APAC TECH HACKATHON

Definition

Exchange rate is the price of one currency in terms of another currency. A currency **appreciates** if it takes more of another currency to buy it and **depreciates** if it takes less of another currency to buy it.

Problem Statement

Create a dashboard which will allow users to analyze the exchange rates between two currencies over a period of time. Users should have the option to select weekly, monthly, quarterly, and yearly charts. The dashboard should also display the date on which the rate was at its peak (highest) and the date on which it was at its lowest. Users should be able to print the data in a chart. Input will be currency exchange rate dataset between a currency pair and will be provided in a file format

Use USD as Base Currency where first currency will always be USD and second currency will be variable. For instance, currency pairs could be USD/INR, USD/GBP, USD/EUR, USD/CAD etc.

Functional tasks

- Read and store the data from file.
- Create a use interface which allows users to select currency and desired duration. Users should have the ability to switch between weekly, monthly, quarterly, and annual charts.
- Fetch data for given currency and time duration. Show the trend over a given period. Also display the date on which the rate was highest with the actual rate and date on which the rate was lowest along with the rate

Input

Exchange Rate dataset is provided in csv file format and comprises certain attributes. Files contains exchange rates as currency units per U.S. Dollar.

Some currency conversion from below sample data.

- On 16 August 2022, 6.789800 Chinese Yuan were equal to 1 US Dollar.
- On 17 August 2022, 79.433500 Indian Rupees were equal to 1 US Dollar.

Note: Currency conversion rate may not be available for some currency on some dates. Display appropriate warning/error messages to users accordingly.

Representative Exchange Rates for Selected Currencies for August 2022 (Continued)					
Currency	August 16, 2022	August 17, 2022	August 18, 2022	August 19, 2022	August 22, 2022
Chinese yuan	6.789800	6.777000	6.793200	6.811900	6.836200
Euro (1)	1.013100	1.016400	1.017800	1.005400	1.000100
Japanese yen	133.170000	134.310000	134.880000	136.280000	137.200000
U.K. pound (1)	1.202200	1.210200	1.205400	1.184450	1.180400
U.S. dollar	1.000000	1.000000	1.000000	1.000000	1.000000
Algerian dinar	142.247300	141.976400	141.360700	141.162400	141.059400
Australian dollar (1)	0.703800	0.702400	0.692700	0.691400	0.689200
Botswana pula (1)	0.079800	0.079800	0.079100	0.078500	0.078200
Brazilian real	5.133400	5.177900	5.176700	5.195500	5.170300
Brunei dollar	1.378100	1.379500	1.383600	1.386900	1.392700
Canadian dollar	1.286700	1.291200	1.292800	1.299100	1.303500
Chilean peso	882.720000	882.200000	895.760000	918.200000	945.350000
Czech koruna	24.224000	24.167000	24.180000	24.495000	24.649000
Danish krone	7.340600	7.317700	7.308800	7.397400	7.436300
Indian rupee	NA	79.433500	79.666700	79.752800	79.870300

A link will be provided for Historical Data which should be used for development.

UI Requirements

- UI should have the option to select 2 currencies (Currency 1 and Currency 2). Currency 1 auto populate with USD. Users should have the search capability to search for a currency in currency 2 field. Display currency name next to currency field
- Users should have an option to select duration for which they would prefer to see the data and graphs
- List of ISO currency codes and definitions is available here

Recommendations/Guidelines

1. Follow clean coding practices.
2. Design should be modular. Should be easy to maintain and easy to extend.
3. Code should be supplemented with automation tests.
4. Feel free to use any technology you are familiar with / comfortable with.

Optional Tasks

- Provide option to select currency-1 also as any currency rather than populating it as USD always. Use USD as through currency and derive exchange rate between 2 currencies. For instance, if Sterling (GBP) and Australian Dollar (AUD) are the 2 currencies selected then derive direct exchange rate between GBP and USD. Once exchange rate is derived between GBP and USD currency, use that as base to derive value for second currency which is AUD in this example.
- Provide a Service/Component which will provide FX rates for all currencies considering a base currency. For instance, USD as a base currency and value of all other currencies in terms of USD for a given date.
- Provide a Service/Component to convert value of currency into another currency. For instance, if the user provides base currency as USD and target currency as INR and amount of 1000 and let's say exchange rate is 79, component should convert amount into target currency and result should be 79,000 INR
- UI screen to display all currencies along with the short code, description, and current exchange rate
- Automate uploading of exchange rate data into database

Sample Graph

(Note: this is just an illustration, and any type of graph can be used)