Advanced Programming Group Project

Project Description

<u>General:</u>

Team Member: Philipp Lizat, Eva Dubbins

Subject: „Euro foreign exchange reference rates"

Project Description: „The goal of this python project is to analyze and forecast Euro foreign exchange rates using historical data from the European Central Bank. It will provide a simple currency converter, a historical exchange rate analysis, and a forecast for the CHF-EUR exchange rate using linear regression.

Programming Language: Python

Upload Format: HTML Code

<u>Dataset:</u>

Data source: European Central Bank → Link

Currencies considered: Euro as reference, additionally Swiss franc, US dollar, Chinese yuan renminbi, Australian dollar

Time frame of data: 01/01/2024 to 31/12/2024; Forecast for 01/01/2025 to 31/03/2025

<u>Specific KPIs / analyses that we display:</u>

1. Simple currency converter
   - Input a quantity in CHF, USD, CNY or AUD and convert to Euro or vice versa
   - Date: 31/12/2024

2. Historical exchange rate analysis
   - Line chart of how individual exchange rates have developed over the year 2024
   - Basic KPIs such as maximum, minimum, mean value
   - Advanced KPIs such as volatility (range of fluctuation) of each exchange rate

3. Simulated currency forecast for exchange rate CHF → EUR for 2025
   - Linear regression to forecast
   - Comparison with actual data for January, February and March 25
   - Graphical illustration with mean value as well as regression line