

Florida International University
School of Computing and Information Sciences

Software Engineering Focus

Final Deliverable

Project Title:

EForT: Empowered Forex Traders

(Web App and API)

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Abstract

This document will present the information necessary to gain a high-level understanding of the EForT project, and more specifically, the EFWA team's contribution for Spring 2020.

This document provides a thorough explanation of the system and its features so that the reader understands how the system functions and the motivation for the development of this project. It begins with an introduction of the current system as well as an overview of the purpose of the new system. The document then goes over the user stories that were implemented as well as the ones which are still pending. It presents detailed information on requirements of the system, system architecture used, the plan that was set in place for implementing the features, and system validation. A glossary can also be found for reference to important keywords used through the document as well as an appendix section with UML diagrams, user interface designs, sprint review reports, and user manuals.

Table of Contents

Introduction	6
Current System	6
User	6
Developer	7
New System	7
User	7
Home page	7
Social media login	7
Time out session deleted	8
User Stories	8
Implemented User Stories	8
Pending User Stories	11
Project Plan	14
Hardware and Software Resources	14
Sprints Plan	15
Sprint 1	15
Sprint 2	15
Sprint 3	16
Sprint 4	17
Sprint 5	18
Sprint 6	19
Sprint 7	20
System Design	21
Continuous Integration	21
Continuous Delivery	21

Architectural Patterns	22
Appendix	25
Appendix A - UML Diagrams	25
EFRT-12 - Home Page	25
Use Case Diagram of Homepage User Story	25
Sequence Diagram of the Home Page	25
Class Diagram of Home Page User Story	26
EFRT-29 - Login with Facebook	26
Use Case Diagram of Login with Facebook User Story	26
Sequence Diagram of Login with Facebook User Story	27
EFRT-30 - Login with Google	28
Use Case Diagram of Login with Google User Story	29
Sequence Diagram of Login with Google User Story	29
Class Diagram of Login with Google User Story	30
EFRT- 62- Impersonating Developer User	31
Appendix B - User Interface Design	33
Appendix C - Sprint Review Reports	39
Sprint 1 Review	39
Sprint 2 Review	39
Sprint 3 Review	40
Sprint 4 Review	41
Sprint 5 Review	42
Sprint 6 Review	43
Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document, and other documents	44
Installation	44
Wishlist	44

INTRODUCTION

EForT is an application that aims to provide a platform for advanced forex traders to publish and advertise their trading success, while providing more basic traders to pay and subscribe to expert traders. This project uses MetaTrader, which is a foreign exchange trading platform that is responsible for the automation of various interactions critical to the project. Development of the EForT project is compartmentalized into various teams: the web app and api team (EFWA), web server and expert advisor team (EFWE), data visualization team (EFVT), and more teams to handle other specific aspects of the project. Our team, EFWA, must work closely with the EFWE team to handle the many communications between the MT4 terminals, APIs, and the actual web app and database.

This section serves as an introduction to the EForT system which takes advantage of proven trading bots and makes them available to users who may be new to trading. First, it goes over the current system. Specifically, it goes over the features which are currently available and how they work as well as makes mention of some of its shortcomings. Then, it explains the purpose of the new system whose development is described and explained in the rest of the document. The chapter provides insight into the system and some of the features.

CURRENT SYSTEM

(The following explanation was obtained from the final deliverable from the EFWA team of Fall 2019, in which they provided a deep insight of how they left the project, as well as any relevant contribution that was worth mentioning)

User

The administrator is able to make any user's forex account a publisher, which other users can subscribe to. When subscribed, any order the publisher account makes will be automatically mimicked by the subscribers. Moreover, traders can view Forex account advertisements from publishers to be convinced to subscribe. Upon clicking a publisher advertisement, traders will be directed to a publisher report page displaying a document that contains a host of information about a publisher's Forex account activity; including account name, number, broker, date, and

history of positions, orders, deals, and open positions. The report also provides a series of statistics related to the account's performance in a section titled "Results." At this point, traders can click a subscribe button located below the report document; doing so will bring up a modal that allows traders to choose which of their validated Forex accounts they would like to subscribe with. On the flipside, traders who are already subscribed to a publisher whose report they are viewing, are free to unsubscribe at any time.

Developer

This fall, we moved the CI / CD from Bamboo to Azure DevOps. We were able to identify the issues they were having with their bamboo agents and correct those issues for the new pipelines. We also created the CI / CD for the data folders. Now the many separate teams who all primarily work in the data folder know that any of their committed changes will be properly deployed to each of the many data folders spread across the project's servers.

NEW SYSTEM

User

Home page

A new home page was created to create a more user-friendly interface experience. The new home page counts with a new info session with three sub-tabs that gives the user the option to navigate to the education center, the contact us page, and the trading tools educational wiki. In addition, a new section for reviews was added. Three dummy reviews were created as place-holder for when real members start using the web application. Furthermore, the new home page follows the standard EFORT layout and color palette that helps to maintain the uniformity across the website.

Social media login

The functionality of login into EFORT with social media applications such as Facebook, twitter, linked, google, and Instagram were implemented. The idea is to facilitate the user with a quick and easy way to access their account. As of now, the implementation and testing of Google are complete. For Facebook, the code has been implemented and tested locally, however, it

cannot be deployed in the staging server because it does not support the HTTP protocol. For the others, all the code has been implemented but due to COVID-19 the apps did not verify the developer account so they need a followup request.

Time out session deleted

The timeout session for the whole WebApp was deleted since it was giving issues to the users that wanted to analyze and visualize their equity graphs, so the feature was removed.

USER STORIES

The following section provides the detailed user stories that were implemented in this iteration of the EForT project. These user stories served as the basis for the implementation of the project's features. This section also shows the user stories that are to be considered for future development.

Implemented User Stories

User Story EFRT-12: EForT Homepage

As a potential user, I would like more information about EForT on the homepage so that I may be more inclined to become an actual user.

Acceptance Criteria:

1. All users, including potential new users, have access to the EForT home page through the site URL.
2. The landing page includes information about EForT to showcase the functionalities, resources, and information available for registered users so they may be more inclined to become an actual user.

User Story EFRT-29: Login with Facebook

As a user, I would like to create an account in EForT using my Facebook account, because I would like to link all my accounts and streamline the account creation process.

Acceptance Criteria:

1. The Facebook login button is available to all users when they access the login screen of EForT, and it is located underneath the login credentials area.
2. Clicking the button triggers the Facebook login browser pop-up where the user is asked to input their credentials. If the account is associated with an EForT user then the user is logged in and redirected to the EForT home screen.
 - a. Users can link their Facebook accounts by navigating to the Edit Profile page once logged in to their EForT account. From there, the Facebook-button will be available. The user clicks on it and logs into their Facebook account. Upon successful validation, the user is redirected to the home screen. They may now login with their Facebook account in the future.

User Story EFRT-30: Add login with Google account to account creations option

As a user, I would like to create an account in EForT using my Google account, because I would like to link all my accounts and streamline the account creation process.

Acceptance Criteria:

1. The Google login button is available to all users when they access the login screen of EForT, and it is located underneath the login credentials area.
2. Clicking the button triggers the Google login browser pop-up where the user is asked to input their credentials. If the account is associated to an EForT user then the user is logged in and redirected to the EForT home screen.
 - a. Users can link their Google accounts by navigating to Edit Profile page once logged in to their EForT account. From there, the Google button will be available. The user clicks on it and logs into their Google account. Upon successful validation, the user is redirected to the home screen. They may now login with their Google account in the future.

User Story EFRT-60: Impersonate user initially cannot return back to Admin panel Bug

As a developer, I need to make sure that when a user is impersonating a role, they can go back to their original role such that they do not have to log out to access their regular features.

Acceptance Criteria:

1. An admin user can impersonate a role.

2. The admin user can go back to the Admin panel from any role they may be impersonating without getting any errors.
3. The option to go back to the Admin panel can be found in the profile options menu on the top-right corner of the page.

User Story EFRT-61: EForT logout Bug

As a developer, I need to fix the bug that is booting users from their accounts after they move through the options on the main menu such that the users can use all the features on the website without the necessity of login back.

Acceptance Criteria:

1. A user can log in to their profile and navigate through the different pages of EForT.
2. As the user navigates through the various pages, they are remaining logged in.
3. The user can logout by clicking on the menu and selecting the Logout option at the bottom.

User Story EFRT-62: Impersonating Developer yields “unhandled exception” Bug

As a developer, I need to fix the error produced after trying to impersonate a developer role such that the feature can be fully functional.

Acceptance Criteria:

1. An admin user can impersonate a developer role.
2. On impersonation of the developer role, the user is redirected to the home screen of EForT as a developer instead of being redirected to an error page displaying an “unhandled exception” message.
3. The impersonated developer has all the necessary access as normal.

User Story EFRT-67 Bug when Impersonating Guru

As a developer, I need to make sure that when a user is impersonating the role "guru", the button "Back to my Admin Panel" works such that the user is back to their role and the Web App displays the correct user profile.

