# Project Description

The goal of this project is to create a cloud-hosted, 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 and a modular architecture, 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.

The application will be built using the Model-View-Controller (MVC) design pattern, ensuring a clear separation of concerns and enabling efficient development and maintenance. Key features of the application will be implemented as microservices, each responsible for specific tasks such as data extraction, transformation, and analysis. These microservices will communicate through RESTful APIs, providing a scalable and flexible architecture that supports seamless integration of additional features in the future.

Users will interact with the application via a simple, login-free web interface to view extracted stock market data. The application will also offer tools for performing advanced analysis, including technical and fundamental analysis, enabling users to gain a holistic understanding of market trends and make well-informed investment decisions, when deciding on a stock market issuer.

To achieve data collection, the application will employ a Pipe and Filter architecture within its microservices. This will divide the data processing workflow into distinct stages, each performing specific transformations on the data. The pipeline will automatically extract a list of issuers from the Macedonian Stock Exchange website, query the database for the latest available data, and retrieve missing stock data to ensure completeness and accuracy. The processed data will be standardized and stored in a structured database, ready for analysis.

For deployment, the application will be containerized using tools such as Docker to encapsulate its dependencies and configuration. This approach ensures portability and simplifies the deployment process. The containerized application will then be deployed to the cloud, leveraging cloud services for scalability, high availability, and secure access. By taking advantage of containerization and cloud deployment, the application will be prepared for real-world use and capable of handling varying workloads efficiently.

By the end of the project, this cloud-hosted, microservices-driven application will serve as a robust tool that ensures accurate, consistent, and comprehensive stock market data for all available issuers on the Macedonian Stock Exchange. With its capabilities for technical and fundamental analysis and its scalable architecture, stoX.mk will empower users to make data-driven investment decisions with ease and most importantly: profit responsibly!