**Assignment For Numpy**

Difficulty Level **Beginner**

1. Import the numpy package under the name np.

In [import numpy as np ]

1. Create a null vector of size 10.

In [np.zeros((10,10)) ]

1. Create a vector with values ranging from 10 to 49.

In [x = np.arange(10,49,1) ]

1. Find the shape of previous array in question 3.

In [ x.shape]

1. Print the type of the previous array in question 3.

In [ x.dtype]

1. Print the numpy version and the configuration.

In [print(np.version\_\_)

print(np.show\_config())]

1. Print the dimension of the array in question 3.

In [ x = np.arange(10,49,1)

a = x.ndim)]

1. Create a boolean array with all the True values.

In [numpy.ones((2, 2), dtype=bool) ]

1. Create a two dimensional array.

In [ rows, cols = (5, 5)

arr = [[0 for i in range(cols)] for j in range(rows)]

print(arr

1. Create a three dimensional array

In [ a\_3d\_array = np.array([[[1, 2], [3, 4]], [[5, 6], [7, 8]]])

**print**(a\_3d\_array)

]

Difficulty Level **Easy**

1. Reverse a vector (first element becomes last).

arr = [11, 22, 33, 44, 55]

print("Array is :",arr)

res = arr[::-1] #reversing using list slicing

print("Resultant new reversed array:",res)

1. Create a null vector of size 10 but the fifth value which is 1

import numpy as np

x = np.zeros(10)

print(x)

print("Update sixth value to 11")

x[6] = 11

print(x)

1. Create a 3x3 identity matrix

import numpy as np

array\_2D=np.identity(3)

print('3x3 matrix:')

print(array\_2D)

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

Convert the data type of the given array from int to float

In [# importing the numpy library as np

import numpy as np

# Create a numpy array

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

# Print the array

print(arr)

 ]:

1. arr1 = np.array([[1., 2., 3.],
2. [4., 5., 6.]])

arr2 = np.array([[0., 4., 1.],

[7., 2., 12.]])

Multiply arr1 with arr2

In [ import numpy as geek

in\_arr1 = geek.array([[1, 2, 3], [4, 5, 6]])

in\_arr2 = geek.array([[0, 4, 1], [7, 2, 12]])

print ("1st Input array : ", in\_arr1)

print ("2nd Input array : ", in\_arr2)

out\_arr = geek.multiply(in\_arr1, in\_arr2)

print ("Resultant output array: ", out\_arr)

 ]:

1. arr1 = np.array([[1., 2., 3.],
2. [4., 5., 6.]])

arr2 = np.array([[0., 4., 1.],

[7., 2., 12.]])

Make an array by comparing both the arrays provided above

In [an\_array = np.array([[1,2,3],[4,5,6]])

another\_array = np.array([[0,4,1],[7,2,12]])

comparison = an\_array == another\_array

equal\_arrays = comparison.all()

**print**(equal\_arrays)

 ]:

1. Extract all odd numbers from arr with values(0-9)

In [import numpy as np

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

a[a % 2 == 1]

 ]:

1. Replace all odd numbers to -1 from previous array

In [import numpy as np

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

b = a[a % 2 == 1]

c = b - 1

 ]:

1. arr = np.arange(10)

Replace the values of indexes 5,6,7 and 8 to **12**

In [

import numpy as np

arr = np.arange(10)

new\_arr = []

for string in arr:

new\_string = string.replace("5", "a", "6", "b", ("7", "c")

new\_arr.append(new\_string)

print(new\_arr) ]:

1. Create a 2d array with 1 on the border and 0 inside

In [ import numpy as np

x = np.ones((5,5))

print("Original array:")

print(x)

print("1 on the border and 0 inside in the array")

x[1:-1,1:-1] = 0

print(x)]: