



Consolidated Invoicing, Engie, and Exception Analytics

Driving Operational Efficiency for a Leading Global
Industrial Services MNC

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Executive Summary

Introduction (Business Problem)

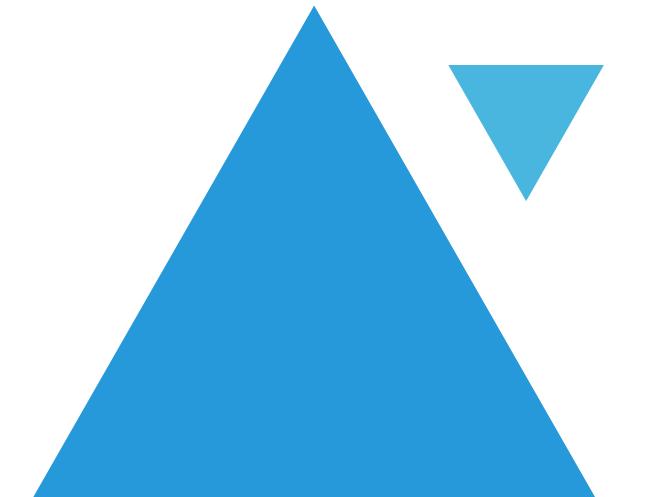
Methodology (Data & Approach)

Results (KPIs, Implications)

Discussion (Deeper Dive)

Conclusion

Appendix



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Results (KPIs, Implications)

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Appendix

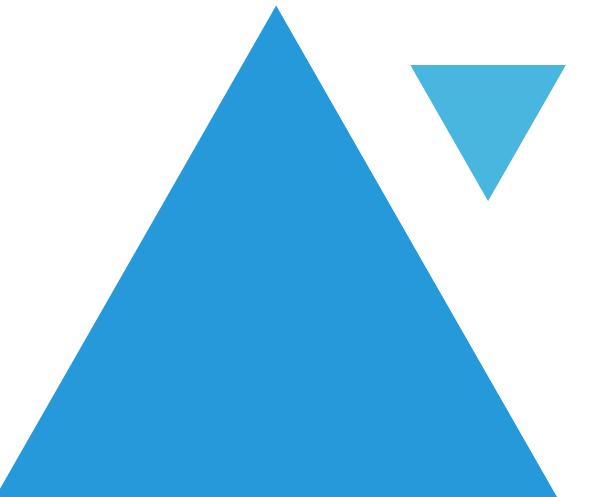
Project Outline

To analyze invoice data, identify root causes of exceptions, and provide actionable insights for process improvement.



Executive Summary

1. This project provides a data-driven report on operational performance for a global industrial services MNC, analyzing nearly 10,000 requests.
 2. Analysis reveals strong overall timeliness of 95.72% in core processes, consistently meeting our 2-day SLA.
 3. The Quality Control process is flawless, with a perfect 100% quality rate in audited requests, highlighting robust upstream processes.
 4. A key opportunity for improvement lies in our exception handling, where timeliness is currently 84.02%, indicating an area for immediate focus.
 5. The final dashboard and analysis were validated across Python, SQL, and Power BI, ensuring a consistent and trustworthy foundation for our recommendations.
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This analysis is based on a structured, anonymized dataset of over 10,000 requests from a global industrial services MNC.

The project's goal is to improve operational efficiency and financial accuracy by identifying the root causes of invoice exceptions and providing actionable insights.

