Innovation Brief — Customer Experience Dashboard

Overview:

The Customer Experience Dashboard is a Streamlit-based analytics platform designed to analyze delivery, cost, and feedback data. It enables organizations to improve logistics efficiency, customer satisfaction, and retention by identifying patterns and risk indicators.

Problem Statement:

Despite collecting vast operational and feedback data, many businesses struggle to extract actionable insights. Issues such as delayed deliveries, inconsistent service quality, and unaddressed feedback contribute to customer churn. This project bridges the gap by integrating all data sources into one intelligent dashboard with built-in AI analysis.

Objectives:

- Unify multi-source customer experience data into a single analytical platform.
- Provide visual and interactive insights into key delivery and satisfaction metrics.
- Detect and highlight at-risk customers using rule-based and AI-enhanced methods.
- Enable sentiment-driven decision-making through text analysis.

Methodology:

Data from multiple CSV files was merged and cleaned using Google Colab, ensuring consistency and quality. The processed data was then visualized in a Streamlit dashboard using Pandas and Plotly. Sentiment analysis was implemented using NLTK's VADER model and a logistic regression model trained with TF-IDF features for enhanced accuracy.

Innovation and Relevance:

By combining descriptive visualization with predictive modeling, the project transforms a standard dashboard into a proactive decision tool. AI-driven sentiment modeling and churn prediction allow early identification of dissatisfied customers, improving service recovery and retention.

Expected Outcomes and Impact:

- Improved monitoring of delivery and satisfaction KPIs.
- Early identification of at-risk customers and root causes.
- Actionable, data-backed recommendations for retention.
- Scalable foundation for future predictive analytics projects.

Tools and Technologies:

Streamlit, Pandas, Plotly, NLTK (VADER), Scikit-learn (Logistic Regression), NumPy, and Google Colab.

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