Software Design and Architecture

Homework 1

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Content

1. Project Description

Application name - StockView

StockView is a web application that helps users track and analyze stocks on the Macedonian Stock Exchange. This platform is designed to support both beginner and experienced investors, giving them easy access to important stock data and analysis tools for making smart investment choices.

StockView provides daily data on all listed companies, allowing customers to view historical data and study trends over time. They can check price changes, patterns, and perform technical analysis to understand how stocks are performing. The application also includes fundamental analysis, showing users key financial information about each company. These tools provide insights into both short-term and long-term market trends, offering valuable guidance for planning investments.

One key feature of StockView is a real-time table that shows the 10 most traded stocks on the Macedonian Stock Exchange. This table is updated instantly, so users can quickly find out which stocks are the most active in the market. This feature saves time and helps investors respond faster to market changes.

With its user-friendly design and accessible features, StockView supports investors in making informed decisions and navigating the Macedonian Stock Exchange with confidence. The platform aims to empower users by providing valuable insights and a comprehensive view of the market, making stock analysis simpler and more accessible for everyone. In today's fast-paced financial world, informed investing is essential for building financial stability and achieving long-term growth, and tools like StockView make this process easier and more effective.

2. Specific Requirements

2.1. Functional requirements

1. The web application shall enable the storage of processed data to facilitate easy access and analysis.
2. The web application shall provide an interface to display historical data through user-friendly graphical interfaces, with an option for users to select specific time periods.
3. The web application shall provide technical analysis of stock data for a selected issuer.
4. The web application shall provide fundamental analysis for a selected issuer, allowing users to analyze key financial metrics.

5. The web application shall generate predictions based on the results of technical and fundamental analyses, showcasing possible scenarios for future stock performance.
6. The web application shall offer a real-time table displaying the 10 most listed stocks on the Macedonian Stock Exchange.

2.2. Non-functional requirements

1. The application shall open and display data within a reasonable time.
2. The web application shall provide a responsive interaction with the user interface for viewing and analyzing stock data.
3. The web application shall be accessible through multiple web browsers.
4. The web application shall have modular and maintainable code, allowing for quick fixes and updates without disrupting ongoing functionality.
5. The web application shall be designed for efficient handling of large volumes of data to enable quick calculation of technical and fundamental indicators.

3. User scenarios, personas and a descriptive narrative

Scenario 1: Technical analysis

Primary actor: Professional investor
Secondary actor: /
Prerequisite(s): Stable internet connection
Goal: Getting results from technical analysis for a chosen issuer

Main Scenario:

1. Open the application.
2. View the list of companies on the Macedonian Stock Exchange displayed in a menu.
3. Select the specific company of interest.
4. Choose the option for technical analysis.
5. The application calculates and displays the results

Alternative Scenarios:

1. No internet connection
2. Results fail to load

Example persona

Marko, 45 years old, professional investor.
He regularly monitors stocks on the Macedonian Stock Exchange and relies on technical analysis to assess market trends and make informed investment decisions. Marko typically uses a laptop for accessing financial applications. He values accurate and timely data to support quick decision-making, especially during trading hours.
For conducting technical analyses, Marko needs a system that provides clear results. The application should allow him to easily navigate between companies listed on the stock exchange and provide fast, reliable access to analysis tools.

Scenario 2: Historical Data Analysis

Primary actor: Economics student
Secondary actor: /
Prerequisite(s): Stable internet connection
Goal: Obtaining historical stock data for a specific company over a selected time period for research purposes

Main Scenario:

1. Open the application.
2. View the list of companies on the Macedonian Stock Exchange displayed in a menu.
3. Select the specific company of interest from the menu.
4. View the displayed historical data for that company.
5. Select specific time period.
6. The application retrieves and displays historical data for the selected company within the specified time frame.
7. View the data for easy analysis.

Alternative Scenarios:

1. Invalid time period selected
2. Historical data fails to load

Example persona

Ivana, 22 years old, economics student.

She is working on a semester project that requires analyzing historical stock data from companies listed on the Macedonian Stock Exchange. Ivana primarily uses her laptop for research and data analysis. She needs to access detailed historical data over specific time periods. The application should allow Ivana to quickly access a list of companies and easily select a time period for historical data. Ivana values clear, graphical representations of data, which she can use to identify trends over time.