and previous rate *predictionSuccessRate* attribute values as paremeters to the operation.

PredictionSuccessRate

+ predictionCount: Int
+ predictionSuccessRate: Int

+setPredictionSuccessRate(previousRate: Double, predictionCount: Int, predictedTrue: Boolean)

When a *Prediction* object is made by the *User* object, we check if the true result of the change direction of trading equipment is in yet with *isDirectionResultIn* attribute vale. If the true result is in, then we send the *isDirectionResultIn* to the operation *setPredictedTrue* along with the *predictedTrue* attribute to set the value of *predictedTrue*. For instance, we can implement the operation *setPredictedTrue* as a function which would set the *predictedTrue* value to either True or False only when the input *isDirectionResultIn* is True.
Whenever a *Prediction* object is made, we increase the value of *predictionCount* attribute of class *Prediction Success Rate* by 1.

Prediction

+ predictionID: Int
+ direction: Boolean
+ predictionOwnerID: Int
+ predictionDate: Date
- isDirectionResultIn: Boolean
+ predictedTrue: Boolean

+ setPredictedTrue(isDirectionResultIn: Boolean, predictedTrue: Boolean)
+ setPredictionCount(predictionCount: Int)

Annotation

+ annotationID: Int
+ annotationDetail: String
+ annotationType: String
+ annotatedObjectID: Int

RecommendationController

+ recommend(userID: ID, recommendationType: String, recommendationDetail: String, recommendedObjectID: Int)

Recommendation

+ recommendationID: Int
+ recommendationDetail: String
+ recommendationType: String
+ recommendedObjectID: Int

Search

+ searchID: Int
+ searchType: String
+ searchPhrase: String
+ filter: String
+ queryResultList: List<Int>

+ search(searchType: String, searchPhrase: String, filter: String): List<Int>

Investment

- tradEquipID: Int
- quantity: Double
- buyPrice: Double
- sellPrice: Double
- stopLimit: Double
- lossLimit: Double
- buyDate: Date
- sellDate: Date

- buyOrder(tradEquipID: Int, quantity: Double, buyPrice: Double, stopLimit: Double, LossLimit: Double)
- sellOrder(tradEquipID: Int, quantity: Double, sellPrice: Double, stopLimit: Double, LossLimit: Double)

RegisteredUser

+ userID: Int
+ userName: String
+ userSurname: String
- email: String
- password: String
- location: Gmap
+ isPrivate: Boolean
+ followedUsers: List<Int>
+ followedEvent: List<Int>
+ followedTradingEquip: List<Int>
+ followedPortfolio: List<Int>
+ followers: List<Int>
+ bio: String
+ profilePic: Bitmap
+ userType: String

+ followUser(userID: Int)
+ unfollowUser(userID: Int)
+ followPortfolio(portfolioID: Int)
+ unfollowPortfolio(portfolioID: Int)
- login(email: String, password: String)
- signInWithGoogle(gmail: String, password: String)
+ setPrivacy(isPrivate: Boolean)
+ viewComment(commentID: Int)
+ upvoteArticle(articleID: Int)
+ downvoteArticle(articleID: Int)
+ viewProfile(userID: Int)
+ renamePortfolio(portfolioID: Int, name: String)
+ logout()
+ setProfilePic(profilePic: Bitmap)
+ deleteProfilePic(profilePic: Bitmap)
+ setBio(bio: String)
- resetPassword()
- changePassword(password: String, newPassword: String)
+ deletePotfolio(portfolioID: Int)
+ upvoteComment(commentID: Int)
+ downvoteComment(commentID: Int)
+ sharePortfolio(portfolioID: Int)
+ addPortfolio(tradEquipList: List<tradEquipID>)

GuestUser

- signUp(userName: String, userSurname: String, email: String, password: String, userType: String)
- signUpWithGoogle(gmail: String, password: String)
+ viewTradEquip(TradEquipID: Int)
+ viewComment(commentID: Int)
+ readArticle(articleID: Int)

TradingEquipment

+ tradEquipID: Int
+ buyPrice: Double
+ sellPrice: Double
+ previousClose: Double
+ percentChange: Double
+ dayRange: Double
+ movingAvg: Double

Portfolio

+ portfolioID: Int
+ tradEquipList: List<tradEquipID>
+ portfolioName: String

+ setPortfolioName(portfolioID: Int, portfolioName: String)

Article

+ articleID: Int
+ articleHeadline: String
+ articleOwnerID: Int
+ publishDate: Date
+ articleUpvoteCount: Int
+ articleDownvoteCount: Int

