Numpy – Assignment1

1. Create a 3×3 numpy array of all True’s
2. Extract all odd numbers from arrays

Input: arr = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])

Output: array([1, 3, 5, 7, 9])

1. Replace all even numbers in above array with -5
2. Reshape an array

Input: array([ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9])

Output: array([[0, 1, 2, 3, 4],

[5, 6, 7, 8, 9]])

1. How to get the positions where elements of two arrays match

a = np.array([1,2,3,2,3,4,3,4,5,6])

b = np.array([7,2,10,2,7,4,9,4,9,8])

output = (array([1, 3, 5, 7]),)

1. Swap columns 1 and 2 in the array

Input: np.array [[1,2,3],[4,5,6],[7,8,9]]

Output: array([[2, 1, 3], [5, 4, 6], [8, 7, 9]])

1. Reversing the columns of a 2D array

Input: np.array [[1,2,3],[4,5,6],[7,8,9]]

Output:

array([[3, 2, 1],

[6, 5, 4],

[9, 8, 7]])

1. Create a 2D array of shape 5x3 to contain random decimal numbers between 5 and 10
2. Create a 2d array with 1 on the border and 0 inside

[[1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 0. 0. 0. 0. 0. 0. 0. 0. 1.]

[1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]]

1. If X = array([[ 9, 1, 12, 3],

[ 14, 15, 6, 7],

[ 18, 9, 10, 11]])

Expected output: array([12, 14, 11])

Write script to produce the desired output. Use of fancy indexing is must.