Practical Session 7
Date: 10/09/2025
Topic: Numpy

Solve the following problems using Jupyter Notebook. Please write the following for each of the programming assignments.

1. The problem statement
2. The entire program
3. The sample input
4. The sample output

Please get the program report signed by the instructor.

1. Attributes of arrays and Reshaping of arrays
    a. Create a one-dimensional Numpy array *a_1d* of size three and fill it with the first three numbers starting with 0.
    b. Create a two-dimensional Numpy array *a_2d* of size 12 and shape (3, 4) and fill it with the first 12 integers starting with 0.
    c. Create a three dimensional Numpy array *a_3d* of size 24 and shape (2, 3, 4) and fill it with the first 24 integers starting with 0.
2. Indexing of Arrays
    a. Create a one dimensional Numpy array *a_1d* of size four and fill it with the first four integers starting with 1.
    b. Print the first integer, second integer of the array.
    c. Get third and fourth elements from the following array and add them.
    d. Create a two-dimensional Numpy array *a_2d* of size 10 and shape (2, 5) and fill it with the first 10 integers starting with 1.
    e. Access the element on the first row, second column and access the element on the 2nd row, 5th column.
    f. Print the last element from the 2nd dimension using negative indexing.
    g. Create a three dimensional Numpy array *a_3d* of size 24 and shape (2, 2, 3) and fill it with the first 12 integers starting with 1.
    h. Access the third element of the second array of the first array.
3. Slicing of Arrays
    a. Create a one dimensional Numpy array *a_1d* of size seven and fill it with the first seven integers starting with 1.
    b. Slice elements from index 1 to index 5.
    c. Slice elements from index 4 to the end of the array.
    d. Slice elements from the beginning to index 4 (not included)

e. Slice from the index 3 from the end to index 1 from the end using negative indexing.
f. Return every other element from index 1 to index 5.
g. Return every other element from the entire array.
h. Create a two-dimensional Numpy array *a_2d* of size 10 and shape (2, 5) and fill it with the first 10 integers starting with 1.
i. From the second element, slice elements from index 1 to index 4 (not included)