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Branch:-CSE

Roll no:-21053288

## ASSIGNMENT-1 (STRUCTURE)

//1.WAP to input name, roll number, and marks in 5 subjects for a student, and display it.

//Mamta kumari(Roll: 21053288)

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    struct student
```

```
    {
```

```
        char name[30];
```

```
        int roll;
```

```
        int marks[5];
```

```
    };
```

```
    struct student stu1;
```

```
    printf("Enter Student's name: ");
```

```
    scanf("%s", &stu1.name);
```

```
    printf("Enter Student's Roll: ");
```

```
    scanf("%d", &stu1.roll);
```

```
    for(int i = 0; i < 5; i++)
```

```
    {
```

```
        printf("Enter Subject-%d's Mark: ", i+1);
```

```
        scanf("%d", &stu1.marks[i]);
```

```
    }
```

```
    printf("Name\t: %s\nRoll\t: %d\nMarks\t:\n", stu1.name, stu1.roll);
```

```

for(int i = 0; i < 5; i++)
{
    printf("\t Subject-%d: %d\n", i+1, stu1.marks[i]);
}

return 0;
}

```

## OUTPUT

```

Enter Student's name: Mamta
Enter Student's Roll: 21053288
Enter Subject-1's Mark: 94
Enter Subject-2's Mark: 93
Enter Subject-3's Mark: 93
Enter Subject-4's Mark: 92
Enter Subject-5's Mark: 91
Name      : Mamta
Roll      : 21053288
Marks     :
            Subject-1: 94
            Subject-2: 93
            Subject-3: 93
            Subject-4: 92
            Subject-5: 91
...Program finished with exit code 0
Press ENTER to exit console.

```

2. /\*

Q2. WAP to input name, roll number, and marks in 5 subjects for n number of students. Write functions to:-

a. Find total marks and percentage of all n students.

\*/

//Mamta kumari(Roll: 21053288)

```
#include<stdio.h>
```

```
#include<string.h>
```

```
//#define n 2
```

```
struct student
```

```
{
```

```

        char name[30];

        int roll;

        int marks[5];

    };

void total_mark(struct student stu[], int n)
{
    int totalmark = 0;

    float percentage;

    for(int j = 0; j < n; j++)
    {
        for(int i = 0; i < 5; i++)
        {
            totalmark += stu[j].marks[i];

            percentage = (totalmark/500.00)*100.00;
        }

        printf("\tTotal mark of student-%d: %d\n", j+1, totalmark);

        printf("\tMark percentage of student-%d: %.2f %c\n\n", j+1, percentage, '%');

        totalmark = 0;
    }
}

int main()
{
    int n;

    printf("Enter the number of Student: ");

    scanf("%d", &n);

    struct student stu[n];

    for(int k = 0; k < n; k++)
    {
        printf("\nEnter Student-%d's name: ", k+1);
    }
}

```

```

scanf("%s", &stu[k].name);

printf("Enter Student%d's Roll: ", k+1);

scanf("%d", &stu[k].roll);

for(int i = 0; i < 5; i++)
{
    printf("Enter Subject-%d's Mark of Student-%d: ", i+1, k+1);

    scanf("%d", &stu[k].marks[i]);
}
}

total_mark(stu, n);

return 0;
}

```

## OUTPUT

```

char *
Enter the number of Student: 1
Enter Student-1's name: Mamta
Enter Student1's Roll: 21053288
Enter Subject-1's Mark of Student-1: 93
Enter Subject-2's Mark of Student-1: 92
Enter Subject-3's Mark of Student-1: 94
Enter Subject-4's Mark of Student-1: 91
Enter Subject-5's Mark of Student-1: 93
Total mark of student-1: 463
Mark percentage of student-1: 92.60 %

...Program finished with exit code 0
Press ENTER to exit console.

```

/\*

Q2. WAP to input name, roll number, and marks in 5 subjects for n number of students. Write functions to:-

b. Display details of a student with a given roll number.

\*/

//Mamta kumari(Roll: 21053288)

```
#include<stdio.h>

struct student
{
    char name[30];
    int roll;
    int marks[5];
};

void show_details_with_roll(struct student stu[], int roll, int number_of_students)
{
    int n = number_of_students;
    for(int i = 0; i < n; i++)
    {
        if(roll == stu[i].roll)
        {
            printf("Name\t: %s\nRoll\t: %d\nMarks\t:\n", stu[i].name, stu[i].roll);
            for(int v = 0; v < 5; v++)
            {
                printf("\t Subject-%d: %d\n", v+1, stu[i].marks[v]);
            }
        }
    }
}

int main()
{
    int n;
    printf("Enter the number of Student: ");
    scanf("%d", &n);
    int asked_roll;
```

