QUIZ/LAB – 01 – A / Points(6)

```
Websites you can use:
https://www.python.org/doc/
https://numpy.org/doc/
https://pandas.pydata.org/docs/index.html
https://matplotlib.org/stable/index.html#
```

1. Write a NumPy program to find common values between two arrays.

Expected Output:

```
Array1: [ 0 10 20 40 60]
Array2: [10, 30, 40]
Common values between two arrays:
[10 40]
```

2. Write a NumPy program to replace the negative values in a NumPy array with 0.

Expected Output:

```
Original array:
[-1 -4 0 2 3 4 5 -6]
Replace the negative values of the said array with 0:
[0 0 0 2 3 4 5 0]
```

3. Write a NumPy program to remove all rows in a NumPy array that contain non-numeric values.

Expected Output:

```
Original array:
[[ 1. 2. 3.]
[ 4. 5. nan]
[ 7. 8. 9.]
[ 1. 0. 1.]]
Remove all non-numeric elements of the said array
[[ 1. 2. 3.]
[ 7. 8. 9.]
[ 1. 0. 1.]]
```

4. Write a NumPy program to select indices satisfying multiple conditions in a NumPy array.

Sample array :

```
a = np.array([97, 101, 105, 111, 117])
b = np.array(['a','e','i','o','u'])
```

Note: Select the elements from the second array corresponding to elements in the first array that are greater than 100 and less than 110

Expected Output:

```
Original arrays
[ 97 101 105 111 117]
```

```
['a' 'e' 'i' 'o' 'u']
Elements from the second array corresponding to elements in the first
array that are greater than 100 and less than 110:
['e' 'i']
```

5. Write a NumPy program to remove nan values from a given array.

Sample Output:

```
Original array:
[[ 1. 2. 3.]
[nan 0. nan]
[ 6. 7. nan]]
After removing nan values:
[1. 2. 3. 0. 6. 7.]
```

6. Write a NumPy program to extract all the elements of the first and fourth columns from a given (4x4) array.

Sample Output:

```
Original array:
[[ 0 1 2 3]
[ 4 5 6 7]
[ 8 9 10 11]
[12 13 14 15]]
Extracted data: All the elements of the first and fourth columns
[[ 0 3]
[ 4 7]
[ 8 11]
[12 15]]
```

7. Write a NumPy program to extract all the rows from a given array where a specific column starts with a given character.

Sample Output:

```
Original array:
[['01' 'V' 'Debby Pramod']
['02' 'V' 'Artemiy Ellie']
['03' 'V' 'Baptist Kamal']
['04' 'V' 'Lavanya Davide']
['05' 'V' 'Fulton Antwan']
['06' 'V' 'Euanthe Sandeep']
['07' 'V' 'Endzela Sanda']
['08' 'V' 'Victoire Waman']
['09' 'V' 'Briar Nur']
['10' 'V' 'Rose Lykos']]
Student name starting with E :
```

```
[['06' 'V' 'Euanthe Sandeep']
['07' 'V' 'Endzela Sanda']]
Student id starting with 1 :
[['10' 'V' 'Rose Lykos']]
```

8. Write a NumPy program to extract all the rows to compute the student weight from a given array (student information) where a specific column starts with a given character.

Sample Output:

```
Original array:
[['01' 'V' 'Debby Pramod' '30.21']
['02' 'V' 'Artemiy Ellie' '29.32']
['03' 'V' 'Baptist Kamal' '31.0']
['04' 'V' 'Lavanya Davide' '30.22']
['05' 'V' 'Fulton Antwan' '30.21']
['06' 'V' 'Euanthe Sandeep' '31.0']
['07' 'V' 'Endzela Sanda' '32.0']
['08' 'V' 'Victoire Waman' '29.21']
['09' 'V' 'Briar Nur' '30.0']
['10' 'V' 'Rose Lykos' '32.0']]
Total weight, where student name starting with E
63.0
Total weight, where student name starting with D
30.21
```

9. Grab the CSV data from URL and do the following steps:

Input: https://raw.githubusercontent.com/selva86/datasets/master/Cars93_miss.csv

- **Replace missing values in Min . Price and Max . Price columns with their respective median.**
- **group data set by ‘Manufacturer’ and ‘Type’**
- **Get max, min and average values for each group (‘Manufacturer’)**

10. Replace both values in both diagonals of `df` with 0.

Desired output:

```
#     0   1   2   3   4   5   6   7   8   9
# 0   0  46  26  44  11  62  18  70  68   0
# 1  87   0  52  50  81  43  83  39   0  59
# 2  47  76   0  77  73   2   2   0  14  26
# 3  64  18  74   0  16  37   0   8  66  39
# 4  10  18  39  98   0   0  32   6   3  29
# 5  29  91  27  86   0   0  28  31  97  10
# 6  37  71  70   0   4  72   0  89  12  97
# 7  65  22   0  75  17  10  43   0  12  77
# 8  47   0  96  55  17  83  61  85   0  86
# 9   0  80  28  45  77  12  67  80   7   0
```