DAA Assignment- I

1 .Given a row wise sorted matrix of size **R*C** where R and C are always **odd**, find the median of the matrix.   **5Marks**

Test Case 1:

Python program to find median of matrix

sorted row wise

```
import numpy as np
M=np.array([[1, 3, 5],[2, 6, 9], [3, 6, 9]])
l1=M[0].tolist()
l2=M[1].tolist()
l3=M[2].tolist()
l=l1+l2+l3
l.sort()
print(l)
n=len(l)
index=int((n)/2)
print(l[index])
```

OUTPUT:

Median is 5

Test Case 2:

Python program to find median of matrix

sorted row wise

```
import numpy as np
M=np.array([[1],[2], [3]])
l1=M[0].tolist()
l2=M[1].tolist()
l3=M[2].tolist()
l=l1+l2+l3
l.sort()
n=len(l)
index=int((n)/2)
print(l[index])
```

OUTPUT:

Median is 2

2. Given the arrival and departure times of all trains that reach a railway station, the task is to find the minimum number of platforms required for the railway station so that no train waits. We are given two arrays that represent the arrival and departure times of trains that stop. **5Marks**

Test Case 1:

```python
def findPlatform(arr, dep, n):
    plat_needed = 1
    result = 1
    for i in range(n):

        plat_needed = 1

        for j in range(n):

            if i != j:
                if (arr[i] >= arr[j] and dep[j] >= arr[i]):
                    plat_needed += 1


        result = max(result, plat_needed)

    return result

if __name__ == '__main__':
    arr = [900, 940, 950, 1100, 1500, 1800]
    dep = [910, 1200, 1120, 1130, 1900, 2000]
    n = len(arr)
    print("{}".format(
        findPlatform(arr, dep, n)))
```

OUTPUT:

3

Test Case 2:

```python
def findPlatform(arr, dep, n):
    plat_needed = 1
    result = 1
    for i in range(n):

        plat_needed = 1
```

```python
        for j in range(n):

            if i != j:
                if (arr[i] >= arr[j] and dep[j] >= arr[i]):
                    plat_needed += 1


        result = max(result, plat_needed)

    return result

if __name__ == '__main__':
    arr = [900, 940]
    dep = [910, 1200]
    n = len(arr)
    print("{}".format(
        findPlatform(arr, dep, n)))
```

OUTPUT:

1

Roll number: 21071A6781

GitHub link: https://github.com/Chandana0127