

Project Manual

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Creating the specific output for a currency exchange rate data analytics project would involve generating visualizations, statistical summaries, and insights based on your analysis. Below are some examples of the types of output you might produce:

1. Visualizations:

Exchange Rate Trends:

- Line chart showing the historical trends of selected currency exchange rates over time.

Correlation Matrix:

- Heatmap illustrating the correlation between exchange rates and relevant economic indicators.

Volatility Analysis:

- Volatility chart depicting the fluctuations in exchange rates, possibly using a moving average or other volatility measure.

Predictive Model Results:

- Line chart comparing predicted exchange rates from your machine learning model against actual rates.

Sentiment Analysis:

- Sentiment score over time, showing how positive or negative sentiment in news articles correlates with exchange rate movements.

Risk Management:

- Visual representation of identified risks and proposed risk management

strategies.

2. Statistical Summaries:

Descriptive Statistics:

- Table showing mean, median, standard deviation, and other relevant statistics for each currency.

Statistical Tests:

- Results of tests for significant changes or events in the exchange rate data.

3. Key Insights and Recommendations:

- Summary of the main findings from your analysis.
- Recommendations for potential investment strategies, risk mitigation, or decision-making based on the insights gained.

4. Report:

- A comprehensive report detailing the methodology, data sources, analysis process, and conclusions.
- Well-documented code (if applicable) to ensure reproducibility.

Dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Date	Algerian D	Australian D	Bahrain D	Bolivar F	Botswana D	Brazilian R	Brunei Dol	Canadian C	Chilean P	Chinese Y	Colombian	Czech K	Danish Kr	Euro
2	02-01-95														
3	03-01-95			0.376			0.843		1.4035			833.18		6.1185	
4	04-01-95		0.7704	0.376			0.844		1.4026			835.38		6.124	
5	05-01-95		0.7693	0.376			0.844		1.4002			838.33		6.1135	
6	06-01-95		0.7699	0.376			0.842		1.4002			838.87		6.0965	
7	09-01-95		0.7658	0.376			0.839		1.4058					6.1345	
8	10-01-95		0.7643	0.376			0.844		1.4125			837.07		6.063	
9	11-01-95		0.767	0.376			0.846		1.414					6.059	
10	12-01-95		0.7706	0.376			0.849		1.416			843.69		6.065	
11	13-01-95		0.7613	0.376			0.844		1.4106			841.52		6.031	
12	16-01-95		0.7593	0.376			0.845		1.4122			843.7		6.052	
13	17-01-95		0.7616	0.376			0.848		1.4212			846.61		6.0355	
14	18-01-95		0.7596	0.376			0.844		1.4215			847.61		6.022	
15	19-01-95		0.7613	0.376			0.844		1.4211			850.26		6.0475	

Hungarian	Icelandic	Indian Rupee	Indonesian Rupiah	Iranian Rial	Israeli New Sheqel	Japanese Yen	Kazakhstani Tenge	Korean Won	Malaysian Ringgit	Qatari Dinar	Libyan Dinar	Dinara	Malaysian Ringgit
68.56	31.37	2201	1754					788.7	0.29964	0.525	2.5525		
68.66	31.37	2202	1753.53		100.98		788.5	0.29982	0.525	2.551			
68.56	31.37	2202	1746.89		101		789.3	0.29982	0.525	2.5488			
68.43	31.37	2202	1744.75		100.95		789.6		0.525	2.5497			
68.74	31.37	2203	1752.3		101.05		790.3	0.29996	0.525	2.5525			
68.18	31.37	2203	1739.13		100.18		791	0.29927	0.525	2.55			
68.1	31.37	2203	1746.91		99.85		791.2	0.29916	0.525	2.5528			
68.13	31.37	2203			100		790.2	0.29916	0.525	2.5575			
67.82	31.37	2203			98.85		790		0.525	2.5585			
	31.37	2203	1751.44				792.8	0.29879	0.525	2.5563			
67.85	31.37	2204	1749.73		99		792.7	0.29897	0.525	2.554			
67.76	31.37	2204	1748.49		98.92		792	0.29897	0.525	2.5502			
68.01	31.38	2204	1755.04		99.45		792.5	0.29912	0.525	2.5535			
67.35	31.37	2204	1744.6		99.15		792.4		0.525	2.5476			
67.3	31.37	2204	1752.15		99.9		792.5	0.29851	0.525	2.554			
67.21	31.38	2205	1743.84		99.75		792.3	0.29874	0.525	2.5593			
67.09	31.38	2205	1747.81		99.6		790.1	0.29857	0.525	2.561			
67.44		2205	1752.53		99.53		787.4	0.29857	0.525	2.5605			
67.38	31.4	2205	1752.48		99.3		785.3		0.525	2.5565			
67.35	31.38	2205	1747.04		99.15			0.29857	0.525	2.5572			
67.12	31.37	2207	1745.99		98.55			0.29824	0.525				
67.5		2207	1758.93		99.35			0.29884	0.525				
67.2	31.37	2208	1747.79		99.33		786.7	0.29884	0.525				
67.11	31.37	2208	1747.56		99.55		788.9		0.525	2.5545			
67.24	31.37	2208	1753.79		99.68		791.6	0.29903	0.525	2.5545			
67.20	31.37	2200	1740.07		90.25		702.1	0.29903	0.525	2.5522			

3.64	0.3845	3.745	1.4255	3.65	52.3975	7.009	1.1468	25.11	5.8818	3.671	1.5805	1
3.64	0.3845	3.745	1.4205	3.65	52.2475	6.905	1.1438	25.07	5.8503	3.671	1.58	1
3.64	0.3845	3.745	1.4285	3.66	52.4275	6.9626	1.155	25.1	5.8953	3.671	1.5822	1
3.64	0.3845	3.745	1.4289	3.66	52.4075	6.987	1.1515	25.1	5.8934	3.671	1.594	1
3.64	0.3845	3.745	1.4335	3.66	52.5575	6.963	1.155	25.14	5.8821	3.671	1.5802	1
3.64	0.3845	3.745	1.4333	3.66	52.5175	6.958	1.1545	25.1	5.8671	3.671	1.5842	1
3.64	0.3845	3.745	1.4295	3.66	52.5175	6.9775	1.141	25.09	5.8655	3.671	1.5855	1
3.64	0.3845	3.745	1.4275	3.65	52.5175	6.9655	1.147	25.1	5.8687	3.671	1.5857	1
3.64	0.3845	3.745	1.427	3.65	52.5575	6.957	1.1527	25.09	5.8909	3.671	1.579	1
3.64	0.3845	3.745	1.4276	3.65	52.6075	6.945	1.151	25.11	5.9068	3.671	1.5781	1
3.64	0.3845	3.745	1.4237	3.66	52.6625	6.9493	1.1545	25.13	5.8943	3.671	1.5723	1
3.64	0.3845	3.745	1.426	3.66	52.6325	6.9675	1.1563	25.1	5.8928	3.671	1.5729	1
3.64	0.3845	3.745	1.4265	3.65	52.7025	6.9542	1.1505	25.12	5.9114	3.671	1.5758	1
3.64	0.3845	3.745	1.4264	3.65	52.7025	6.9295	1.1535	25.12	5.8873	3.671	1.5723	1
3.64	0.3845	3.745	1.421	3.65	52.7025	6.861	1.147	25.09	5.8741	3.671	1.5755	1
3.64	0.3845	3.745	1.4238	3.65	52.8525	6.7965	1.154	25.12	5.8868	3.671	1.5717	1
3.64	0.3845	3.745	1.4233	3.64		6.7275	1.1515	25.1	5.859	3.671	1.5719	1
3.64	0.3845	3.745		3.64		6.7055	1.1335			3.671	1.579	1
3.64	0.3845	3.745	1.4172	3.64	52.8425	6.6495	1.1265	25.07	5.8559	3.671	1.5821	1
3.64	0.3845	3.745	1.416	3.64	52.9125	6.621	1.1375	25.08	5.8902	3.671	1.5803	1
3.64	0.3845	3.745	1.4155	3.64	52.9925	6.6015	1.1347	25.11	5.8971	3.671	1.5784	1
3.64	0.3845	3.745	1.4142	3.64	53.0225	6.591	1.128	25.11	5.8677	3.671	1.5822	1
3.64	0.3845	3.745	1.4155	3.65	53.0975	6.6435	1.1382	25.14	5.8768	3.671	1.575	1
3.64	0.3845	3.745	1.416	3.65	53.0975	6.6505	1.1413	25.14	5.8755	3.671	1.5746	1
3.64	0.3845	3.745	1.4142		53.1175	6.6205	1.1368	25.16	5.8972	3.671	1.5798	1
3.64	0.3845	3.745	1.4165	3.65	53.2375	6.6485	1.1468	25.21	5.9165	3.671	1.5792	1

		Japanese Yen	Kazakhstani Tenge	Korean Won	Kuwaiti Dinar	Libyan Dinars	Malaysian Ringgit	Mauritian Rupee	Mexican Peso	Nepalese Rupee	New Zealand Dollar	Norwegian Krone	Nuevo Sol	Pakistani Rupee	Peruvian Sol
100.98		788.7	0.29964	0.525	2.5525				49.88		6.799		30.877		
101		788.5	0.29982	0.525	2.551				49.88	0.6401	6.804		30.877		
100.95		789.3	0.29982	0.525	2.5488				49.88	0.6381	6.7885		30.877		
101.05		789.6		0.525	2.5497				49.88	0.6387	6.768		30.877		
100.18		790.3	0.29996	0.525	2.5525				49.88	0.6373	6.806		30.877		
99.85		791.2	0.29916	0.525	2.5528				49.88	0.6369	6.737		30.9372		
100		790.2	0.29916	0.525	2.5575				49.88	0.6429	6.7375		30.9372		
98.85		790		0.525	2.5585				49.88	0.6403	6.698		30.9372		
		792.8	0.29879	0.525	2.5563				49.88	0.6385	6.718		30.9372		
99		792.7	0.29897	0.525	2.554				49.88	0.641	6.697		30.9372		
98.92		792	0.29897	0.525	2.5502				49.88	0.6395	6.685		30.9372		
99.45		792.5	0.29912	0.525	2.5535				49.88	0.6408	6.715		30.9372		
99.15		792.4		0.525	2.5476				49.88	0.6425	6.6245		30.9372		
99.9		792.5	0.29851	0.525	2.554				49.88	0.6436	6.6185		30.9372		
99.75		792.3	0.29874	0.525	2.5593				49.88	0.6462	6.6115		30.9372		
99.6		790.1	0.29857	0.525	2.561				49.88	0.647	6.599		30.9372		
99.53		787.4	0.29857	0.525	2.5605				49.9	0.643	6.647		30.9372		
99.3		785.3		0.525	2.5565				49.9	0.6413	6.633		30.9372		
99.15			0.29857	0.525	2.5572				49.9	0.6395	6.634		30.9372		
98.55			0.29824	0.525				6	49.9	0.6414	6.6055		30.9372		
99.35			0.29884	0.525					49.9	0.6387	6.678		30.9372		
99.33		786.7	0.29884	0.525					50.16	0.6402	6.651		30.9372		
99.55		788.9		0.525	2.5545				50.16	0.6404	6.6545		30.9372		
99.68		791.6	0.29903	0.525	2.5545				50.16		6.6905		30.9372		
99.25		792.1	0.29903	0.525	2.5522				50.16	0.6317	6.6965		30.9372		