Acceptance Criteria:

1. An admin user can impersonate a guru role.
2. On impersonation of the guru role, the user can access all functionalities of a guru without errors.
3. The user has the “Back to my Admin Panel” option and it takes the user back to the admin panel successfully.

User Story EFRT-70: Timeout session fix Bug

As a developer, I need to fix the time out session, so that the EFVT team can effectively display the graph and test the time frame features.

1. Users can interact with EForT without experiencing any timeout issues.
2. Users can login to their accounts and navigate to the different pages of EForT without any interruptions.

User Story EFRT-71: Jira and Confluence migration to DevOps

As a developer I need to find the best way to migrate all the documentation from Jira and Confluence to DevOps, such that the next teams for future semesters will be able to find all they need to keep the project going.

Acceptance Criteria:

1. All documentation from Jira and Confluence from past semesters is transferred into DevOps.
2. The documentation is available for future students.

Pending User Stories

User Story EFRT-26: Login using Twitter

As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process

Acceptance Criteria:

1. The Twitter login button is available to all users when they access the login screen of EForT, and it is located underneath the login credentials area.
2. Clicking the button triggers the Twitter login browser pop-up where the user is asked to input their credentials. If the account is associated to an EForT user then the user is logged in and redirected to the EForT home screen.
 - a. Users can link their Twitter accounts by navigating to Edit Profile page once logged in to their EForT account. From there, the Twitter button will be available. The user clicks on it and logs into their Twitter account. Upon successful validation, the user is redirected to the home screen. They may now login with their Twitter account in the future.

User Story EFRT-27: Login using LinkedIn

As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.

Acceptance Criteria:

1. The LinkedIn login button is available to all users when they access the login screen of EForT, and it is located underneath the login credentials area.
2. Clicking the button triggers the LinkedIn login browser pop-up where the user is asked to input their credentials. If the account is associated to an EForT user then the user is logged in and redirected to the EForT home screen.
 - a. Users can link their LinkedIn accounts by navigating to Edit Profile page once logged in to their EForT account. From there, the LinkedIn button will be available. The user clicks on it and logs into their LinkedIn account. Upon successful validation, the user is redirected to the home screen. They may now login with their LinkedIn account in the future.

User Story EFRT-28: Login using Instagram

As a user, I would like to create an account in EForT using my Instagram account, because I would like to link all my accounts and streamline the account creation process.

Acceptance Criteria:

3. The Instagram login button is available to all users when they access the login screen of EForT, and it is located underneath the login credentials area.

4. Clicking the button triggers the Instagram login browser pop-up where the user is asked to input their credentials. If the account is associated to an EForT user then the user is logged in and redirected to the EForT home screen.
 - a. Users can link their Instagram accounts by navigating to Edit Profile page once logged in to their EForT account. From there, the Instagram button will be available. The user clicks on it and logs into their Instagram account. Upon successful validation, the user is redirected to the home screen. They may now login with their Instagram account in the future.

User Story EFRT-37: Email verification for forgot password

As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.

Acceptance Criteria:

1. The “Forgot Password” button is available for any user on the login screen.
2. The user clicks on the button as is presented with a message to verify their identity by clicking on the link that was sent to their email.
3. The user receives an email with a link.
4. Clicking on links opens a page where the user can reset their password.
5. The user changes their password and the database is updated.
6. The user is now able to login with their new password.
 - a. The user’s old password no longer works.

PROJECT PLAN

This section describes the planning that went into the realization of this project. This project incorporated the agile development techniques and as such required the sprints to be planned. These sprint planning meetings are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

Hardware and Software Resources

The following is a list of all hardware and software resources that were used in this project:

Hardware

1. Computers running Windows 10

Hardware

1. Visual Studio 2017 – project IDE
2. Entity Framework 5-Layer Architecture: EForT/Web API/Business/Repository/Aggregate-back-end architecture
3. ASP.NET Core 2.2 – back-end framework
4. C# - back-end programming language
5. MVC 5.0 – front-end architecture
6. Bootstrap – front-end framework
7. HTML, CSS3, JavaScript, Razor – front-end programming languages
8. PWA 1.0 – cross-platform product
9. MSSQL Server – DBMS platform
10. MS SQL Server Management Studio – TSQL IDE
11. Redis 3.2.1 – stores web tokens

Sprints Plan

Sprint 1

Sprint 2

SP20 Team20 Planning Sprint 2 01/28/2019 9pm-9:30pm

- Rosamaria Belisario, Eduardo Paredes-Diago
- Sprint Goals:
 - Goal 1: Make sure the project environment and the connections to the VPSs are working properly, such that we can define the functionalities that either work correctly or incorrectly.
 - Goal 2: Add user stories and bugs to our backlog based on the findings from goal 1.
- Sprint User Stories:
 - User Story 1: As a developer, I would like to test previous user stories that appear as done, so that I can give the PO a complete report of the functionalities that work as intended.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes.
 - Points: 20 Hours
 - User Story 2: As a developer, I need access to the VPS, so that I can test and validate the server end-to-end functionality.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes.
 - Points: 5 Hours
 -
 - User Story 3: As a developer, I would like to review the backlog of previous teams, so that I can create and propose a Wishlist of features to the PO, and we can define the MVP.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes.

- Points: 15 Hours

Sprint 3

SP20 Team20 Planning Sprint 3 01/28/2019 9pm-9:30pm

- Rosamaria Belisario, Eduardo Paredes-Diago
- Sprint Goals:
 - Goal 1: Make sure all the bugs found on the “impersonate” feature are solved and that the user can use the functionality without any issue.
 - Goal 2: Fixing the logout issue, after a trader tries to access different options on the main menu, and make sure the time out action works properly.
- Sprint User Stories:
 - User Story 1: As a developer, I need to make sure that when a user is impersonating a role, they are able to go back to their original role such that they do not have to log out to access their regular features.
 - Initially assigned to Rosamaria Belisario
 - Points: 7 (20 hours)
 - User Story 2: As a developer, I need to fix the bug that is booting users from their accounts after they move through the options on the main menu such that the users can use all the features on the website without the necessity of login back.
 - Initially assigned to Eduardo Paredes
 - Points: 7 (20 hours)
 - User Story 3: As a developer, I need to fix the error produced after trying to impersonate a developer role such that the feature can be fully functional.
 - Initially assigned to Rosamaria Belisario
 - Points: 7 (20 hours)
 - User Story 4: As a developer, I need to make sure that when a user is impersonating the role "guru", the button "Back to my Admin Panel" works such that the user is back to their role and the Web App displays the correct user profile.
 - Initially assigned to Eduardo Paredes
 - Points: 7 (20 hours)

Sprint 4

SP20 Team20 Planning Sprint 4 03/16/2019 9pm-9:30pm

· Rosamaria Belisario, Eduardo Paredes-Diago

- Sprint Goals:
 - Goal 1: Fix the timeout issue
 - Goal 2: Complete the expansion of the login and password reset processes to create a streamlined and secure experience.
- Sprint User Stories:
 - User Story 1: As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours
 - User Story 2: As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours
 - User Story 3: As a user, I would like to create an account in EForT using my Instagram account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours
 - User Story 4: As a user, I would like to create an account in EForT using my Facebook account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours
 - User Story 5: As a user, I would like to create an account in EForT using my Google account, because I would like to link all my accounts and streamline the account creation process.

- Initially assigned to Eduardo Paredes
- Points: 10 Hours
- User Story 3: As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours

Sprint 5

SP20 Team20 Planning Sprint 5 03/30/2019 9pm-9:30pm

- Rosamaria Belisario, Eduardo Paredes-Diago
- Sprint Goals:
 - Goal 1: Complete the started user stories from the previous sprint
 - Goal 2: Fully implement the login process with LinkedIn and Twitter
- Sprint User Stories:
 - User Story 1: As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours
 - User Story 2: As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours
 - User Story 3: As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours

Sprint 6

SP20 Team20 Planning Sprint 6 03/30/2019 9pm-9:30pm

- **Rosamaria Belisario, Eduardo Paredes-Diago**
- **Sprint Goals:**
 - **Goal 1:** Complete the started user stories from the previous sprint
 - **Goal 2:** Fully implement the login process with LinkedIn and Twitter streamlined and secure experience.
- **Sprint User Stories:**
 - User Story 1: As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours
 - User Story 2: As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours
 - User Story 3: As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.
 - Initially assigned to Eduardo Paredes
 - Points: 10 Hours
 - User Story 4: As a potential user, I would like more information about EForT on the homepage so that I may be more inclined to become an actual user.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours
 - User Story 5: As a developer, I need to find the best way to migrate all the documentation from Jira and Confluence to DevOps, such that the next teams for future semesters will be able to find all they need to keep the project going.
 - Initially assigned to Rosamaria Belisario
 - Points: 10 Hours