Comment

+ commentID: Int
+ commentDetail: String
+ commentDate: Date
+ commentOwnerID: Int
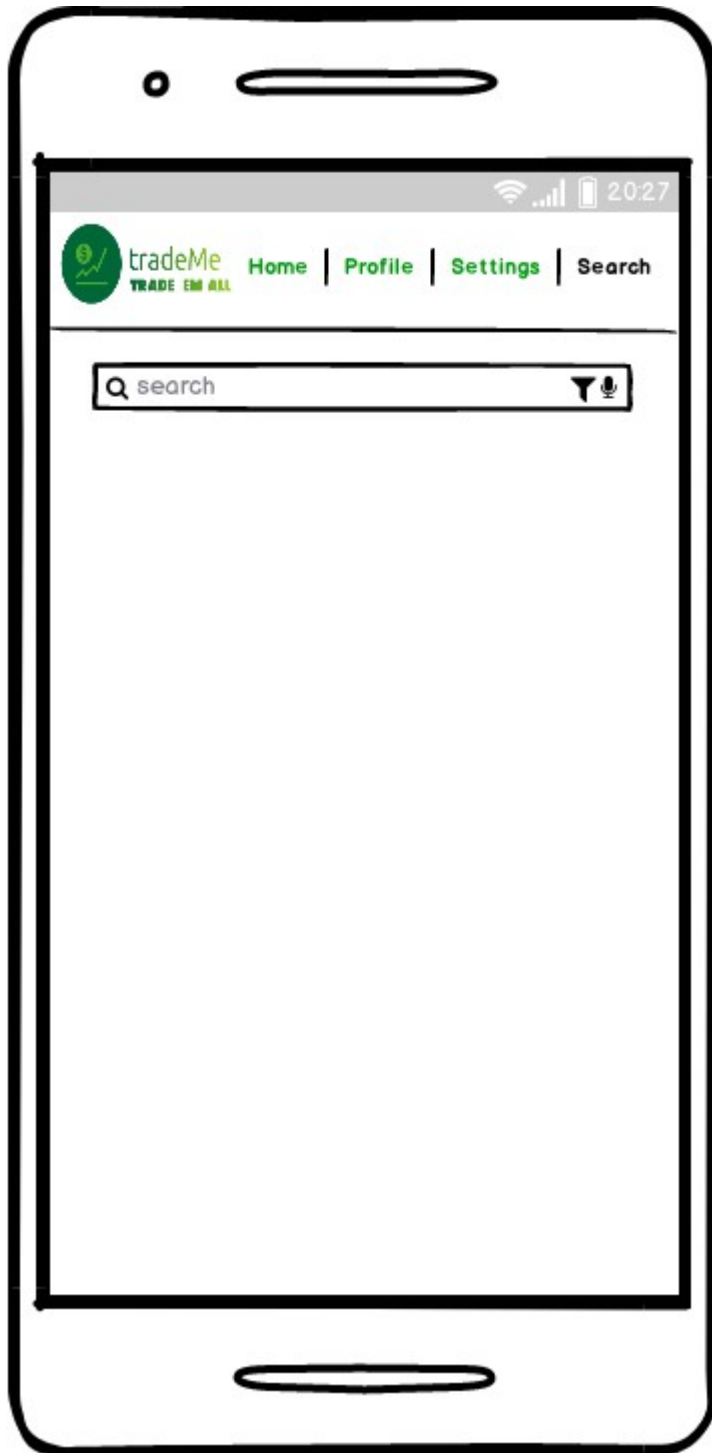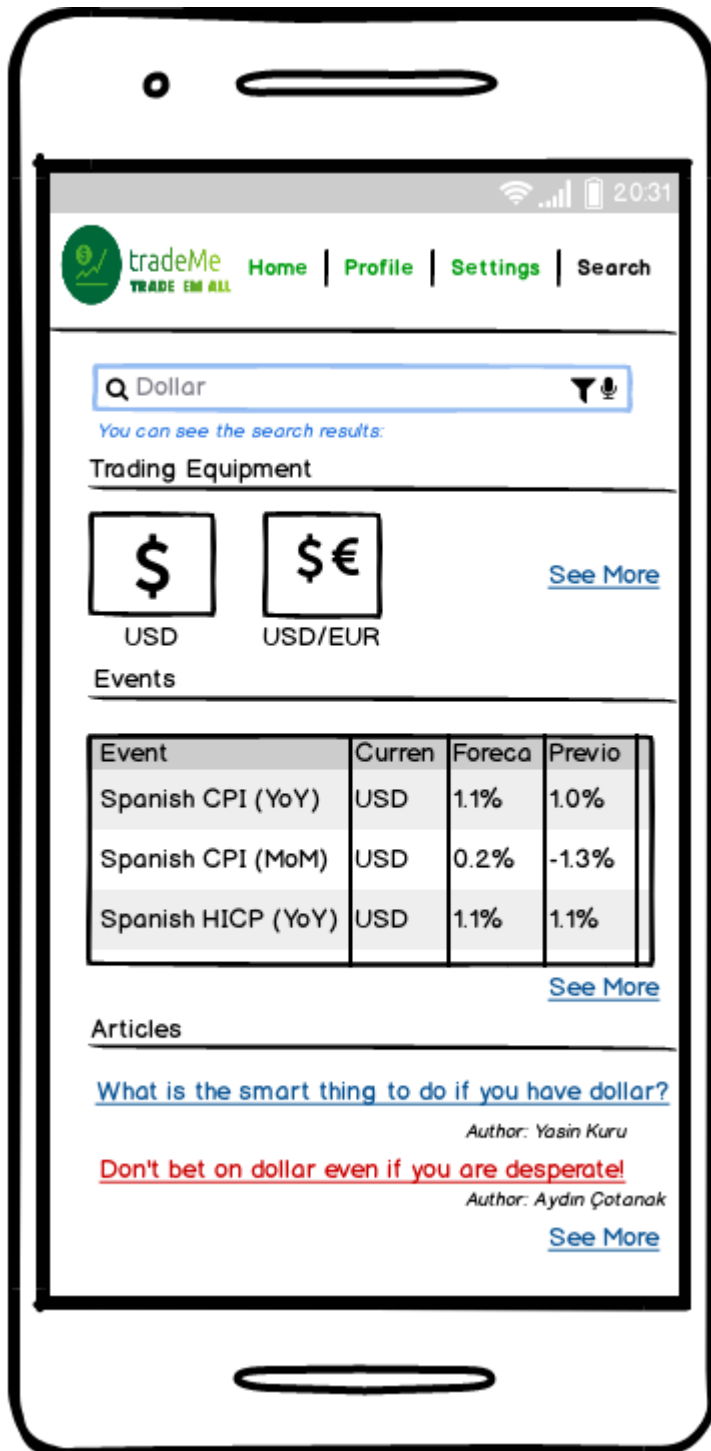