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Data Analysis and Insights

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Data Overview

Key Columns

Columns include unique identifiers for each ticket, detailed subject descriptions, group and individual assignee, status, priority levels, communication channels utilized, and relevant product information.

Data Context

This dataset originates from a typical ticketing system or task management platform, frequently employed in sectors like IT support and customer service.

Structure

The dataset is composed of 5003 rows and 15 columns, providing comprehensive details on customer support tickets.

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Data Sanitization

Data Information

missing values in several key columns, including 'assigneeName', 'priority', and 'product details'.

Data Integrity

Ensured accuracy, consistency, and usability of the data, a check for data integrity issues was performed.

Data Prepration

Imputed missing values, removed Outliers and Normalized data for effective analysis.

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Sanitization Steps

1

Imputation

Missing values were filled using appropriate placeholders ("Unknown" or "Not Available").

2

Standardization

Data entries with the same meaning were grouped into consistent categories. For example, 'medium' and 'medium_' in the 'Alert Severity' column were combined.

3

Data Type Conversion

Date/time columns were converted to the correct format. Irrelevant records were removed to avoid impacting analysis.

4

Outlier Removal

Two outlier records with unusual channels ('voice' and 'sample_ticket') were removed due to a lack of sufficient information.

5

Final Dataset

After all updates the cleaned dataset saved as a new CSV file for analysis

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Visualizations

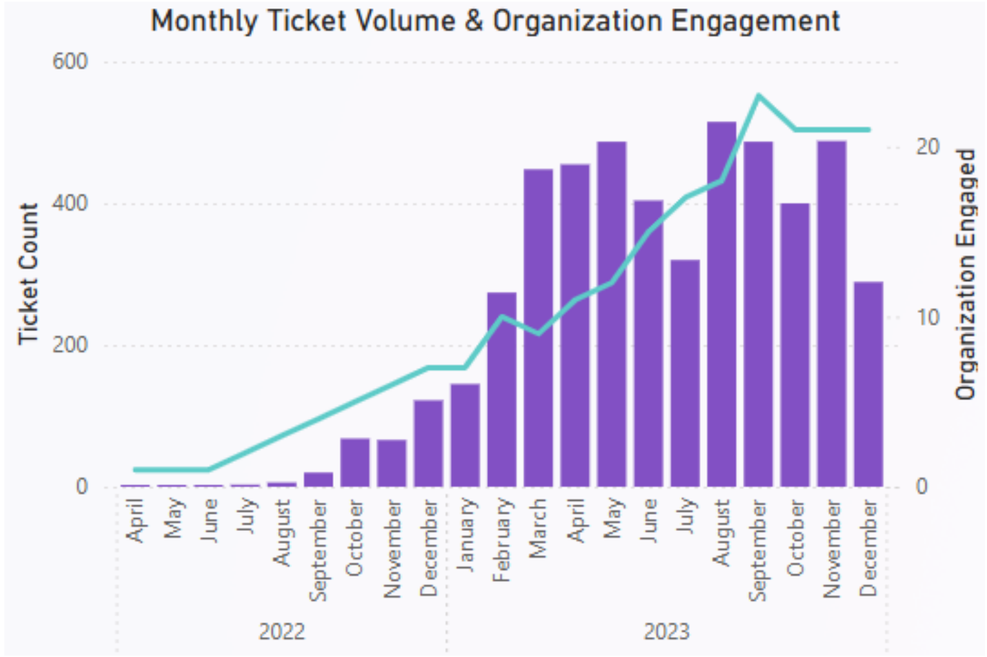
Key Performance Indicators

Total Tickets	Customer response	Average Action Time
5001	497	13.42

Total Tickets: Shows the overall volume of support tickets submitted.