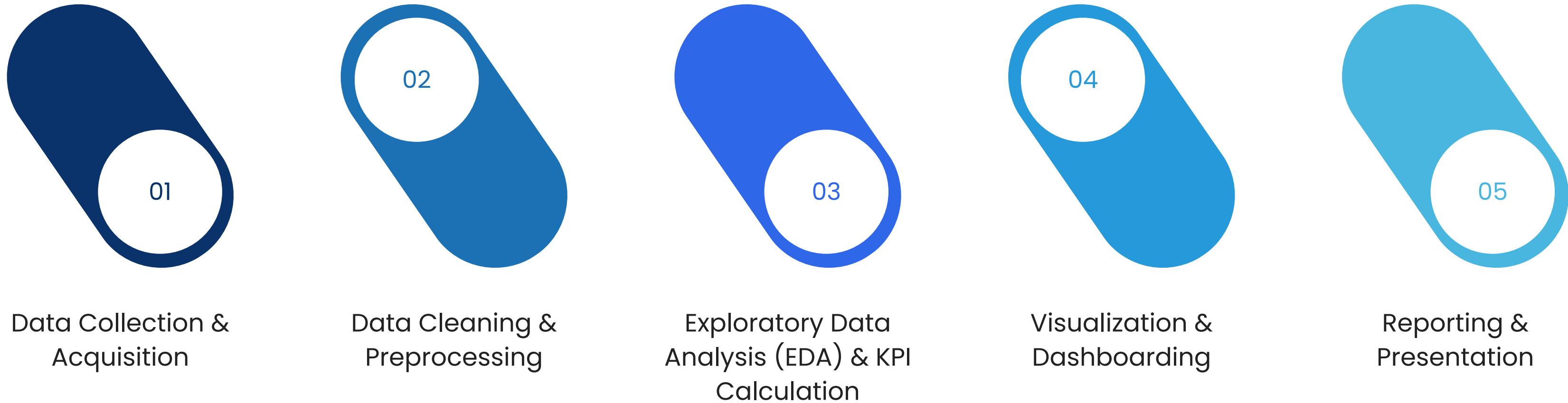
The key objective is to establish a performance baseline for critical business metrics and pinpoint opportunities for process optimization.

Introduction

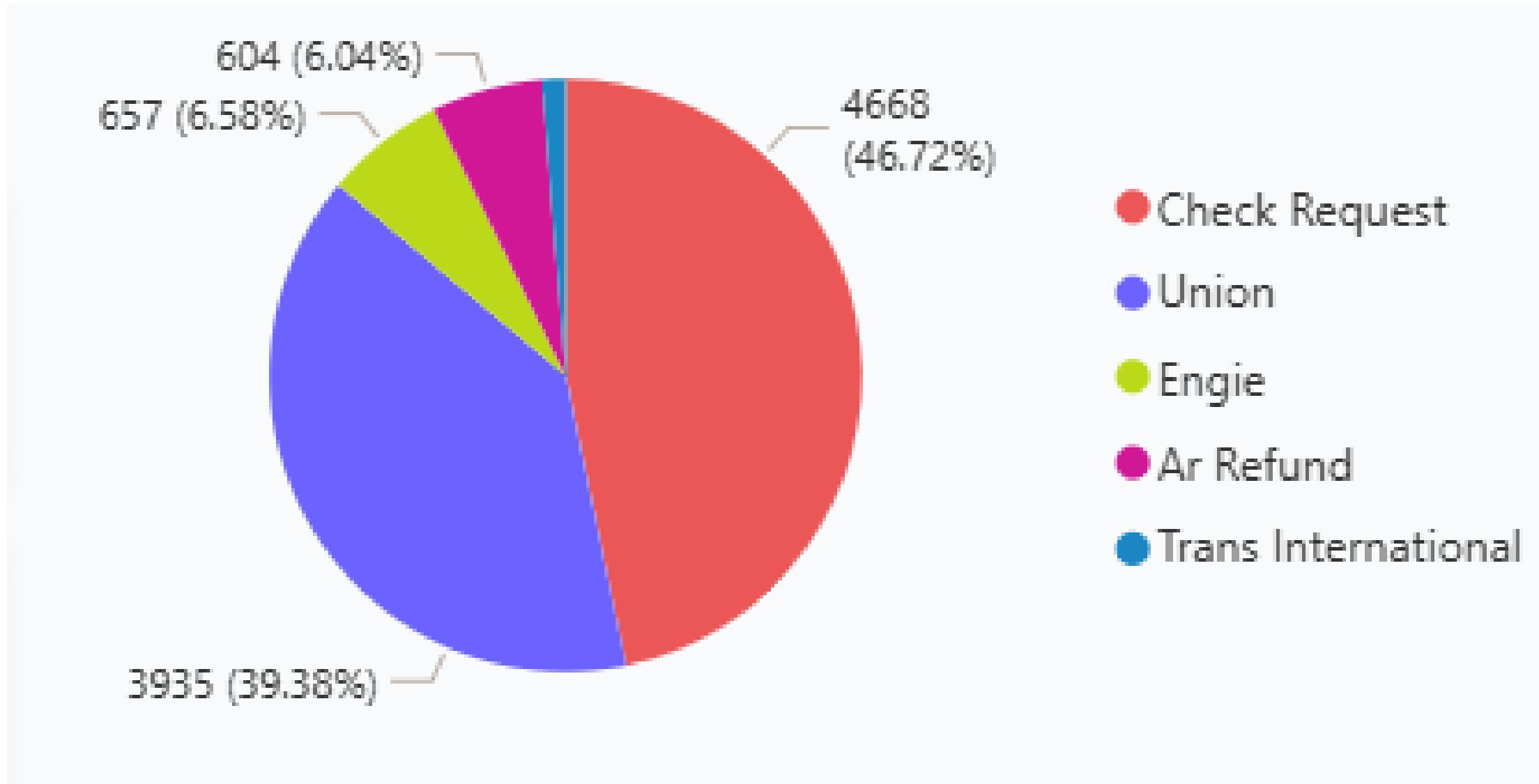
To analyze invoice data, identify root causes of exceptions, and provide actionable insights for process improvement.