Sprint 7

SP20 Team20 Planning Sprint 7 04/14/2019 9pm-9:30pm

• ***Rosamaria Belisario, Eduardo Paredes-Diago***

- ***Sprint Goals:***
 - ***Goal 1:*** Complete the started user stories from the previous sprint
 - ***Goal 2:*** Fully implement the login process with LinkedIn and Twitter streamlined and secure experience.
- ***Sprint User Stories:***
 - ***User Story 1:*** As a developer, prepare the Final Project Document that includes our UML diagrams so that it may be ready by the due date (4/27)
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 2:*** As a developer, record the "Introduction to the Software Solution" video
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 4:*** As a developer, record the videos that show how to use the software solution for each human actor of the system.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 5:*** As a developer, record a video showing how to install the software solution, how to maintain, and how to start working on the next revision.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 5:*** As a developer, record a video that shows the shortcomings of the current software and what are the features that are missing.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 6:*** As a developer, record a video that shows the shortcomings of the current software and what are the features that are missing.
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
 - ***User Story 7:*** As a developer, create the html file that will contain all of the video links to be included in the deliverable zip

- Initially assigned to Rosamaria Belisario and Eduardo Paredes
- Points: 10 Hours
- User Story 8: As a developer, create Final Presentation Slides (one per team)
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
- User Story 9: As a developer, create the project Poster
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
- User Story 10: As a developer, add all deliverable items into a zipped folder and submit by 11:59 pm on 4/27 (ONLY ONE SUBMISSION PER TEAM)
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours
- User Story 11: As a developer, merge all code into develop branch
 - Initially assigned to Rosamaria Belisario and Eduardo Paredes
 - Points: 10 Hours

SYSTEM DESIGN

Continuous Integration

This method was created to keep efficiency and rapid delivery in the development process. It consists of performing frequent integration of code into the main repository. This method specifies that before any merge, the code needs to go through automated test cases and build sequence. Some of the benefits of CI are:

- Early detection of bugs: Making continuous and frequent merges can help the developer realize if there are any build errors provoked by the new code.
- Transparency: Allows the developer to quickly identify what are the errors and tests that the code fails which opens the door to an efficient real-time decision.
- Cost-Effective Process: Manual testing time gets reduced, which implies less human labor that eventually optimizes the budget of the project.

Continuous Delivery

The process of delivering and merging any new type of code with production in a timely manner. C.D. allows the development teams to create a schedule for deployments and testing.

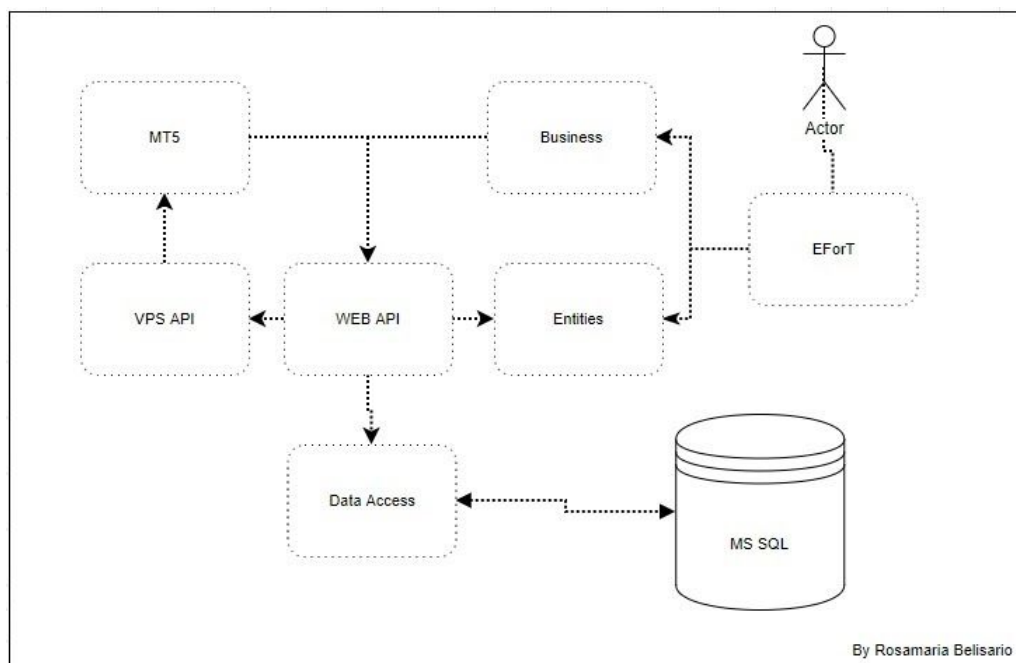
Some of the benefits of C.D are:

- Reducing the risk: C.D. makes deployment faster, efficient, and easy because there exists continuous feedback on the process.
- High-Quality application: Since the testing is being handled automatically, the developers have more time to focus on the product and final deliverable.

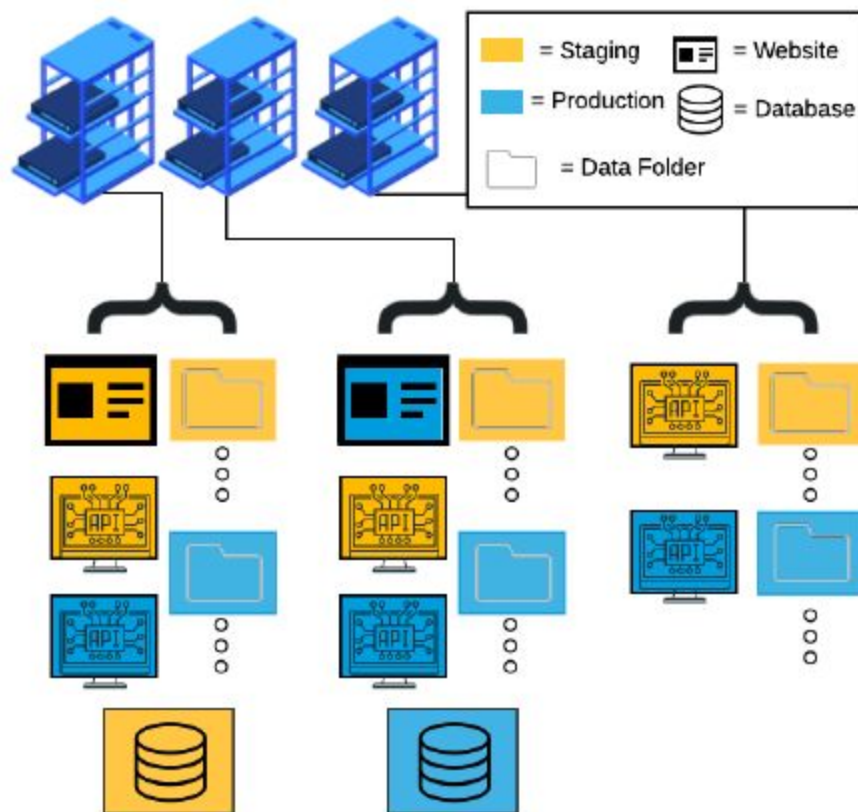
Architectural Patterns

The EFORT project was created using a 5-layer architecture:

1. Presentation: How the application/solution is shown to the consumer.
2. User Interface: The pages that the users interact with.
3. Business Logic: Data validation, security, and processing.
4. Data Access: All actions that are performed in the databases, deletes, inserts, and updates.
5. Data Storage: The implementation of the data access layer explained previously.



EFORT was developed following the principals of ASP.NET core framework for the backend, and Mode-View-Controller design pattern for its frontend. The View connects with the APIs services to retrieve the information and then the Data Access layer uses Entity Framework Core for communicating with the SQL database that gives life to the project. The web APIs also sends requests to the VPS API when there is an interaction between the terminal and the account that is logged in. The VPS API writes commands to interact with the MT5 terminal that goes and executes the action for retrieving the data



EFORT is hosted in three VPS servers, and the environment has a staging server and a production server. Also, it has three GitHub repositories: VPS API, Web App API and Forex Data Folders. Each repo has a complementary master and develop branches that follow the strategy chosen by the product owner. Every time a developer merges their code with the develop branch, an azure pipeline agent gets triggered, which automatically builds and delivers the new code to the staging server.

SYSTEM VALIDATION

This section goes over the test cases that were considered during the System Validation portion of development. They are used as a way of validating that the system works in various system/database environments that a user may encounter. Below is a screenshot of the database which is being referenced from within each test case.

Id	Username	Email	RoleId	LoginEnabled	CreatedAt	UpdatedAt	DeletedAt	IsDeleted	GoogleEmail	LinkedInEmail	FacebookEmail
1	the_system_api	the_system_api@localhost.com	-1	1	2020-03-28 19:10:12.110	NULL	NULL	0	NULL	NULL	NULL
1	vps_api		1	1	2020-03-28 19:10:12.580	NULL	NULL	0	NULL	NULL	NULL
2	administrator	administrator@localhost.com	4	1	2020-03-28 19:10:12.947	NULL	NULL	0	NULL	NULL	NULL
3	guru	guru@localhost.com	5	1	2020-03-28 19:10:13.287	NULL	NULL	0	NULL	NULL	NULL
4	developer	dev@localhost.com	6	1	2020-03-28 19:10:13.613	NULL	NULL	0	NULL	NULL	NULL
5	trader	trader@localhost.com	1	1	2020-03-28 19:10:13.913	NULL	NULL	0	epare017@fiu.edu	efortfiu@gmail.com	efortfiu@gmail.com

EFORT.Login table

Test Case ID: EFRT-12-ST-01

Purpose: To validate that the EForT homepage renders the marketing information upon access through the site url.

