## Data Engineer / GCP Assignment

**Task: Analyzing Weather Conditions and Seasonal Trends in Sales**

**Objective**

**Integrate weather data from the OpenWeather API with sales data from a provided CSV file into Google Cloud Platform (GCP) and analyze for seasonal trends in product sales based on weather conditions.**

**Steps**

1. **Data Collection**
   * **Extract sales data (product ID, category, order date, quantity) from the CSV file.**
   * **Fetch weather data (temperature, humidity, wind speed, description) using the OpenWeather API for each order date.**
2. **Database Setup**
   * **Design and create a relational database in GCP.**
   * **Define tables for sales data and weather data ensuring data consistency and integrity.**
3. **Data Integration**
   * **Load the sales data and weather data into the GCP database.**
   * **Implement daily updates for weather data at 6am using Cloud Functions or Cloud Scheduler.**
4. **Analysis**
   * **Perform exploratory data analysis (EDA) to explore relationships between weather and sales data.**
   * **Identify three key insights on seasonal trends in product sales.**
5. **Reporting (Bonus)**
   * **Prepare a report with the three insights.**
   * **Create visualizations in Power BI.**

**Deliverables**

1. **Database: Integrated sales and weather data.**
2. **Report: Three key insights with visualizations.**

**Evaluation Criteria**

* **Data Completeness and Accuracy: Ensure the database is complete and accurate.**
* **Quality of Analysis: Thorough and meaningful insights.**
* **Reporting and Visualizations (Bonus): Clear and effective presentation.**
* **Relevance: Insights are actionable and relevant.**

**Timeline**

**Complete within one week of assignment.**

**Implementation**

* **Load CSV data and fetch weather data.**
* **Set up and populate the GCP database.**
* **Automate data updates.**
* **Conduct EDA and identify insights.**
* **Prepare a report and visualizations (if applicable).**

**Resources**

* CSV Provided in email
* [**https://openweathermap.org/guide**](https://openweathermap.org/guide)
* [**https://cloud.google.com/?hl=en**](https://cloud.google.com/?hl=en)