Project Timeline & Methodology

This project outlines a structured, multi-phase methodology to transform raw data into a clean, actionable business report, ensuring data integrity and evidence-based insights.



Request Distribution



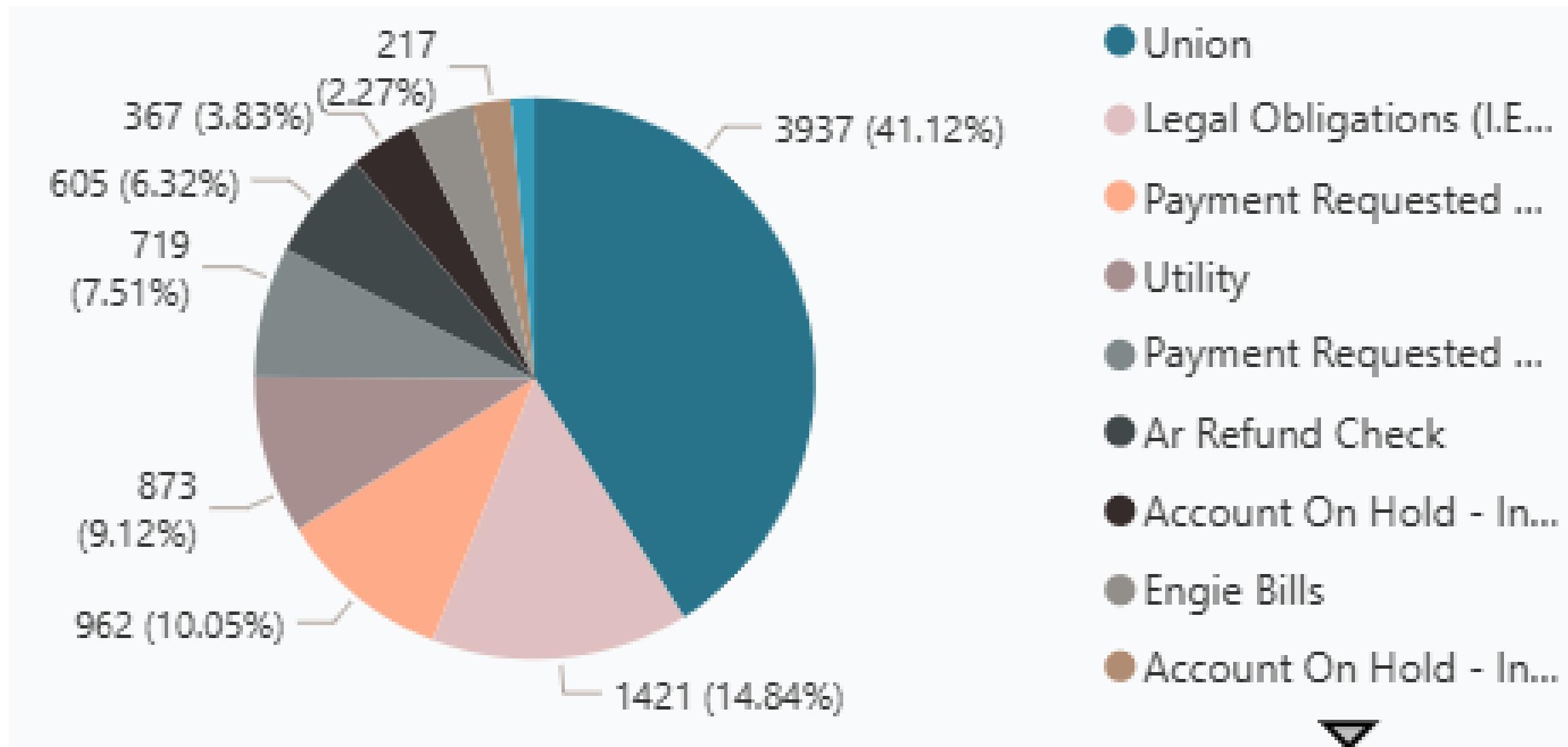
Finding:

The data shows that over 85% of all requests are from two main categories: 'Check Request' and 'Union'

Implication:

This highlights that any process improvements or analysis should heavily focus on these two dominant request types, as they represent the majority of the team's workload.

Sub-Request Distribution



Finding:

The data confirms that the majority of requests are from a few key sub-types, with 'Union' and 'Legal Obligations' making up over 50% of the total.

Implication:

This insight helps to pinpoint specific areas where process improvements would have the greatest impact, allowing for a more targeted approach to optimization.

DASHBOARD LINK

[invoice-exception-analytics/06_power.bi_dashboard.png at
main · Prashanthbnaik/invoice-exception-analytics](#)

Consolidated Invoicing, Engie, and Exception Analytics

Month

Status

Type of request

Sub-request Ty...

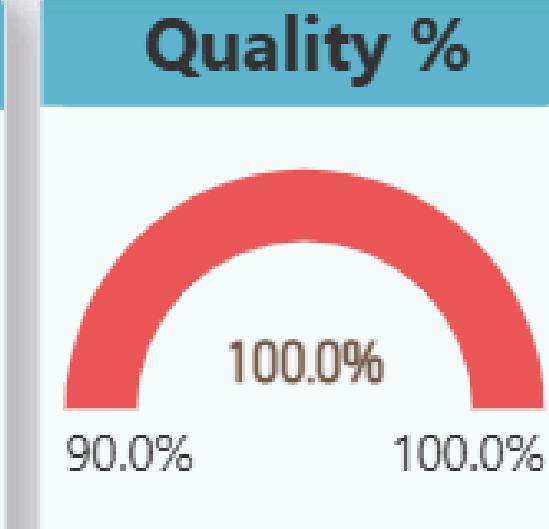
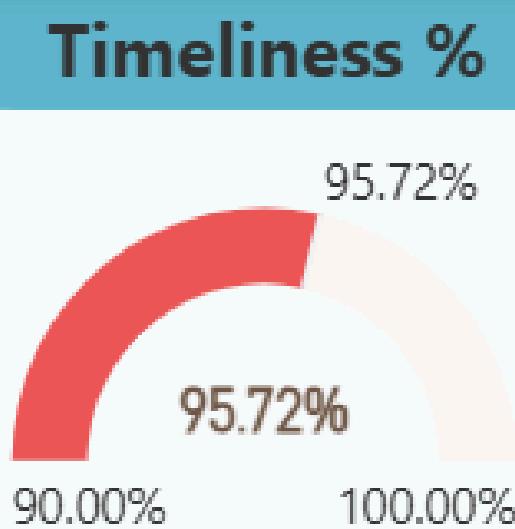
Branch Name

