PROJECT - Advanced Business Intelligence & Analytics
ECE Paris

Project Overview

Role: Data Analyst Consultant
Objective: Deliver a complete Business Intelligence and Data Analysis project using a structured, professional methodology
Location: Onsite
Tools Required: Python (Pandas, Seaborn, Matplotlib, Scikit-learn), Power BI
Prerequisites: BI concepts, Power BI proficiency
Group Composition: Up to 5 students per group, 7 groups total
Formateur : Anaïs MOKDAD

Deliverables

Each group must submit:

Item	Format	Notes
Scoping Sheet	PDF	
Exploratory Analysis	Jupyter Notebook	Fully commented
BI Dashboard	Power BI (.pbix)	Multi-page, interactive
Oral Presentation	PPT or PDF	10 minutes + 5 minutes Q&A
Final Submission Package	ZIP	Format: `ProjectName_GroupNumber.zip`

Dataset Themes (One per group)

- Territorial Health
- City Revitalization
- Audiovisual
- Climate Change
- Cultural Offer
- Electric Vehicle
- Diversity in Business

You can also choose a theme from this link, if the instructor approves the selected datasets.

https://www.data.gouv.fr/pages/thematiques-a-la-une

You may enrich your analysis with public datasets.

Project Stages and Competencies

1. Dataset Selection and Framing

- Choose dataset (first come, first served)
- Complete the scoping sheet:
    - Context (5–6 lines)
    - Dataset description (rows, columns, variable types)
    - Key variables
    - Analytical objectives (3–5)
    - Business questions (3–5)
    - Technical constraints (missing values, formats, etc.)
    - Tools used

2. Exploratory and Statistical Analysis

- Identify missing values and inconsistencies
- Descriptive statistics (overall and subgroups)
- Visualize distributions (quantitative and qualitative)
- Detect outliers and anomalies
- Correlation matrix and interpretation
- Principal Component Analysis (PCA)

3. BI Dashboard in Power BI

- Import and clean data
- Create multi-page dashboard:
    - KPIs overview
    - Distribution and comparison graphs
    - Filters and slicers
    - Maps (if relevant)
- Apply data storytelling principles

4. Optional: Machine Learning

- Choose modeling type: regression, classification, clustering
- Define problem and evaluation metric
- Train/test split and performance evaluation
- Interpret results (features, scores, limitations)

5. Oral Defense

- Structure:
    - Background and objectives
    - Exploratory analysis and insights
    - Dashboard results and business recommendations
    - (Optional) ML results
    - Challenges and limitations

Guiding Questions

- What are the most interesting variables ?
- Are there clusters or typical profiles ?
- Can we anticipate trends ?
- Which KPIs should be monitored ?
- What actionable recommendations can be made ?