Descriptive narrative

This project involves developing an automated database-based web application for retrieving, transforming, and storing stock data from the Macedonian Stock Exchange (MSE). The system aims to ensure that the database holds complete and up-to-date stock information for all issuers listed on the exchange.

Data Retrieval and Processing

The system automatically fetches a list of issuers from the MSE website, excluding irrelevant entries. It checks the **database** for existing stock data, and if any is missing, it retrieves historical data for the past 10 years and updates the **database**.

Data Transformation and Storage

The retrieved data is cleaned and standardized (e.g., dates and stock prices), then stored in a **database**. This allows for easy querying and analysis.

Pipe and Filter Architecture

The system uses the **Pipe and Filter** design to process data step-by-step. Each filter performs a specific task (e.g., retrieving issuers, checking existing data, filling in missing information), and the output of one filter serves as the input for the next. This modular design ensures maintainability and scalability.

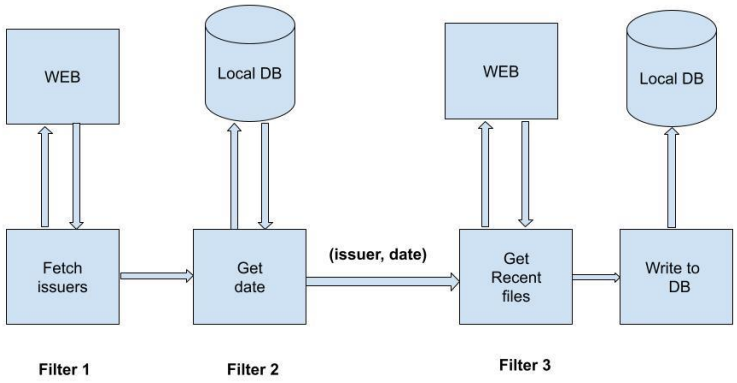

Figure 1: Pipe and Filter diagram illustrating the data flow and processing steps

Efficiency and Performance

The system tracks and optimizes the time it takes to update the **database**, ensuring fast data retrieval and minimal delays in processing.

User Interaction

A web interface enables **financial analysts** to query and view stock data from the **database** for analysis and decision-making.

Scalability and Reliability

The system is built to scale, handling increasing data volumes, with automatic error recovery to ensure continuous operation.

Conclusion

This **database-based web application** ensures up-to-date, accurate stock data retrieval and storage, with a focus on efficiency, scalability, and reliability.