Test Setup: Trader has opened a new browser tab and has URL handy.

Input: EForT URL

Expected Output: The EForT homepage is loaded and has rendered the marketing information for users to read.

Test Case ID: EFRT-29-ST-01 (Sunny)

Purpose: To validate that a user can login to their EForT account using their Facebook account.

Test Setup: Trader has already linked his account and is on the login page.

Input: Trader's google email: efortfiu@gmail.com

Expected Output: The EForT Trader home page is loaded, the user is signed in.

Test Case ID: EFRT-29-ST-02 (Rainy)

Purpose: To validate that a user can't login to their EForT account using their Facebook account if they haven't linked their account.

Test Setup: Developer has not yet linked their account and is on the login page.

Input: Trader's google email: efortfiu_other@gmail.com

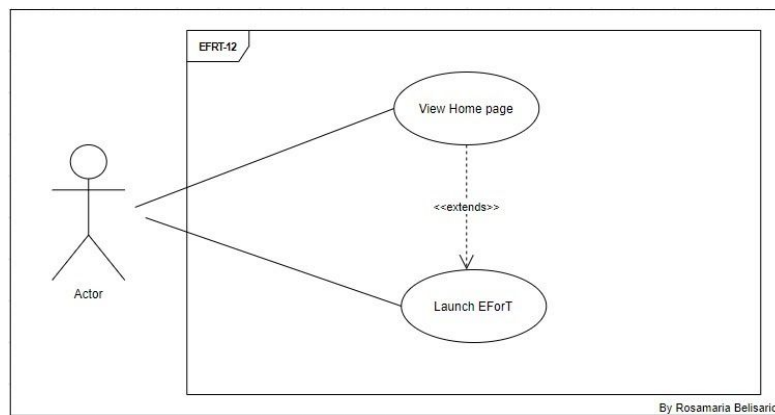
Expected Output: The EForT home page is not loaded, instead the user is kept at login page.

Test Case ID: EFRT-30-ST-01 (Sunny)**Purpose:** To validate that a user can login to their EForT account using their Google account.**Test Setup:** Trader has already linked his account and is on the login page.**Input:** Trader's google email: efortfiu@gmail.com**Expected Output:** The EForT Trader home page is loaded, the user is signed in.**Test Case ID:** EFRT-30-ST-02 (Rainy)**Purpose:** To validate that a user can't login to their EForT account using their Google account if they haven't linked their account.**Test Setup:** Developer has not yet linked their account and is on the login page.**Input:** Trader's google email: efortfiu_other@gmail.com**Expected Output:** The EForT home page is not loaded, instead the user is kept at login page.**Test Case ID:** EFRT-62-ST-01 (Sunny)**Purpose:** To validate that an admin attempting to impersonate a developer won't produce an error and the Developer page does load correctly.**Test Setup:** Administrator is logged in and is in the User Management page.**Input:** Administrator clicks on the Developer impersonating button.**Expected Output:** The EForT Administrator is redirected to the homepage in Developer view.