		Philippine Peso	Polish Zloty	Qatar Riyal	Rial Oman	Russian Ruble	Saudi Aramco	Singapore Dollars	South African Rand	Sri Lanka Rupee	Swedish Krona	Swiss Franc	Taiwan Dollar	U.S. Dollar	U.K. Pound
		3.64	0.3845			3.745	1.4563	3.55	50.04	7.4588					
		3.64	0.3845			3.745	1.4537	3.56	50.07	7.448					
		3.64	0.3845			3.745	1.452	3.55	50.07	7.445					
		3.64	0.3845			3.745	1.4527	3.56	50.07						
		3.64	0.3845			3.745	1.4535	3.55	50.14	7.5231					
		3.64	0.3845			3.745	1.4502	3.54	50.11	7.502					
		3.64	0.3845			3.745	1.4499	3.53	50.09	7.5115					
		3.64	0.3845			3.745	1.4533	3.53	50.13	7.49					
		3.64	0.3845			3.745	1.4635	3.53	50.08	7.4868					
		3.64	0.3845			3.745	1.4509	3.54		7.4765					
		3.64	0.3845			3.745	1.4498	3.54	50.14	7.4547					
		3.64	0.3845			3.745	1.4494	3.53	50.12	7.438					
		3.64	0.3845			3.745	1.4548	3.54	50.17	7.4986					
		3.64	0.3845			3.745	1.4493	3.53	50.17	7.4413					
		3.64	0.3845			3.745	1.4487	3.53	50.15	7.4385					
		3.64	0.3845			3.745	1.4513	3.53	50.18	7.4479					
		3.64	0.3845			3.745	1.4536	3.53	50.16	7.4259					
		3.64	0.3845			3.745	1.452	3.54	50.17	7.4928					
		3.64	0.3845			3.745	1.4514	3.54	50.17	7.4657					
		3.64	0.3845			3.745	1.4523	3.53	50.175	7.4382					
24.55	2.43	3.64	0.3845			3.745		3.53	50.13	7.4305					
		3.64	0.3845			3.745		3.55	50.19	7.4785					
		3.64	0.3845			3.745	1.4527	3.55	50.2	7.4405					
		3.64	0.3845			3.745	1.4531	3.55	50.2	7.4573					
		3.64	0.3845			3.745	1.4594	3.55	50.25	7.4765					
		3.64	0.3845			3.745	1.4627	3.55	50.24	7.4383					

The current dataset contains the value of each country's currency during specific dates.

Creating visualizations using IBM Cognos

1. Data Preparation:

1. Data Source Connection:

- Connect IBM Cognos to your data source containing currency exchange rate data. This could be a database, a data warehouse, or a flat file.

2. Data Exploration:

- Explore the structure of your data within Cognos to understand the available fields, data types, and relationships.

2. Create a Data Package:

1. Define a Data Source:

- Set up a data source connection within Cognos for your exchange rate data.

2. Create a Data Package:

- Build a data package that includes the relevant tables or data views needed for your analysis.

3. Build Queries:

1. Query Studio:

- Use Query Studio within Cognos to build queries for extracting specific data related to currency exchange rates.

2. Filter and Aggregate:

- Apply filters to focus on specific currencies, time periods, or other relevant criteria.
- Aggregate data to create summaries or calculated measures.

4. Create Reports and Dashboards:

1. Report Studio:

- Use Report Studio to design detailed reports based on your queries. Include visualizations like line charts, tables, or heatmaps to represent

exchange rate trends.

2. Dashboard Creation:

- Build dashboards that consolidate multiple reports or visualizations for a comprehensive view of exchange rate analytics.

5. Incorporate Time Series Analysis:

1. Time Dimension:

- If your analysis involves time series data, ensure that you have a time dimension in your data package.

2. Trend Analysis:

- Use Cognos capabilities to perform trend analysis on historical exchange rates. You might use features like running totals, moving averages, or other time-based calculations.

6. Utilize Built-in Statistical Functions:

1. Statistical Functions:

- Leverage built-in statistical functions within Cognos for descriptive statistics, correlations, or other relevant analyses.

7. Implement Machine Learning (Optional):

1. Custom Models:

- If you have advanced analytics requirements, consider integrating custom machine learning models. While Cognos may not have native machine learning capabilities, you can import predictions from external models.

8. Schedule and Automate:

1. Automation:

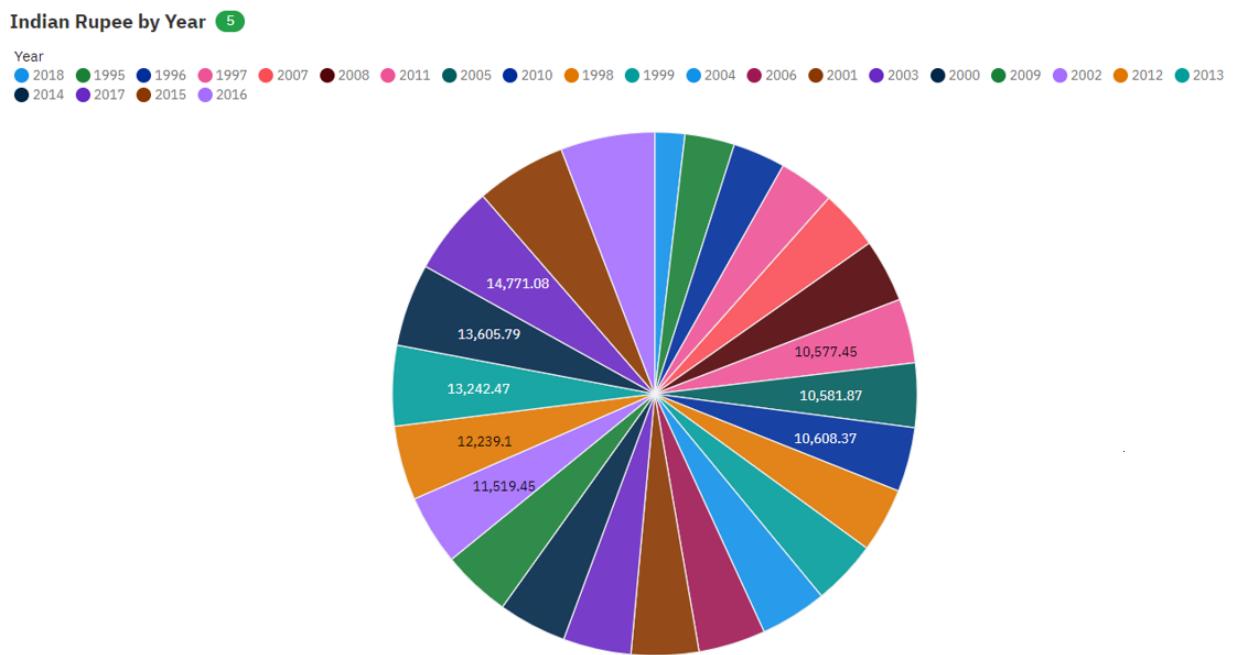
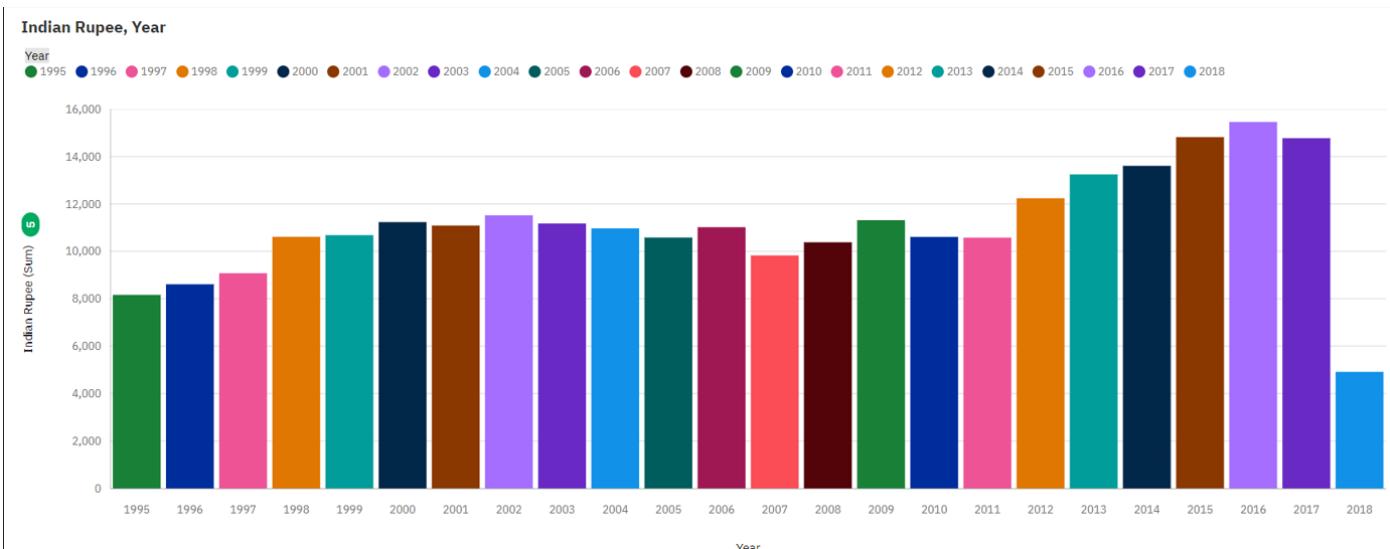
- Schedule reports or data refreshes to ensure that your analysis remains up-to-date.

9. Collaborate and Share:

1. Collaboration Features:

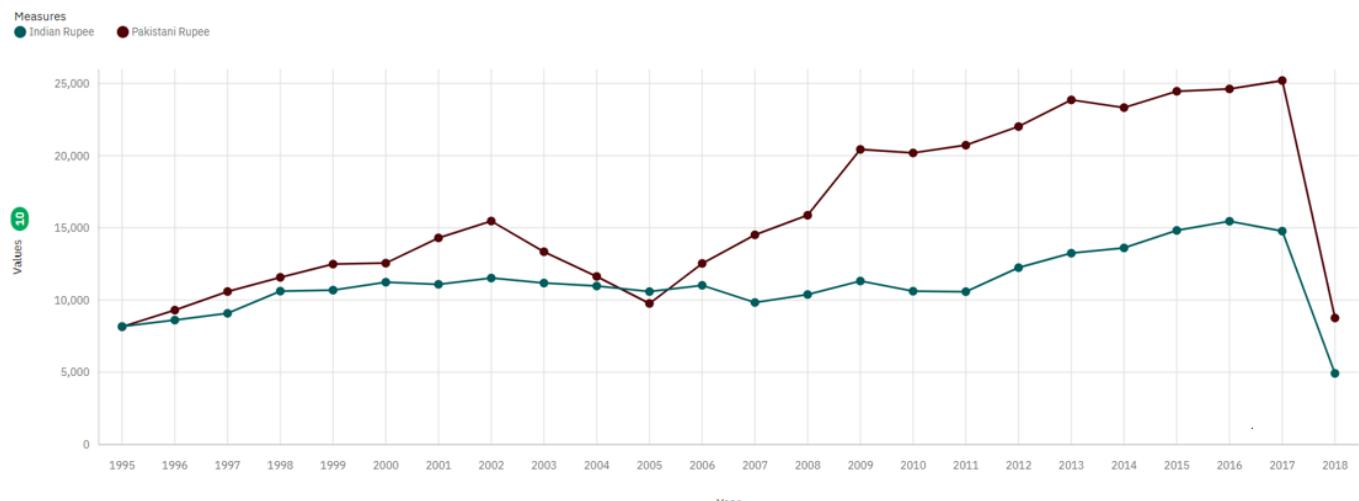
- Utilize Cognos features for collaboration and sharing. You can distribute reports through email, share dashboards, or publish to Cognos servers.

