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**EDS Practical 3**

**Problem - Prepare/Take dataset3 for any real-life application. Read a dataset into an array.**

**Code –**

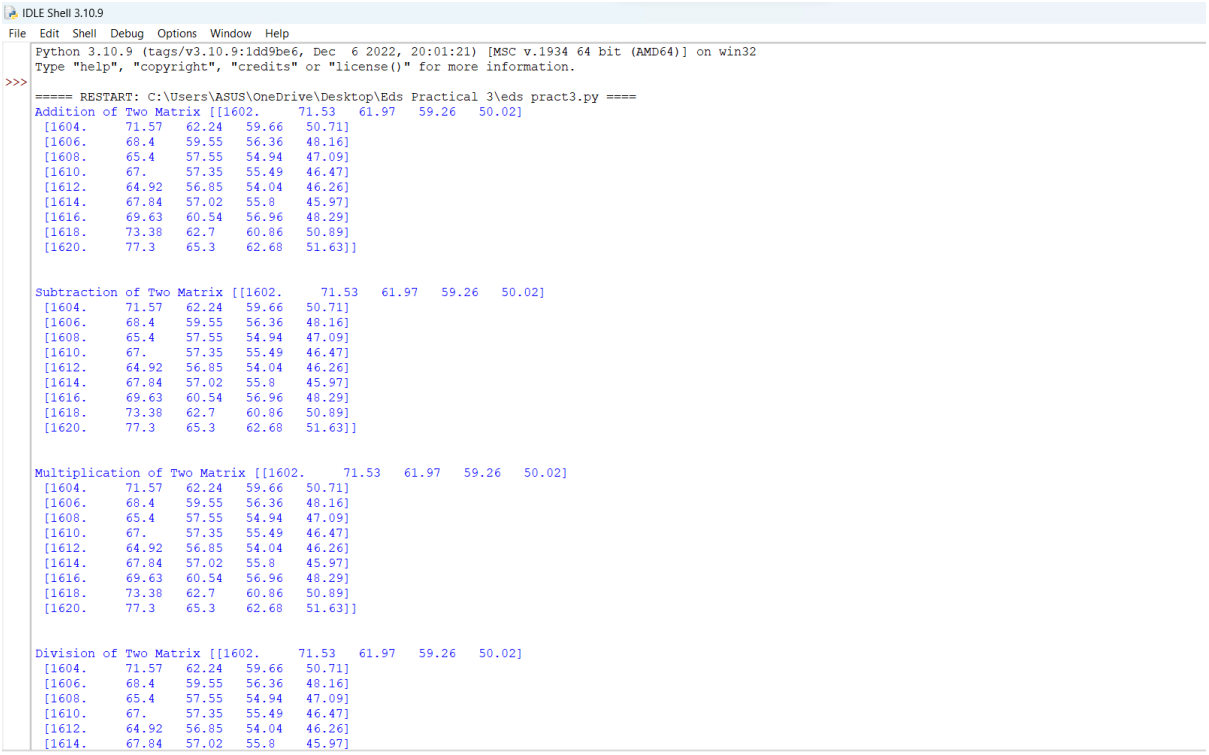
```
 import numpy as np
data1=np.loadtxt("testmarks1.csv",skiprows=1,delimiter=",",dtype=float)
data2=np.loadtxt("testmarks2.csv",skiprows=1,delimiter=",",dtype=float)

#Addition
A=np.add(data1,data2)
print("Addition of Two Matrix",A)
print("\n")

#Substraction
B=np.subtract(data1,data2)
print("Subtraction of Two Matrix",A)
print("\n")

#Multiplication
C=np.multiply(data1,data2)
print("Multiplication of Two Matrix",A)
print("\n")

#Division
D=np.add(data1,data2)
print("Division of Two Matrix",A)
```

```
print("\n")

#Horizontal Stack
print("Horizontal Stacking of data1 is :\n",np.hstack(data1))
print("Horizontal Stacking of data2 is :\n",np.hstack(data2))

#Vertical Stack
print("Vertical Stacking of data1 is :\n",np.vstack(data1))
print("Vertical Stacking of data2 is :\n",np.vstack(data2))

#Maximum
g=np.max(A,axis=0)
h=int(g[0]/2)
print("The student got maximum marks :\n",h)

#Minimum
f=np.min(A,axis=0)
i=int(f[0]/2)
print("The student got maximum marks :\n",i)

#Sorting
print("sorting data1:\n",np.sort(data1))
print("\n")
print("sorting data2:\n",np.sort(data2))
print("\n")

#Transpose
print("Transpose of data1 is :\n",np.transpose(data1))
print("Transpose of data2 is :\n",np.transpose(data2))
```

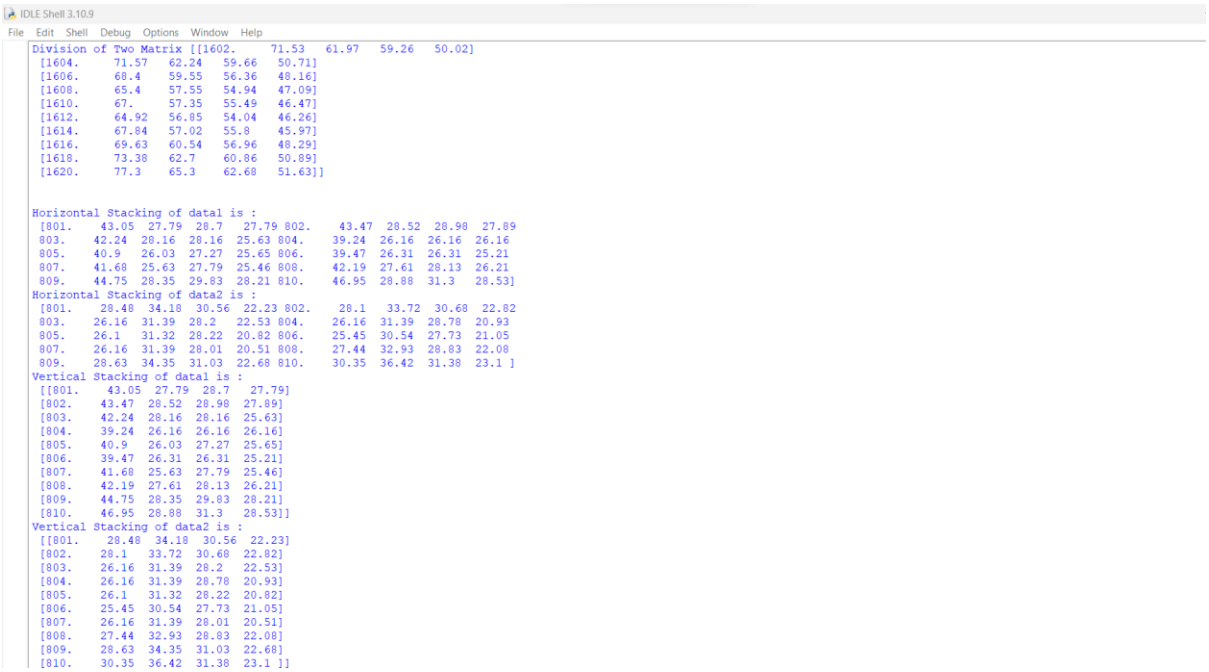
```
#Copy
cp = np.array([1, 2, 3, 4, 5])
x = cp.copy()
cp[0] = 42
print(cp)
print(x)

#View
vw = np.array([1, 2, 3, 4, 5])
x = vw.view()
vw[0] = 42
print(vw)
print(x)
print("\n")

#Data stacking
array1=np.array(np.arange(1,5).reshape(2,2))
print(array1)
array2=np.array(np.arange(11,15).reshape(2,2))
print(array2)

newarray=np.stack([array1,array2],axis=0)
print(newarray)

newarray=np.stack([array1,array2],axis=1)
print(newarray)

#custom
```

```
data3=np.arange(101,141).reshape(8,5)
print(data3)
print("\n")
```

## Output -



```
IDLE Shell 3.10.9
