Design and software architecture

SRS for the Macedonian Stock Exchange Data Processing Application

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1 Introduction

This is a web application that will analyze the Macedonian Stock Exchange using a Pipe and Filter architecture. This project automates data scraping, transformation, and storage of daily historical data for all listed issuers over the past 10 years, preparing it for further analysis.

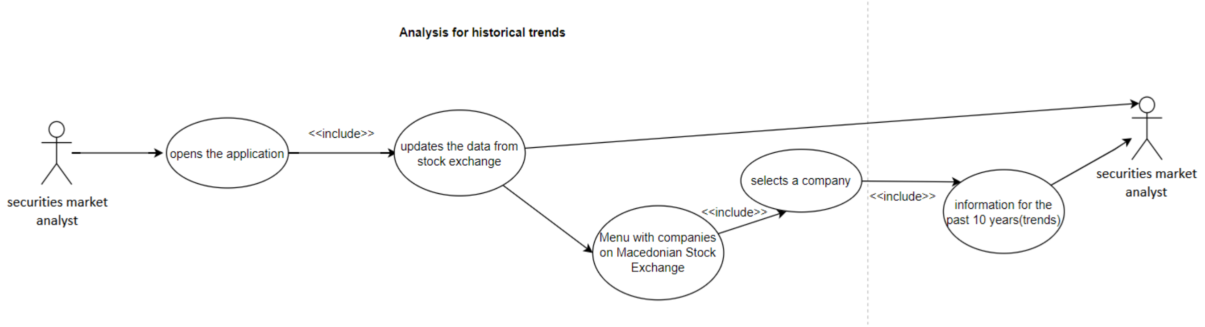
By leveraging the Pipe and Filter architectural pattern, the application will automate the retrieval, transformation, and storage of stock market data, enabling seamless analysis and insight generation. This solution not only enhances data accessibility but also supports users in understanding market trends and making data-driven investment decisions.

2 User Scenarios

User scenario 1: Automated Stock Data Retrieval for Market Trend Analysis

Persona 1: A securities market analyst who uses the application to obtain historical stock data and analyze trends.

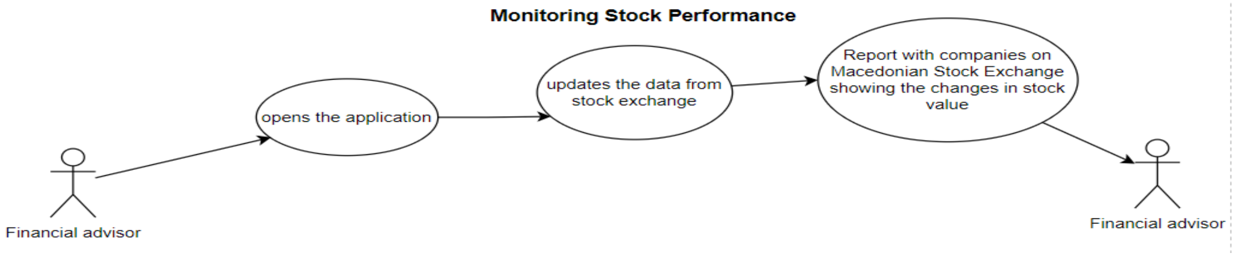
Scenario: The user opens the application, which automatically downloads and updates data for all issuers on the stock exchange, with all data correctly formatted.


Analysis for historical trends
securities market analyst
opens the application
<<include>>
updates the data from stock exchange
Menu with companies on Macedonian Stock Exchange
<<include>>
selects a company
<<include>>
information for the past 10 years(trends)
securities market analyst

User Scenario 2: Financial Advisor Monitoring Stock Performance

Persona 2: A financial advisor who tracks stock performance to provide recommendations to clients.

Scenario: The financial advisor opens the application to review the latest stock data. The application automatically updates the stock prices and generates a report showing the changes in stock value.


Monitoring Stock Performance
Financial advisor
opens the application
updates the data from stock exchange
Report with companies on Macedonian Stock Exchange showing the changes in stock value
Financial advisor

3 Requirements

3.1 Functional Requirements

R1.1 The system shall automatically scrape the list of issuers from the Macedonian Stock Exchange website.

R1.2 The system shall retrieve historical daily data for each issuer for the last 10 years.

R1.2.1 Including open, close, high, low prices, and trading volume.

R1.3 The system shall fill in any missing data.

R1.4 The system shall transform the data into the appropriate format for database entry.

3.2 Non-functional Requirements

R2.1 The data should be updated daily.

R2.2 The application should work efficiently and be optimized for speed.

R2.3 The code should be structured for easy maintenance and upgrades.

R2.4 Macedonian standards should be followed for data formatting.

R2.4.1 For example date formats and numbers.