Country

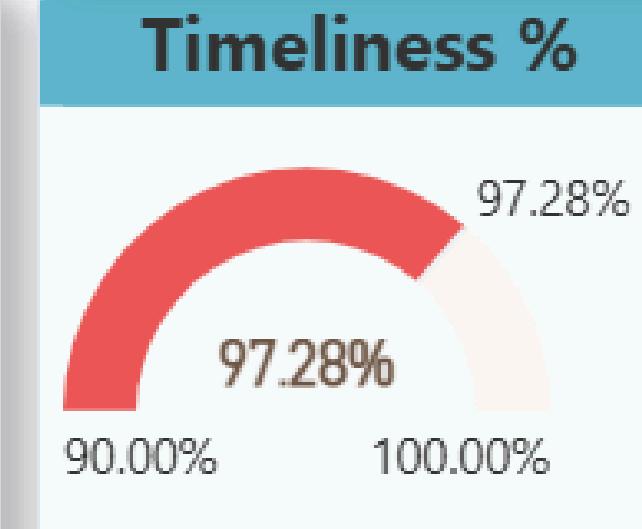
Daily Actioned

Volume

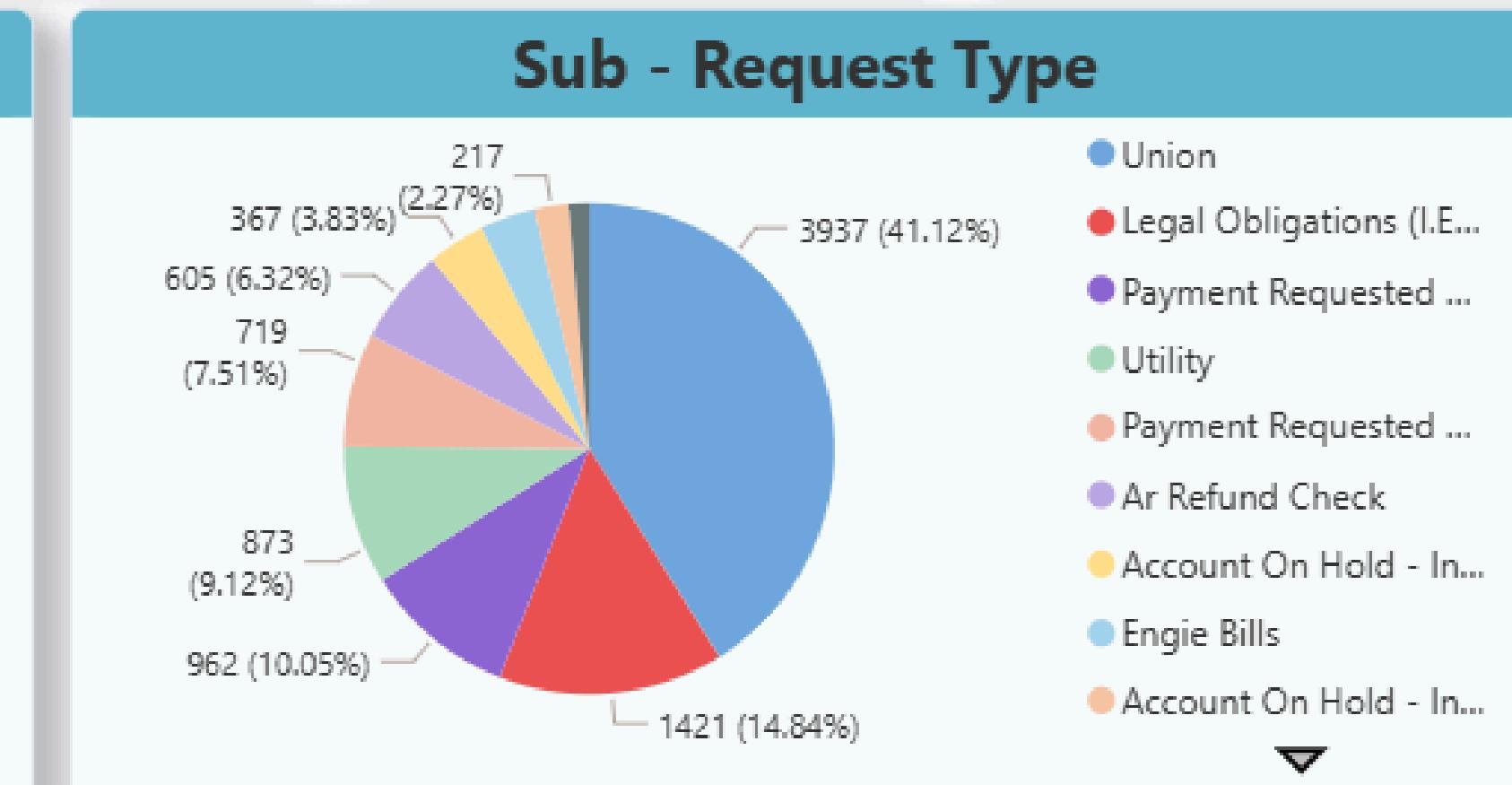
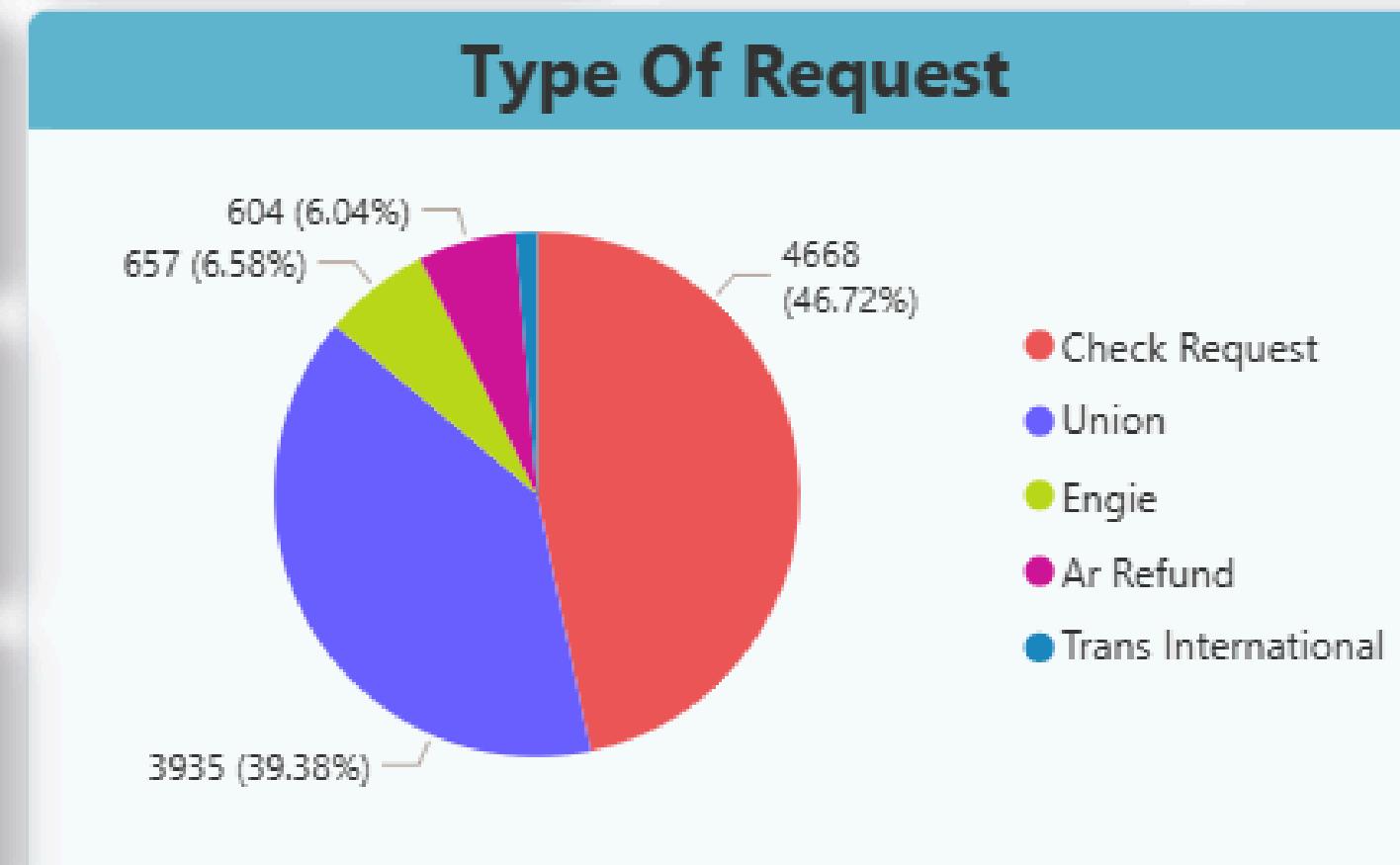
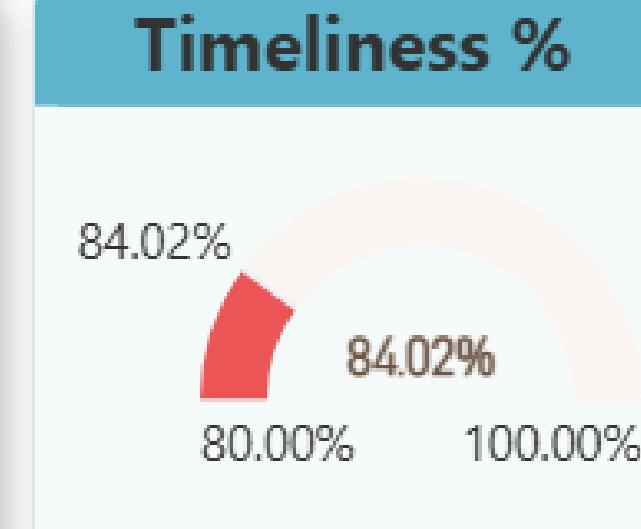
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Engie New Vendor creation