File  Edit  Shell  Debug  Options  Window  Help
Python 3.10.9 (tags/v3.10.9:1dd9be6, Dec  6 2022, 20:01:21) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\ASUS\OneDrive\Desktop\Eds Practical 3\eds pract3.py ====
Addition of Two Matrix [[1602.     71.53   61.97   59.26   50.02]
 [1604.     71.57   62.24   59.66   50.71]
 [1606.     68.4    59.55   56.36   48.16]
 [1608.     65.4    57.55   54.94   47.09]
 [1610.     67.     57.35   55.49   46.47]
 [1612.     64.92   56.85   54.04   46.26]
 [1614.     67.84   57.02   55.8    45.97]
 [1616.     69.63   60.54   56.96   48.29]
 [1618.     73.38   62.7    60.86   50.89]
 [1620.     77.3    65.3    62.68   51.63]]


Subtraction of Two Matrix [[1602.     71.53   61.97   59.26   50.02]
 [1604.     71.57   62.24   59.66   50.71]
 [1606.     68.4    59.55   56.36   48.16]
 [1608.     65.4    57.55   54.94   47.09]
 [1610.     67.     57.35   55.49   46.47]
 [1612.     64.92   56.85   54.04   46.26]
 [1614.     67.84   57.02   55.8    45.97]
 [1616.     69.63   60.54   56.96   48.29]
 [1618.     73.38   62.7    60.86   50.89]
 [1620.     77.3    65.3    62.68   51.63]]


Multiplication of Two Matrix [[1602.     71.53   61.97   59.26   50.02]
 [1604.     71.57   62.24   59.66   50.71]
 [1606.     68.4    59.55   56.36   48.16]
 [1608.     65.4    57.55   54.94   47.09]
 [1610.     67.     57.35   55.49   46.47]
 [1612.     64.92   56.85   54.04   46.26]
 [1614.     67.84   57.02   55.8    45.97]
 [1616.     69.63   60.54   56.96   48.29]
 [1618.     73.38   62.7    60.86   50.89]
 [1620.     77.3    65.3    62.68   51.63]]


Division of Two Matrix [[1602.     71.53   61.97   59.26   50.02]
 [1604.     71.57   62.24   59.66   50.71]
 [1606.     68.4    59.55   56.36   48.16]
 [1608.     65.4    57.55   54.94   47.09]
 [1610.     67.     57.35   55.49   46.47]
 [1612.     64.92   56.85   54.04   46.26]
 [1614.     67.84   57.02   55.8    45.97]
```



```
IDLE Shell 3.10.9
File  Edit  Shell  Debug  Options  Window  Help
Division of Two Matrix [[1602.     71.53   61.97   59.26   50.02]
