Project Title:**NYC TAXI TRIP ANALYTICS**

Project Overview:

The " **NYC TAXI TRIP ANALYTICS** " project is an in-depth analysis of New York City's taxi service data aimed at uncovering valuable insights and trends. This project leverages AWS (Amazon Web Services) cloud services and data analytics tools to process, transform, and visualize large datasets, ultimately providing actionable insights for taxi service providers and stakeholders.

Project Objectives:

- To analyze NYC taxi data from 2019 to 2021 to understand passenger behaviors, demand patterns, and service utilization.

- To derive insights related to revenue generation, pricing strategies, and driver allocation.

- To create interactive visualizations using Tableau for data exploration and decision-making.

- To provide recommendations and strategies for optimizing taxi services in NYC based on data-driven insights.

**Key Components of the Project:**

1. Data Collection and Storage[ Raw data Zones ] :

- Storing a portion of the dataset in AWS S3 and another in RDS for data diversity and accessibility.

2. Data Integration and Transformation:

- Utilizing AWS Glue and Spark for joining, transforming and converting data into Parquet format for efficiency.

3. Data Loading and Storage:

- Loading the transformed data into Amazon Redshift, a data warehousing solution for query and analysis.

4. Data Visualization and Insights:

- Connecting the data in Amazon Redshift with Tableau for creating interactive dashboards and visualizations.

5. Analysis and Insights:

- Extracting insights related to monthly trends, peak hours, pickup and dropoff zones, vendor performance, payment types, and more.

Significance of the Project:

Understanding the dynamics of the NYC taxi service industry is crucial for service providers, policymakers, and urban planners. The insights derived from this project can lead to more efficient resource allocation, improved customer experiences, and informed decision-making in the context of public transportation and urban mobility.

Audience:

This project is intended for taxi service providers, transportation agencies, data analysts, and anyone interested in leveraging data-driven approaches to enhance taxi services and urban transportation in New York City.

The project aims to shed light on the intricacies of the NYC taxi industry, offering actionable recommendations and insights based on data analysis and visualization. It represents a comprehensive exploration of how data analytics and cloud technologies can be harnessed to drive improvements in urban transportation services.