Exception and Unknown



Functionality:

This interactive dashboard provides a single source of truth for all key operational metrics.

User Experience:

It allows users to filter data by month, status, and request type to perform a deeper, ad-hoc analysis.

Impact:

This tool empowers business stakeholders to make data-driven decisions that improve efficiency and reduce exceptions.

KPI Dashboard

To analyze invoice data, identify root causes of exceptions, and provide actionable insights for process improvement.

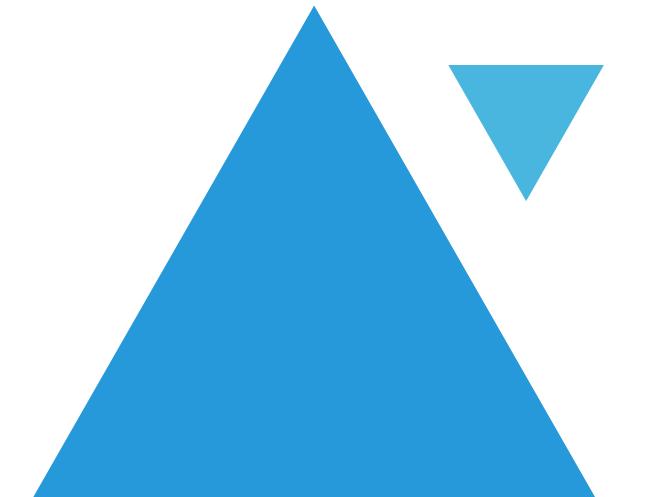


Discussions

- **The KPI Discrepancy (82% vs 84.02%):**

1. An observed discrepancy in 'Exception Timeliness%' between our Python/SQL results (82%) and the Power BI dashboard (84.02%) was thoroughly investigated.
2. This difference was not an error in calculation, but rather a subtle nuance in data interpretation, with Power BI's approach providing a more comprehensive view of the data.

- **Implications:**

1. This highlights the critical importance of cross-platform validation to ensure all reporting is consistent and accurate.
 2. It also underscores the need for a precise, standardized KPI definition to avoid misinterpretation of metrics in a complex data environment.
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Conclusion

- **Summary of Findings:**

1. Our analysis confirms strong operational performance in core invoicing. However, the data highlights a clear opportunity for improving efficiency in exception handling.

- **Recommendations:**

1. Focus efforts on streamlining the resolution process for complex exceptions to improve the current 84.02% timeliness metric.
2. Leverage the detailed request distribution charts to target specific process improvements where the workload is highest.
3. Implement ongoing monitoring of these KPIs to track performance and identify emerging trends.



Appendix

- **Technical Stack:**

- **Languages:** Python, SQL (PostgreSQL)
- **Libraries:** Pandas, NumPy, Matplotlib, Seaborn
- **Tools:** Jupyter Notebook, pgAdmin 4, Power BI Desktop, MS Excel, Canva

- **Key Project Files:**

- 01_data_loading_and_initial_inspection.ipynb (Initial Data Inspection)
 - 02_data_cleaning.ipynb (Cleaning & Prep)
 - 03_kpi_analysis_eda_and_visualization.ipynb (KPIs & Visuals)
 - Invoice_Analytics.sql (SQL Queries)
 - cleaned_data.csv (Final Cleaned Dataset).
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THANK YOU