 [1604.     71.57   62.24   59.66   50.71]
 [1606.     68.4    59.55   56.36   48.16]
 [1608.     65.4    57.55   54.94   47.09]
 [1610.     67.     57.35   55.49   46.47]
 [1612.     64.92   56.85   54.04   46.26]
 [1614.     67.84   57.02   55.8    45.97]
 [1616.     69.63   60.54   56.96   48.29]
 [1618.     73.38   62.7    60.86   50.89]
 [1620.     77.3    65.3    62.68   51.63]]


Horizontal Stacking of data1 is :
 [801.    43.05  27.79  28.7   27.79 802.    43.47  28.52  28.98  27.89
 803.    42.24  28.16  28.16  25.63 804.    39.24  26.16  26.16  26.16
 805.    40.9   26.03  27.27  25.65 806.    39.47  26.31  26.31  25.21
 807.    41.68  25.63  27.79  25.46 808.    42.19  27.61  28.13  26.21
 809.    44.75  28.35  29.83  28.21 810.    46.95  28.88  31.3   28.53]
Horizontal Stacking of data2 is :
 [801.    28.48  34.18  30.56  22.23 802.    28.1   33.72  30.68  22.82
 803.    26.16  31.39  28.2   22.53 804.    26.16  31.39  28.78  20.93
 805.    26.1   31.32  28.22  20.82 806.    25.45  30.54  27.73  21.05
 807.    26.16  31.39  28.01  20.51 808.    27.44  32.93  28.83  22.08
 809.    28.63  34.35  31.03  22.68 810.    30.35  36.42  31.38  23.1 ]
Vertical Stacking of data1 is :
 [[801.    43.05  27.79  28.7   27.79]
 [802.    43.47  28.52  28.98  27.89]
 [803.    42.24  28.16  28.16  25.63]
 [804.    39.24  26.16  26.16  26.16]
 [805.    40.9   26.03  27.27  25.65]
 [806.    39.47  26.31  26.31  25.21]
 [807.    41.68  25.63  27.79  25.46]
 [808.    42.19  27.61  28.13  26.21]
 [809.    44.75  28.35  29.83  28.21]
 [810.    46.95  28.88  31.3   28.53]]
Vertical Stacking of data2 is :
 [[801.    28.48  34.18  30.56  22.23]
 [802.    28.1   33.72  30.68  22.82]
 [803.    26.16  31.39  28.2   22.53]
 [804.    26.16  31.39  28.78  20.93]
 [805.    26.1   31.32  28.22  20.82]
 [806.    25.45  30.54  27.73  21.05]
 [807.    26.16  31.39  28.01  20.51]
 [808.    27.44  32.93  28.83  22.08]
 [809.    28.63  34.35  31.03  22.68]
 [810.    30.35  36.42  31.38  23.1 ]]
```

```