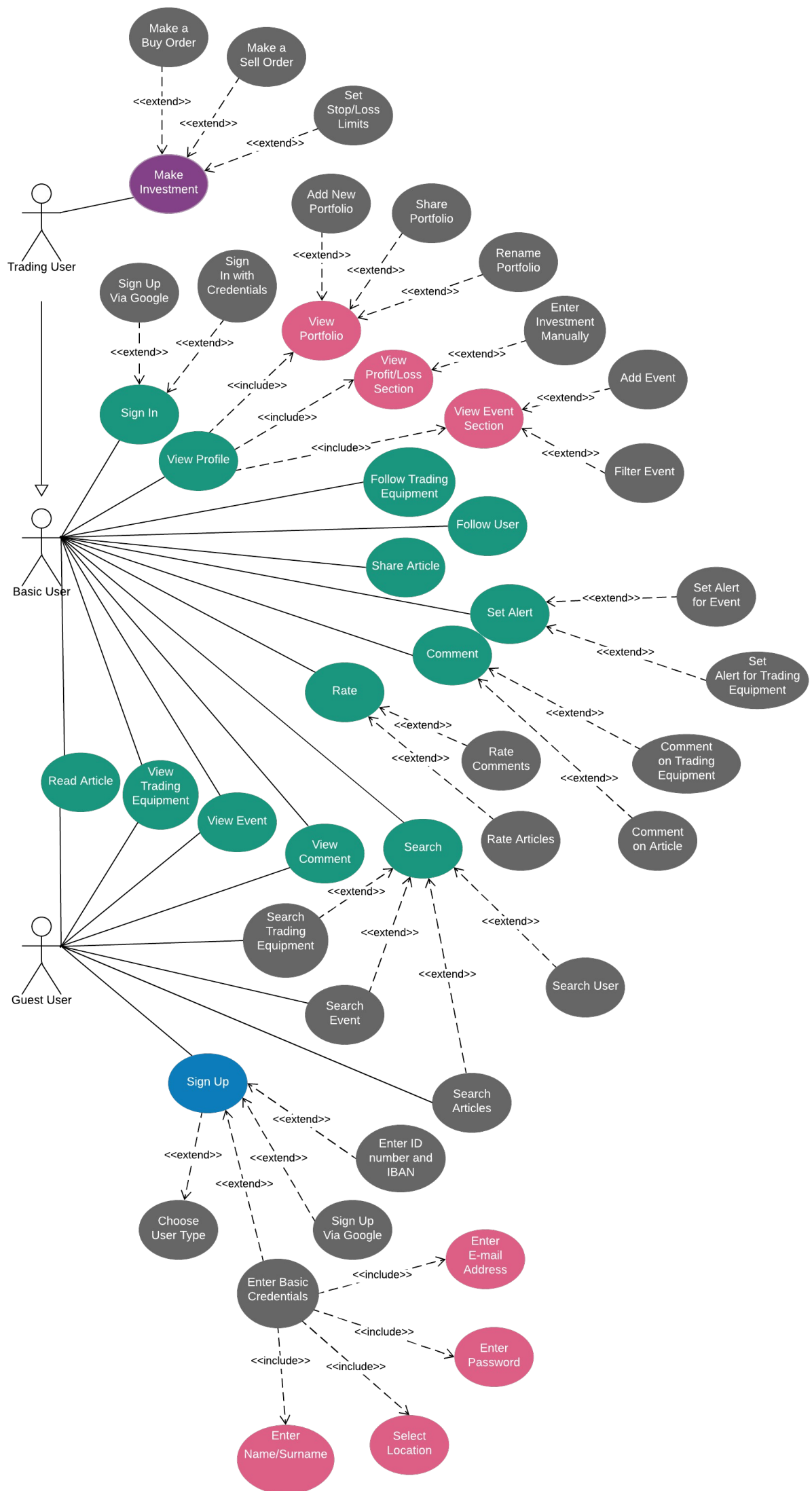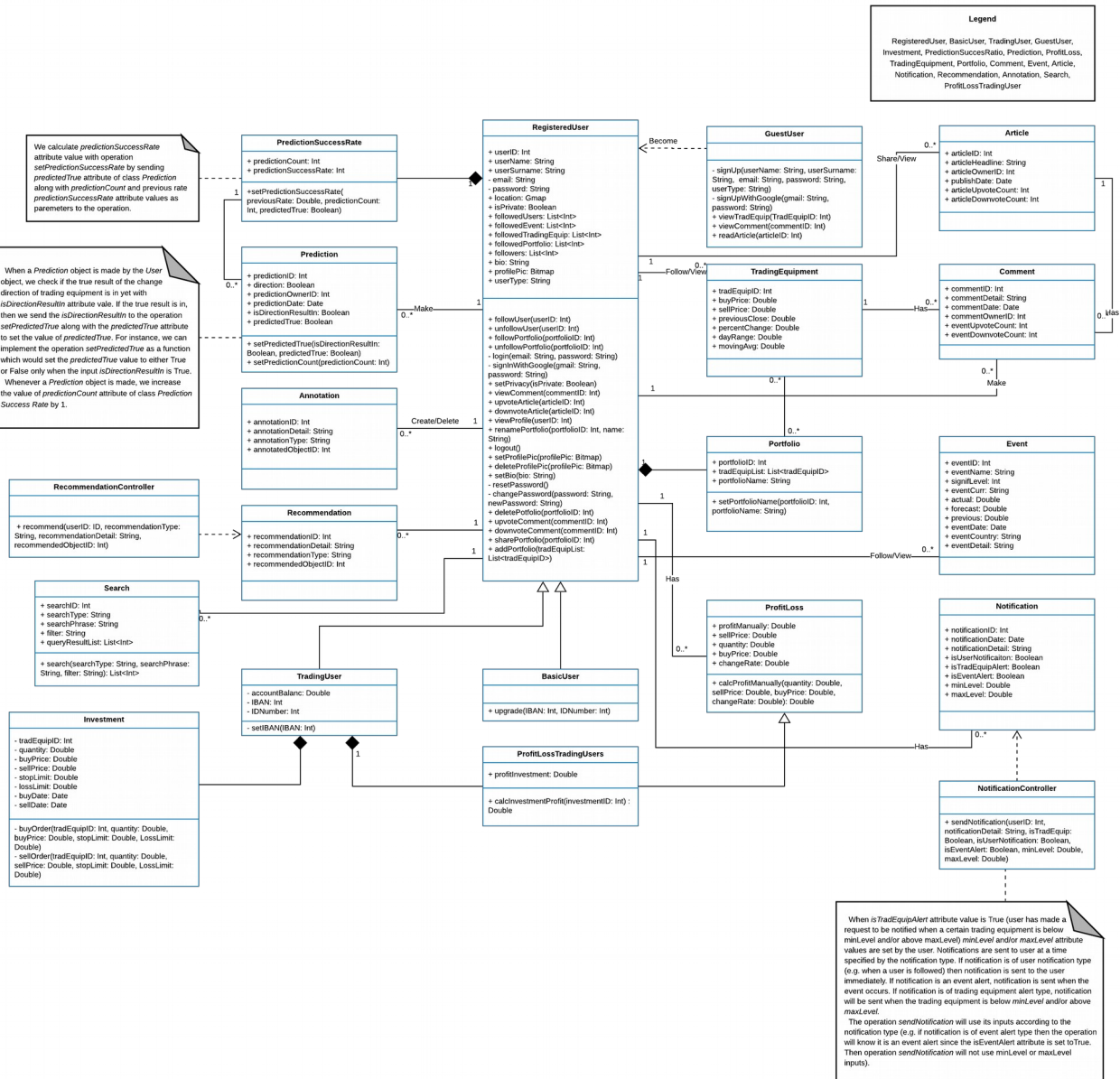