Comprehensive Project Documentation — Supportlytics

Optimizing IT Support Team Performance Using Analytics (Weeks 1–8)

Executive Summary

This document consolidates the entire project from data preparation to dashboard development. The project analyzes IT support ticket data to identify performance trends, optimize resolution times, and provide recommendations for improving IT service efficiency.

1. Project Objective

The goal of the project is to analyze IT support ticket data using analytics and visualization techniques to improve service performance, reduce delays, and support data-driven decision making.

2. Weeks 1–2: Data Preparation and Feature Engineering

Activities

- Loaded and inspected the raw dataset
- Handled missing and inconsistent values
- Standardized timestamps and categorical fields
- Created new features such as Resolution Duration and Priority Score
- Prepared cleaned dataset for analysis

Outcome

A clean and structured dataset ready for exploratory analysis and modeling.

3. Weeks 3–4: Exploratory Analysis and Clustering

Activities

- Analyzed ticket distribution by category, type, and priority
- Performed visualization using charts and plots
- Scaled features and applied K-Means clustering
- Visualized clusters using PCA
- Interpreted cluster behavior and issue patterns

Key Findings

- Six meaningful clusters of issues were identified
- Certain categories appeared repeatedly
- Urgent tickets showed higher variability in resolution time

4. Weeks 5–6: Performance and Geographic Analysis

Activities

- Calculated average resolution time by priority and type
- Identified unresolved high-priority tickets
- Mapped ticket volume by region
- Analyzed cluster size vs performance
- Created heatmaps and performance charts

Key Findings

- High-priority tickets pose SLA risks
- Complex issues cause longer delays
- Regional performance differences were observed

5. Weeks 7–8: Dashboard Development and Documentation

Dashboard Features

- Interactive Power BI dashboard
- KPI cards showing average resolution time and ticket volume
- Cluster performance visualization
- Regional performance comparison
- Interactive filters for priority, category, time, and region

Documentation

- Prepared final project report
- Created presentation slides
- Organized code and visualizations

6. Core KPIs

- Average Resolution Time
- Ticket Volume
- Most Frequent Issue Categories
- High-Priority Ticket Performance
- Cluster Size vs Performance
- Top Performing Regions

7. Recommendations

- Automate repetitive issue categories
- Improve escalation for high-priority tickets
- Provide training to underperforming regions
- Use cluster-based ticket routing

Conclusion

The project successfully demonstrates how analytics and visualization can improve IT support operations. The dashboard enables performance monitoring, faster decision making, and improved service quality.