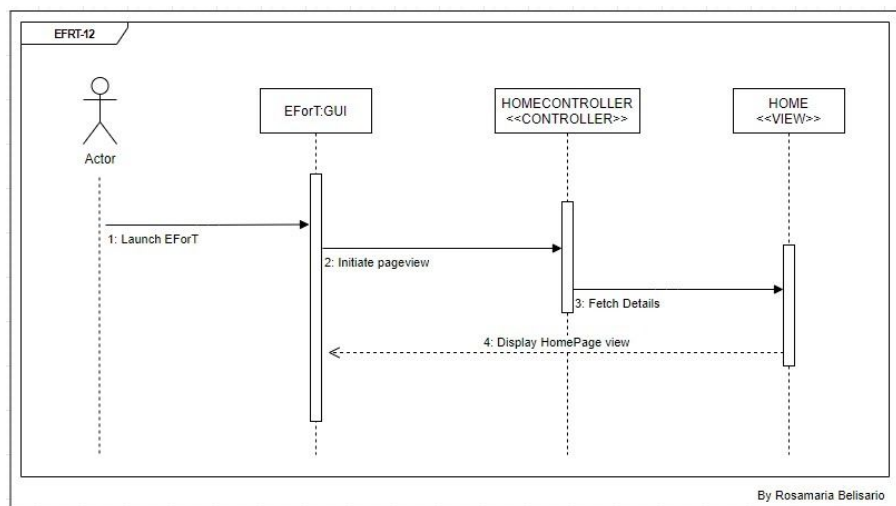
APPENDIX

Appendix A - UML Diagrams

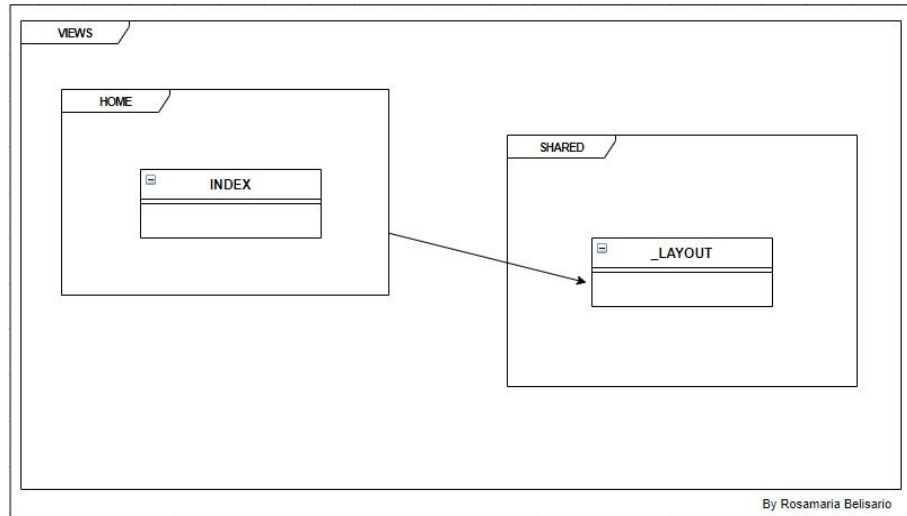
EFRT-12 - Home Page



Use Case Diagram of Homepage User Story

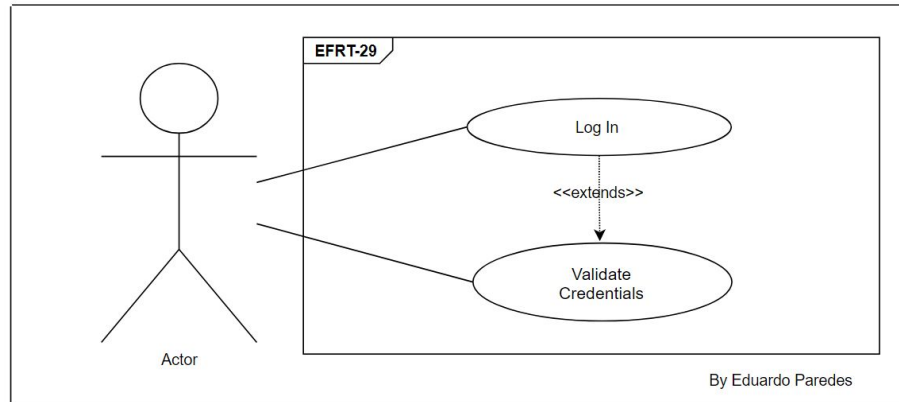


Sequence Diagram of the Home Page

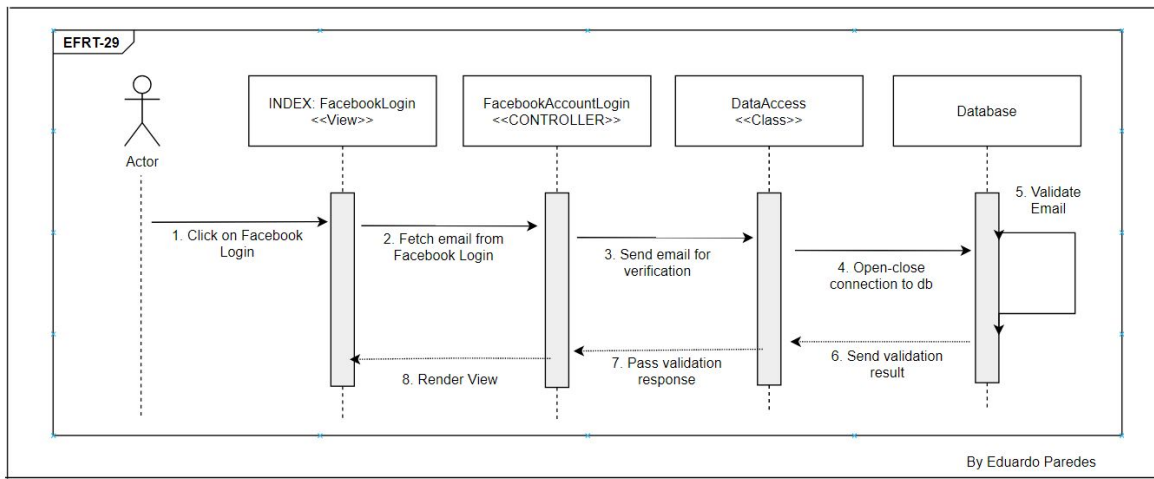


Class Diagram of Home Page User Story

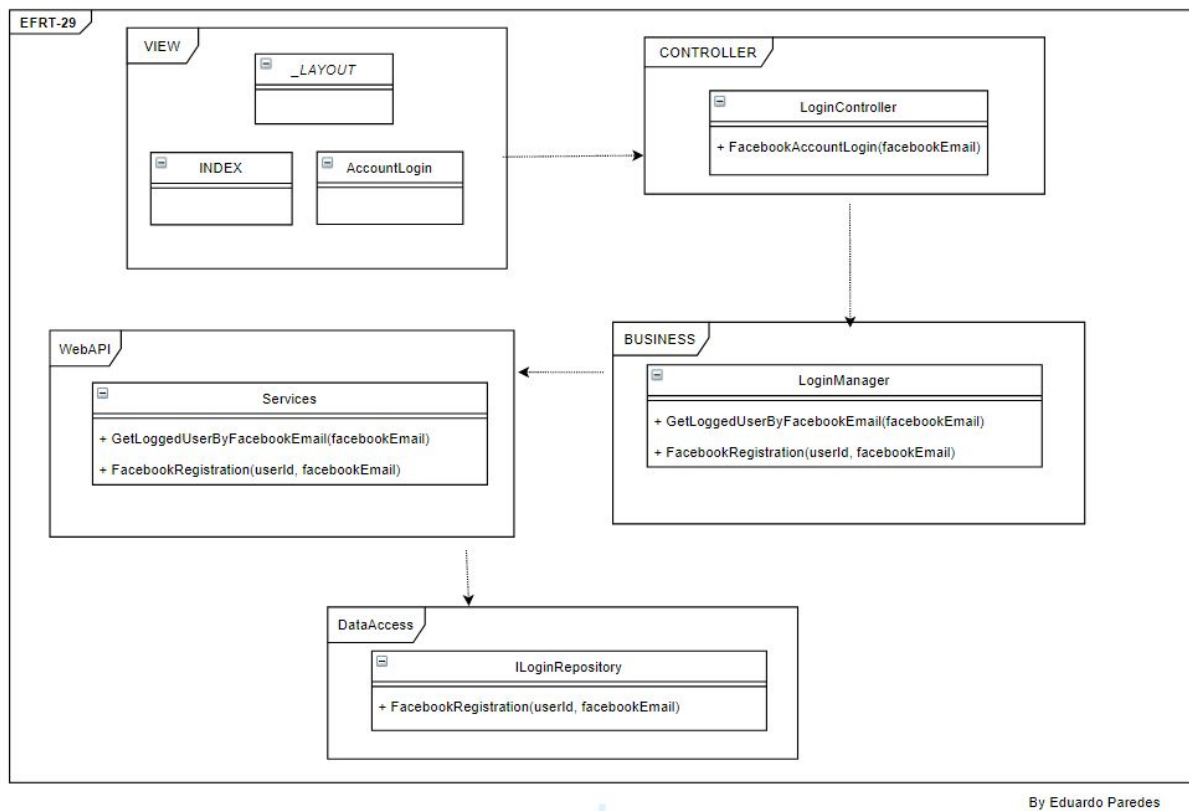
EFRT-29 - Login with Facebook



Use Case Diagram of Login with Facebook User Story

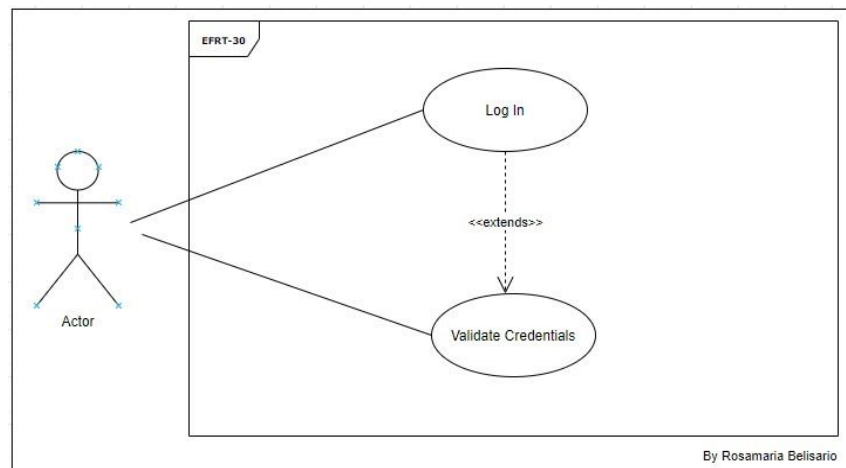


Sequence Diagram of Login with Facebook User Story

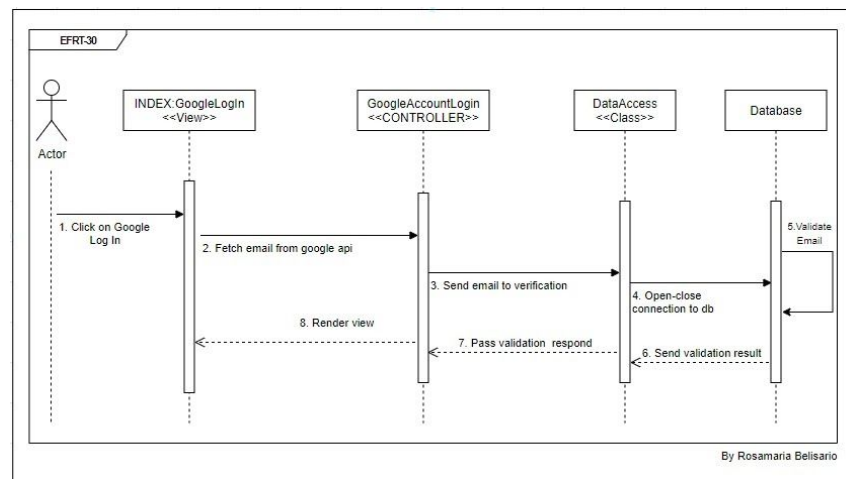


Class Diagram of Login with Facebook User Story

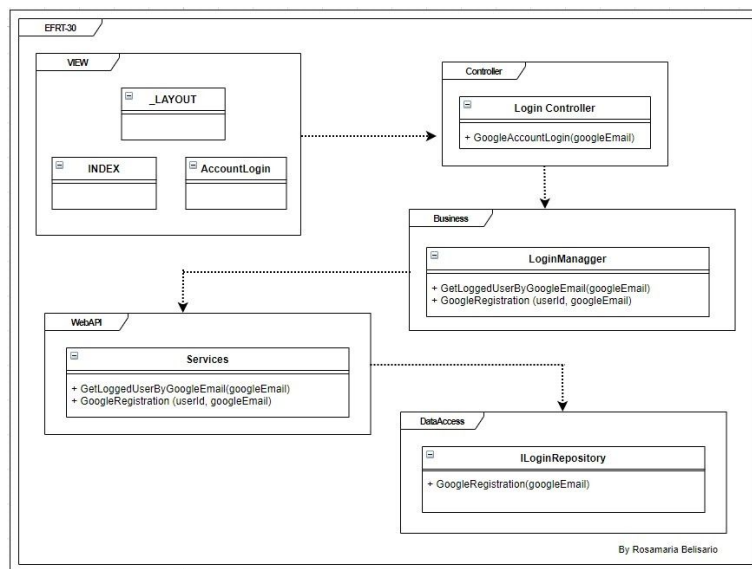
EFRT-30 - Login with Google



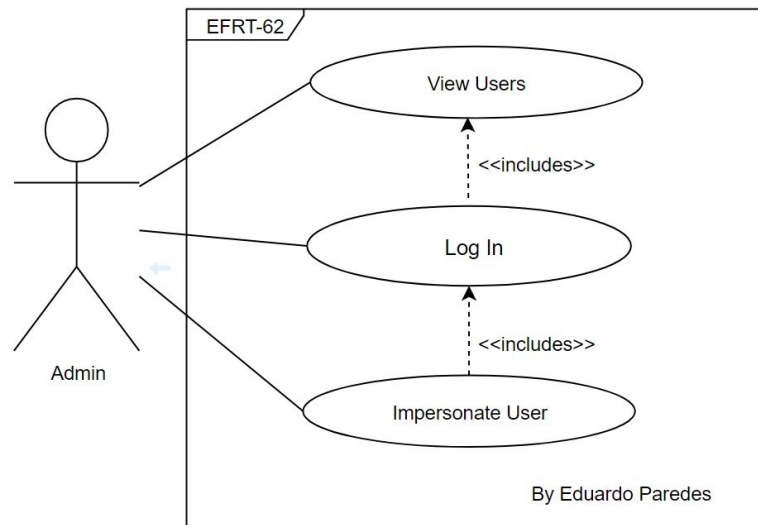
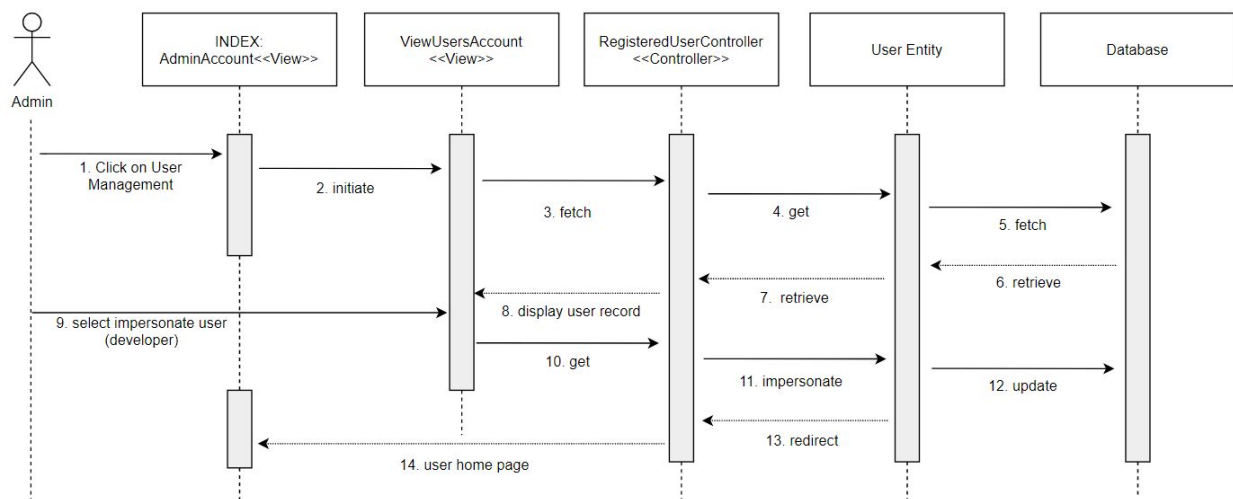
Use Case Diagram of Login with Google User Story



Sequence Diagram of Login with Google User Story

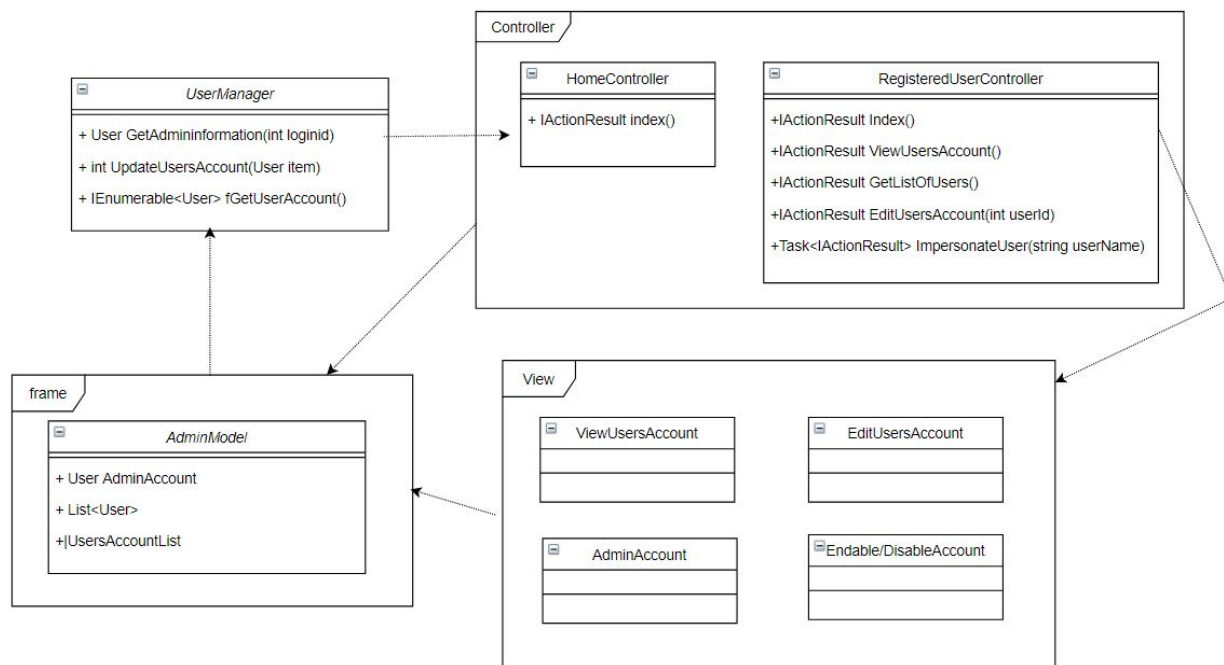


Class Diagram of Login with Google User Story

EFRT- 62- Impersonating Developer User**Use Case Diagram of Impersonating a Developer User**