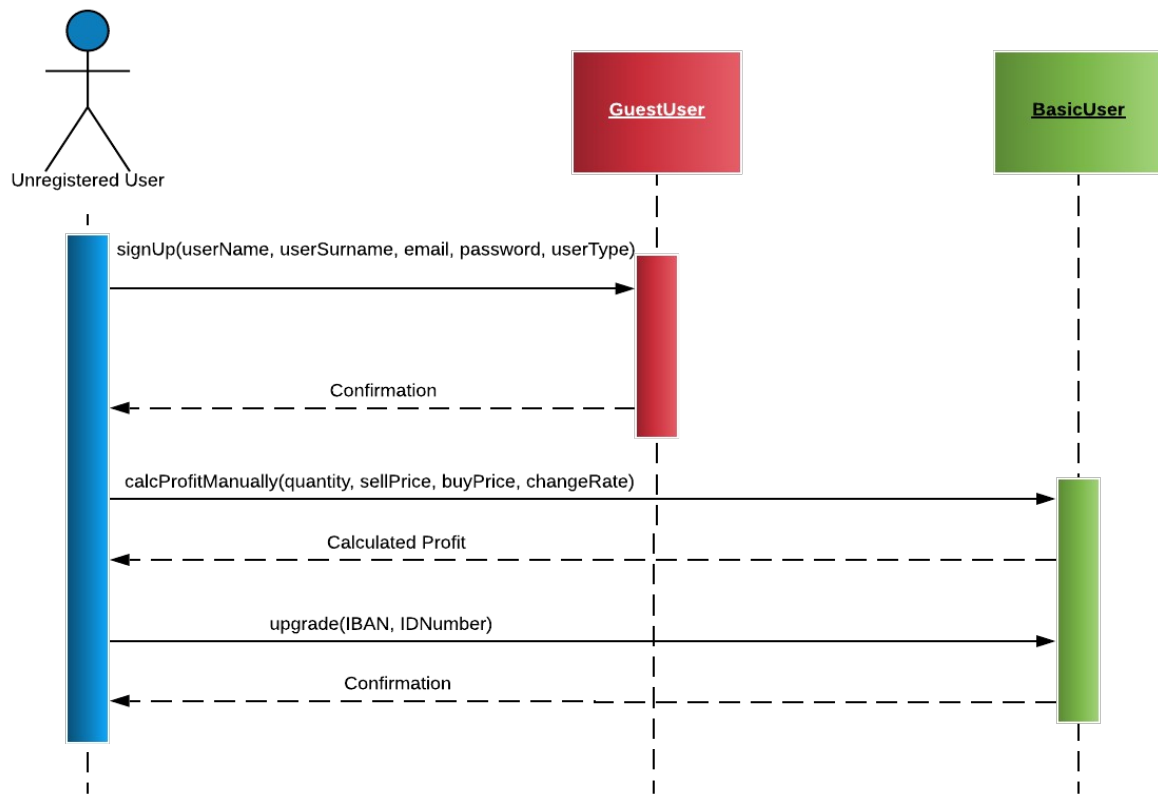+ eventUpvoteCount: Int
+ eventDownvoteCount: Int