Visualizations

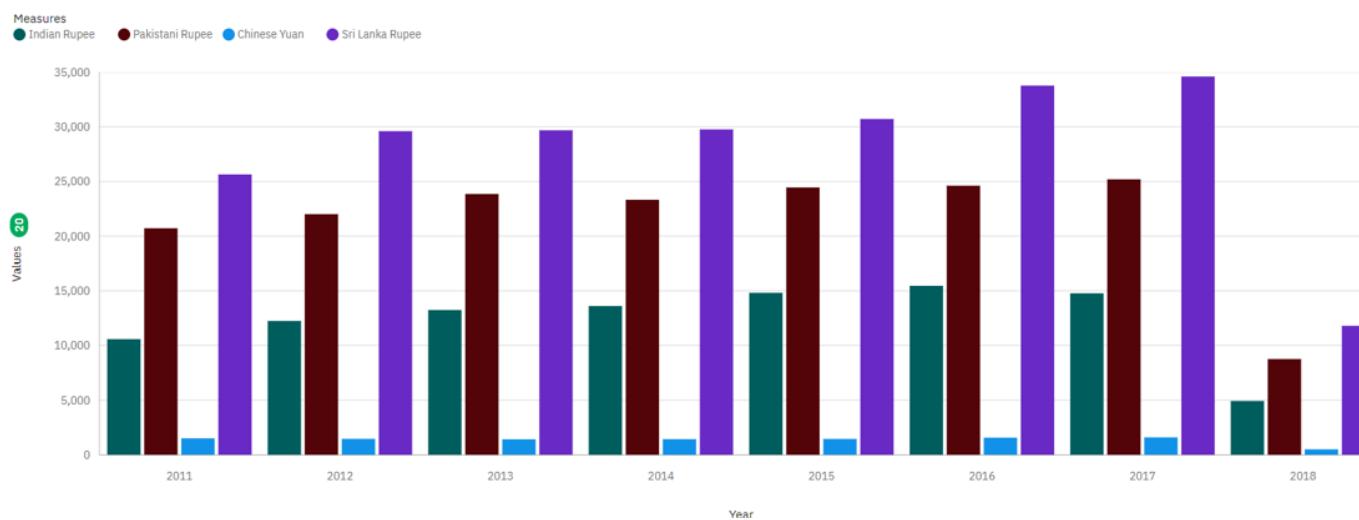


With respect to Indian Rupee

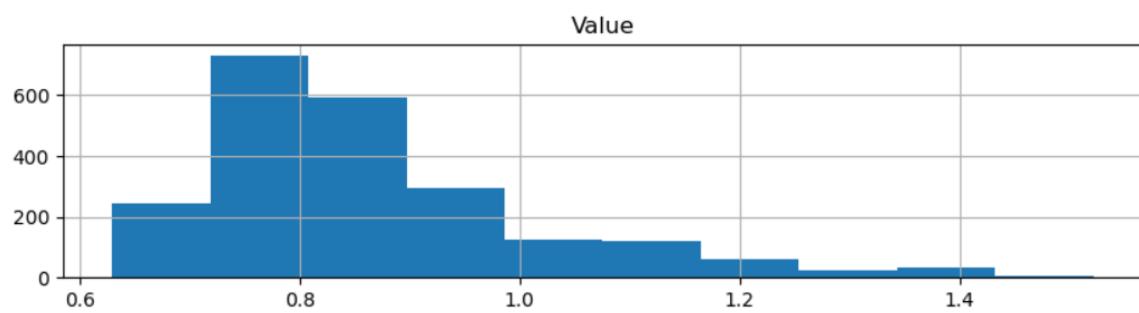
Indian Rupee and Pakistani Rupee by Year



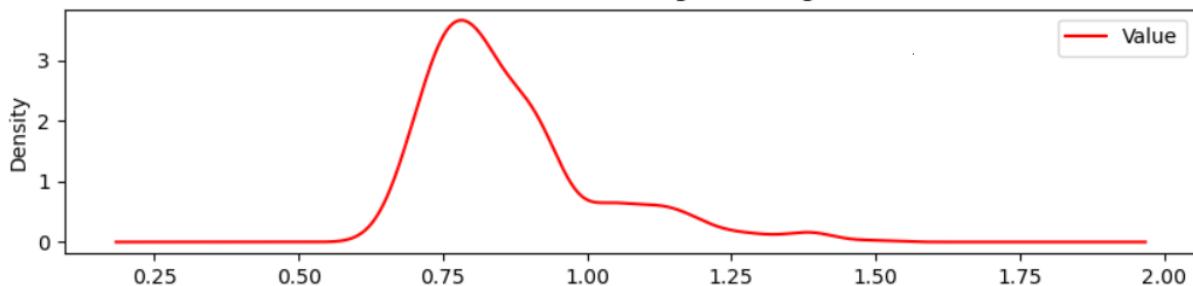
Indian Rupee, Pakistani Rupee, Chinese Yuan and Sri Lanka Rupee by Year



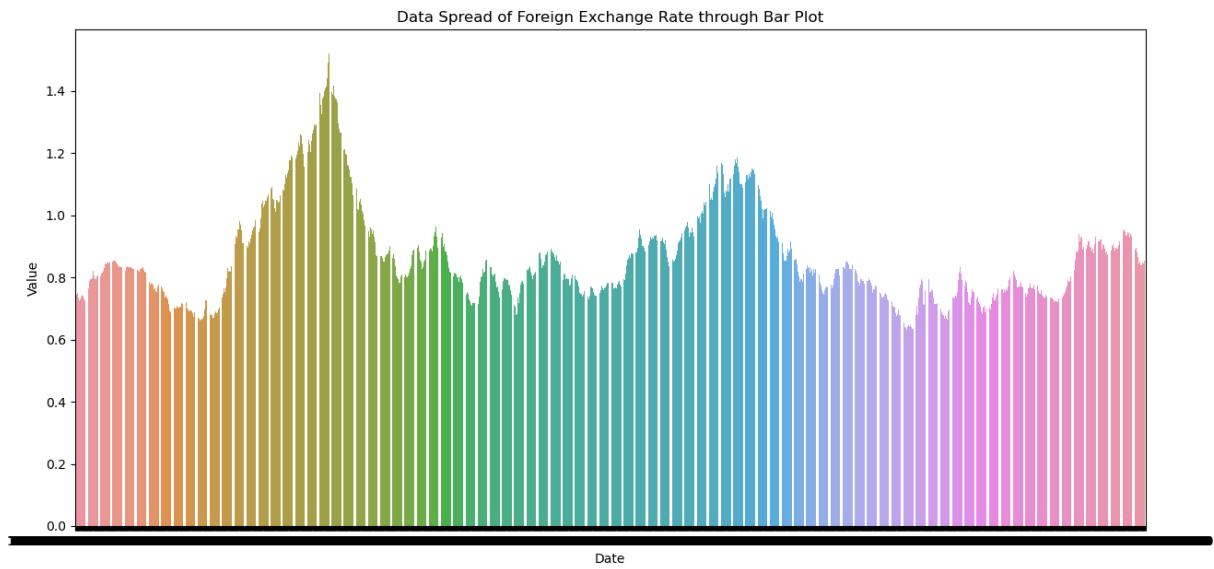
Indian Rupee and U.K. Pound Sterling by Danish Krone



Data Distribution of Foreign Exchange Rate



Data Spread of foreign exchange rate through bar chart



Using Tableau

Using Tableau for currency exchange rate analysis involves connecting to your data, creating visualizations, and deriving insights.

1. Data Preparation:

1. Connect to Data Source:

- Open Tableau and connect to your data source, which could be a database, Excel file, or another source containing currency exchange rate data.

2. Data Exploration:

- Explore the data to understand its structure, fields, and relationships. Ensure that the necessary information, such as date, currency pairs, and exchange rates, is available.

2. Create a Data Source:

1. Define Data Source:

- Build a data source in Tableau by selecting the appropriate tables or data views containing your exchange rate data.

3. Build Queries and Calculations:

1. Drag and Drop:

- Use Tableau's intuitive interface to drag and drop fields onto the Rows and Columns shelves to build your initial view.

2. Calculated Fields:

- Create calculated fields for any additional metrics or calculations you need. For example, you might calculate average exchange rates, percentage changes, or moving averages.

4. Create Visualizations:

1. Time Series Charts:

- Use line charts, area charts, or candlestick charts to visualize the trends in exchange rates over time.

2. Map Visualizations:

- Create geographical maps if your analysis involves multiple currencies from different countries.

3. Scatter Plots:

- Explore relationships between exchange rates and other economic indicators using scatter plots.

4. Dashboards:

- Combine multiple visualizations into a dashboard to provide a holistic view of the currency exchange rate analysis.

5. Utilize Built-in Statistical Features:

1. Analytics Pane:

- Leverage Tableau's analytics pane for quick access to statistical functions. For example, you can add trend lines to time series charts.

6. Implement Machine Learning (Optional):

1. Integration with R or Python:

- Tableau allows integration with R or Python scripts. If needed, you can

incorporate machine learning models developed using these languages.

7. Incorporate Time Series Analysis:

1. Date Hierarchies:

- Use Tableau's date hierarchies to facilitate time-based analysis. Tableau automatically recognizes date fields and allows you to drill down into specific time periods.

2. Trend Lines:

- Add trend lines to visualize patterns and trends in the exchange rate data.

8. Set Up Interactivity:

1. Parameters and Filters:

- Implement parameters and filters to allow users to interact with the data dynamically. For example, users can select specific time periods or currencies.

9. Schedule Data Refresh:

1. Data Extracts:

- If your data source is regularly updated, schedule data extracts to ensure that your analysis reflects the latest information.

