

Assignment 4

question 1

1.1 Data

```
In [2]: import numpy as np
data=np.array([[55,80,12,55,88],[98,95,94,95,99],[8,18,5,12,15],[52,46,
89,89,99],[99,100,85,100,99],[87,44,55,78,88]])
print(data)
```

```
[[ 55  80  12  55  88]
 [ 98  95  94  95  99]
 [  8  18   5  12  15]
 [ 52  46  89  89  99]
 [ 99 100  85 100  99]
 [ 87  44  55  78  88]]
```

1.2 maximum marks scored in Sub C

```
In [3]: print(max(data[:,2]))
```

94

1.3 average marks scored in Sub E

```
In [4]: print(np.mean(data[:,4]))
```

81.33333333333333

1.4 average marks scored by dennis

```
In [5]: print(np.mean(data[3,:]))
```

75.0

```
In [6]: name=['praveen','vidhya','dravis','dennis','sunder','bharati']
```

1.5 topper in class

```
In [9]: print(name[np.argmax(np.mean(data, axis=1))],'is topper in class')
```

sunder is topper in class

1.6 person who scored maximum marks in Sub B

```
In [10]: print(name[np.argmax(data[:,1])],'scored maximum mark in subject B')
```

sunder scored maximum mark in subject B

question 2

2.1 Creating matrix mat

```
In [11]: mat=np.array([[0,1,2,3,4,5],[10,11,12,13,14,15],[20,21,22,23,24,25],[30,31,32,33,34,35],[40,41,42,43,44,45],[50,51,52,53,54,55]])
print(mat)
```

```
[[ 0  1  2  3  4  5]
 [10 11 12 13 14 15]
 [20 21 22 23 24 25]
 [30 31 32 33 34 35]
 [40 41 42 43 44 45]
 [50 51 52 53 54 55]]
```

```
[40 41 42 43 44 45]
[50 51 52 53 54 55]]
```

2.2 Extract 3 rd column

```
In [12]: c3=mat[:,2]
print(c3)

[ 2 12 22 32 42 52]
```

2.3 Extract 3 and 4

```
In [14]: a=mat[0,3:5]
print(a)

[3 4]
```

2.4 Extract 20,22,24,40,42,44

```
In [15]: row_idx = np.array([2, 4])
col_idx = np.array([0, 2, 4])
mat[row_idx[:, None], col_idx]

Out[15]: array([[20, 22, 24],
               [40, 42, 44]])
```

2.5 Extract 44,45,54,55

```
In [16]: a1=mat[4:,4:]
print(a1)

[[44 45]
 [54 55]]
```

question 3 Create a matrix using numpy functions

```
In [17]: mat1=np.full((5,5),100)
z=np.full((3,3),50)
z[1,1]=0
mat1[1:4,1:4]=z
print(mat1)
```

```
[[100 100 100 100 100]
 [100  50  50  50 100]
 [100  50   0  50 100]
 [100  50  50  50 100]
 [100 100 100 100 100]]
```

```
In [ ]:
```