Event

+ eventID: Int
+ eventName: String
+ signifLevel: Int
+ eventCurr: String
+ actual: Double
+ forecast: Double
+ previous: Double
+ eventDate: Date
+ eventCountry: String
+ eventDetail: String

TradingUser

- accountBalanc: Double
- IBAN: Int
- IDNumber: Int

- setIBAN(IBAN: Int)

BasicUser

+ upgrade(IBAN: Int, IDNumber: Int)

ProfitLoss

+ profitManually: Double
+ sellPrice: Double
+ quantity: Double
+ buyPrice: Double
+ changeRate: Double

+ calcProfitManually(quantity: Double, sellPrice: Double, buyPrice: Double, changeRate: Double): Double

ProfitLossTradingUsers

+ profitInvestment: Double

+ calcInvestmentProfit(investmentID: Int) : Double

Notification

+ notificationID: Int
+ notificationDate: Date
+ notificationDetail: String
+ isUserNotificaiton: Boolean
+ isTradEquipAlert: Boolean
+ isEventAlert: Boolean
+ minLevel: Double
+ maxLevel: Double

NotificationController

+ sendNotification(userID: Int, notificationDetail: String, isTradEquip: Boolean, isUserNotification: Boolean, isEventAlert: Boolean, minLevel: Double, maxLevel: Double)

