

PF LAB ASSIGNMENT

ROLL NO:232481

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CLASS ASSIGNMENT:

```
1  #include<iostream>
2  using namespace std;
3  const int col = 4;
4  void populate(int a[][col],int row){
5      srand(time(0));
6      for (int i = 0; i < row; i++) {
7          for (int j = 0; j < col; j++) {
8              a[i][j] = rand() % 100 + 1;
9          }
10     }
11 }
12 }
13
14 void display(int a[][col], int row) {
15     for (int i = 0; i < row; i++) {
16         for (int j = 0; j < col; j++) {
17             cout << "\n students # " << i + 1 << " quiz # " << j + 1<<" : "<<a[i][j]<<endl;
18         }
19     }
20 }
21 }
22 void studentAverage(int a[][col], int row,int avg[]) {
23     int average = 0;
24     for (int i = 0; i < row; i++) {
25         avg[i] = 0;
26
27         for (int j = 0; j < col; j++) {
28             avg[i]+= a[i][j];
29         }
30         avg[i] /= col;
31     }
32 }
33
34 }
```

```

void HighestMarks(int a[][col], int row)
{
    int max = 0;
    for (int i = 0; i < row; i++)
    {
        int max = a[i][0];
        for (int j = 0; j < col; j++)
        {
            if (a[i][j] > max)
            {
                max = a[i][j];
            }
        }
        cout << "\nstudent #" << i + 1 << "has highest marks" << max;
    }
}

void lowestMarks(int a[][col], int row)
{
    int min = 0;
    for (int i = 0; i < row; i++)
    {
        int min = a[i][0];
        for (int j = 0; j < col; j++)
        {
            if (a[i][j] < min)
            {
                min = a[i][j];
            }
        }
        cout << "\nstudent #" << i + 1 << "has lowest marks" << min;
    }
}

```

```
int main(){  
    const int row = 5;  
    int avgStudent[row] = { 0 };  
    int students[row][col];  
    populate(students, row);  
    display(students, row);  
    studentAverage(students, row, avgStudent);  
    cout << "\n Average of each student"<<endl;  
    for(int i=0;i<row;i++){  
        cout << "\n student # " << i + 1 << "average:" << avgStudent[i] << endl;  
    }  
    int classaverage = 0;  
    for (int i = 0; i < row; i++) {  
        classaverage += avgStudent[i];  
    }  
    classaverage /= row;  
    cout << "\n Average of the class" << classaverage << endl;  
    return 0;  
}
```

```
students # 1 quiz # 1 : 68
students # 1 quiz # 2 : 90
students # 1 quiz # 3 : 52
students # 1 quiz # 4 : 75
students # 2 quiz # 1 : 30
students # 2 quiz # 2 : 3
students # 2 quiz # 3 : 91
students # 2 quiz # 4 : 90
students # 3 quiz # 1 : 12
students # 3 quiz # 2 : 58
students # 3 quiz # 3 : 1
students # 3 quiz # 4 : 7
students # 4 quiz # 1 : 68
students # 4 quiz # 2 : 3
students # 4 quiz # 3 : 81
```

```
students # 4 quiz # 1 : 68
students # 4 quiz # 2 : 3
students # 4 quiz # 3 : 81
students # 4 quiz # 4 : 54
students # 5 quiz # 1 : 9
students # 5 quiz # 2 : 84
students # 5 quiz # 3 : 26
students # 5 quiz # 4 : 20
Average of each student
student # 1average:71
student # 2average:53
student # 3average:19
student # 4average:51
student # 5average:34
Average of the class45
```