National Vocational & Technical Training Commission
Institute of Electrical, Electronics and Computer Engineering
University of the Punjab

Artificial Intelligence C1 & C2
Assignment 01 : 07/06/2023
Module 1 : week 3

Submission Requirements: Please upload your codes in PDF File on Google Classroom in the relevant Assignment section.

Note: Plagiarism is a serious violation. Zero marks will be awarded in case plagiarism is found.

Task 1:
Write a Python program to find the maximum and minimum value of a given flattened array.

Expected Output:

Original flattened array:
[[0 1]
[2 3]]
The maximum value of the above-flattened array:
3
A minimum value of the above-flattened array:
0

Task 2
Write a NumPy program to compute the median of flattened given array.
Note: First array elements raised to powers from second array
Expected Output:

Original array:
[[0 1 2 3 4 5]
[6 7 8 9 10 11]]
Median of said array:
5.5

Task 3
Write a NumPy program to compute the mean, standard deviation, and variance of a given array along the second axis.

Sample output:
Original array:
[0 1 2 3 4 5]

Mean: 2.5
std: 1
variance: 2.9166666666666665

Task 4

Write a Python program to count number of occurrences of each value in a given array of non-negative integers.

Note: bincount() function count number of occurrences of each value in an array of non-negative integers in the range of the array between the minimum and maximum values including the values that did not occur.

Sample Output:
Original array:
[0, 1, 6, 1, 4, 1, 2, 2, 7]
Number of occurrences of each value in array:
[1 3 2 0 1 0 1 1]

Task 5

Write a NumPy program to compute the histogram of nums against the bins.

Sample Output:
nums: [0.5 0.7 1. 1.2 1.3 2.1]
bins: [0 1 2 3]
Result: (array([2, 3, 1], dtype=int64), array([0, 1, 2, 3]))