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Q1.

```
#include<stdio.h>
struct Student{
    char name[30];
    int rollNumber;
    int marks[5];
    int totalMarks;
    float percentage;
};

void displayDetailsStudent(struct Student students[],int numberStudents,int rollNumber){
    int i,m;
    for(i=0;i<numberStudents;i++){
        if(rollNumber==students[i].rollNumber){
            printf("The student's name: %s\n",students[i].name);
            printf("The student's roll number: %d\n",students[i].rollNumber);
            printf("The student's marks\n");
            for(m=0;m<5;m++){
                printf("%d ",students[i].marks[m]);
            }
            printf("\nThe student's total marks: %d\n",students[i].totalMarks);
            printf("The student's percentage: %.2f\n",students[i].percentage);
            printf("\n");
            break;
        }
    }
}

void main()
{
    struct Student students[100];
    int n,i,m,r;
    int rollNumber;
    float percentage1;
    float percentage2;
    printf("Enter the student's name: ");
    scanf("%d",&n);
    printf("Enter the student's roll number: ");
    scanf("%d",&r);
    for(i=0;i<5;i++){
        fflush(stdin);
        scanf("%d",&students[i].rollNumber);
        for(m=0;m<5;m++){
            printf("Enter the student's mark %d: ",(m+1));
            scanf("%d",&students[i].marks[m]);
        }
        printf("\n");
    }
}
```

```
File Edit Selection View Go Run Terminal Help
July18Q1.c - OOPs - Visual Studio Code

EXPLORER
  OPEN EDITORS
    July18Q1.c
    July18Q2.c
    July18Q3.c
  OOPS
    .vscode
    July18.exe
    July18Q1.c
    July18Q1.exe
    July18Q2.c
    July18Q3.c

C July18Q1.c
1  #include<stdio.h>
2  struct Student{
3      char name[30];
4      int rollNumber;
5      int marks[5];
6      int totalMarks;
7      float percentage;
8  };
9  void displayDetailsStudent(struct Student students[],int numberStudents,int rollNumber){
10     int i,m;
11     for(i=0;i<numberStudents;i++){
12         if(rollNumber==students[i].rollNumber){
13             printf("The student's name: %s\n",students[i].name);
14             printf("The student's roll number: %d\n",students[i].rollNumber);
15             printf("The student's marks\n");
16             for(m=0;m<5;m++){
17                 printf("%d ",students[i].marks[m]);
18             }
19         }
20     }
21 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\KIIIT\Desktop\prg\3rd sem\OOPs> cd "c:\Users\KIIIT\Desktop\prg\3rd sem\OOPs\" ; if ($?) { gcc July18Q1.c -o July18Q1 } ; if ($?) { .\July18Q1 }
Enter the student's name: Raj
Enter the student's roll number: 21
Enter the student's mark 1: 55
Enter the student's mark 2: 66
Enter the student's mark 3: 77
Enter the student's mark 4: 88
Enter the student's mark 5: 99
```

```
Q2.
#include<stdio.h>
struct Student{
    char name[30];
    int rollNumber;
    int marks[5];
    int totalMarks;
    float percentage;
};

void findTotalMarksPercentageStudents(struct Student students[],int numberStudents){
    int i,m;
    for(i=0;i<numberStudents;i++){
        students[i].totalMarks=0;
        students[i].percentage=0.0;
        for(m=0;m<5;m++){
            students[i].totalMarks+=students[i].marks[m];
            students[i].percentage+=students[i].marks[m]*0.2;
        }
    }
}

void displayDetailsStudent(struct Student students[],int numberStudents,int rollNumber){
    int i,m;
    for(i=0;i<numberStudents;i++){
        if(rollNumber==students[i].rollNumber){
            printf("The student's name: %s\n",students[i].name);
            printf("The student's roll number: %d\n",students[i].rollNumber);
            printf("The student's marks\n");
            for(m=0;m<5;m++){
                printf("%d ",students[i].marks[m]);
            }
            printf("\nThe student's total marks: %d\n",students[i].totalMarks);
            printf("The student's percentage: %.2f\n",students[i].percentage);
            printf("\n");
            break;
        }
    }
}

void displayDetailsSudentsPercentageRange(struct Student students[],int numberStudents,float
percentage1,float percentage2 ){
    int i,m;
```