10. Share and Collaborate:

1. Tableau Server or Tableau Online:

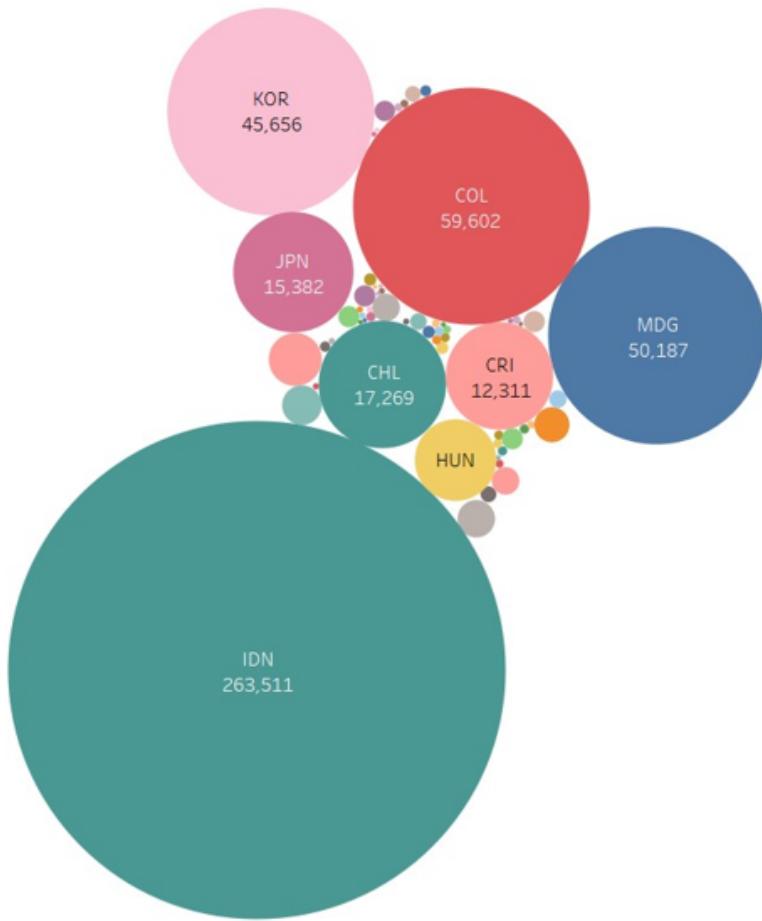
- Publish your Tableau workbook to Tableau Server or Tableau Online to share the analysis with others.

2. Tableau Public:

- If applicable, consider using Tableau Public for sharing visualizations publicly.

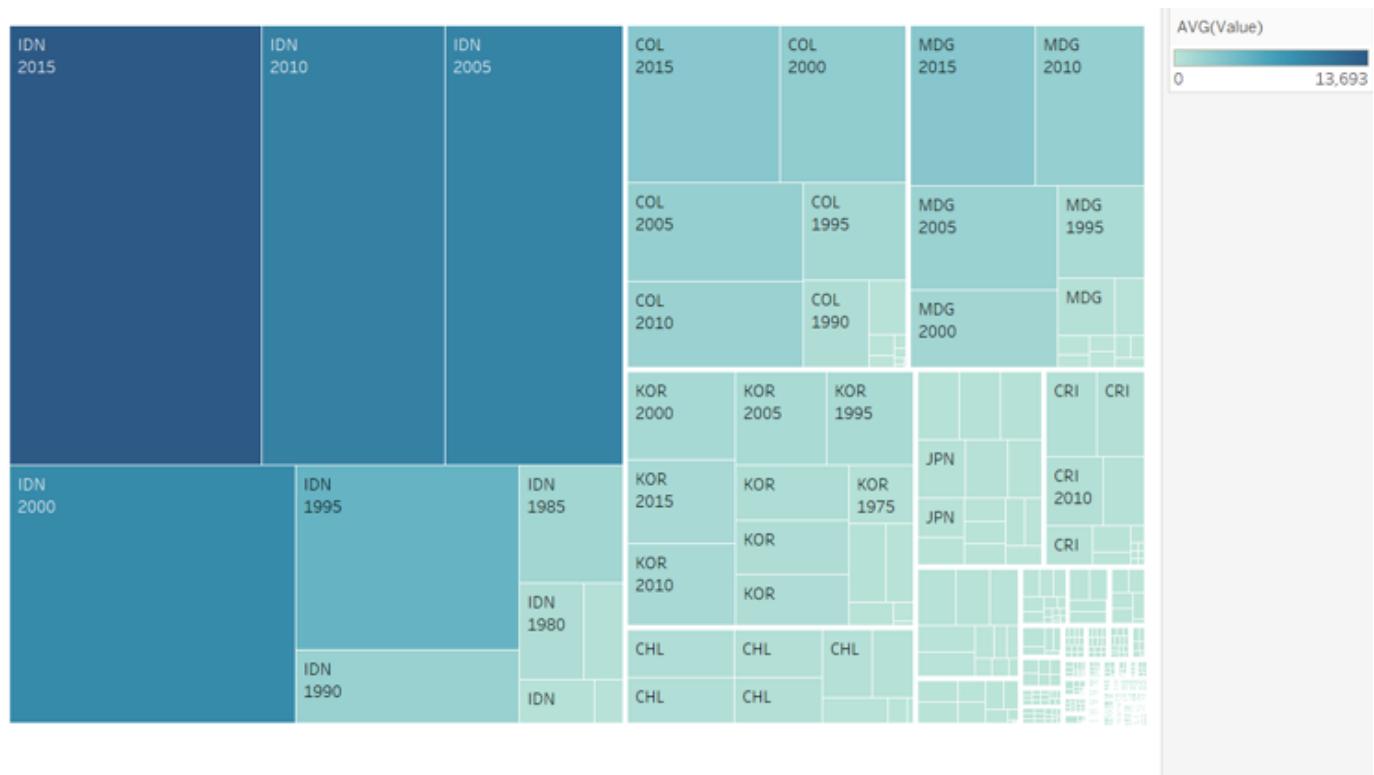
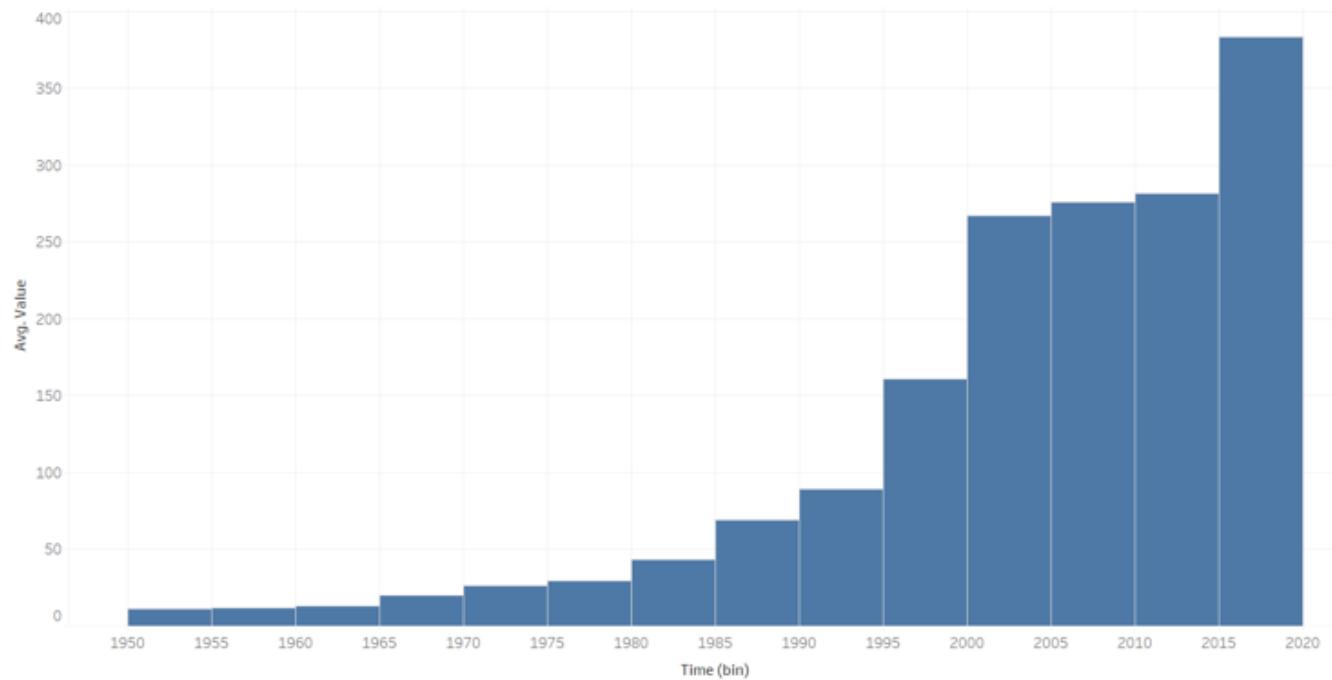
Visualizations

Value of each currency bu average

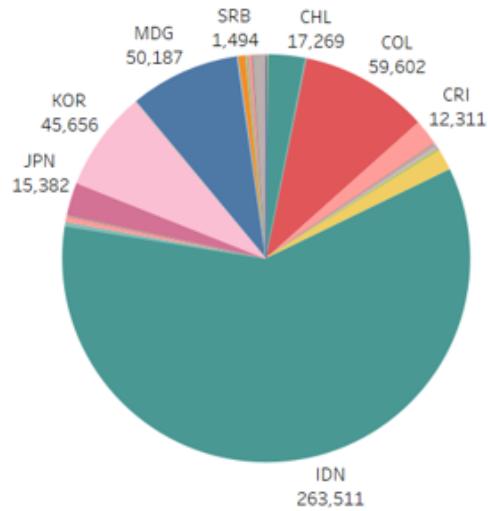


Currency Exchange rate by time :

