AYTS 5001 - Programming for Analytics

Lab 4: Working with Files in Python

Estimated Time: 2 hours
Total Marks: 6 (graded)

Learning Objectives

- Read and write to text files using Python
- Process CSV and JSON files using built-in modules
- Use file paths and manage file errors safely
- Apply multiple file handling concepts to a structured problem

Instructions

Work through the following tasks in a Jupyter Notebook..
This lab must be uploaded to your GitHub.
Use functions and good coding practices where appropriate.

Graded Task: Student Grades File Processor

You are given a text file called `grades.txt` with one student record per line, formatted as:
`Name,Grade`

Write a Python program that:
1. Reads the `grades.txt` file and parses each line into a dictionary.
2. Calculates and prints the average grade.
3. Saves a new file `above_average.csv` containing only the names and grades of students who scored above average.
4. Saves all student data in a JSON file with the format:
`[{"name": "Alice", "grade": 83}, ...]`
5. Wrap all file reading/writing in try/except blocks with appropriate error messages.

Submission

Upload your completed notebook to GitHub.