By Eduardo Paredes

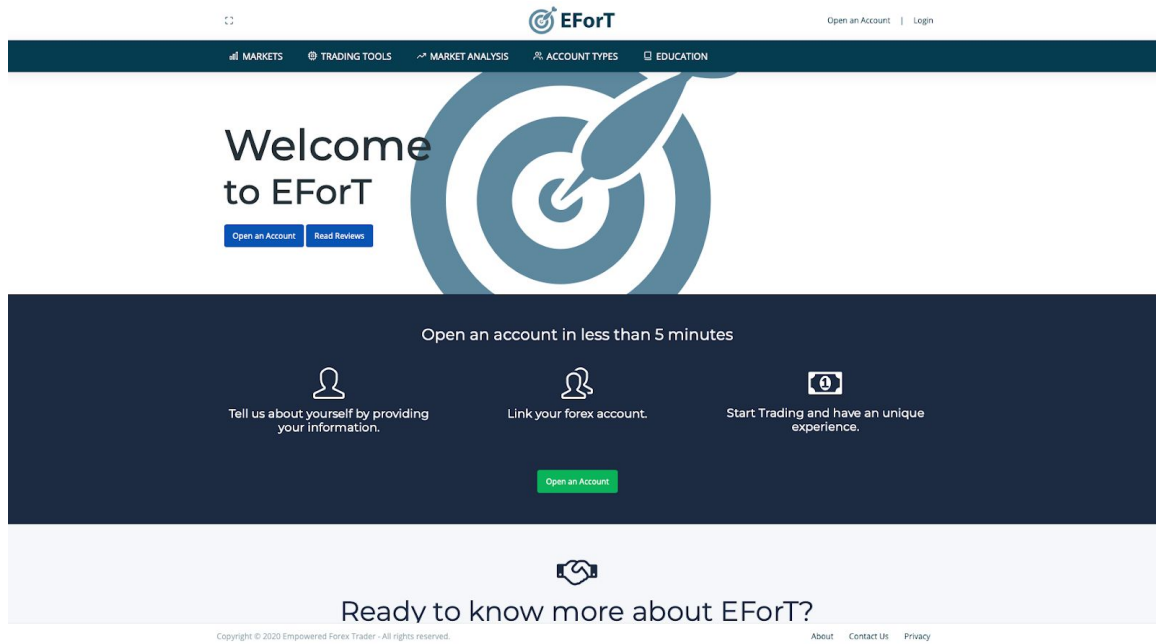
Sequence Diagram of Impersonating a Developer User



By Eduardo Paredes

Class Diagram of Impersonating a Developer User

Appendix B - User Interface Design



Home Page



Ready to know more about EForT?



If you are a new trader, we have open resources for you to learn.

Education Center



We want to know you and we want you to know us.

Contact Us



We offer a great variety of tools for you to have an unique experience.

Trading Tools

Information tabs



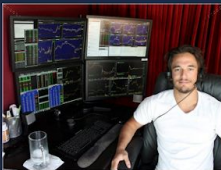
What our member say about us?



Within the platforms, traders can access charts, economic calendars, news, see positions, and trade/order history, access trade signals and research reports, as well as market analysis from EForT.com analysts.



Pricing is transparent and easily found on EForT.com. Also, functional demo accounts are provided for free which give potential clients time to assess the pricing structure before committing real capital.