```

struct student stu[n];
for(int k = 0; k < n; k++)
{
    printf("\nEnter Student-%d's name: ", k+1);
    scanf("%s", &stu[k].name);
    printf("Enter Student%d's Roll: ", k+1);
    scanf("%d", &stu[k].roll);
    for(int i = 0; i < 5; i++)
    {
        printf("Enter Subject-%d's Mark of Student-%d: ", i+1, k+1);
        scanf("%d", &stu[k].marks[i]);
    }
}
printf("\n\nEnter Student's roll of you want to see detals: ");
scanf("%d", &asked_roll);
printf("\n");
show_details_with_roll(stu, asked_roll, n);
return 0;
}

```

OUTPUT

```
/*
```

Q2. WAP to input name, roll number, and marks in 5 subjects for n number of students. Write functions to:-

c. Display the details for all the students having percentage in a given range.

```
*/
```

```
//Mamta kumari(Roll: 21053288)
```

```
#include<stdio.h>
```

```
struct student
```

```
{
```

```
    char name[30];
```

```
    int roll;
```

```
    int marks[5];
```

```
};
```

```
void show_details_with_percentage_range(struct student stu[], int range_init, int range_fin, int number_of_students)
```

```
{
```

```
    int n = number_of_students;
```

```

struct student_restruct
{
    char name[30];
    int roll;
    int marks[5];
    int percentage;
}stu_restruct[n];
int totalmark = 0;
float percentage;
for(int j = 0; j < n; j++)
{
    for(int i = 0; i < 5; i++)
    {
        totalmark += stu[j].marks[i];
        percentage = (totalmark/500.00)*100.00;
    }
    //stu_restruct[j].name = stu[j].name;
    stu_restruct[j].roll = stu[j].roll;
    //stu_restruct[j].marks = stu[j].marks;
    stu_restruct[j].percentage = percentage;
    totalmark = 0;
}
for(int i = 0; i < n; i++)
{
    if(percentage >= range_init && percentage <= range_fin)
    {
        printf("Name\t: %s\nRoll\t: %d\nMarks\t:\n", stu[i].name, stu_restruct[i].roll);
        for(int v = 0; v < 5; v++)
        {

```



```

        printf("\t Subject-%d: %d\n", v+1, stu[i].marks[v]);
    }
    printf("\n");
}
}
int main()
{
    int n;
    printf("Enter the number of Student: ");
    scanf("%d", &n);
    int lower_lim, upper_lim;
    struct student stu[n];
    for(int k = 0; k < n; k++)
    {
        printf("Enter Student-%d's name: ", k+1);
        scanf("%s", &stu[k].name);
        printf("Enter Student%d's Roll: ", k+1);
        scanf("%d", &stu[k].roll);
        for(int i = 0; i < 5; i++)
        {
            printf("Enter Subject-%d's Mark of Student-%d: ", i+1, k+1);
            scanf("%d", &stu[k].marks[i]);
        }
        printf("\n");
    }
    printf("Enter lower limit of percentage rage: ");
    scanf("%d", &lower_lim);
    printf("Enter upper limit of percentage rage: ");

```

```

scanf("%d", &upper_lim);

printf("\n");

show_details_with_percentage_range(stu, lower_lim, upper_lim, n);

return 0;

}

```

## OUTPUT

```

1 /*
2  Q2. WAP to input name, roll number, and marks in 5 subjects for n number of students. Write
3  functions to:-
4  */

```

input

```

Enter the number of Student: 1
Enter Student-1's name: Mamta
Enter Student's Roll: 21053288
Enter Subject-1's Mark of Student-1: 94
Enter Subject-2's Mark of Student-1: 93
Enter Subject-3's Mark of Student-1: 92
Enter Subject-4's Mark of Student-1: 95
Enter Subject-5's Mark of Student-1: 93
Enter lower limit of percentage rage: 0
Enter upper limit of percentage rage: 100
Name      : Mamta
Roll      : 21053288
Marks     :
           Subject-1: 94
           Subject-2: 93
           Subject-3: 92
           Subject-4: 95
           Subject-5: 93
...Program finished with exit code 0
Press ENTER to exit console.

```

```
/*
```

Q2. WAP to input name, roll number, and marks in 5 subjects for n number of students. Write functions to:-

d. Sort the array in ascending order of marks.