The student got maximum marks :
 810
The student got maximum marks :
 801
sorting data1:
 [[ 27.79  27.79  28.7   43.05 801.  ]
 [ 27.89  28.52  28.98  43.47 802.  ]
 [ 25.63  28.16  28.16  42.24 803.  ]
 [ 26.16  26.16  26.16  39.24 804.  ]
 [ 25.65  26.03  27.27  40.9  805.  ]
 [ 25.21  26.31  26.31  39.47 806.  ]
 [ 25.46  25.63  27.79  41.68 807.  ]
 [ 26.21  27.61  28.13  42.19 808.  ]
 [ 28.21  28.35  29.83  44.75 809.  ]
 [ 28.53  28.88  31.3   46.95 810.  ]]


sorting data2:
 [[ 22.23  28.48  30.56  34.18 801.  ]
 [ 22.82  28.1   30.68  33.72 802.  ]
 [ 22.53  26.16  28.2   31.39 803.  ]
 [ 20.93  26.16  28.78  31.39 804.  ]
 [ 20.82  26.1   28.22  31.32 805.  ]
 [ 21.05  25.45  27.73  30.54 806.  ]
 [ 20.51  26.16  28.01  31.39 807.  ]
 [ 22.08  27.44  28.83  32.93 808.  ]
 [ 22.68  28.63  31.03  34.35 809.  ]
 [ 23.1   30.35  31.38  36.42 810.  ]]


Transpose of data1 is :
 [[801.   802.   803.   804.   805.   806.   807.   808.   809.   810.  ]
 [ 43.05  43.47  42.24  39.24  40.9   39.47  41.68  42.19  44.75  46.95]
 [ 27.79  28.52  28.16  26.16  26.03  26.31  25.63  27.61  28.35  28.88]
 [ 28.7   28.98  28.16  26.16  27.27  26.31  27.79  28.13  29.83  31.3 ]
 [ 27.79  27.89  25.63  26.16  25.65  25.21  25.46  26.21  28.21  28.53]]
Transpose of data2 is :
 [[801.   802.   803.   804.   805.   806.   807.   808.   809.   810.  ]
 [ 28.48  28.1   26.16  26.16  26.1   25.45  26.16  27.44  28.63  30.35]
 [ 34.18  33.72  31.39  31.39  31.32  30.54  31.39  32.93  34.35  36.42]
 [ 30.56  30.68  28.2   28.78  28.22  27.73  28.01  28.83  31.03  31.38]
 [ 22.23  22.82  22.53  20.93  20.82  21.05  20.51  22.08  22.68  23.1 ]]
```

```
[42  2  3  4  5]
[1 2 3 4 5]
[42  2  3  4  5]
[42  2  3  4  5]


[[1 2]
 [3 4]]
[[11 12]
 [13 14]]
[[[ 1  2]
  [ 3  4]]

 [[11 12]
  [13 14]]]
[[[ 1  2]
  [11 12]]

 [[ 3  4]
  [13 14]]]
[[101 102 103 104 105]
 [106 107 108 109 110]
 [111 112 113 114 115]
 [116 117 118 119 120]
 [121 122 123 124 125]
 [126 127 128 129 130]
 [131 132 133 134 135]
 [136 137 138 139 140]]
```