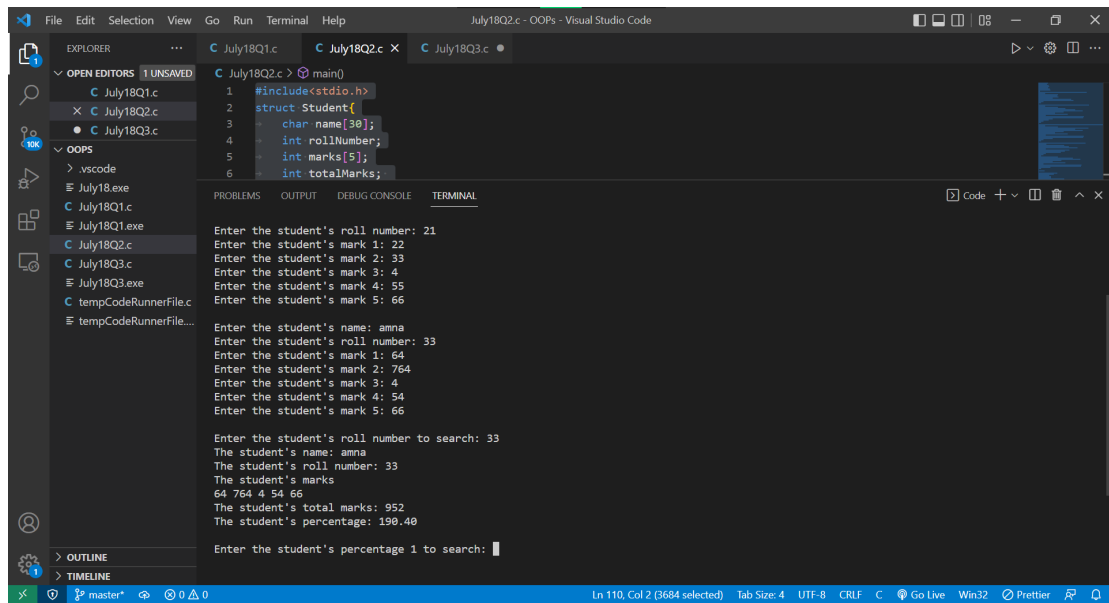
```

        for(i=0;i<numberStudents;i++){
            if(students[i].percentage>=percentage1 && students[i].percentage<=percentage2){
                printf("The student's name: %s\n",students[i].name);
                printf("The student's roll number: %d\n",students[i].rollNumber);
                printf("The student's marks\n");
                for(m=0;m<5;m++){
                    printf("%d ",students[i].marks[m]);
                }
                printf("\nThe student's total marks: %d\n",students[i].totalMarks);
                printf("The student's percentage: %.2f\n",students[i].percentage);
                printf("\n");
            }
        }
    }
}

void sortArrayInAscendingOrderMark(struct Student students[],int numberStudents){
    int i,j,m;
    for (i = 0; i < numberStudents - 1; i++){
        for (j = 0; j < numberStudents - i - 1; j++){
            if (students[j].totalMarks > students[j + 1].totalMarks)
            {
                struct Student temp = students[j];
                students[j] = students[j + 1];
                students[j + 1] = temp;
            }
        }
    }
    for(i=0;i<numberStudents;i++){
        printf("The student's name: %s\n",students[i].name);
        printf("The student's roll number: %d\n",students[i].rollNumber);
        printf("The student's marks\n");
        for(m=0;m<5;m++){
            printf("%d ",students[i].marks[m]);
        }
        printf("\nThe student's total marks: %d\n",students[i].totalMarks);
        printf("The student's percentage: %.2f\n",students[i].percentage);
        printf("\n");
    }
}

void main()
{
    struct Student students[100];
    int numberStudents,i,m;
    int rollNumber;
    float percentage1;
    float percentage2;
    printf("Enter the number of students: ");
    scanf("%d",&numberStudents);
    for(i=0;i<numberStudents;i++){
        fflush(stdin);
        printf("Enter the student's name: ");
        gets(students[i].name);
        printf("Enter the student's roll number: ");
        scanf("%d",&students[i].rollNumber);
        for(m=0;m<5;m++){
            printf("Enter the student's mark %d: ",(m+1));
            scanf("%d",&students[i].marks[m]);
        }
        printf("\n");
    }
    findTotalMarksPercentageStudents(students,numberStudents);
    printf("Enter the student's roll number to search: ");
    scanf("%d",&rollNumber);
    displayDetailsStudent(students,numberStudents,rollNumber);
    printf("Enter the student's percentage 1 to search: ");
    scanf("%f",&percentage1);
    printf("Enter the student's percentage 2 to search: ");
    scanf("%f",&percentage2);
    displayDetailsStudentsPercentageRange(students,numberStudents,percentage1,percentage2);
    printf("\nSort the array in ascending order of marks.\n");
    sortArrayInAscendingOrderMark(students,numberStudents);
    printf("\n");
}