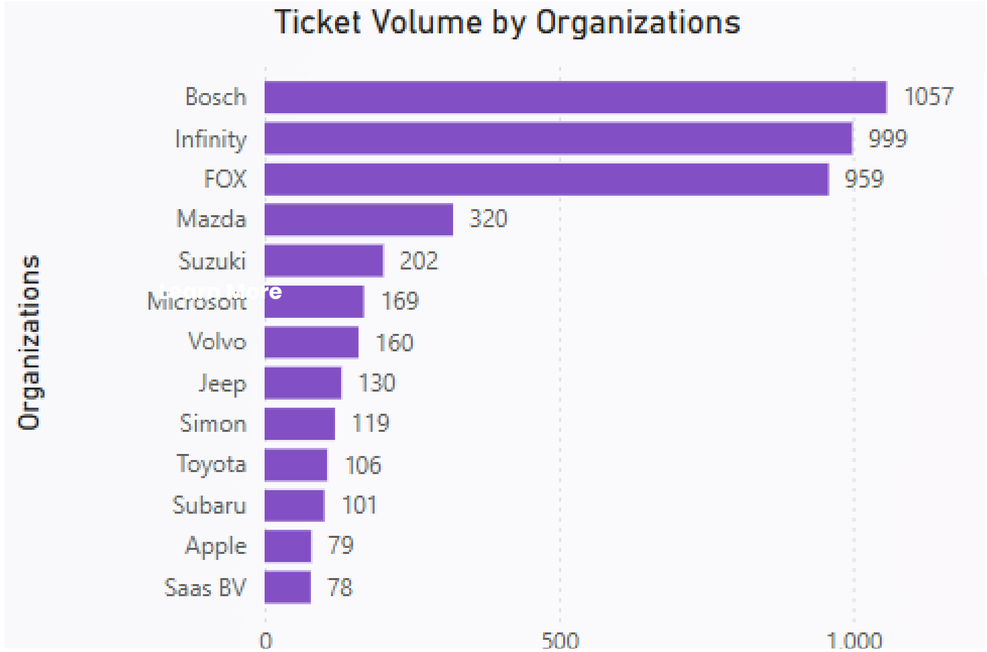
Customer Response: Measures the number or percentage of tickets where the customer has engaged by providing a response.

Average Action Time: Represents the average days taken to take action on the tickets, might include the first response time or overall resolution time.



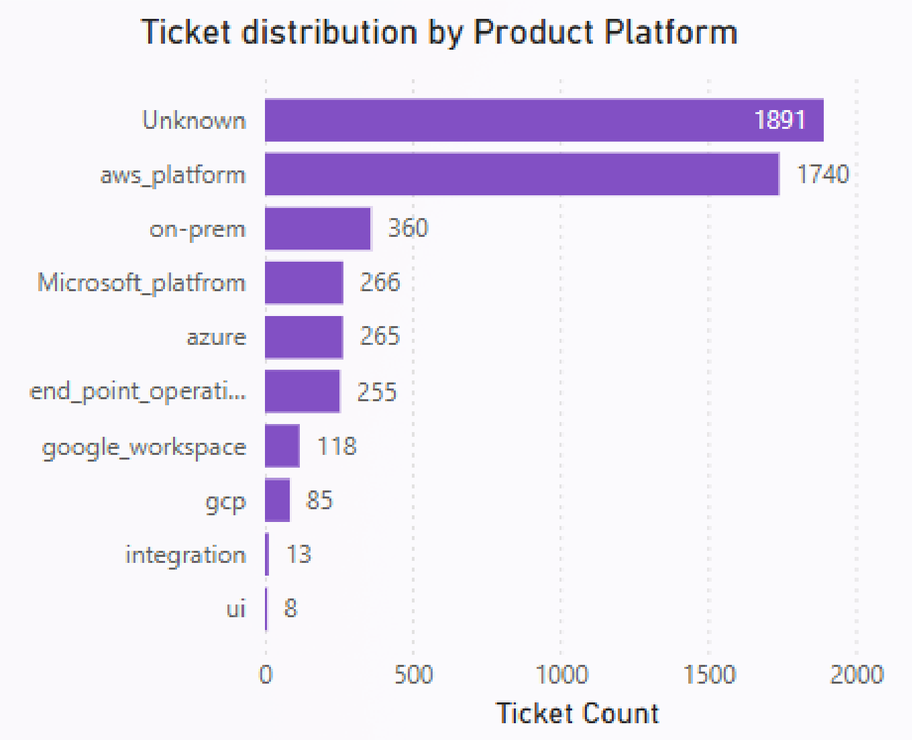
Monthly Ticket Volume & Organization Engagement Trend

A strong correlation exists between the number of organizations submitting tickets (teal line) and the overall ticket volume (purple bars). The upward trend suggests increased engagement.