```
*/
```

```
//Mamta kumari(Roll: 21053288)
```

```
#include<stdio.h>
```

```
struct student
```

```
{
```

```
    char name[30];
```

```
    int roll;
```

```

    int marks[5];
};

void show_details_with_sorted_mark(struct student stu[], int n)
{
    int totalmark = 0;
    float percentage;
    int total_mark_node[n], total_mark_sorted[n];
    for(int j = 0; j < n; j++)
    {
        for(int i = 0; i < 5; i++)
        {
            totalmark += stu[j].marks[i];
            percentage = (totalmark/500.00)*100.00;
        }
        total_mark_node[j] = totalmark;
        total_mark_sorted[j] = totalmark;
        totalmark = 0;
    }
    for (int i = 0; i < n; i++)
    {
        for (int j = i+1; j < n; j++)
        {
            if(total_mark_sorted[i] > total_mark_sorted[j])
            {
                int temp =total_mark_sorted[i];
                total_mark_sorted[i] =total_mark_sorted[j];
                total_mark_sorted[j] = temp;
            }
        }
    }
}

```

```

    }
    for(int i = 0; i < n; i++)
    {
        for(int j = 0; j < n; j++)
        {
            if(total_mark_sorted[i] == total_mark_node[j])
            {
                printf("Name\t: %s\nRoll\t: %d\nMarks\t:\n", stu[j].name, stu[j].roll);
                for(int v = 0; v < 5; v++)
                {
                    printf("\t Subject-%d: %d\n", v+1, stu[j].marks[v]);
                }
                printf("\t Total Mark: %d\n", total_mark_node[j]);
                printf("\n");
            }
        }
    }
}

int main()
{
    int n;
    printf("Enter the number of Student: ");
    scanf("%d", &n);
    int lower_lim, upper_lim;
    struct student stu[n];
    for(int k = 0; k < n; k++)
    {
        printf("Enter Student-%d's name: ", k+1);
        scanf("%s", &stu[k].name);
    }
}

```

```

printf("Enter Student%d's Roll: ", k+1);

scanf("%d", &stu[k].roll);

for(int i = 0; i < 5; i++)
{
    printf("Enter Subject-%d's Mark of Student-%d: ", i+1, k+1);

    scanf("%d", &stu[k].marks[i]);
}

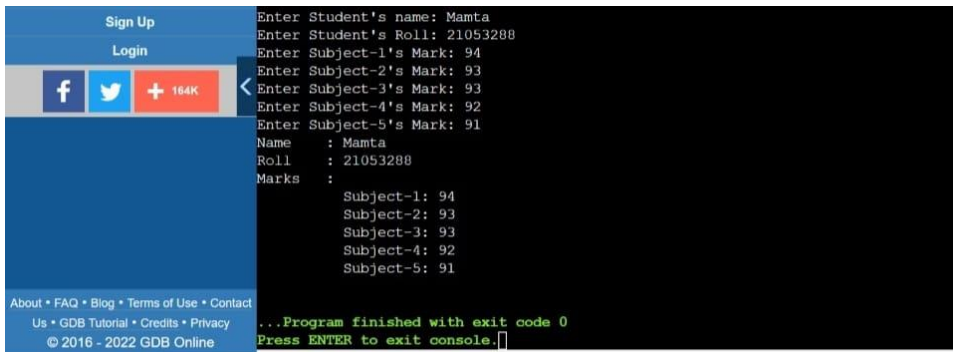
printf("\n");
}

show_details_with_sorted_mark(stu, n);

return 0;
}

```

## OUTPUT



```

Sign Up
Login
f 164K
Enter Student's name: Mamta
Enter Student's Roll: 21053288
Enter Subject-1's Mark: 94
Enter Subject-2's Mark: 93
Enter Subject-3's Mark: 93
Enter Subject-4's Mark: 92
Enter Subject-5's Mark: 91
Name : Mamta
Roll : 21053288
Marks :
Subject-1: 94
Subject-2: 93
Subject-3: 93
Subject-4: 92
Subject-5: 91
...Program finished with exit code 0
Press ENTER to exit console.

```

/\*

3. WAP to enter id, name, age, and basic salary of n number of employees. Calculate the gross salary of all the employees and display it along with all other details in a tabular form, using the pointer to structure.

[Gross salary= Basic salary + DA + HRA,

DA = 80% of Basic salary

HRA=10% of Basic salary]

\*/

//Mamta kumari(Roll: 21053288)