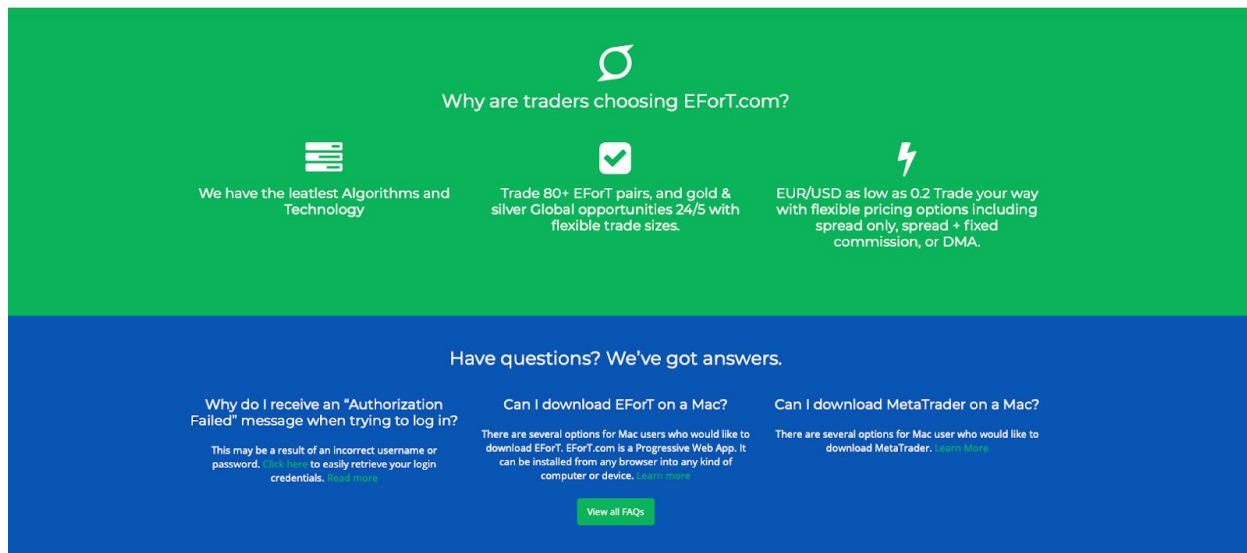
Pricing is transparent, although several types of accounts are offered. For instance, in one account type traders pay the spread on every trade. EForT.com provides the average spreads for all of these types of accounts.

Tired of remembering new usernames and passwords?

You can use your favorite social media to login with us!



Members review



The screenshot displays the EForT.com website. At the top, a green banner features the EForT logo and the heading "Why are traders choosing EForT.com?". Below this, three columns of text are presented, each accompanied by an icon: a server rack for "We have the latest Algorithms and Technology", a checkmark for "Trade 80+ EForT pairs, and gold & silver Global opportunities 24/5 with flexible trade sizes.", and a lightning bolt for "EUR/USD as low as 0.2 Trade your way with flexible pricing options including spread only, spread + fixed commission, or DMA.". The bottom section of the banner is blue and contains the heading "Have questions? We've got answers." followed by three FAQ items: "Why do I receive an 'Authorization Failed' message when trying to log in?", "Can I download EForT on a Mac?", and "Can I download MetaTrader on a Mac?". Each FAQ item includes a brief explanation and a "Read more" link. A green button labeled "View all FAQs" is positioned at the bottom center of the blue section.

Why are traders choosing EForT.com?

We have the latest Algorithms and Technology

Trade 80+ EForT pairs, and gold & silver Global opportunities 24/5 with flexible trade sizes.

EUR/USD as low as 0.2 Trade your way with flexible pricing options including spread only, spread + fixed commission, or DMA.

Have questions? We've got answers.

Why do I receive an "Authorization Failed" message when trying to log in?

This may be a result of an incorrect username or password. [Click here](#) to easily retrieve your login credentials. [Read more](#)

Can I download EForT on a Mac?

There are several options for Mac users who would like to download EForT. EForT.com is a Progressive Web App. It can be installed from any browser into any kind of computer or device. [Learn more](#)

Can I download MetaTrader on a Mac?

There are several options for Mac user who would like to download MetaTrader. [Learn More](#)

[View all FAQs](#)

Additional Information and important facts

MARKETS TRADING TOOLS MARKET ANALYSIS ACCOUNT TYPES EDUCATION

Empowered Forex Trader

High performance trading platform that's fully loaded for serious traders.
[Don't have an account?](#)

Username

Password

☐ Remember Me [Forgot Password?](#)

Login

--- Or ---

Login with your favorite provider below

Sign in

Sign in with LinkedIn

Log In

Sign in with Instagram

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About Contact Us Privacy

Welcome Back
Earn up to 1.5% interest on your balances
Learn how you can reduce your trading costs and earn interest on your account balances with our Active Trader Program.
[Learn More](#)

NEW Developer Account
Designed for high volume currency traders. View multiple levels of real time pricing of EForT.com's order book and trade on prices sourced from global banks and top tier liquidity providers - with no additional mark up.
[Learn More](#)

Login page with Social media implementation

Edit User Profile

HOME / EDIT PROFILE / STANDARD ACCOUNT

Personal Information

Title *
Mr. ▾

First Name *
EForT

Middle Initial

Last Name *
Trader

Date of Birth *

Primary Phone *
N/A

Residential Information

Country of Residence *
United States ▾

Address *
N/A

Address Cont.
N/A

City *
N/A

State *
Alabama ▾

Zip Code *
N/A

EForT Account Information

Role
Basic Trader ▾

Email Address
trader@localhost.com

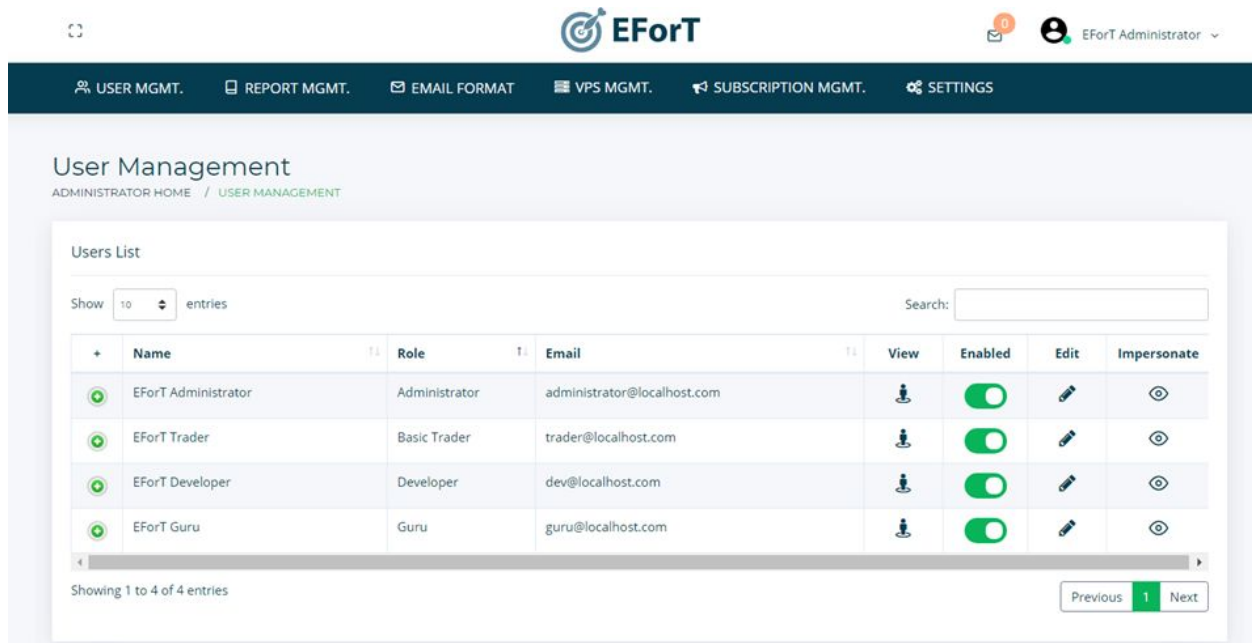
Username
trader

[Submit](#) [Cancel](#)

 [Sign in](#)

 [Log in](#)

Link social media with EFOR T account



User Management
ADMINISTRATOR HOME / USER MANAGEMENT

Users List

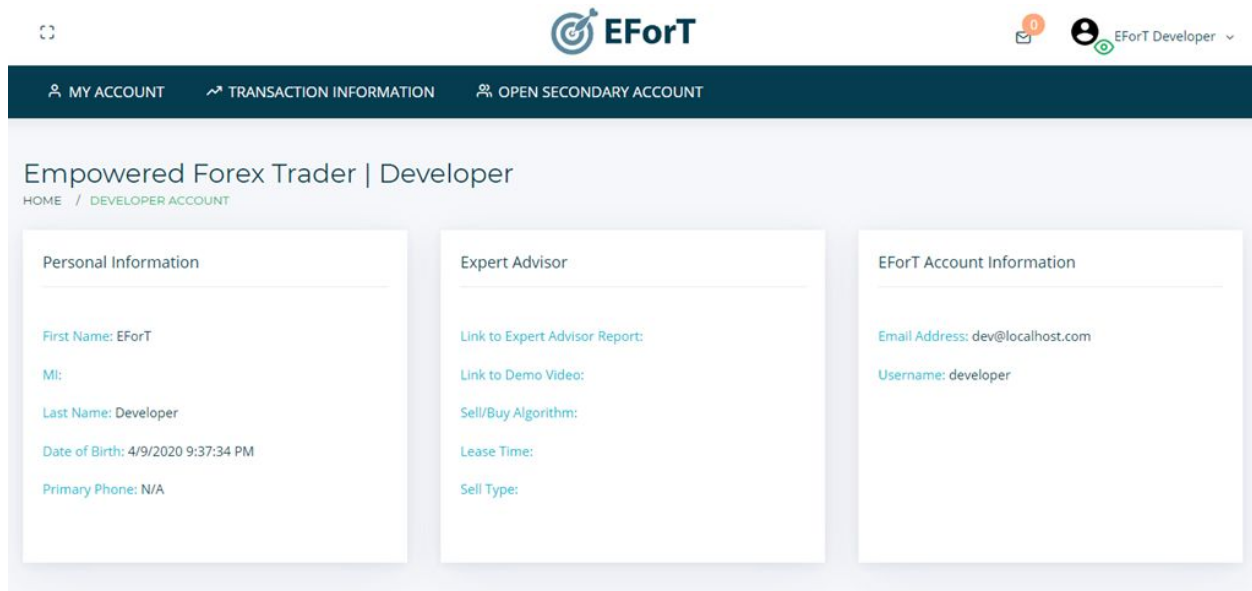
Show 10 entries Search:

	Name	Role	Email	View	Enabled	Edit	Impersonate
	EForT Administrator	Administrator	administrator@localhost.com				
	EForT Trader	Basic Trader	trader@localhost.com				
	EForT Developer	Developer	dev@localhost.com				
	EForT Guru	Guru	guru@localhost.com				

Showing 1 to 4 of 4 entries

Previous 1 Next

User Management page with impersonation button



Empowered Forex Trader | Developer
HOME / DEVELOPER ACCOUNT

Personal Information

First Name: EForT

MI:

Last Name: Developer

Date of Birth: 4/9/2020 9:37:34 PM

Primary Phone: N/A

Expert Advisor

Link to Expert Advisor Report:

Link to Demo Video:

Sell/Buy Algorithm:

Lease Time:

Sell Type:

EForT Account Information

Email Address: dev@localhost.com

Username: developer

Developer home page view from Admin impersonation

Appendix C - Sprint Review Reports

Sprint 1 Review

Date: 1/27/20

Meeting Minutes: 30m

Stories Completed:

- As a developer, I want to get familiar with the project to get a better understanding of the scope and the features.
- As a developer, I want to read the documentation and watch past semester videos to understand what was completed.
- As a developer, I want to collect user stories in order to plan for the next sprint cycle.
- As a developer, I want to have my development environment set up to run the project locally.

Stories Pending:

Remarks:

The first sprint was dedicated to becoming familiar with the project. Most of the time was spent reading documentation, watching past semester videos, understanding pending user stories, and setting up the project locally.

Sprint 2 Review

Date: 2/11/20

Meeting Minutes: 30m

Stories Completed:

- As a developer, I would like to test previous user stories that appear as done, so that I can give the PO a complete report of the functionalities that work as intended.

Date: 4/27/2020

Page 40 of 47

- As a developer, I need access to the VPS, so that I can test and validate the server end-to-end functionality.
- As a developer, I would like to review the backlog of previous teams, so that I can create and propose a Wishlist of features to the PO, and we can define the MVP.

Stories Pending:

- As a developer, I would like to automatically test the enable/disable functionality so that I can ensure that an admin can control user access.
- As a developer, I would like to automatically test the "Edit User Account" functionality so that someone with an account changes their account details at any time.
- As a developer, I would like to test the "Edit Email Template" functionality, so that I can ensure changes to the default email subject and body are saved.

Remarks:

The second sprint was spent testing the application after getting the setup of the local environment. Time was dedicated to discovering bugs, seeing what was working, and determining what could possibly be improved. After testing and reviewing the product backlog, a wish list was created to present to the Product Owner for planning out the next sprint goals. The few user stories that were not completed were because the priority was set to testing the project manually for a thorough understanding of what needed to be done in the next sprints. The focus was on having a strong wish list to work from.

Sprint 3 Review

Date: 3/2/20

Meeting Minutes: 30m

Stories Completed:

- As a developer, I need to make sure that when a user is impersonating a role, they can go back to their original role such that they do not have to log out to access their regular features.

Date: 4/27/2020

Page 41 of 47

- As a developer, I need to fix the bug that is booting users from their accounts after they move through the options on the main menu such that the users can use all the features on the website without the necessity of login back.
- As a developer, I need to fix the error produced after trying to impersonate a developer role such that the feature can be fully functional.
- As a developer, I need to make sure that when a user is impersonating the role "guru", the button "Back to my Admin Panel" works such that the user is back to their role and the Web App displays the correct user profile.

Stories Pending:

- As a developer, I would like to do the refactoring of the code such that for future development the performance of the project can be improved.

Remarks:

Sprint 4 Review

Date: 3/16/20

Meeting Minutes: 30m

Stories Completed:

Stories Pending:

- As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process
- As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Instagram account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Facebook account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Google account, because I would like to link all my accounts and streamline the account creation process.

Date: 4/27/2020

Page 42 of 47

- As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.
- As a potential user, I would like more information about EForT on the homepage so that I may be more inclined to become an actual user.
- As a developer, I need to fix the time out session, so that the EFVT team can effectively display the graph and test the time frame features.

Remarks:

Sprint 5 Review

Date: 3/30/20

Meeting Minutes: 30m

Stories Completed:

- As a user, I would like to create an account in EForT using my Google account, because I would like to link all my accounts and streamline the account creation process.
- As a developer, I need to fix the time out session, so that the EFVT team can effectively display the graph and test the time frame features.

Stories Pending:

- As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process
- As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Instagram account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Facebook account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.

Date: 4/27/2020

Page 43 of 47

- As a potential user, I would like more information about EForT on the homepage so that I may be more inclined to become an actual user.

Remarks:

Sprint 6 Review

Date: 4/14/20

Meeting Minutes: 30m

Stories Completed:

- As a developer, I need to find the best way to migrate all the documentation from Jira and Confluence to DevOps, such that the next teams for future semesters will be able to find all they need to keep the project going.
- As a user, I would like to create an account in EForT using my Facebook account, because I would like to link all my accounts and streamline the account creation process.
- As a potential user, I would like more information about EForT on the homepage so that I may be more inclined to become an actual user.

Stories Pending:

- As a user, I would like to create an account in EForT using my Twitter account, because I would like to link all my accounts and streamline the account creation process
- As a user, I would like to create an account in EForT using my LinkedIn account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to create an account in EForT using my Instagram account, because I would like to link all my accounts and streamline the account creation process.
- As a user, I would like to be able to receive an email with a link when changing my password, so that I can confirm that I have access to my email and make sure that no one else is trying to change my password; keeping my account secure.

Remarks:

Date: 4/27/2020

Page 44 of 47

Twitter, LinkedIn, and Instagram APIs are not fully implemented, but the backend methods are all in place and ready to go for whenever access to those APIs is granted. In other words, the time-consuming part of each of those user stories is complete. All they are missing are the API calls that retrieve a user's email upon successful login through each of the social's pop-up authentication page. Please look at the implementation of these API calls done with Facebook and Google as a reference. Keep in mind that Oauth 2.0 is required for API access as the older Oauth versions are deprecated and will not work.

Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document, and other documents

Installation

Introductory Video:

https://youtu.be/gtWJ15I_Gyk

Installation Videos:

<https://youtu.be/pxKvDHLFqHc>

Whish List:

<https://youtu.be/NUE-Mb6ZcDM>

User guide Video:

<https://youtu.be/koNnd14Xh-g>

User Stories Videos:

- EFWA SP20 - EForT General Wiki Page
https://www.youtube.com/watch?v=0AUwgtxNcZI&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=6&t=0s
- EFWA SP20 - Wiki Guide
https://www.youtube.com/watch?v=YIsH43Su5BU&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=2&t=0s
- EFWA SP20 - EFRT -12 Home Page
https://www.youtube.com/watch?v=Ur8ve7joS0Y&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=3&t=0s
- EFWA SP20 - Social Media Logins User Stories Video Frontend
https://www.youtube.com/watch?v=EHxDwkDAIHM&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=7&t=0s
- EFWA SP20 - EFRT 30 - Login with Social Media Back end
https://www.youtube.com/watch?v=UUhNAROWPcA&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=5&t=0s
- EFWA SP20 - EFRT- 30 - Link EForT account with Social Media Back end
https://www.youtube.com/watch?v=UkZe_7U00W8&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=4&t=0s

- EFWA SP20 - EFRT 30 Impersonating Developer Demo Video
https://www.youtube.com/watch?v=CR04xJhMDg4&list=PLG3lylzOg8Fj_Ax0W-7A5M1GsSs4EovvT&index=8&t=0s

Wishlist

- Follow-up with Instagram, LinkedIn, and Twitter for the developer account verification.
- EFORT tutorial video.
- User Received email when the new trading algorithm is available.
- Users can set a goal to reach, from an equity perspective.
- Ticket submission for a user.
- Add ticket handling interface for Admin to service user tickets.
- Access to inbox.
- Email verification for 'forgot password'.
- Add phone number verification for resetting the password.
- Implement proper documentation concerning the possible tradable currencies in the education section.
- Welcome page for admin.