Initial Functional Specification

Project Title: Trade Analytics Reporting Application

Executive Summary

This Functional Specification document outlines the development of a Trade Analytics Application for the Bank's Analytics team. The primary purpose of this application is to streamline the search and reporting processes for the team and can be asked by the team's lead, potentially facilitating the preparation of reports required by the Financial Conduct Authority (FCA).

Introduction

- **Purpose**: The application aims to help the Bank's Analytics Team with analyzing data of financial orders in the bank's database and writing reports.
- **Scope**: The application collects data from multiple banks' SQL databases, and manipulates the collected data to provide analytical outcomes such as the number of orders of the previous day. The outcomes could be exported in a report XSL format if a user asks for it.
- **Definitions**:
  - Financial order (or order) - an action you take to buy or sell financial items like stocks in the financial marketplace.
  - International Securities Identification Number (ISIN) - a unique code for financial products like stocks and bonds.
  - FCA - an organization in the United Kingdom that makes sure that financial companies in the UK play by the rules and treat their customers fairly.
  - Closing auction - an event that happens at the start of the trading day on stock exchanges, when buyers and sellers place their final price to buy or sell stocks
  - Opening auction - an event that happens at the end of the trading day on stock exchanges, when buyers and sellers place their final price to buy or sell stocks.

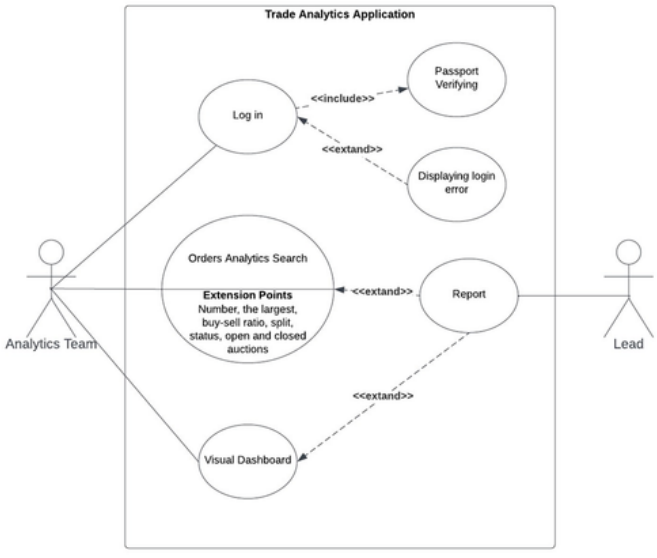

Figure 1. UML Use case diagram. High-level application representation.

User Identification

- **Users:** Bank's Analytics team.
- **Number of members:** 9 members.

- **Profiles:** Two distinct user profiles with different access levels:
  - The first type of access can only search the data;
  - Second can search data and export it.
- **Authentication**: Users log in using their email.
- **Level of access**: Users' access is identified by their email.

Application Features and Functionality

- **Search Functionality**: Search by order number.
- **Analytics Features**:
  - Calculate the number of orders;
  - Find the largest orders - orders that have the highest number of shares (or financial units) involved in the orders;
  - Calculate the buy-sell ratio of orders - count the total number of buy orders and the total number of sell orders and divide the number of buy orders by the number of sell orders;
  - Calculate the difference in price within a single order that has been divided into smaller parts;
  - Calculate the number of orders filled in the opening auction;
  - Calculate the number of orders filled in the closing auction;
  - Show Order status:
    - Pending - an order has been successfully submitted and received by a trading platform, but the actual buying or selling hasn't happened just yet.
    - Partial - only a part of an order has been executed.
    - Filled - an order has been completely executed.
- **Report Functionality**: Ability to export reports of the analyzed transactions as XSL files.
  - Reports should be displayed in the following order:
    i. Number of orders.
    ii. Largest order.
    iii. Buy-to-sell order ratio.
    iv. Price spread of each order (if split).
    v. Orders filled in the opening auction.
    vi. Orders filled in the closing auction.
- **Labeling**: Utilization of ISIN for stock identification.
- **Dashboard**: A comprehensive dashboard displaying data visualizations of the previous day's stock performance.

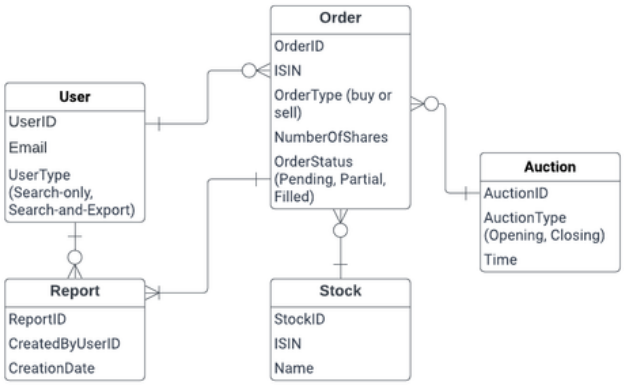

Figure 2. Entity-Relationship Diagram

Technical Specifications

- **Current Technology**: Use of MySQL and Oracle databases.
- **Server**: Application to operate on the bank's standalone server.
- **Network Connectivity**: No network connectivity.

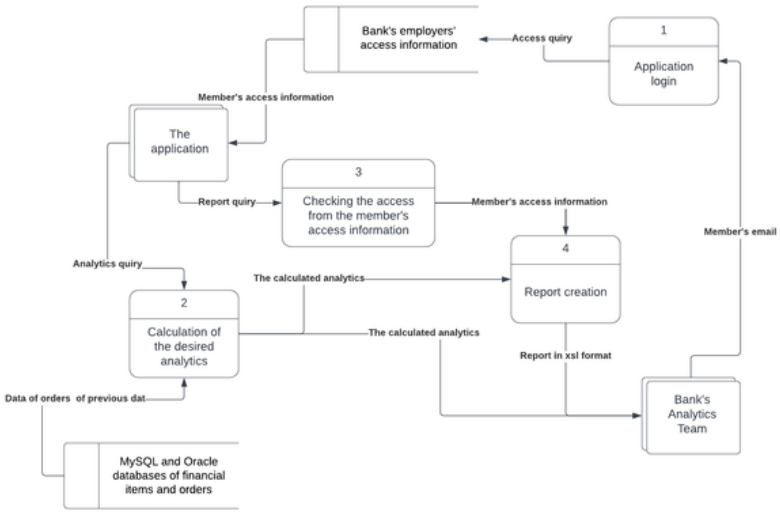

Figure 3. Data Flow Diagram.

User Interface and Experience

- **Initial Display**: Stocks from the previous day are displayed on the main page upon login.
- **Simplicity**: A single main page for search and reporting, ensuring ease of use.
- **Design:** No preferences
- **Color:** No preferences

Figure 4. Website Wireframe

Implementation Plan

- **Development Timeline**: The first sprint - 3 months
- **Testing and Quality Assurance**: Preferably during Feburary to follow Agile itterative methodology to deliver the application in March.

Future Considerations

- **Automation and Personalization**: While not in the initial scope, future versions may include personalized functions and further automation.
- **Network Integration**: Future versions to potentially include network capabilities.