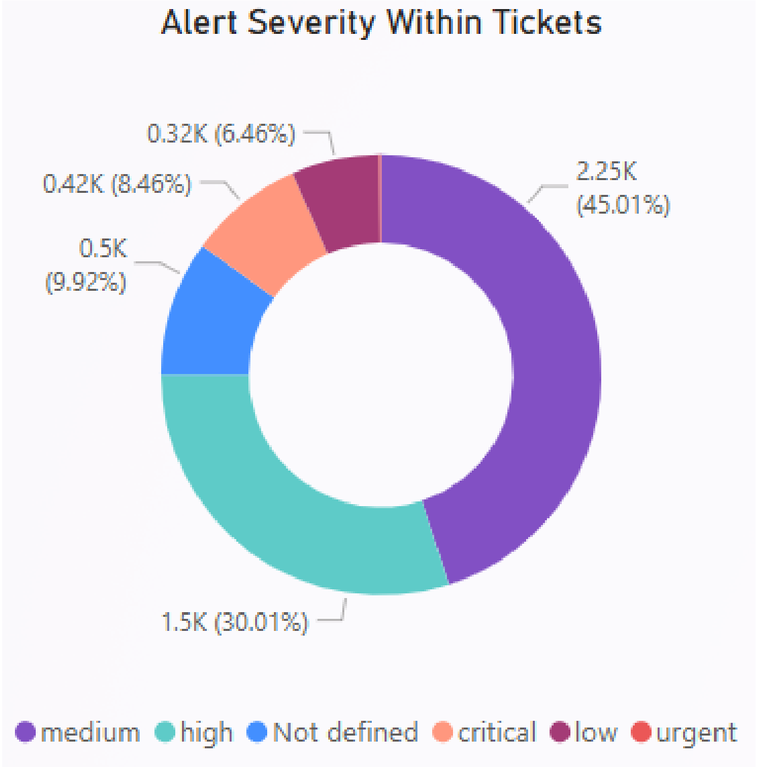
Ticket Volume by Organization

A significant portion of tickets originate from a small number of organizations. The top three account for over 50% of the total volume.



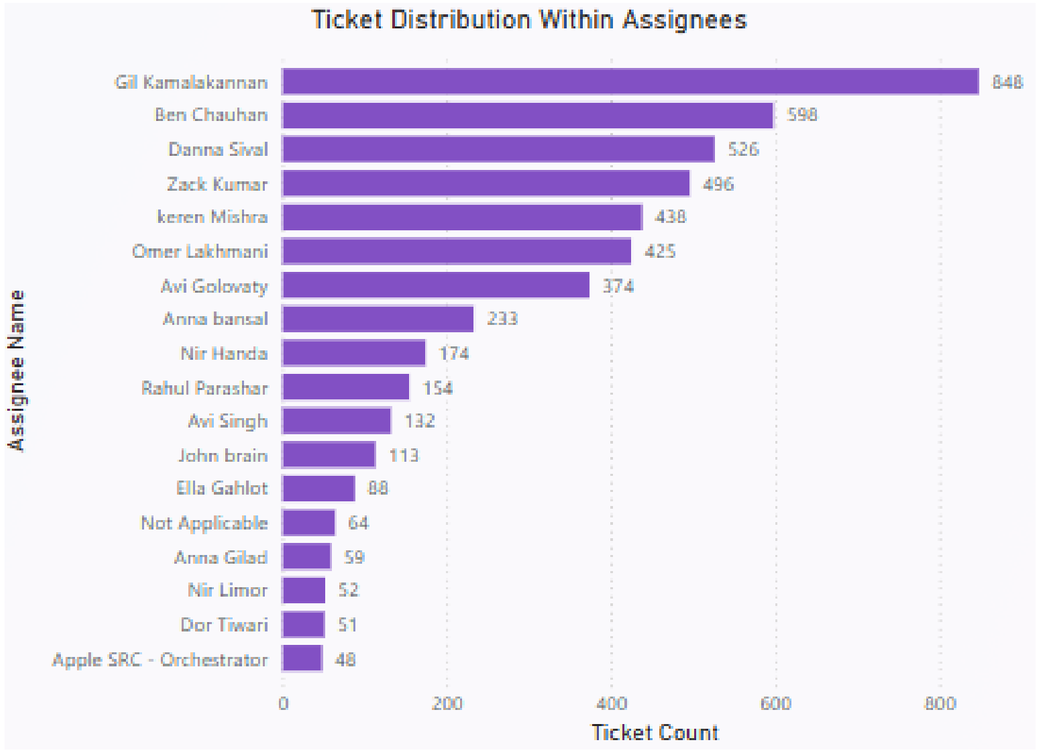
Ticket Distribution by Product Platform

A large number of reported issues involve AWS, suggesting significant reliance on this infrastructure. Many tickets lack defined product platform information, indicating a need to improve data collection processes.