```
#include <stdio.h>
```

```
typedef struct{
```

```
    int id;
```

```
    char name[100];
```

```
    int age;
```

```
    int salary;
```

```
    float g_salary;
```

```
}employee;
```

```
float gross(employee a);
```

```
int main(void){
```

```
    int n;
```

```
    printf("Give no. of employee: ");
```

```
    scanf("%d",&n);
```

```
    employee emp[n];
```

```
    for(int i = 0; i<n; i++){
```

```
        printf("Give the %dth employee data such as id,name,age,salary:\n",i+1);
```

```
        scanf("%d %s %d %d",&emp[i].id,emp[i].name,&emp[i].age,&emp[i].salary);
```

```
    }
```

```
    for(int i = 0; i<n; i++){
```

```
        printf("\n%dth employee data:\n",i+1);
```

```
        printf("id: %d\n",emp[i].id);
```

```
        printf("name: %s\n",emp[i].name);
```

```
        printf("age: %d\n",emp[i].age);
```

```
        printf("basic salary: %d\n",emp[i].salary);
```

```
        printf("gross salary: %.2f\n",gross(emp[i]));
```

```

    }
}

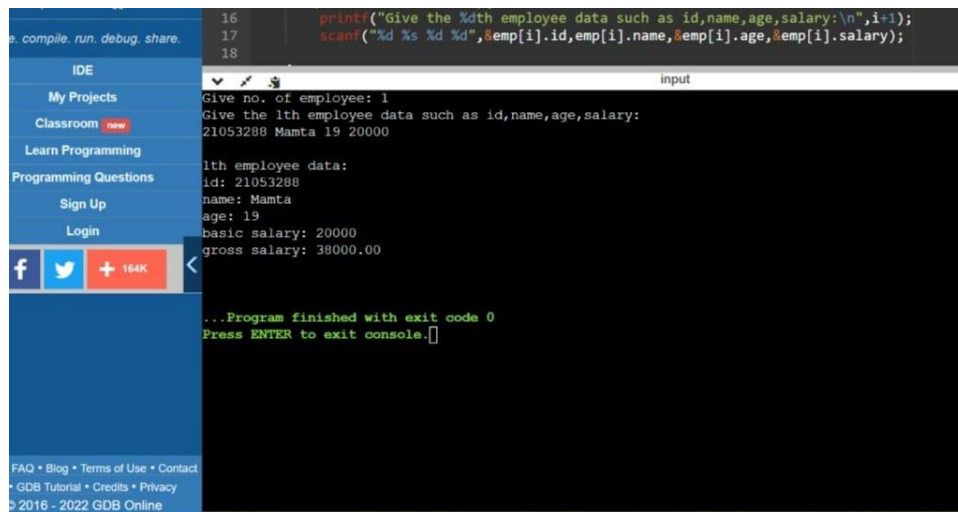
float gross(employee a){
    float DA = 80 * a.salary / 100.0;

    float HRA = 10 * a.salary / 100.0;

    return DA + HRA + a.salary;
}

```

## OUTPUT



The screenshot shows an online IDE interface. On the left is a sidebar with navigation links: 'e compile run debug share.', 'IDE', 'My Projects', 'Classroom new', 'Learn Programming', 'Programming Questions', 'Sign Up', and 'Login'. Below these are social media icons for Facebook, Twitter, and a '+ 164K' button. At the bottom of the sidebar are links for 'FAQ • Blog • Terms of Use • Contact', '• GDB Tutorial • Credits • Privacy', and '© 2016 - 2022 GDB Online'. The main area displays C++ code in a dark-themed editor with line numbers 16, 17, and 18. The code is as follows:

```

16     printf("Give the %dth employee data such as id,name,age,salary:\n",i+1);
17     scanf("%d %s %d %d",&emp[i].id,&emp[i].name,&emp[i].age,&emp[i].salary);
18

```

Below the code editor is a terminal window titled 'input'. It shows the program's execution output:

```

Give no. of employee: 1
Give the 1th employee data such as id,name,age,salary:
21053288 Mamta 19 20000

1th employee data:
id: 21053288
name: Mamta
age: 19
basic salary: 20000
gross salary: 38000.00

...Program finished with exit code 0
Press ENTER to exit console.

```