Project: Flare Gas Estimation and Environmental Impact Assessment in Petroleum Production

Week 1: Data Cleaning and Preprocessing

● Tasks:
Data Preprocessing: Clean and preprocess the data using Power BI.

Tools: Power BI.

● Deliverables:
Cleaned dataset ready for analysis.

Data preprocessing notebook.

Week 2: Analysis Questions Phase

● Tasks:
Determine Data Analysis Questions:

1. **Trends & Patterns**

   o What are the global and regional trends in gas flaring over time?

2. **Energy Opportunity**

   o How much flared gas could potentially be recovered and utilized as an energy source?

3. **Environmental Impact**

   o How does gas flaring correlate with greenhouse gas emissions and air pollution indicators?

4. **Health Exposure**

   o Which regions and populations are most exposed to the health risks associated with gas flaring?

5. **Comparative Insights**

   o How do countries or regions differ in gas flaring intensity relative to energy production levels?

6. **Scenario Analysis**

- o What improvements in emissions, air quality, and public health could occur under different flare reduction scenarios?

7. **Policy & Action**

   - o Which policy or investment areas could yield the greatest reduction in flaring and associated impacts?

Tools: Power BI.

- **● Deliverables:**
  Analysis of flare gas trends (2012–2024) and their relation to oil production.

- Estimation of potential energy recovery from flare gas.

- Assessment of air pollutants (PM, NO_2) linked to flaring and possible reductions under recovery scenarios.

- Evaluation of greenhouse gas emissions (CO_2, CO_2eq) and potential mitigation through flare utilization.

- Analysis of health impacts (mortality, DALYs) associated with flare emissions and expected improvements under sustainable scenarios.

- Comparative ranking of countries by flare intensity, emissions, and health impacts.

Week 3: Dashboard Phase

● Tasks:
Build Dashboard: Build a Power BI dashboard that visualize the answers to the asked questions.

Tools: Power BI.

● Deliverables: Power BI dashboard.

Week 4: Final Presentation

● Tasks:
Final Presentation: Prepare a report and presentation summarizing the project work, including data analysis, model development, and deployment.

● Deliverables: Final report and presentation.