Lab Assignment 17

Student Id : AF0411629

Student Name : Chauhan Vandana Ramdayal

Topic : Numpy Slicing

1. Write a NumPy program to create an array of 10 zeros, 10 ones, and 10 fives

Code:

```
#1. Write a NumPy program to create an array of 10 zeros, 10 ones, and 10 fives
import numpy as np
zeros_array = np.zeros(10)  # Create an array of 10 zeros
ones_array = np.ones(10)  # Create an array of 10 ones
fives_array = np.full(10, 5) # Create an array of 10 fives
print("Array of 10 zeros:", zeros_array)  # Print the arrays
print("Array of 10 ones:", ones_array)
print("Array of 10 fives:", fives_array)
```

Output:

```
Array of 10 zeros: [0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
Array of 10 ones: [1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]
Array of 10 fives: [5 5 5 5 5 5 5 5 5 5]
```

2. Write a NumPy program to create a 3x3 matrix with values ranging from 2 to 10.

Code:

```
#2. Write a NumPy program to create a 3x3 matrix with values ranging from 2 to 10
import numpy as np
matrix = np.arange(2, 11).reshape(3, 3)  # Create a 3x3 matrix with values ranging from 2 to 10
print(matrix)
```

Output:

```
[[ 2  3  4]
 [ 5  6  7]
 [ 8  9 10]]
```

3. Write a NumPy program to create an array with values ranging from 12 to 38.

Code:

```python
#3. Write a NumPy program to create an array with values ranging from 12 to 38.
import numpy as np
# Create an array with values ranging from 12 to 38
array = np.arange(12, 39)
print(array)
```

Output:

```
[12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
 36 37 38]
```

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4. Write a NumPy program to convert a list and tuple into arrays.

Input: my_list = [1, 2, 3, 4, 5, 6, 7, 8]

Input: my_tuple = ([8, 4, 6], [1, 2, 3])

Code:

```python
#4. Write a NumPy program to convert a list and tuple into arrays.
#Input: my_list = [1, 2, 3, 4, 5, 6, 7, 8]
#Input: my_tuple = ([8, 4, 6], [1, 2, 3])

import numpy as np
my_list = [1, 2, 3, 4, 5, 6, 7, 8]  # Inputs
my_tuple = ([8, 4, 6], [1, 2, 3])  # Inputs
array_from_list = np.array(my_list) # Convert list to array
array_from_tuple = np.array(my_tuple) # Convert tuple to array
print("Array from list:", array_from_list)
print("Array from tuple:", array_from_tuple)
```

Output:

```
Array from list: [1 2 3 4 5 6 7 8]
Array from tuple: [[8 4 6]
 [1 2 3]]
```