**Analysis of Dallas Street Services Requests**

**Introduction:**

The dataset titled "311 Service Requests for Fiscal Year 2020 - 2021 Street" represents a detailed log of non-emergency requests reported by Dallas residents, focusing on street-related concerns. It serves as a record of the community's engagement with municipal services, outlining issues like road repair and hazard removal. Data points include service request identifiers, locations, types, and the council districts they pertain to, capturing the scope of city maintenance efforts.

Further, the dataset chronologically tracks each request from initiation to resolution, including response times and outcomes, providing a framework to evaluate the city's service efficiency. The inclusion of priority levels, reception methods, and exact locations enriches its utility for resource planning and urban analysis.

As a resource, it allows for a detailed examination of service patterns and aids in the formulation of data-informed urban strategies. Reflecting Dallas's commitment to public service, the dataset bridges citizen concerns with government action, highlighting active civic participation. Also, GCP has excellent integration with other google services. Hence, we have preferred GCP over other platforms. The data life cycle for this project carries the Open Refine Software in implementing the zing the data.

**Data Life Cycle Phases:**

The presentation will thoroughly discuss each step of the data lifecycle, offering comprehensive insights. The initial phase, known as Generation, focuses on creating the dataset for Dallas Street Services Requests: An Analysis of 311 Calls in 2020-2021. In the subsequent Collection phase, data is collected based on several attributes, including the Service request number, address, city council district, department, service request type, estimated response time, ERT measured IN, overall service request due date, status, created date, updated date, closed date, closed date, Outcome, priority, method received desc, LAT Long Value and Unique key.

During the Processing phase, the Dallas Street 311-service requests project utilizes the Open Refine tool for data refinement. This stage is crucial for purifying the dataset with Open Refine, correcting discrepancies, and splitting the latitude and longitude data into separate columns. The Storage Phase involves setting up a project in GCP, followed by the creation of a Storage Bucket for storing the polished datasets.

The Management phase involves leveraging the Big Query tool for query modifications and searches. A table will be set up in Hive to run various queries through Hive and Spark-SQL, applied to the dataset from the Dallas Street 311-service request project. This allows for a comparative analysis of query response times, with Hive generally proving to be quicker than Spark-SQL.

In the Analysis phase, the adjusted data is scrutinized using the Pandas Library and PySpark Python API. Then, in the Visualization phase, this data is fed into Tableau for graphical representation based on the conducted analyses. Finally, the Interpretation phase enables decision-making grounded in the analyzed and visualized data, facilitating specific data filtration within the Dallas Street 311-service request dataset.

**Summary:**

The "311 Service Requests for Fiscal Year 2020 - 2021 Street" dataset captures a broad range of non-emergency street issues reported in Dallas, reflecting resident-city interactions. It records details like service identifiers, locations, types, and council districts, tracking each request from inception to closure. This data aids in assessing city service performance and informs urban planning strategies. The project's lifecycle spans Generation, Collection, Processing (using Open Refine), Storage (in GCP), Management (via Big Query and Hive), Analysis (with Pandas and PySpark), Visualization (through Tableau), and Interpretation, facilitating efficient resource allocation and illustrating Dallas's commitment to public service.

**References:**

* [**https://www.dallasopendata.com/**](https://www.dallasopendata.com/)**.**
* [**https://www.dallasopendata.com/Services/311-Service-Requests-for-Fiscal-Year-2020-2021-Str/s3gf-a952**](https://www.dallasopendata.com/Services/311-Service-Requests-for-Fiscal-Year-2020-2021-Str/s3gf-a952)**.**
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