**DAA -ASSIGNMENT\_21071A67B8\_CSDS-B**

QUESTION 1:

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

**Test Case 1:**

**Input**:

R = 3, C = 3

M = [[1, 3, 5],

  [2, 6, 9],

  [3, 6, 9]]

**Output:** 5

import numpy as praj

x=praj.array([[1, 3, 5],

     [2, 6, 9],

     [3, 6, 9]])

print("the original matrix is:")

print(x)

mat=[]

for k in range(3):

    for l in range(3):

        mat.append(x[k][l])

mat.sort()

print("matrix in array form after sorting")

print(mat)

print("Median of the array is:")

print(mat[4])

the original matrix is: [[1 3 5] [2 6 9] [3 6 9]] matrix in array form after sorting [1, 2, 3, 3, 5, 6, 6, 9, 9] Median of the array is: 5

**Test Case 2:**

**Input:**

R = 3, C = 1

M = [[1], [2], [3]]

**Output:** 2

x=praj.array([[1], [2], [3]])

print("the original matrix is:")

print(x)

mat=[]

for k in range(3):

    for l in range(1):

        mat.append(x[k][l])

mat.sort()

print("matrix in array form after sorting")

print(mat)

print("Median of the array is:")

print(mat[1])

the original matrix is: [[1] [2] [3]] matrix in array form after sorting [1, 2, 3] Median of the array is: 2

QUESTION 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**

***Input:****arr[] = {9:00, 9:40, 9:50, 11:00, 15:00, 18:00}, dep[] = {9:10, 12:00, 11:20, 11:30, 19:00, 20:00}****Output:****3*

**Test case 2**

***Input:****arr[] = {9:00, 9:40}, dep[] = {9:10, 12:00}****Output:****1*

***Solution:***

#include<bits/stdc++.h>

using namespace std;

int platform(int n,int a[],int d[])

{

sort(a,a+n);

sort(d,d+n);

int ans=1;

int count=1;

int i=1,j=0;

while(i<n && j<n)

{

if(a[i]<=d[j])

{

count++;

i++;

}

else

{

count--;

j++;

}

ans=max(ans,count);

}

return ans;

}

int main()

{

int a[]={“our given arrival timings are written here”};

int d[]={“our given departure timings are written here”};

int n=sizeof(d)/sizeof(d[0]);

cout<<"Minimum number of Platforms required is :"<<platforms(n,a,d)<<endl;

}