

## INTRODUCTIO TO DATA SCIENCE

### Quiz #1

**Due on: March 10, 2025**

#### Instructions

- You must write a Python script (***your\_student\_id.py***) containing your solutions.
- Ensure that your script runs without errors before submission.
- Use NumPy for all array operations.
- Submit only the Python script, **not** the dataset file through **Itslearning**.

#### Tasks

Task 1. A file named quiz1.txt contains a 5x4 matrix of space-separated numerical values.

Write a Python script to:

- Read the contents of quiz1.txt into a NumPy array.
- Print the shape and data type of the array.

Task 2. Using the array from Task 1, perform the following:

- Reshape it into a 2x10 array.
- Print the reshaped array.

Task 3. Using the original array from Task 1, perform the following:

- Find all elements greater than 10.
- Replace these elements with -1.
- Print the modified array.

Task 4. Using the array from Task 1, perform the following operations:

- Extract the second row.
- Extract the last column.
- Extract a 2x2 sub-matrix from the top-left corner.
- Print the extracted values.

Task 5. Using the original array from Question 1, compute and print the following:

- The mean of all elements.
- The standard deviation.
- The maximum and minimum values.

**IMPORTANT**

- Do not use AI-powered code generation tools such as ChatGPT, GitHub Copilot, or similar assistants.
- Ensure that all code is written by you. Plagiarism will result in disqualification.
- Do not copy solutions from online sources, tutorials, or other students.
- By submitting this quiz, you confirm that the work is your own and adheres to academic integrity standards.