```



```

Q3.
#include<stdio.h>
struct employee
{
    int id;
    char name[10];
    int age;
    int basic;
}emp[100];
void result(struct employee * emp,int a);
int main()
{
    int num;
    printf("How many employees: ");
    scanf("%d",&num);
    for (int i = 0; i < num; i++)
    {
        printf("Enter id name age and basic salary of employee %d : ",i+1);
        scanf("%d %s %d %d",&emp[i].id,&emp[i].name,&emp[i].age,&emp[i].basic);
    }
    result(emp,num);
    return 0;
}
void result(struct employee* emp,int a){
    float da,hra,total;
    for (int i = 0; i < a; i++)
    {
        da=0.8*emp[i].basic;
        hra=0.1*emp[i].basic;
        total=emp[i].basic+da+hra;
        printf(" Id: %d Name: %s Age: %d Basic Salary:%d Gross Salary: %.2f\n\n",emp[i].id,emp[i].name,emp[i].age,emp[i].basic,total);
    }
}

```

Visual Studio Code interface showing a C program for calculating employee gross salary. The Explorer sidebar on the left shows the file structure with folders for 'OOPS' and 'tempCodeRunnerFile...', and files for 'July18Q1.c', 'July18Q2.c', 'July18Q3.c', 'July18.exe', 'July18Q1.exe', 'July18Q2.exe', 'July18Q3.exe', 'tempCodeRunnerFile.c', and 'tempCodeRunnerFile.exe'. The main editor window displays the source code for 'July18Q3.c'.

```
1
2 #include<stdio.h>
3 struct employee
4 {
5     int id;
6     char name[10];
```

The TERMINAL pane at the bottom shows the execution of the program in a Windows PowerShell environment. The command executed is `cd "c:\Users\KIIT\Desktop\prg\3rd sem\OOPS\" ; if ($?) { gcc July18Q3.c -o July18Q3 } ; if ($?) { .\July18Q3 }`. The output shows the program asking for the number of employees (2), then for each employee's ID, name, age, and basic salary, and finally displaying the calculated gross salary for each employee.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\KIIT\Desktop\prg\3rd sem\OOPS> cd "c:\Users\KIIT\Desktop\prg\3rd sem\OOPS\" ; if ($?) { gcc July18Q3.c -o July18Q3 } ; if ($?) { .\July18Q3 }
How many employees: 2
Enter id name age and basic salary of employee 1 : 33
ajay
3333
44444
Enter id name age and basic salary of employee 2 : 55
aman
242
1535
Id: 33 Name: ajay Age: 3333 Basic Salary:44444 Gross Salary: 84443.601563

Id: 55 Name: aman Age: 242 Basic Salary:1535 Gross Salary: 2916.500000

PS C:\Users\KIIT\Desktop\prg\3rd sem\OOPS>
fwd-l-search: _
```

The status bar at the bottom indicates the current file is 'master\*' at line 1, column 1, with 4 spaces, UTF-8 encoding, CRLF line endings, and the C compiler. It also shows the Go Live extension and the Win32 architecture.