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| **Project Title** | **Explore Data Speed** |
| **Skills take away From This Project** | **Python, Pandas, MySQL, mysql-connector-python, Streamlit, and Plotly.** |
| **Domain** | **TRAI** |

**Problem Statement:**

The TRAI of Indian Government Telecomunication contains a large amount of data related to various metrics and statistics. The goal is to process that data to obtain insights and information that can be visualized in a user-friendly manner.

**Business Use Cases:**

The penetration of wireless data networks has increased significantly in recent years. In creasing usage of smartphones and availability of various services on the Internet has led to more intensive use of wireless data networks by an expanding user base. Along with the increase in demand, changing market dynamics in the wireless services sector and reduced data tari s have also contributed to the significant increase in data consumption on mobile networks, particularly so in the last few months. With these developments, the issue of quality of service (QoS) of wireless data networks has become all the more important.

TRAI has also taken initiatives to empower customers to measure and report observed quality of wireless data networks. The TRAIMySpeed mobile app launched last year is designed to serve this purpose.

**Approach:**

**Data transformation**: Use a scripting language such as Python, along with libraries such as Pandas, to manipulate and pre-process the data. This may include cleaning the data, handling missing values, and transforming the data into a format suitable for analysis and visualization.

**Database insertion**: Use the "pymysql-python" library in Python to connect to a MySQL database and insert the transformed data using SQL commands.

**Dashboard creation**: Use the Streamlit and Plotly libraries in Python to create an interactive and visually appealing dashboard. Plotly's built-in geo map functions can be used to display the data on a map and Streamlit can be used to create a user-friendly interface with multiple dropdown options for users to select different facts and figures to display.

**Data retrieval**: Use the "pymysql-python" library to connect to the MySQL database and fetch the data into a Pandas dataframe. Use the data in the dataframe to update the dashboard dynamically.

**Deployment**: Ensure the solution is secure, efficient, and user-friendly. Test the solution thoroughly and deploy the dashboard publicly, making it accessible to users. This approach leverages the power of Python and its numerous libraries to extract, transform, and analyze data, and to create a user-friendly dashboard for visualizing the insights obtained from the data.

**Results:**

The result of this project will be a live geo visualization dashboard that displays information and insights from the TRAI in an interactive and visually appealing manner.

The dashboard will have at least 10 different dropdown options for users to select different facts and figures to display. The data will be stored in a MySQL database for efficient retrieval and the dashboard will be dynamically updated to reflect the latest data.

Dataset: Users will be able to access the dashboard from a web browser and easily navigate the different visualizations and facts and figures displayed. The dashboard will provide valuable insights and information about the data in the TRAI DATA SPEED, making it a valuable tool for data analysis and decision-making.

Overall, the result of this project will be a comprehensive and user-friendly solution for extracting, transforming, and visualizing data from TRAI.

**Project Evaluation metrics:**

* You are supposed to write a code in a modular fashion (in functional blocks).
* Maintainable: It can be maintained, even as your codebase grows.
* Portable: It works the same in every environment (operating system).
* You have to maintain your code on GitHub.(Mandatory).
* You have to keep your GitHub repo public so that anyone can check your code.(Mandatory)
* Proper readme file you have to maintain for any project development(Mandatory)
* You should include basic workflow and execution of the entire project in the readme file on GitHub Follow the coding standards: https://www.python.org/dev/peps/pep-0008/
* You need to Create a Demo/Presentation video of your Project and post in LinkedIn(Mandatory)

**Technical Tags:**

Python Scripting, Pandas, Mysql and Plotly.

**Data Set:** [**https://drive.google.com/file/d/1rsBhgcOTEcsUa2HkkzezRGLYnaT6yukP/view?usp=drive\_link**](https://drive.google.com/file/d/1rsBhgcOTEcsUa2HkkzezRGLYnaT6yukP/view?usp=drive_link)

[**https://drive.google.com/file/d/1rsBhgcOTEcsUa2HkkzezRGLYnaT6yukP/view?usp=drive\_link**](https://drive.google.com/file/d/1rsBhgcOTEcsUa2HkkzezRGLYnaT6yukP/view?usp=drive_link)

**https://drive.google.com/file/d/1QV1ncwSAOlhZFhPnTX5GebdA360yz6Kx/view?usp=drive\_link**

**Inspired From:** [TRAI Analytics](https://analytics.trai.gov.in/)

**Data Set Explanation:**

Data Set having column names called cirles containing list of states in India, Airtel,Jio,Vi, etc having the data speed of the mentioned telecomunications.

Data\_1 is a 3G data speed.

Data\_2 is a 4G data speed.

**Project Deliverables:**

Explain what learners need to submit upon project completion, such as source code and documentation.

**Project Guidelines:**

Provide guidelines and best practices for project development, including coding standards and version control usage.

**Timeline:**

**Timing: Monday-Saturday (12:00PM to 1:00PM)(15 days).**