
1. Data Preprocessing and Cleaning

1. Data Filtering and KYC Verification:

- How can you use `.loc[]` to filter users from specific countries (e.g., GB, FR) in the **users.csv** dataset based on their **KYC status**?

2. Data Cleanup and Index Reset:

- After filtering the dataset for failed transactions in **transactions.csv**, how can you apply `reset_index()` to maintain a clean DataFrame structure?

3. String Manipulation:

- Can you apply `lstrip()` and `rstrip()` to clean up any string fields, such as **merchant categories** in **transactions.csv** or document properties in **doc_reports.csv**?

4. Data Type Conversion:

- How would you use `.astype()` to convert the **iso_code** column in **currency.csv** to string for consistent formatting across the dataset?

5. Data Extraction and Column Creation:

- How can you extract details like **gender**, **nationality**, **document_type**, **issuing_country**, and **date_of_expiry** from the nested properties field in **doc_reports.csv** and convert them into individual columns using **json_normalize** for better accessibility and analysis?

2. Data Analysis and Visualization

Facial Similarity Reports (facial_similarity_reports.csv)

6. Facial Comparison and Filtering:

- How can you filter the dataset to identify users with **non-clear results** in **face_comparison_result** and analyze trends in failed attempts based on **created_at** timestamps?

Document Reports (doc_reports.csv)

7. Document Verification Bar Chart:

- How can you visualize the distribution of **visual_authenticity_result** and **image_integrity_result** using a bar chart to highlight potential discrepancies in document verification outcomes?

Bar Chart Visualization (transactions.csv)

8. Transaction Status Analysis:

- How can you use `go.Bar()` to visualize the number of **completed** vs **declined** transactions in **transactions.csv**?

Pie Chart Visualization (users.csv)

9. KYC Pass/Fail Distribution:

- Can you visualize the proportion of **KYC passed** vs **KYC failed** users in **users.csv** using a pie chart?

Table Representation (fx_rates.csv and transactions.csv)

10. Currency Exchange Table:

- How can `figure_factory.create_table()` be used to display the top 5 **exchange rates** from **fx_rates.csv** for cryptocurrencies and fiat currencies?

11. Transaction Summary Table:

- Can you create a table summarizing the top 10 **countries** by failed transaction rates using **transactions.csv**?

Histogram Analysis (transactions.csv and users.csv)

12. Transaction Amount Distribution:

- How can you create a histogram to analyze the distribution of successful **transaction amounts** in **transactions.csv**?

13. User Age Distribution:

- Can you generate a histogram to analyze the **age distribution** of users based on the **BIRTH_YEAR** in **users.csv**?

Line Chart Visualization

14. Transaction Volume Over Time:

- Can you create a line chart to track **transaction volume** over time using **CREATED_DATE** from **transactions.csv**?

15. Exchange Rate Fluctuations:

- How would you visualize **exchange rate fluctuations** over time using data from **fx_rates.csv**, especially focusing on **cryptocurrencies**?

Scatter Plot with Randomized Data

16. Transaction Analysis by Country:

- How would you create a scatter plot to show the relationship between **transaction amounts** and **merchant country** in **transactions.csv**, and use different symbols for **completed** and **declined** transactions?
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3. Advanced Data Exploration

17. Fraud Detection:

- How can you merge the **fraudsters.csv** with **users.csv** and **transactions.csv** to analyze fraudulent behavior patterns based on **transaction amounts**, **merchant categories**, and **countries**?

18. Simulation of Fraudster Activity:

- Can you generate a randomized line chart to simulate **fraudster activity trends** over time using data from **fraudsters.csv** and **users.csv**?
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