Python Programming Project 2025 (10%)

This group project requires you to apply programming concepts from the class and explore Python libraries **beyond** those taught in the course. It is designed to demonstrate your programming proficiency and your ability to self-learn and apply new tools (libraries) effectively in your project.

Group Size: Maximum of 4 students per group
Release Date: Wednesday, October 22, 2025
Group member submission on MCV - Due Date: Tuesday, October 28, 2025 (in the Student Group menu in MCV)
Submission Due Date on MCV: Tuesday, November 18, 2025 (4 weeks)

Project Requirements

1. Libraries:
Your program must use Python libraries (other than numpy and math) that were NOT covered in the lectures. Examples include libraries such as:

- Scikit-learn
- PyTorch
- Pandas
- Seaborn
- Others as appropriate to your project

2. Code Structure:

- 2.1) The program must be at least 100 lines of code.
- 2.2) It must contain at least 5 functions.
- 2.3) It must contain at least this knowledge: (1) if-else, (2) loop, (3) list, (4) tuple/set/dict, (5) string.
- Code should follow proper programming practices, including:
- Avoiding code duplication through the use of functions
- Following logical structure and clarity

3. Examples of Project Ideas:

- Creating a chatbot using GPT's API
- Using Google's API to transcribe speech to text
- Implementing a machine learning model to segment student groups
- Detecting license plates using a computer vision library
- Other innovative projects using external APIs or machine learning tools

Scoring Criteria (Total: 10%)

1) Project Implementation (20 points: 5%)

- 1.1) Project Completeness (10 points):
  - 10 points: Fully meets all project requirements.
  - Each missing item from Requirement 2 will result in a deduction of 2 points.
  - 0 points: There are no libraries used in the project.
- 1.2) Project Difficulty (5 points):
  - 5 points:
    - For example, implementing object detection or creating a simple chatbot.
    - For example, querying and processing data with nice visualization/graphs.
  - 4 points:
    - For example, querying and processing data.
  - 3 points:
    - For example, just querying data straightforwardly without processing anything.
  - 0 points: The project cannot be run.
- 1.3) Code Quality and Appropriateness (5 points):
  - 5 points: Code is well-structured, with proper use of loops, data types, and programming practices.
  - 3 points: Code is unnecessarily long, disorganized, or difficult to read.
  - 0 points: The project cannot be run.

2) Presentation (10 points: 2%)

Your presentation must cover the following:

- 2.1) Project Objective & Demo: Provide an objective for the project and demonstrate the working program.
- 2.2) Project Evaluation: Discuss how the project meets the criteria for completeness, difficulty, and code quality **based on the rubric checklist**.
- 2.3) YouTube Video Submission:
  - Post your presentation video on YouTube, set to the public or anyone with a link can access.
  - The video length should be between 5 and 15 minutes.

Scoring:

- 10 points: High-quality presentation with a clear explanation of the project's conditions.
- 5 points: Low-quality presentation, missing details on project conditions OR with a video that is either too short or too long compared to the specified duration.
- 3 points: Failed presentation that is difficult to understand.
- You are also required to post your project video on YouTube and share it in the Discord channel #project-showroom, along with a short description.

3) Report (10 points: 2%)

Your project report should include:

- Objective of the project
- Description of input and output
- Details of the libraries used
- Explanation of the code, results, and relevant references
- Declaration:
    - AI tools or reference tutorials (see caution section below for details).

Scoring:

- 10 points: A well-structured report covering all required topics.
- 5 points: A report that is missing some sections.
- 3 points: A report lacking clear explanations and detail.

4) Submission via MyCourseVille (1%)

Submit the following items:

- Python code and any data files used.
    - If the file size is too large, you may submit a Google Drive link instead — make sure the sharing setting allows anyone with the link to access it.
- PDF of the project report
- PDF of the presentation slides (if any)
- YouTube video link (public)
- **Your self-evaluation form**

Scoring:

- 1 point: A submission with all items.
- 0 point: No submission or a submission with missing items.

Caution

- You are allowed to modify tutorials found online, provided you give proper references. However, you must not simply copy a tutorial without making **significant changes** to fit your project.
- Plagiarism: Do not copy code from other groups or directly copy from tutorials. Any cases of plagiarism will result in **a score of 0.**
- You are allowed to use AI tools (e.g., ChatGPT) for your project, provided you must fully understand your code and how it works. However, you must demonstrate a significant personal contribution—**not merely generate, copy, or paste content**. In your report and presentation, clearly state which AI tools were used and how they supported your work.
- Ensure your YouTube or Google Drive link is accessible. If we can't open it, your work will receive a score of 0.

FAQ

1. Can a group have 1, 2, or 3 members?
Yes. The maximum group size is 4 members, so any number up to 4 is acceptable.

2. Can members be from other sections?
Yes. Your team can include members from different sections.