**Task Title:** Develop a Simple ETL Pipeline using Python and PostgreSQL

**Objective:**The goal of this task is to build a basic ETL (Extract, Transform, Load) pipeline that extracts data from a file, transforms it into a desired format, and loads it into a PostgreSQL database hosted locally or ideally on AWS RDS. This will demonstrate your ability to work with Python, SQL, and optionally AWS infrastructure.

**Task Description:**

**1. Extract:**

* You are provided with a [CSV file](https://docs.google.com/spreadsheets/d/1ssqnH-kmM_VRnjxe7g601-jLBudqdgmxAQQTlDfFsp4/edit?usp=sharing) containing raw data, including columns: id, address, lat, and lng.
* Write a Python script to read and load the CSV file into memory.

**2. Transform:**

* Clean the data by removing any rows where address, lat, or lng are empty or null.
* Create four new columns: house\_no, city, state\_code, and zip\_code. Extract the relevant parts of the address (formatted as "house\_no street\_name, city, state\_code zip\_code country", e.g., "4910 Dressler Rd NW, Canton, OH 44718 USA") and copy them into the respective columns.
* Sort the data by state\_code and city.
* Convert the cleaned and transformed data into a format that can be uploaded to a PostgreSQL database (e.g., a Pandas DataFrame or list of dictionaries).

**3. Load:**

* Set up a basic PostgreSQL database instance either locally or on AWS RDS.
* Create a table with appropriate columns (id, house\_no, city, state\_code, zip\_code, lat, lng, etc.) based on the transformed data from the CSV file.
* Write Python code to insert the cleaned data into the PostgreSQL table using SQL queries.

**4. Bonus (Optional):**

* Write an SQL query that lists all states along with the count of addresses for each state in the PostgreSQL database.
* Display the addresses on a web page by fetching data from the database using the lat and lng columns, and plot the locations on a map (you may use any mapping library, such as Folium or Google Maps API).

**Deliverables:**

* A Python script that performs the ETL process (Extract, Transform, Load).
* The SQL script used to create the PostgreSQL table.
* A short write-up (1-2 paragraphs) explaining the decisions you made during the task (e.g., extracting state\_code from address, any challenges faced).
* (Optional) The new CSV file generated by the bonus query.
* Clear instructions on how to run the script and connect to the PostgreSQL instance.
* Commit the complete code on a github repository and share its link.
* Complete Code must be functional on your Laptop.

**Assessment Criteria**:

* **Logical Thinking**: Ability to break down the ETL process and handle data transformation logically.
* **Problem-Solving**: Effective handling of errors and edge cases.
* **Code Quality**: Clean, efficient, and well-documented code.
* **SQL and Database Skills**: Proper database setup and data insertion.
* **Bonus (Optional)**: Creative use of additional features (mapping and querying).