
Assignment 1

Student Name:Rajiv Paul

Branch: CSE

Semester: 3rd

UID:20BCS1812

Section/Group:6B

Subject Name:Data Structure

Q1

Aim/Overview of the practical:

Software required:

Vs Code

Source Code:

```
using namespace std;

int main() {
    int sum, studentbelowaverage;
    string student[20]={"Sushma", "Sonali", "Atul", "Shubham", "Harry", "Rakesh", "Rahul", "Nick", "Nickson", "Ashwin",
        "Akash", "Taniya", "Divyam", "Saina", "Dolly", "Wilson", "Shivraj", "Nicila", "Bhumi", "Shweta"};

    int Marks[20][5]={
        {39,40,87,36,85},{70,79,89,99,90},{29,29,20,20,27},{78,89,90,98,99},{89,90,89,78,90},{89,78,67,78,90},
        {56,67,78,89,90},{45,67,34,58,50},{89,90,97,78,67},{89,90,97,90,87},{89,90,87,86,85},{70,79,89,99,90},
        {56,67,78,89,90},{59,20,38,17,20},{25,27,24,28,20},{89,90,97,90,87},{79,89,80,90,97},{78,89,90,98,99},
        {45,67,34,58,50},{45,67,34,58,50}
    };

    cout<<endl<<endl<<endl<<endl;
    cout<<"Question 1: find the average marks obtained in each subject. "<<endl;
    sum = 0;
    for(int j = 0; j<5; j++){
        cout<<"average marks in subject "<<j+1<<" : ";
        for(int i=0; i<20; i++){
            sum = sum + Marks[i][j];
        }
        cout<<sum/20<<endl;
        sum = 0;
    }

    cout<<endl<<endl<<endl<<endl;
    cout<<"Question 2: find the average marks obtained by every student. "<<endl;
    for(int i=0; i<20; i++){
        cout<<"Average marks of "<<student[i]<<" is :";
        for(int j=0; j<5; j++){
            sum = sum + Marks[i][j];
        }
        cout<<sum/5<<endl;
        if(sum/5<50) studentbelowaverage++;
        sum = 0;
    }
}
```

```
cout<<endl<<endl<<endl<<endl;
cout<<"Question 3: find the number of students who have scored below 50 in their average. "<<endl;
cout<<"number of students having less then 50 are : "<<studentbelowaverage<<endl;

cout<<endl<<endl<<endl<<endl;
cout<<"Question 4: display the scores obtained by every student. "<<endl;
for(int i=0; i<20; i++){
    cout<<"Average marks of "<<student[i]<<" is :";
    for(int j=0; j<5; j++){
        sum = sum + Marks[i][j];
    }
    cout<<sum<<endl;
    sum = 0;
}
return 0;
}
```

Output:

```
Question 1: find the average marks obtained in each subject.  
average marks in subject 1 : 65  
average marks in subject 2 : 70  
average marks in subject 3 : 69  
average marks in subject 4 : 71  
average marks in subject 5 : 73
```

```
Question 2: find the average marks obtained by every student.  
Average marks of Sushma is :57  
Average marks of Sonali is :85  
Average marks of Atul is :25  
Average marks of Shubham is :90  
Average marks of Harry is :87  
Average marks of Rakesh is :80  
Average marks of Rahul is :76  
Average marks of Nick is :50  
Average marks of Nickson is :84  
Average marks of Ashwin is :90  
Average marks of Akash is :87  
Average marks of Taniya is :85  
Average marks of Divyam is :76  
Average marks of Saina is :30  
Average marks of Dolly is :24  
Average marks of Wilson is :90  
Average marks of Shivraj is :87  
Average marks of Nicila is :90  
Average marks of Bhumi is :50  
Average marks of Shweta is :50
```

Question 3: find the number of students who have scored below 50 in their average.
number of students having less then 50 are :4

Question 4:display the scores obtained by every student.
Average marks of Sushma is :287
Average marks of Sonali is :427
Average marks of Atul is :125
Average marks of Shubham is :454
Average marks of Harry is :436
Average marks of Rakesh is :402
Average marks of Rahul is :380
Average marks of Nick is :254
Average marks of Nickson is :421
Average marks of Ashwin is :453
Average marks of Akash is :437
Average marks of Taniya is :427
Average marks of Divyam is :380
Average marks of Saina is :154
Average marks of Dolly is :124
Average marks of Wilson is :453
Average marks of Shivraj is :435
Average marks of Nicila is :454
Average marks of Bhumi is :254
Average marks of Shweta is :254

Q2.

Software required:

Vs Code

Source Code:

```
#include <iostream>
using namespace std;

int main() {
    int sum, studentbelowaverage;
    string student[20]={"Sushma","Sonali","Atul","Shubham","Harry","Rakesh","Rahul","Nick","Nickson","Ashwin",
        "Akash","Taniya","Divyam","Saina","Dolly","Wilson","Shivraj","Nicila","Bhumi","Shweta"};

    int Marks[20][5]={
        {39,40,87,36,85},{70,79,89,99,90},{29,29,20,20,27},{78,89,90,98,99},{89,90,89,78,90},{89,78,67,78,90},
        {56,67,78,89,90},{45,67,34,58,50},{89,90,97,78,67},{89,90,97,90,87},{89,90,87,86,85},{70,79,89,99,90},
        {56,67,78,89,90},{59,20,38,17,20},{25,27,24,28,20},{89,90,97,90,87},{79,89,80,90,97},{78,89,90,98,99},
        {45,67,34,58,50},{45,67,34,58,50}
    };

    cout<<endl<<endl<<endl<<endl;
    cout<<"Question 1: find the average marks obtained in each subject. "<<endl;
    sum = 0;
    for(int j = 0; j<5; j++){
        cout<<"average marks in subject "<<j+1<<" : ";
        for(int i=0; i<20; i++){
            sum = sum + Marks[i][j];
        }
        cout<<sum/20<<endl;
        sum = 0;
    }

    cout<<endl<<endl<<endl<<endl;
    cout<<"Question 2: find the average marks obtained by every student. "<<endl;
    for(int i=0; i<20; i++){
        cout<<"Average marks of "<<student[i]<<" is :";
        for(int j=0; j<5; j++){
            sum = sum + Marks[i][j];
        }
        cout<<sum/5<<endl;
        if(sum/5<50) studentbelowaverage++;
        sum = 0;
    }
}
```

Output:

```
Enter the number of students : 30
The marks of students:
```

St.No.	Sub:1	Sub:2	Sub:3	Sub:4	Sub:5	Sub:6
1	39	40	87	36	85	45
2	70	79	89	99	90	66
3	29	29	20	20	27	45
4	78	89	90	98	99	66
5	89	90	89	78	90	98
6	89	78	67	78	98	90
7	56	67	78	89	90	98
8	45	67	34	58	50	45
9	89	90	97	78	67	87
10	89	90	97	90	87	98
11	89	90	87	86	85	87
12	70	79	89	99	66	90
13	56	67	78	89	90	66
14	59	20	38	17	20	98
15	25	27	24	28	20	45
16	89	90	98	97	90	87
17	79	89	80	98	90	97
18	78	89	90	98	99	87
19	45	67	34	98	58	50
20	45	67	34	58	50	66
21	60	30	38	27	27	45
22	69	21	48	37	20	45
23	39	40	33	12	30	45
24	69	60	38	16	70	66
25	49	30	48	57	98	30
26	55	24	48	98	57	20
27	59	50	48	98	23	26
28	39	29	33	67	70	66
29	57	29	88	57	90	45
30	89	70	66	38	57	60