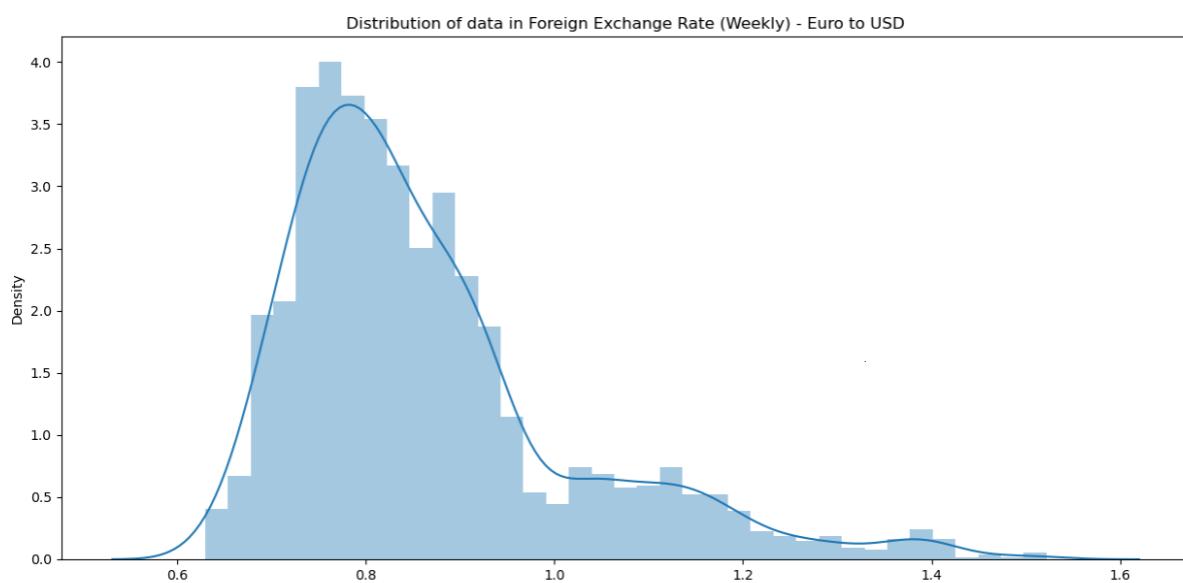
<Currency Exchange value on Time>



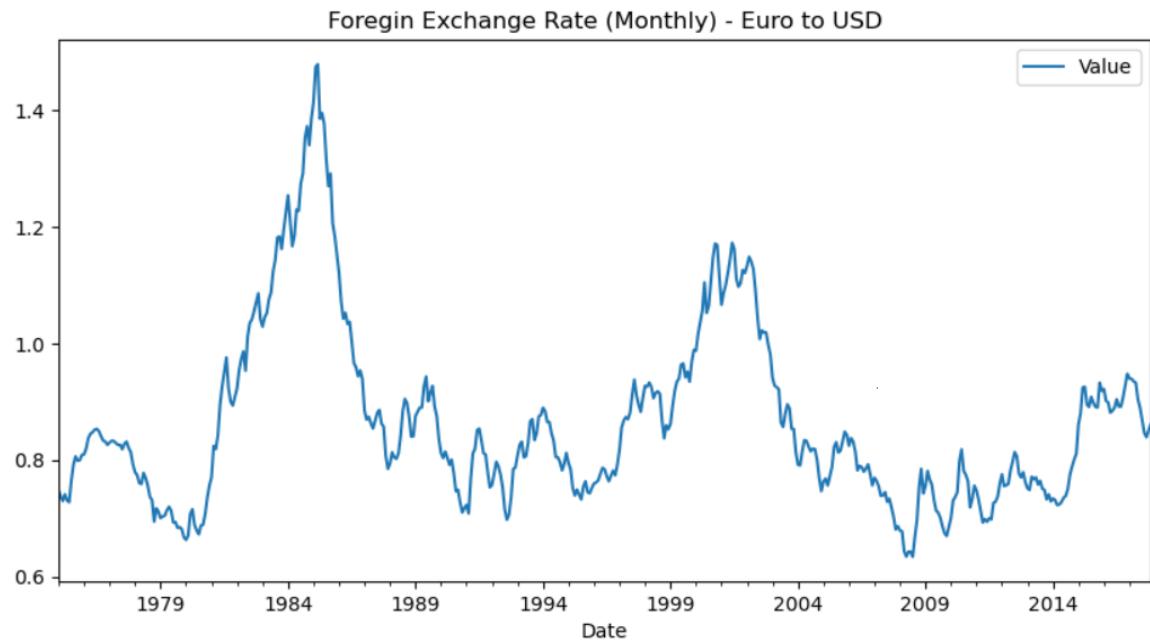
Pie Representation of Currency Rate change Across Different Locations:



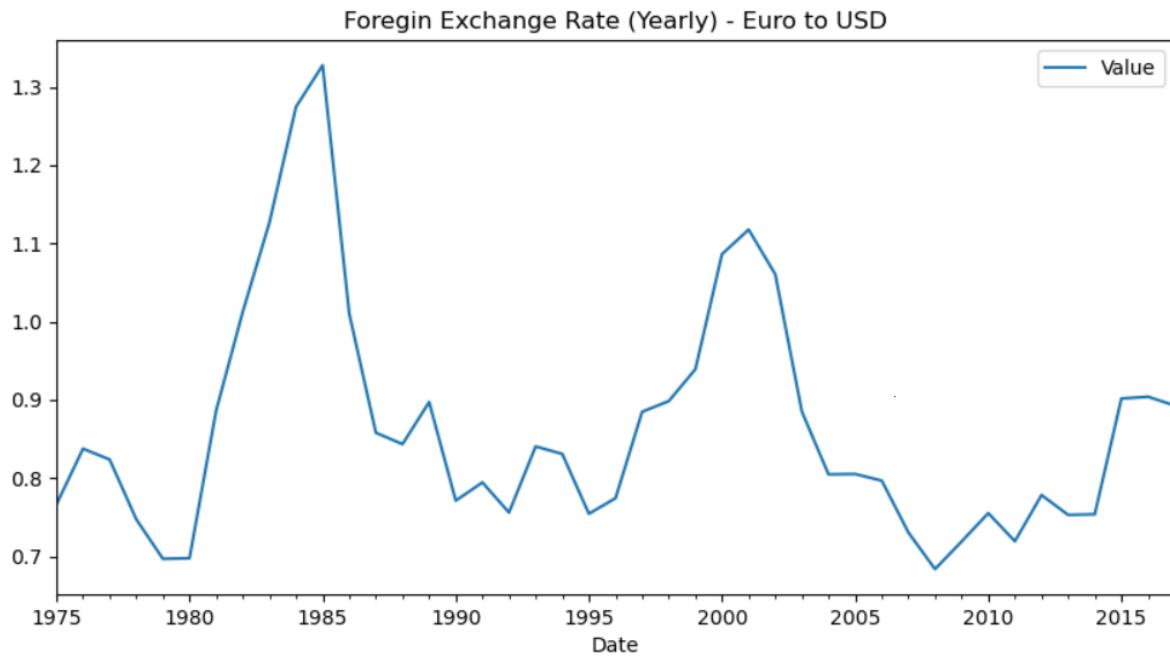
Distribution of data in foreign exchange rate - weekly based (Euro to USD)



