

Project description:

The goal of this project is to create a database-based web application for analyzing stock market data from the Macedonian Stock Exchange. This application will focus on automating the collection, processing, and storage of historical daily stock data for companies listed on the Macedonian Stock Exchange, covering the last 10 years. By implementing a streamlined data pipeline, the application aims to facilitate accurate and timely stock data analysis, making it a valuable tool for financial analysts, data scientists, and investors interested in tracking market trends and evaluating stock performance.

To achieve this, we will use a *Pipe and Filter* software architecture style. This will allow us to divide the data processing workflow into distinct stages that each perform a specific transformation on the data. The pipeline will be responsible for transforming raw stock data into a clean, standardized format, ready for further analysis. First, the application will automatically extract a list of issuers from the Macedonian Stock Exchange website. For each valid issuer, it will then query the database to check the latest date for which data is available. Using this information, the application will retrieve any missing stock data, ensuring the data is complete and up-to-date.

Throughout the data transformation process, the application will handle necessary adjustments such as formatting dates and numbers to standardize the data. Additionally, it will store the processed data in a structured database, making it easily accessible for subsequent analysis. The application will also feature an efficiency component, measuring the time it takes to populate an empty database, allowing for optimizations in speed and performance. Python will be used as the primary programming language, supported by its powerful libraries for data processing and transformation.

By the end of the project, this application will serve as a robust data processing tool that ensures accurate, consistent, and comprehensive stock market data for all available issuers on the Macedonian Stock Exchange, supporting data-driven investment strategies and market analysis.