When *isTradEquipAlert* attribute value is True (user has made a request to be notified when a certain trading equipment is below minLevel and/or above maxLevel) *minLevel* and/or *maxLevel* attribute values are set by the user. Notifications are sent to user at a time specified by the notification type. If notification is of user notification type (e.g. when a user is followed) then notification is sent to the user immediately. If notification is an event alert, notification is sent when the event occurs. If notification is of trading equipment alert type, notification will be sent when the trading equipment is below *minLevel* and/or above *maxLevel*.
The operation *sendNotification* will use its inputs according to the notification type (e.g. if notification is of event alert type then the operation will know it is an event alert since the isEventAlert attribute is set to True. Then operation *sendNotification* will not use minLevel or maxLevel inputs).

Become · Share/View · Follow/View · Make · Create/Delete · Has · Make · Follow/View · Has · Make · Has
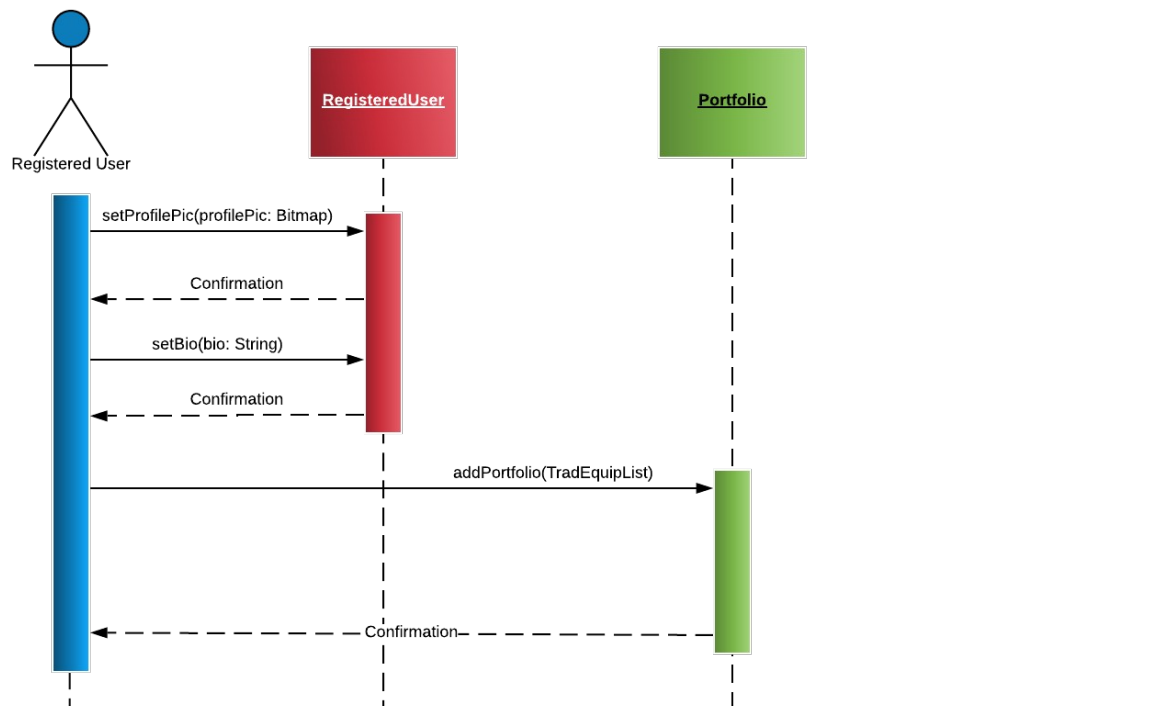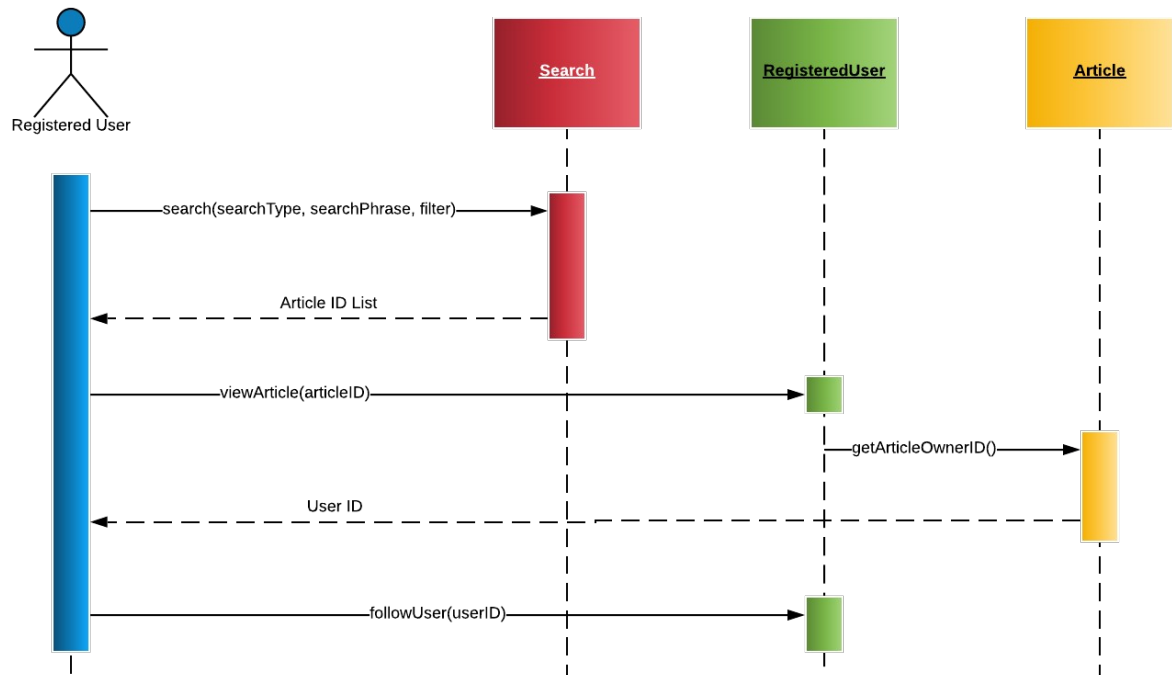
6.3 Sequence Diagrams