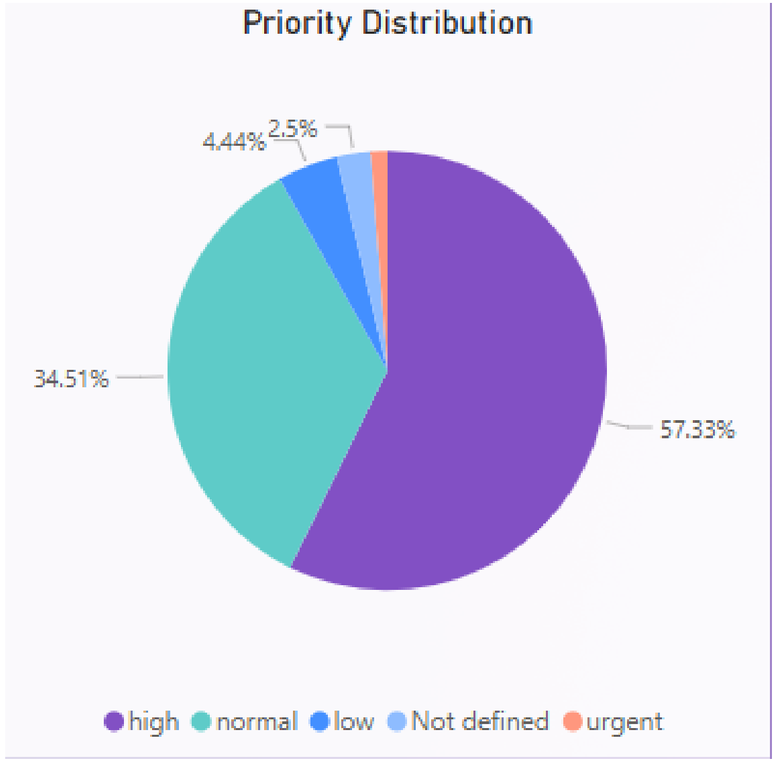
Alert Severity Within Tickets:

Approximately 45% of tickets have a medium alert severity. A substantial number also have high and critical severity, requiring immediate attention.



Ticket Distribution Within Assignees:

This visualization tracking the number of tickets handled by each assignee provides valuable insights into team performance, workload distribution, and operational efficiency.



Priority Distribution

Fifty percent of tickets are high priority, indicating a significant volume of critical incidents requiring immediate attention. Prioritization strategies should address this imbalance compared to low and normal priority tickets.

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Key-insights and Recommendations

Ticket Volume and Organization Engagement

Over the period as organization engagement increasing ticket volume increasing as well.
Fluctuations toward the end of the timeline may indicate either seasonal changes, or a shift in usage patterns.

Recommendations: During peak periods when ticket volume spikes, investigate the root cause and allocate additional support staff accordingly.

Ticket Volume per Organization

As most of the tickets are from 3 organizations - Bosch, Infinity and FOX this could mean they're facing recurring issues, need more training, or rely heavily on your support team.

Recommendations: Assign a specialized team or persons for high-volume clients to speed up resolutions.
Identify recurring issues and offer training or system improvements to reduce ticket creation

Ticket Allocation within Assignees

Most Of the tickets are assigned to ‘Gil Kamalakannan’ shows imbalance in ticket allocation. Overloaded team members may face burnout, leading to slower resolutions.

Recommendations: Ensure that best performing employees will get recognition.
Redefine workload distribution to avoid burnout and reduce query resolution time, if someone facing skill gap then provide necessary trainings.

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Key-insights and Recommendations

Action Based on priority and Alert Severity

Most of the tickets are with high priority and high alert that need immediate attention. This may strain resources if not managed properly.

Recommendations: Standardize priority assignment guidelines to ensure only genuinely critical issues get marked as high or urgent.
If certain employees handle more high-priority cases, adjust workload distribution.

Customer Response

Customer response rate is very low about 1%. This might indicate potential issues with the follow-up process, customer communication channels, or even a lack of clarity in the support interactions.

Recommendations:
Understanding this metric helps in assessing the effectiveness of customer interactions and ensuring that customer needs are being addressed promptly

Data Collection

Most of the fields are categorical and contains Null value (Ex - Priority, Product_platform, Product). Support teams might lack important context, slowing down issue resolution and may cause mis-prioritization.

Recommendations: Revise forms and processes to capture all necessary information upfront. Consider adding validation rules to reduce entry errors.

Tools Utilized

Python
(Data Preprocessing)

Python's powerful libraries like pandas, NumPy. offer efficient tools for handling missing values, outliers, and data transformation. It provides vectorized operations, making data cleaning faster than manual methods.

Power BI
(Data Visualization)

it provides interactive visualizations, real-time data updates. It allows to analyze and present data effectively with customizable charts, graphs, and KPIs.
The Slicer feature helps in dynamically filtering and emphasizing specific data points across visuals.

Please refer to attached python jupyter file(Reporting Analyst Task_final.ipynb) for data preprocessing and PowerBI file (Report_Anlayst_Dashboard.pbix) for deatailed annalysis and dashboard.

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Thank You