BUSINESS REQUIREMENTS DOCUMENT & FUNCTION REQUIREMENTS DOCUMENT FOR CITI BIKE PROJECT

The Citi Bike Program has been collecting and organizing bike usage data since 2013.
Although this data has been made publicly available, there is currently no sophisticated reporting or dashboard system to analyze the data effectively.
The goal of this project is to aggregate and analyze Citi Bike data to answer key business questions, develop insights, and create actionable dashboards.

Project Overview

This project aims to provide city officials with clear, concise, and visually appealing dashboards or reports to help them understand the usage of Citi Bikes and make data-driven decisions.

Steps to Achieve the Project Goals

1. Data Acquisition and Preparation

- **Data Sources**: Citi Bike Trip History Logs (CSV files).
- **Database Setup**: Store the data in a database like SQL, MongoDB, or Cassandra (local or cloud).
- **Data Cleaning**: Ensure consistency across datasets, handle missing or inconsistent values, and remove outliers.

2. Understanding Data and Business Goals

- Collaborate with stakeholders to understand data attributes and their relationships.
- Define Key Performance Indicators (KPIs) that reflect the program's goals and performance.

3. KPI Identification

Below are the key questions and metrics to address:

- Total trips recorded during the chosen period.
- Percentage growth in total ridership.
- Changes in the proportion of short-term customers vs. annual subscribers.
- Peak usage hours during summer and winter months.
- Top 10 starting and ending stations (with hypotheses on why).
- Bottom 10 starting and ending stations (with hypotheses on why).
- Gender breakdown of active participants (Male vs. Female).
- Effectiveness of gender outreach in increasing female ridership.
- Average trip duration by age.
- Average distance traveled per trip.
- Identification of bikes most likely needing repair or inspection.
- Variability in utilization by bike ID.

4. Visualization Prototyping

- Create raw visualizations to gather stakeholder feedback.
- Adjust based on feedback for ease of use and alignment with expectations.

5. Dashboard Design and Development

- Determine the number of dashboards required based on organizational hierarchy.
- Create production-ready dashboards addressing the KPIs.
- Incorporate city branding and aesthetic tones in the visualizations.

Final Deliverables

1. Dashboard or Story: A polished Tableau dashboard or interactive story.
2. Report: A concise text explanation of findings and insights.
4. Code Repository: Upload the project code to GitHub or another repository.
5. Improvement Suggestions: Highlight potential areas for further development.