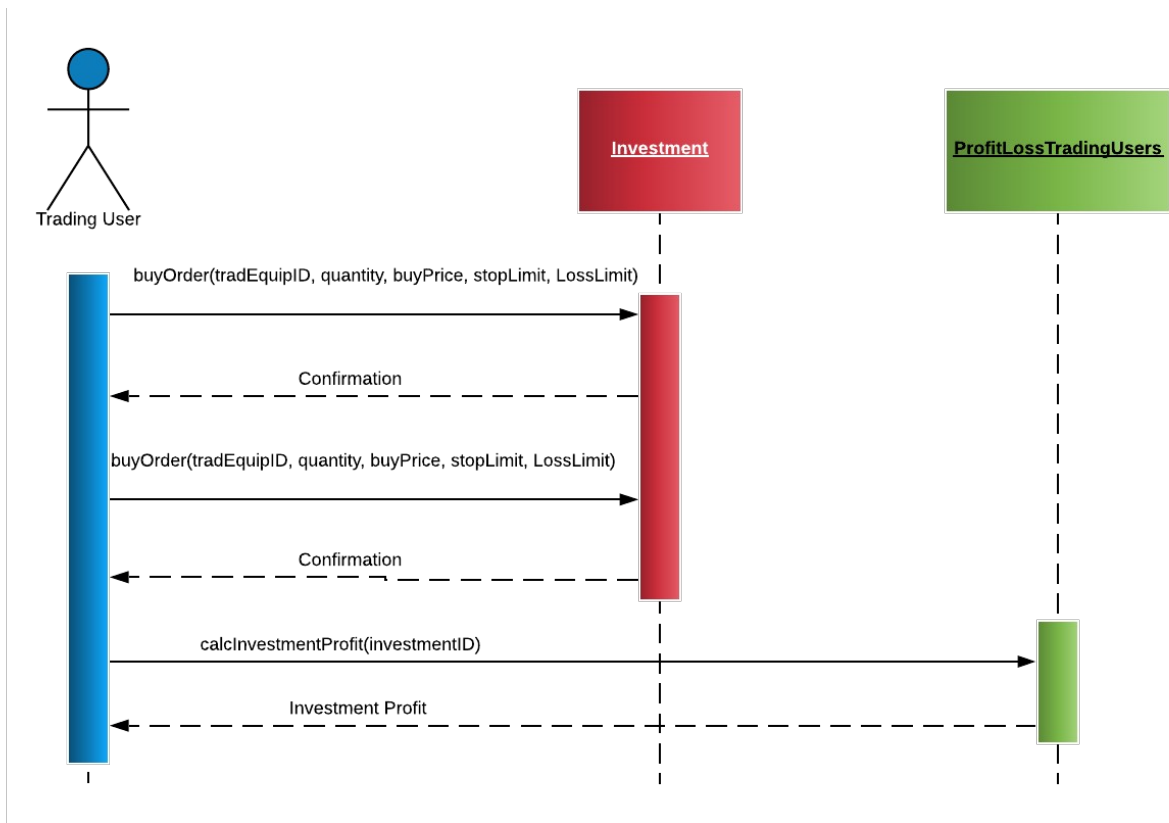## Sign Up & Upgrade to a Trading User
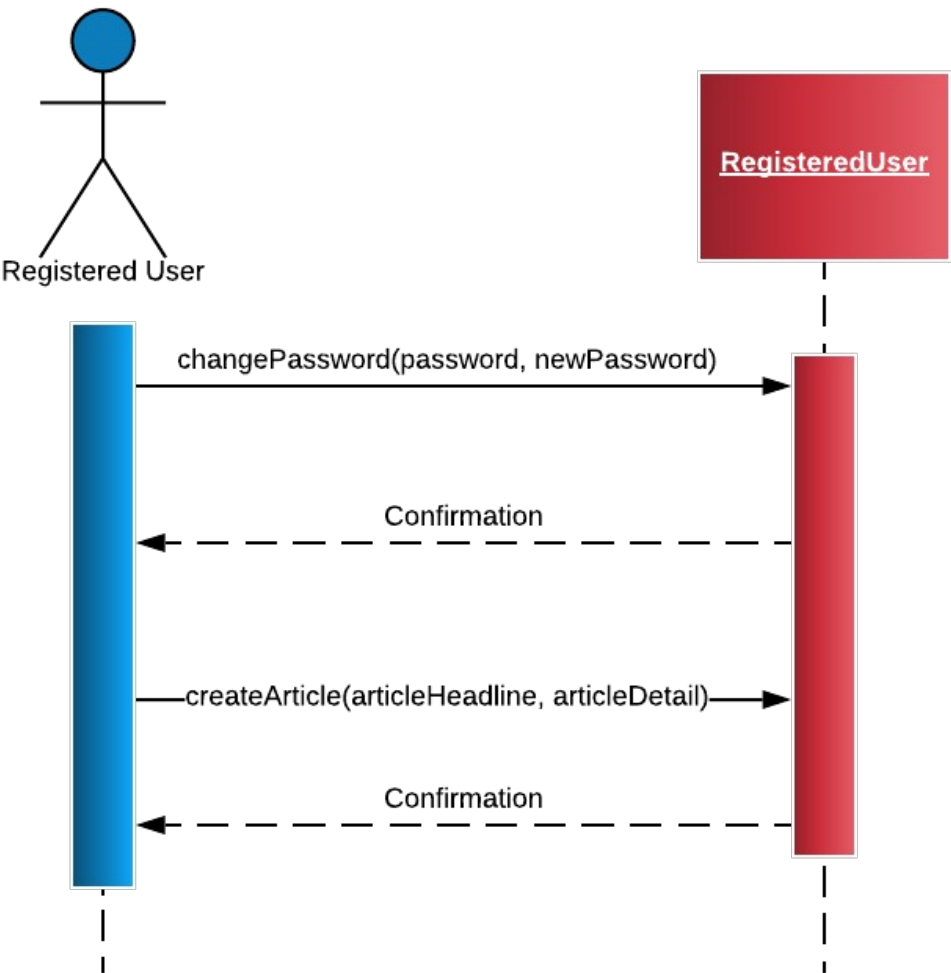
Edit Profile & Add Portfolio

Search Article & Follow User

Make Investment & Calculate Investment Profit

Change Password & Create Article

Make Prediction & View Prediction Success Rate

Actor: RegisteredUser

RegisteredUser | Prediction | PredictionSuccessRatio

makePrediction(predictedTradEquipID, direction)

Confirmation

setPredictionCount(predictionCount)

Loop
[isDirectionResultIn=False]

getDirectionResultIn()

isDirectionResultIn

setPredictedTrue(isDirectionResultIn, predictedTrue)

setPredictionSuccessRate(previousRate, predictionCount, predictedTrue)

getPredictionSuccessRate()

Prediction Success Rate