

FAIZAN CHOUDHARY

20BCS021

PROGRAMMING LAB

4<sup>th</sup> October 2021

**CODE:** (code pasted in this format for readability)

```
#include <stdio.h>
#include <stdlib.h>
int a[25][5];

//Assuming that in a subject only one student has highest marks

int main()
{
    int r,ch;
    printf("\nFAIZAN CHOUDHARY\n20BCS021\n\n");
    printf("Enter the number of students(max 25): ");
    scanf("%d", &r);
    for (int i=0; i<r; i++)
    {
        printf("Enter the roll number of student %d: ", i+1);
        scanf("%d", &a[i][0]);
        printf("Enter the age of student %d: ", i+1);
        scanf("%d", &a[i][1]);
        printf("Enter the marks in 3 subjects of student %d: ", i+1);
        for (int j=2; j<5; j++)
            scanf("%d", &a[i][j]);
    }

    printf("\nThe entries are as follows:\n");
    printf("\n\nRoll Number\tAge\tSubject_1\tSubject_2\tSubject_3\n");
    for (int i=0; i<r; i++)
    {
        for (int j=0; j<5; j++)
            printf("%d\t\t\t", a[i][j]);
        printf("\n");
    }

    while (1)
    {
        float pr[r], mx=0;
        int index, roll1, roll2, flag=0;
        int max[3]={0,0,0}, rollno[3];
        printf("\n\nMENU\n1. Percentage secured by each student along with their roll numbers.\n2. Highest marks in each subject along with roll number\n3. Student scoring the highest percentage.\n4. Exit.\n");
```

```

scanf("%d", &ch);
switch (ch)
{
    case 1: printf("\nRoll Number\t\tPercentage scored (%%)\n");
            float per;
            for (int i=0; i<r; i++)
            {
                per=0;
                printf("%d\t\t\t", a[i][0]);                //printing roll no
                for (int j=2; j<5; j++)                        //index starting from
subject marks only
                {
                    per+=a[i][j];
                }
                per/=3.0;
                printf("%.2f\n", per);
            }
            break;

    case 2: for (int i=0; i<r; i++)
            {
                for (int j=2; j<5; j++)
                {
                    if(a[i][j]>max[j-2])
                    {
                        max[j-
2]=a[i][j];                //as according to the array given
                        rollno[j-2]=a[i][0];
                    }
                }
            }
            printf("\nSubject\t\tHighest Marks\t\tRoll no who secured highest mark
s\n");

            for (int j=0; j<3; j++)
            {
                printf("Subject_%d\t\t", j+1);
                printf("%d\t\t", max[j]);
                printf("%d\t\t\t\n", rollno[j]);
            }
            printf("\n");
            break;

    case 3:
            for (int i=0; i<r; i++)                //finding percentage of each indiv
            dual and storing them in pr[]
            {
                pr[i]=0;
                for (int j=2; j<5; j++)
                {
                    pr[i]+=a[i][j];
                }
                pr[i]/=3.0;
                if (pr[i]>mx)                //finding max percentage
                {

```

```

        mx=pr[i];
        index=i;
        roll1=a[i][0];
    }
}
for (int i=0; i<r; i++)          //traversal
{
    if (pr[i]==mx && i!=index)
    {
        if (a[i][1]<a[index][1])    //required age condition
        {
            roll1=a[i][0];
            index=i;
        }
        else if (a[i][1]==a[index][1])
        {
            roll2=a[i][0];
            flag=1;
        }
    }
}
printf("\nStudent(s) who has/have scored the highest percentage are:\n");

if (flag==0)
{
    printf("Roll No- %d", roll1);
    printf(" with a percentage of %.2f\n", mx);
}
else if (flag==1)
{
    printf("Roll No- %d", roll1);
    printf(" with a percentage of %.2f\n", mx);
    printf("Roll No- %d", roll2);
    printf(" with a percentage of %.2f\n", mx);
}
break;
case 4: exit(0);
}
}
return 0;
}

```

# OUTPUT:

```
FAIZAN CHOUDHARY
20BCS021
```

```
Enter the number of students(max 25): 3
Enter the roll number of student 1: 1
Enter the age of student 1: 19
Enter the marks in 3 subjects of student 1: 94
96
98
Enter the roll number of student 2: 2
Enter the age of student 2: 20
Enter the marks in 3 subjects of student 2: 89
60
48
Enter the roll number of student 3: 3
Enter the age of student 3: 19
Enter the marks in 3 subjects of student 3: 95
97
96
```

The entries are as follows:

Roll Number	Age	Subject_1	Subject_2	Subject_3
1	19	94	96	98
2	20	89	60	48
3	19	95	97	96

MENU

1. Percentage secured by each student along with their roll numbers.
  2. Highest marks in each subject along with roll number
  3. Student scoring the highest percentage.
  4. Exit.
- 1

Roll Number	Percentage scored (%)
1	96.00
2	65.67
3	96.00

MENU

1. Percentage secured by each student along with their roll numbers.
  2. Highest marks in each subject along with roll number
  3. Student scoring the highest percentage.
  4. Exit.
- 2

Subject	Highest Marks	Roll no who secured highest marks
Subject_1	95	3
Subject_2	97	3
Subject_3	98	1

MENU

1. Percentage secured by each student along with their roll numbers.
2. Highest marks in each subject along with roll number
3. Student scoring the highest percentage.
4. Exit.

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Student(s) who has/have scored the highest percentage are:

Roll No- 1 with a percentage of 96.00

Roll No- 3 with a percentage of 96.00

MENU

1. Percentage secured by each student along with their roll numbers.
2. Highest marks in each subject along with roll number
3. Student scoring the highest percentage.
4. Exit.

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