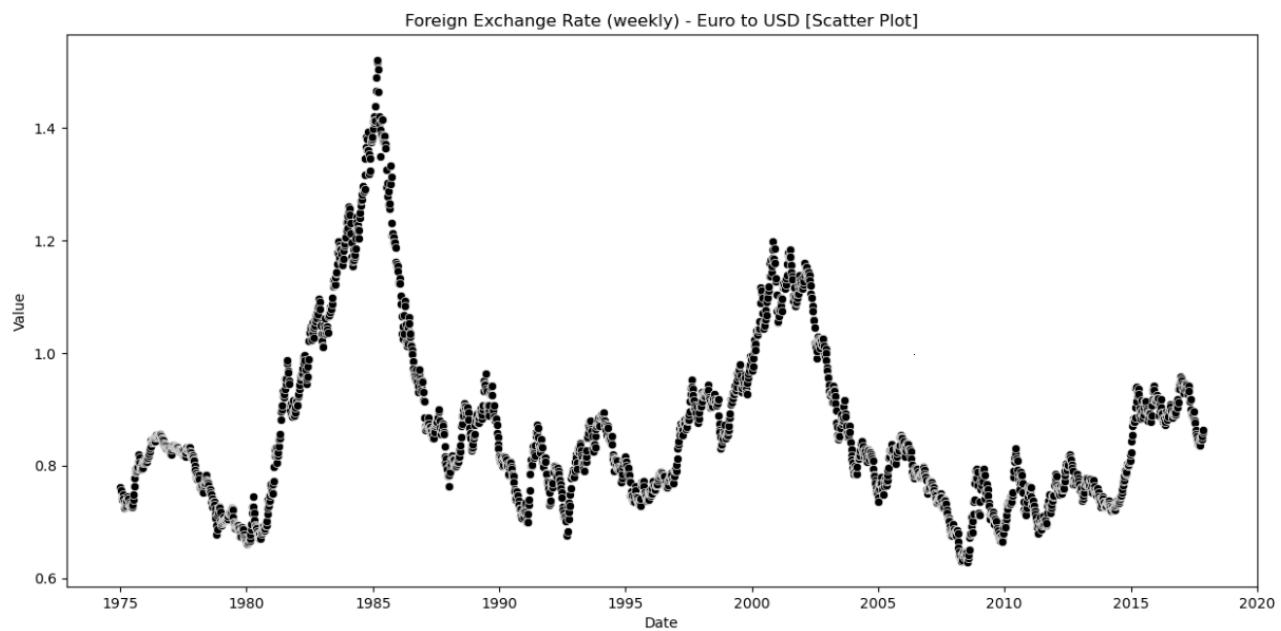
Monthly Based -



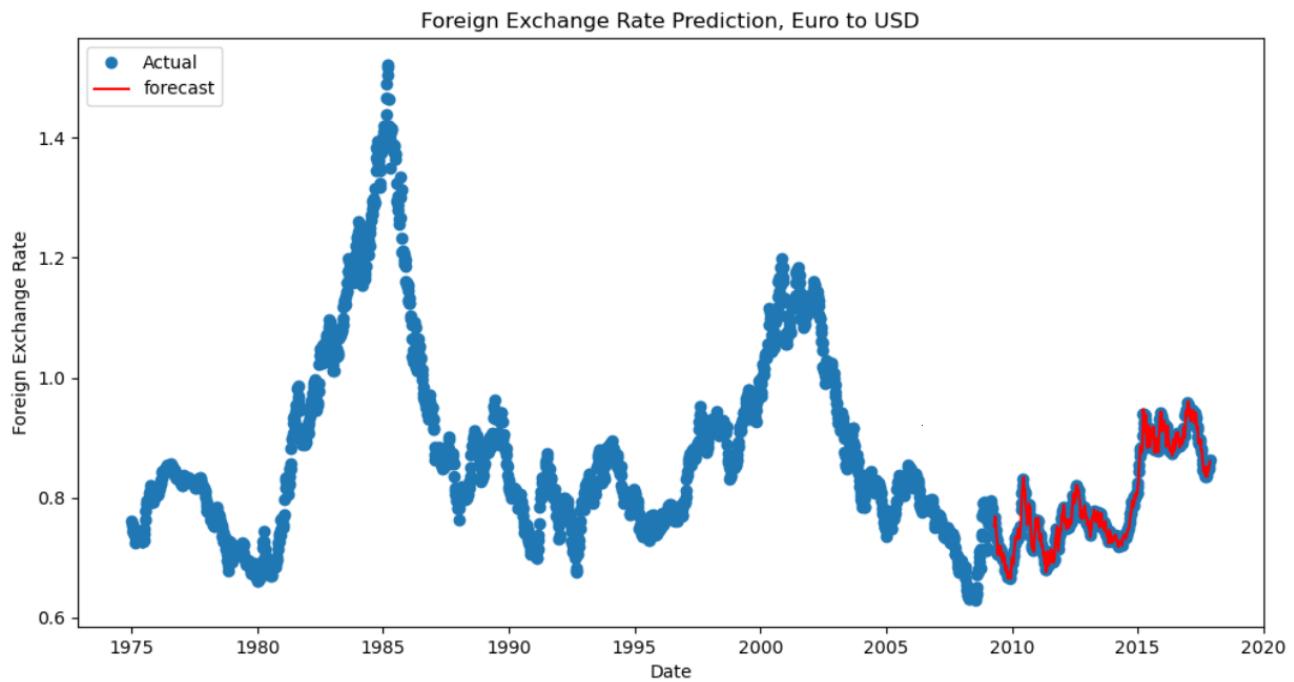
Yearly based -



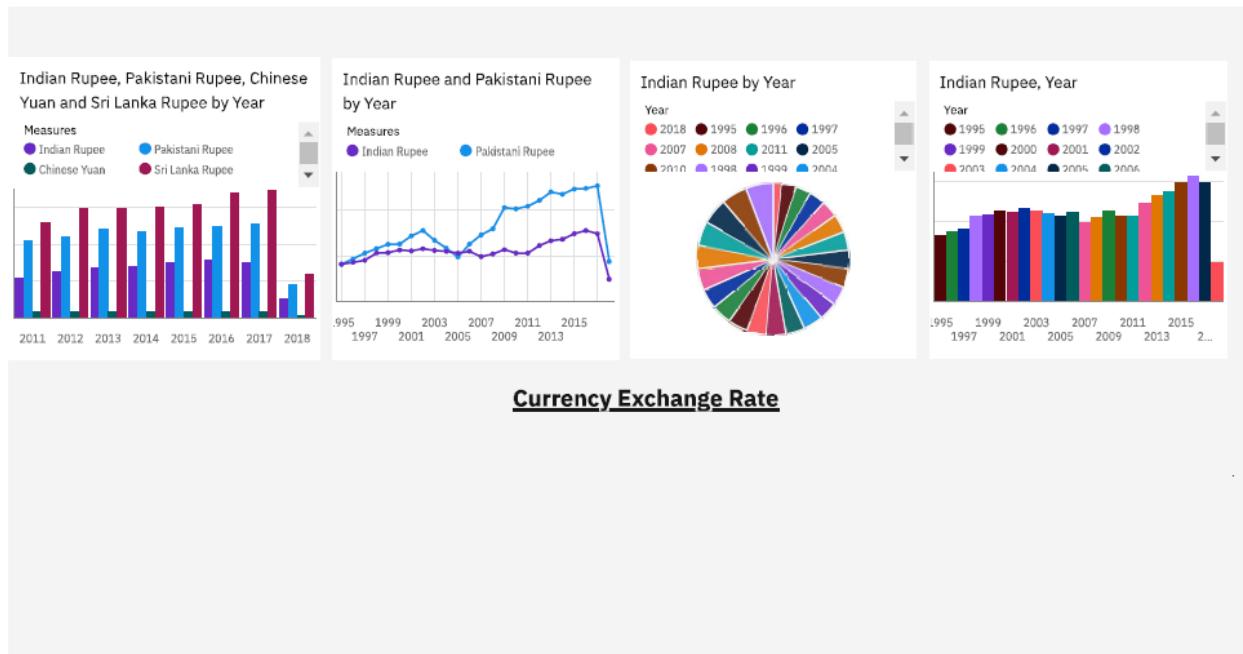
Scatter Plot :



Foreign Exchange Rate Prediction for Euro - USD



Dashboard



Currency Exchange Rate

Dollar-Overall

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	1M	1M	475K	-569K

Pound-Overall

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	968K	874K	386K	-438K

Euro-Overall

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	1M	1M	424K	-520K

Dollar-2019

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	1M	1M	455K	-536K

Dollar-2020

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	75K	67K	20K	-26K

Pound-2019

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	891K	807K	369K	-413K

Pound-2020

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	56K	51K	16K	-20K

Euro-2019

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	1M	955K	406K	-489K

Euro-2020

BUSINESS PERFORMANCE SUMMARY	TOTAL SUPPLIERS	TOTAL BUYERS	TOTAL COST	TOTAL SALES	HAULAGE COST	PROFIT MARGIN
	114	91	69K	62K	17K	-24K

Currency Exchange Rate Dashboard

1. Overview:

- **Title:** Currency Exchange Rate Analysis Dashboard

2. Time Series Line Chart:

- **Purpose:** Visualize the trend of selected currency pairs over time.
- **Visualization Type:** Line Chart
- **Features:**
 - X-axis: Time (Date/Period)
 - Y-axis: Exchange Rate
 - Lines: Differentiated by Currency Pair

- **Interactivity:**
 - Time filter/slider for dynamic exploration.
 - Tooltip displaying detailed information on hover.

3. Currency Heat Map:

- **Purpose:** Identify strength/weakness of currencies relative to each other.
- **Visualization Type:** Heat Map
- **Features:**
 - Rows/Columns: Currency Pairs
 - Color Gradient: Represents Exchange Rates
- **Interactivity:**
 - Tooltip displaying specific exchange rate values.
 - Clickable cells for detailed breakdowns.

4. Currency Comparison Table:

- **Purpose:** Provide a tabular view of exchange rates for selected currencies.
- **Visualization Type:** Data Table
- **Features:**
 - Rows: Different Currencies
 - Columns: Latest Exchange Rate, % Change, etc.
- **Interactivity:**
 - Sortable columns for user customization.
 - Dynamic filters for selecting currencies.

5. Exchange Rate Distribution Histogram:

- **Purpose:** Illustrate the distribution of exchange rates for a selected time period.
- **Visualization Type:** Histogram
- **Features:**
 - X-axis: Exchange Rate Ranges
 - Y-axis: Frequency
- **Interactivity:**
 - Filters for adjusting the time period.

6. Correlation Matrix:

- **Purpose:** Explore relationships between exchange rates and other economic indicators.

- **Visualization Type:** Correlation Matrix
- **Features:**
 - Cells: Correlation Coefficients
- **Interactivity:**
 - Color intensity indicates the strength of correlation.
 - Tooltip with detailed correlation values.

7. Forecasting Chart:

- **Purpose:** Predict future exchange rates using machine learning models.
- **Visualization Type:** Line Chart with Forecast
- **Features:**
 - Historical Data Lines
 - Forecasted Data Lines
- **Interactivity:**
 - Time filter for forecasting period.

8. Dashboard Controls:

- **Dropdown Menus:**
 - Select Time Period
 - Choose Specific Currency Pairs
- **Buttons:**
 - Reset Filters
 - Download Data

9. Key Metrics and Insights:

- **Text Boxes:**
 - Display important metrics like average exchange rate, volatility, etc.
 - Highlight key insights and trends.

10. Page Layout:

- **Tabs:**
 - Overview
 - Time Series Analysis
 - Currency Comparison
 - Insights

Stories in IBM Cognos

In IBM Cognos Analytics, storytelling is a feature that allows you to create a narrative around your data visualizations, guiding users through the insights you've uncovered in your analysis.

1. Data Connection and Preparation:

- Connect Cognos Analytics to your data source containing currency exchange rate data.
- Ensure that the necessary fields, such as date, currency pairs, and exchange rates, are available.

2. Create a Data Module:

- Build a data module in Cognos to organize and prepare your data for analysis.
- Define relationships between tables and create calculated measures if needed.

3. Build Visualizations:

- Use the data module to create visualizations that represent currency exchange rate trends, correlations, and other relevant insights.
- Explore different chart types, such as line charts, scatter plots, or heat maps, to convey your analysis effectively.

4. Assemble Story Components:

- In Cognos Analytics, navigate to the 'Explore' tab and select 'Create Story' to begin assembling your storytelling presentation.

5. Storyboarding:

- Start with a title slide and introduce the topic of currency exchange rate analysis.
- Add individual slides for each key insight or analysis point.
- Include visuals, charts, or tables that support each point you want to make.

6. Narrative Descriptions:

- For each slide, add narrative descriptions that provide context, interpretation, and implications of the data.
- Explain the significance of trends, correlations, or any noteworthy patterns in the data.

7. Annotations and Highlighting:

- Use annotations or highlighting features in your visualizations to draw attention to specific data points or trends.
- Add comments or annotations to explain why certain observations are significant.

8. Dynamic Interaction:

- Leverage Cognos Analytics' interactive features to allow users to explore the data further.
- Use filters, prompts, or parameters to enable dynamic interaction within the story.

9. Consistent Design:

- Maintain a consistent design theme throughout your storytelling presentation.
- Use a cohesive color scheme, font style, and layout for a professional and polished appearance.

10. Conclusion and Recommendations:

- Conclude your storytelling presentation with a summary slide that recaps key findings.
- Provide recommendations or actions based on the insights derived from the currency exchange rate analysis.

11. Preview and Adjust:

- Preview the story to ensure that the flow is logical and the narrative is clear.
- Adjust as needed, making sure that each slide contributes to the overall story arc.

12. Sharing and Collaboration:

- Share the completed storytelling presentation with relevant stakeholders.
- Collaborate with other users by granting them access to the story in Cognos

Analytics.

13. Regular Updates:

- As your currency exchange rate data evolves, update the story to reflect the latest insights.

14. Documentation:

- Optionally, document your storytelling process, including any assumptions, methodologies, or considerations made during the analysis.

Bootstrap and Flask

C:\> Users > hacke > OneDrive > Desktop > Currency Exchange Rate > index2.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <title>Currency Exchange Rate</title>
8   <!-- Add your preferred Bootstrap CDN link here -->
9   <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"
10    integrity="sha384-B4gtijrGC7jh4AgTPSdUoBvf08sh+WyA+913hNaU2egjWd08PkGYB+4vXn"
11    crossorigin="anonymous">
12   <!-- Add your custom CSS styles here -->
13   <link rel="stylesheet" href="styles.css">
14 </head>
15
16 <body>
17   <header class="bg-primary text-white text-center py-2">
18     <h1>Currency Exchange Rate</h1>
19   </header>
20
21   <main class="container mt-4">
22     <section>
23       <!-- <h2 class="mb-3">Latest Exchange Rates</h2> -->
24       <!-- Add your graph container here -->
25       <a href="index2.html">Latest Exchange Rates</a>
26
27     </section>
28
29     <section class="mt-4">
30       <h2 class="mb-3">The Tableau</h2>
31       <!-- Add your currency photos here -->
32       <div class="row">
33         <div class="col-md-4">
34           
35         </div>
36         <div class="col-md-4">
37           
38       </div>
39     </section>
40
41   </main>
42
43 </body>
44
45 </html>
```

C: > Users > hacke > OneDrive > Desktop > Currency Exchange Rate > # styles.css > ...

```
1  /* Add your custom styles here */
2  /* Example: */
3  body {
4      font-family: 'Arial', sans-serif;
5  }
6
7  /* Customize the appearance of your graph container */
8  #exchangeRateChart {
9      border: 1px solid #ccc;
10     border-radius: 5px;
11 }
12
```

C: > Users > hacke > OneDrive > Desktop > Currency Exchange Rate > JS script.js > ...

