Numpy Assignment 1

I. Create a 4x4 matrix representing a game board with values ran ging from 0 to 15. Extract and print the bottom-right 2x2 sub-board.

II. Generate an array with 20 random integers between 10 and 50. Slice out every alternate element starting from the second ele ment and print the result.

III. Create a 4x4 matrix with elements range between 16 to 31. Extract and print the middle 2x2 sub-matrix.

IV. 3D array representing RGB colour channels of a 2x3 image. Slice and print the green channel (second channel).

Test Case:

Input: arr = np.array([[[255, 0, 0], [0, 255, 0], [0, 0, 255]],

[[255, 255, 0], [0, 255, 255], [255, 0, 255]]])

V. Create a 4x4x4 array of random elements. Extract and print a 2x2x2 sub-array from the centre of the array.

VI. Write a program which replace odd elements 2D array with -1.

VII. You have a 7x7 grid representing scoreboard. Print the values o f the main diagonal (from top-left to bottom-right).

VIII. Ask user to input two numbers a, b. Write a program to generate a random array of shape (a, b) and print the array and average of the array.

IX. Write a program to Create a null vector of size 10 but the fifth value which is 1.

X. Write a program to create a 5x5 matrix with row values ranging from 0 to 4.

XI. Write a program which Swap first column of array with second column in the array of 3x3 matrix.