# QUIZ/LAB – 01 – B / 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 get the unique elements of an array.**
Expected Output:
Original array:
[[1 1]
[2 3]]
Unique elements of the above array:
[1 2 3]

**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. 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 mean.**
- **group data set by 'Model' and 'EngineSize'**
- **Get max, min and average values for each group ('Model')**

**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 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']]

**7. 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.]]

**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. 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
```

**10. 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]]
```