```
1 // Add your custom JavaScript code here
2 // Example: Initialize Chart.js
3 document.addEventListener('DOMContentLoaded', function () {
4     var ctx = document.getElementById('exchangeRateChart').getContext('2d');
5     var exchangeRateChart = new Chart(ctx, {
6         type: 'line',
7         data: {
8             labels: ['Jan', 'Feb', 'Mar', 'Apr', 'May'],
9             datasets: [
10                 {
11                     label: 'USD to EUR Exchange Rate',
12                     data: [1.2, 1.3, 1.25, 1.28, 1.22],
13                     backgroundColor: 'rgba(75, 192, 192, 0.2)',
14                     borderColor: 'rgba(75, 192, 192, 1)',
15                     borderWidth: 2,
16                     pointRadius: 4,
17                     pointBackgroundColor: 'rgba(75, 192, 192, 1)',
18                 }
19             },
20             options: {
21                 responsive: true,
22                 maintainAspectRatio: false,
23                 scales: {
24                     x: {
25                         type: 'category',
26                         labels: ['Jan', 'Feb', 'Mar', 'Apr', 'May'],
27                         title: {
28                             display: true,
29                             text: 'Month'
30                         }
31                     },
32                     y: {
33                         beginAtZero: false,
34                         title: {
35                             display: true,
36                             text: 'Exchange Rate'
37                         }
38                 }
39             }
40         }
41     });
42 }
```

Currency Exchange Rate

File | C:/Users/hacke/OneDrive/Desktop/Currency%20Exchange%20Rate/index.html

Currency Exchange Rate

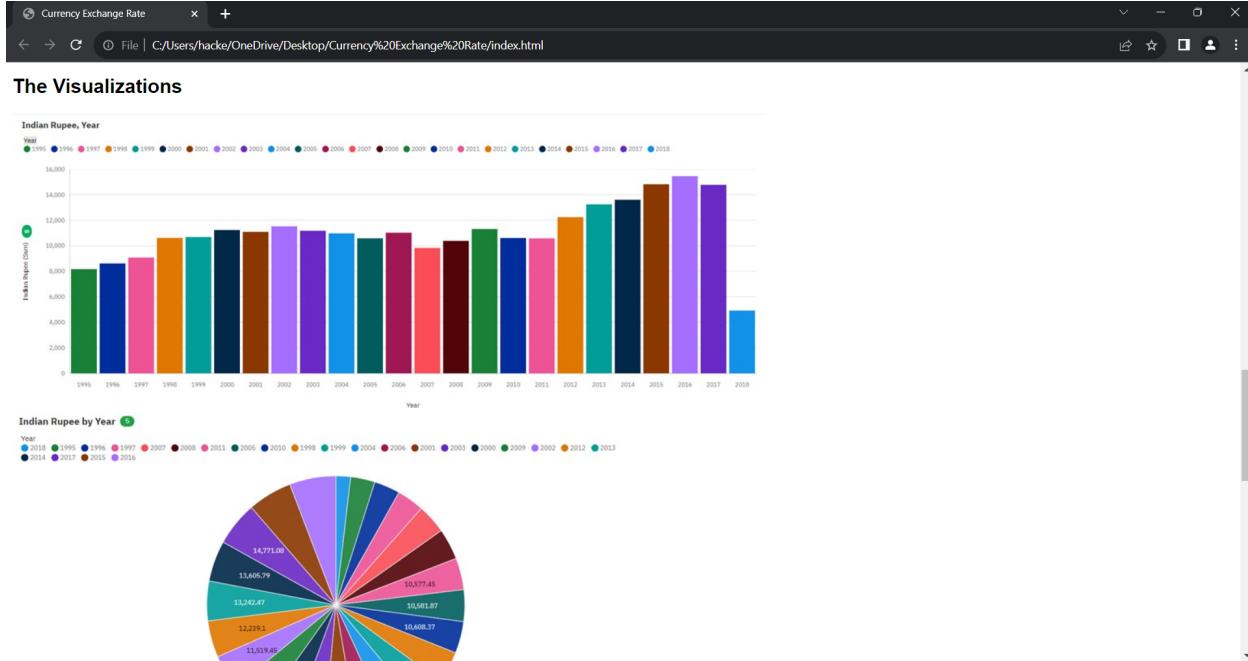
Latest Exchange Rates

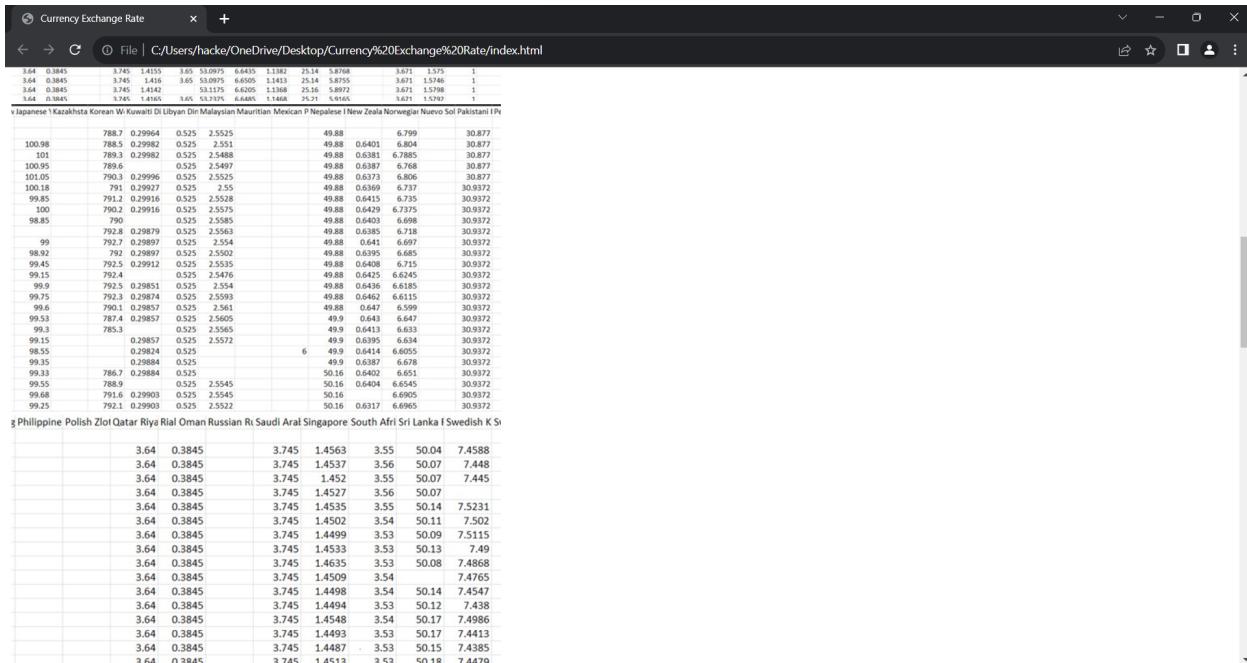
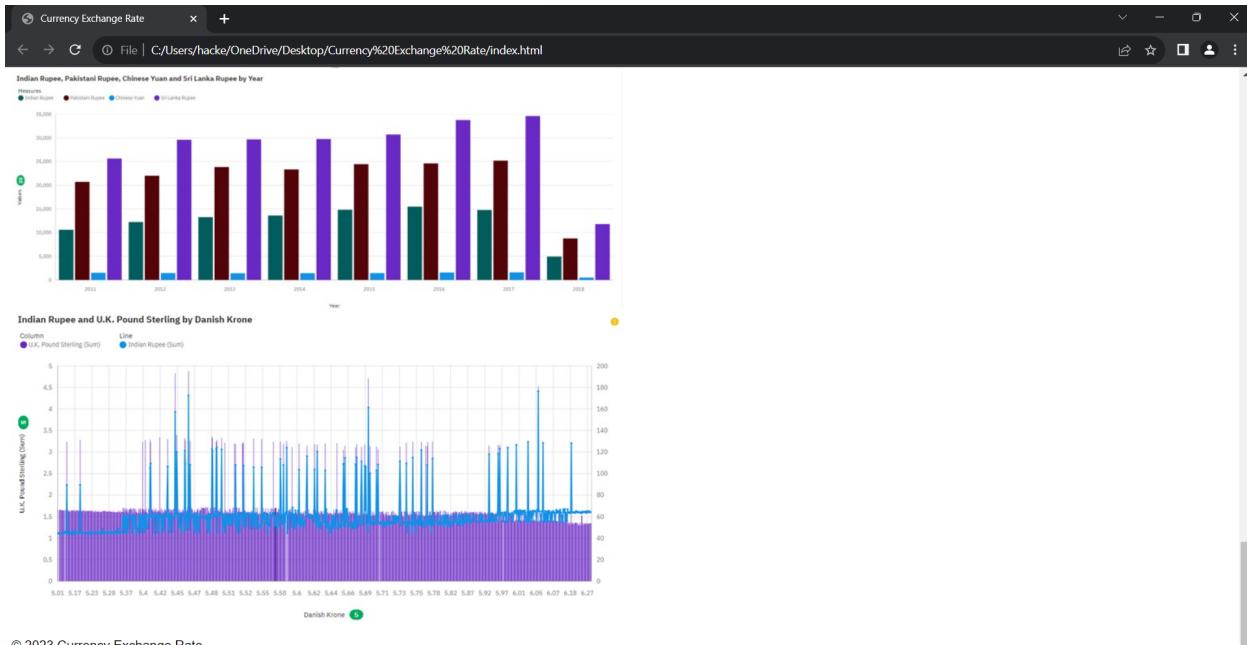
The CURRENCY Data

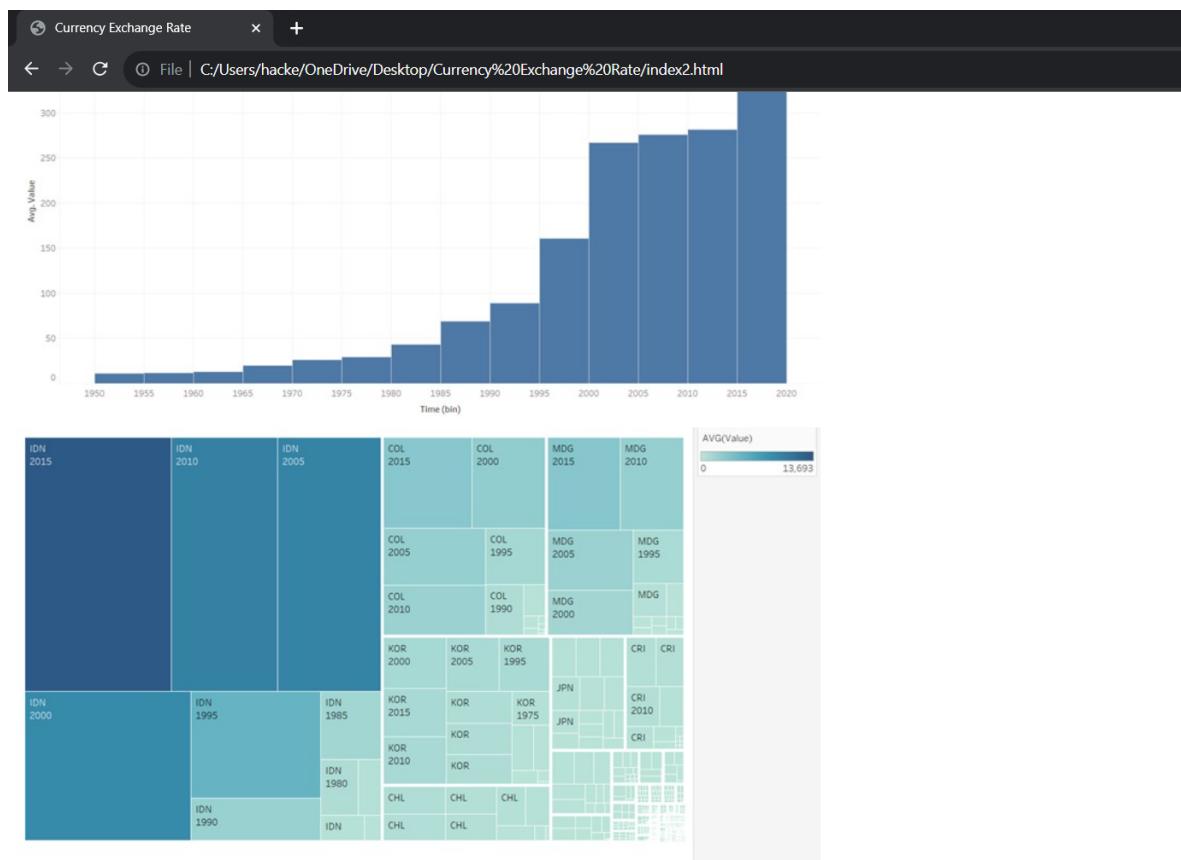
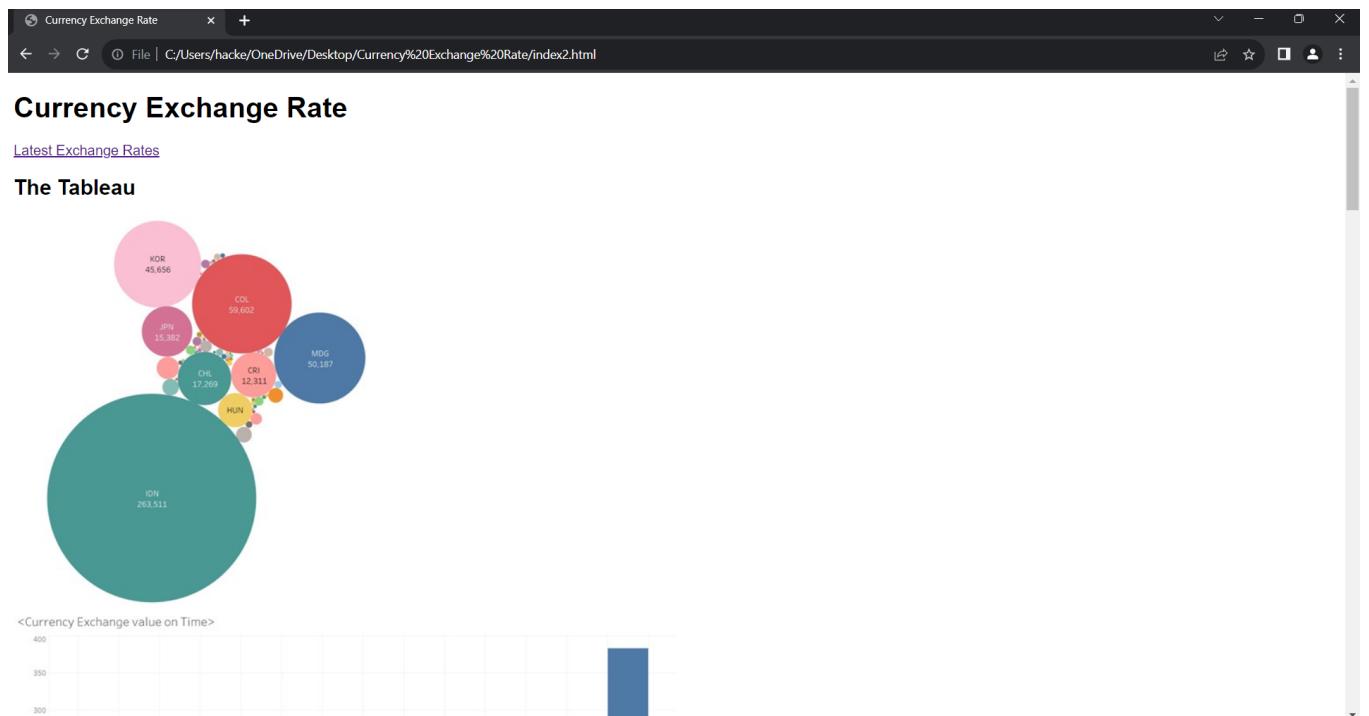
Date	Algerian D' Australian	Bahrain Dinar	Bolivar Fu	Boliviano	Brazilian R	Canadian	Chilean Pe	Chinese Y	Colombian	Czech Kor	Danish Krone	Euro
02-01-95												
03-01-95			0.376			0.843		1.4035		833.18		6.1285
04-01-95			0.7704	0.376		0.844		1.4026		835.38		6.124
05-01-95			0.7699	0.376		0.844		1.4002		838.33		6.1135
06-01-95			0.7704	0.376		0.844		1.3972		838.87		6.1135
07-01-95			0.7698	0.376		0.839		1.4058		838.87		6.1245
08-01-95			0.7643	0.376		0.844		1.4125		837.07		6.063
11-01-95			0.767	0.376		0.846		1.414		836.5		6.059
12-01-95			0.7659	0.376		0.849		1.416		843.69		6.059
13-01-95			0.7613	0.376		0.844		1.4106		841.52		6.031
16-01-95			0.7591	0.376		0.845		1.4129		843.7		6.052
17-01-95			0.7581	0.376		0.848		1.4121		844.61		6.052
18-01-95			0.7596	0.376		0.844		1.4215		847.61		6.022
19-01-95			0.7613	0.376		0.844		1.4211		856.26		6.0475

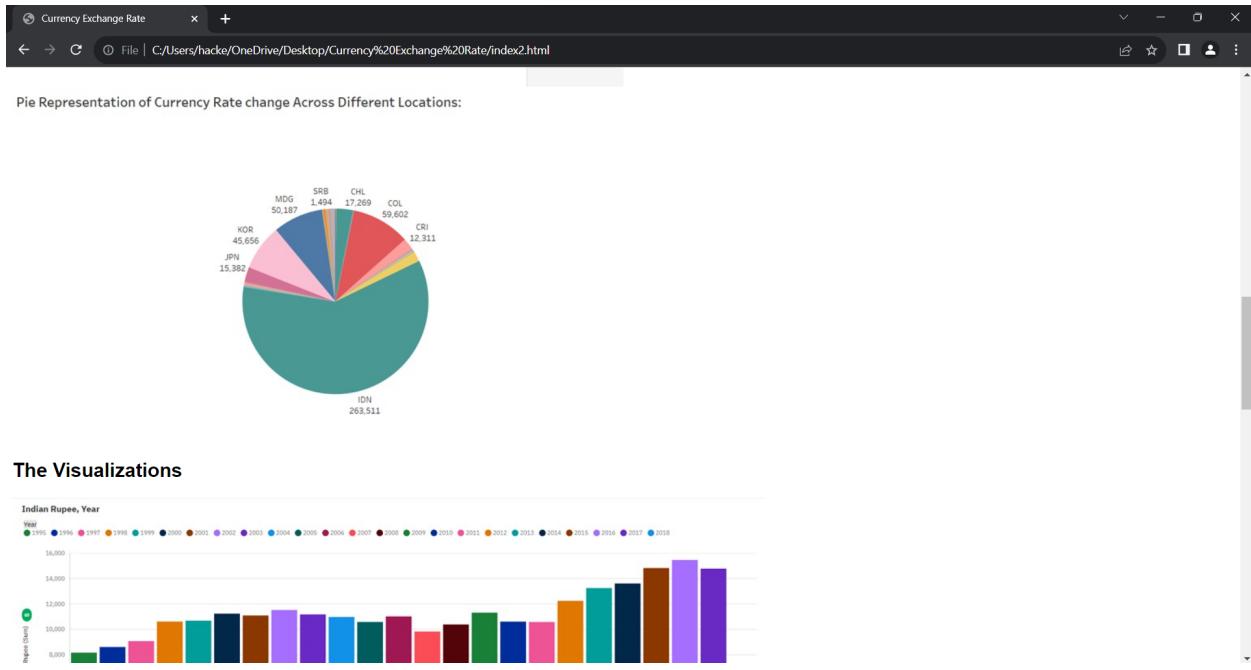
Hungarian Icelandic Indian Rupee Indonesian Iranian Riz Israel Nev Japanese Kazakhstan Korean W Kuwaiti Di Libyan Dir Malaysian

68.56	31.37	2201	1764			788.7	0.29984	0.525	2.5525
68.66	31.37	2202	1753.53	100.88		788.3	0.29982	0.525	2.5521
68.56	31.37	2202	1746.89	101		789.3	0.29982	0.525	2.5488
68.43	31.37	2202	1744.75	100.95		789.6	0.29982	0.525	2.5497
68.74	31.37	2203	1752.3	101.05		790.3	0.29996	0.525	2.5525
68.18	31.37	2203	1739.13	100.18		791	0.29927	0.525	2.55
68.1	31.37	2203	1746.91	99.85		791.2	0.29916	0.525	2.5528
68.13	31.37	2203	1746.91	100		790.2	0.29916	0.525	2.5575
67.82	31.37	2203	1751.35	98.85		790	0.29887	0.525	2.5585
67.85	31.37	2203	1751.44	79.8		792.8	0.29897	0.525	2.5563
67.76	31.37	2204	1749.73	99		792.7	0.29897	0.525	2.5554
68.01	31.38	2204	1748.49	98.92		792	0.29897	0.525	2.5502
67.35	31.37	2204	1755.04	99.45		792.5	0.29912	0.525	2.5535
67.3	31.37	2204	1744.6	99.15		792.4	0.29851	0.525	2.5476
67.21	31.38	2204	1752.15	99.9		792.5	0.29851	0.525	2.554
67.09	31.38	2205	1747.81	99.5		792.3	0.29874	0.525	2.5539
67.44		2205	1752.53	99.53		793	0.29857	0.525	2.561
67.38	31.4	2205	1752.48	99.3		785.3	0.29857	0.525	2.5565
67.35	31.38	2205	1747.04	99.15		787.4	0.29857	0.525	2.5572
67.12	31.37	2207	1745.99	98.55		782.4	0.29824	0.525	
67.5		2207	1758.93	99.35		786.7	0.29884	0.525	
67.2	31.37	2208	1747.79	99.33		786.7	0.29884	0.525	









Conclusion

In conclusion, the integration of IBM Cognos, Tableau, Bootstrap, and Flask in currency exchange rate data analytics has proven to be a powerful and comprehensive solution. Leveraging the advanced capabilities of IBM Cognos, organizations can efficiently gather, process, and analyze large volumes of currency exchange data. The intuitive visualizations provided by Tableau enhance data interpretation and decision-making processes, enabling stakeholders to identify trends and make informed decisions.

The incorporation of Bootstrap ensures a responsive and user-friendly interface, allowing users to access and interact with the analytics platform seamlessly across various devices. Flask, as a lightweight web framework, facilitates the deployment and scalability of the application, ensuring that the analytics solution remains agile and adaptable to changing business needs.

Overall, this integrated approach empowers organizations to gain valuable insights into currency exchange rate dynamics, enabling them to optimize financial strategies, mitigate risks, and capitalize on market opportunities. As the global economic landscape continues to evolve, the combination of these technologies provides a robust

foundation for organizations to navigate the complexities of currency exchange rate analytics and make data-driven decisions that drive success in an ever-changing financial environment.