**Project Title:** The Impact of AI Tools (like ChatGPT) on Students' Cognitive Ability and Academic Performance

**Project Overview:**

This project explores how university students’ usage of AI tools such as ChatGPT, Copilot, and Gemini impacts:

* Their learning behavior
* Their cognitive reasoning
* Their academic performance (GPA)

It combines survey-based insights with IQ-style question answers to analyze the correlation between AI usage patterns and mental engagement.

**What This Project Includes:**

* Data cleaning (department names, semester normalization)
* User categorization: Heavy, Occasional, and Rare AI users
* Cognitive scoring based on Likert-scale responses
* Reasoning questions to estimate IQ
* GPA simulation to analyze academic performance
* Multiple visualizations (pie, bar, stacked bar charts)

**Key Data Science Techniques Used:**

* Categorical data classification
* Clustering logic (User Types)
* Ordinal encoding of Likert responses
* Data visualization with Matplotlib
* Basic analysis of cognitive ability vs AI usage

**Tools & Libraries:**

* Python 3.x
* Pandas
* Matplotlib
* Jupyter Notebook / PyCharm

**About the Dataset:**

**Important Privacy Note:**  
The original dataset was collected via a student survey and contains sensitive information.  
To respect participants' privacy, the dataset has **not been included** in this public project repository.

**Sample Questions Asked:**

1. How often do you use AI tools?
2. What academic tasks do you use AI tools for?
3. Do you understand less when using AI too much?
4. I struggle to solve tasks without using AI now.
5. IQ-style reasoning questions:
   * What comes next in 2, 4, 8, 16, \_\_\_?
   * If all apples are fruits and some fruits are red, are all apples red?
   * Solve: (12 + 6 × 2) ÷ 3

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**Instructions to Run:**

1. Open the Python file in Jupyter Notebook or PyCharm
2. Install required libraries: pandas, matplotlib
3. Run each cell to see transformations and visualizations