**Business Requirements Document**

**Stock Market Analysis on DAX Companies**

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**Contacts**

|  |  |
| --- | --- |
| **Name** | **Email Address** |
| Chethan Allidi | chethan.allidi@ue-germany.de |
| Perinban Parameshwaran | perinban.parameshwaran@ue-germany.de |

**Document Approval**

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| **Approver** | **Title** | **Business Area** | **Approval Date** |
| Humera Noor Minhas | Stock Market Analysis | Data Analysis |  |

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**Related Documents**

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# Introduction

This project aims to analyze the fluctuations experienced by DAX companies over the period of time, using stock market data to gain insights into their performance trends.

# Purpose

The purpose of this project is to analyze the stock market performance of DAX companies, identifying and understanding the factors contributing to their fluctuations and overall market behavior.

# Scope

The scope of this project involves analyzing stock market data for DAX companies over the period of time. We will examine the reasons behind the fluctuations in stock prices, identifying key factors that contributed to the increases or decreases. The findings will be compiled and presented as a comprehensive narrative.

# Assumptions

* The analysis will be confined to the period of 3 years, without considering the longer historical performance of the companies.
* The stock market data obtained for these specific periods will be sufficient for plotting and analysing trends accurately.
* The real-time data used in the analysis will provide reliable and valid results, even though data from the inception of the companies will not be included.
* External market research beyond the defined periods will not be conducted, as the provided data is assumed to be comprehensive for the project's objectives.

# Issues

* The data plot may not be completely accurate as it does not incorporate the full historical data of the companies, which might lead to incomplete analysis.
* The real-time story analysis will be limited to the periods we can cover within the available time frame, potentially missing broader trends or long-term impacts.
* We are relying on stock market data sourced from the Yahoo API, which we assume to be of good quality. However, discrepancies may arise since Google and Yahoo use different formulas for stock calculations, potentially affecting the consistency and reliability of our data.
* We rely on the Alpha Vantage API for web scraping, assuming it provides high-quality, up-to-date information. However, it may also contain unwanted data that we will need to filter out to ensure accurate results.

# Process Flow

1. Data Collection:

* Retrieve DAX ticker symbols from the PyTickerSymbols package.
* Retrieve stock market data for the collected ticker symbols, ensuring real-time data without issues from the Yahoo Finance API.
* Store the raw data in an Oracle database as a data lake for future reference.

1. Data Cleaning and Preparation:

* Clean the collected data by removing unwanted records, fixing bias and any irrelevant information.
* Store the cleaned data in the Oracle database as a data mart.

1. Data Rejects:

* As part of the cleaning process, rejected records along with the reasons for rejection are stored in the rejects table for reference.
* The rejects table is reviewed to identify and address recurring issues, ensuring data quality improvements.

1. Additional Data Source:

* Web scraping was performed for the collected symbols using the Alpha Vantage API, and the data was stored in the Oracle database for further reference.
* From all the collected data, the relevant financial stock details will be extracted and used for further plotting in the Tableau story.

1. Data Visualization:

* Use Tableau to plot the cleaned data, employing various types of graphs (e.g., world maps) and adding any required calculated fields.
* Convert the plots into a comprehensive dashboard in Tableau.
* Integrate the real-time collected data into the Tableau story.

1. Result Compilation and Validation:

* Compile the final results and publish them with Tableau.
* Share the results for validation and feedback.

This process ensures a systematic approach to data collection, preparation, visualization, and analysis, culminating in a validated and comprehensive presentation of the findings.

# Software Technologies

1. Yahoo Finance API
2. Alpha Vantage API
3. Python
4. Oracle SQL
5. Tableau
6. Microsoft Office