# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

**"JnanaSangama", Belgaum -590014, Karnataka.**

## C PROGRAMMING LAB RECORD

*Submitted by*


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*Under the Guidance of*
**Prof. Rekha G S**
**Assistant Professor,**
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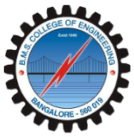
**BMSCE**

*in partial fulfillment for the award of the degree of*
**BACHELOR OF ENGINEERING**
*in*
**COMPUTER SCIENCE AND ENGINEERING**




**B.M.S. COLLEGE OF ENGINEERING**
**(Autonomous Institution under VTU)**
**BENGALURU-560019**


**April-2021 to June-2021**

# B.M.S. COLLEGE OF ENGINEERING

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING


***DECALARATION***

I,Karan Yadav , student of 2nd Semester, B.E, Department of Computer Science and Engineering, B. M. S. College of Engineering, Bangalore, hereby declare that, this laboratory work for "C Programming" course has been carried out by us under the guidance of Prof. Rekha G S ,Assistant Professor, Department of CSE, B. M. S. College of Engineering, Bangalore during the academic semester April-2021-June-2021

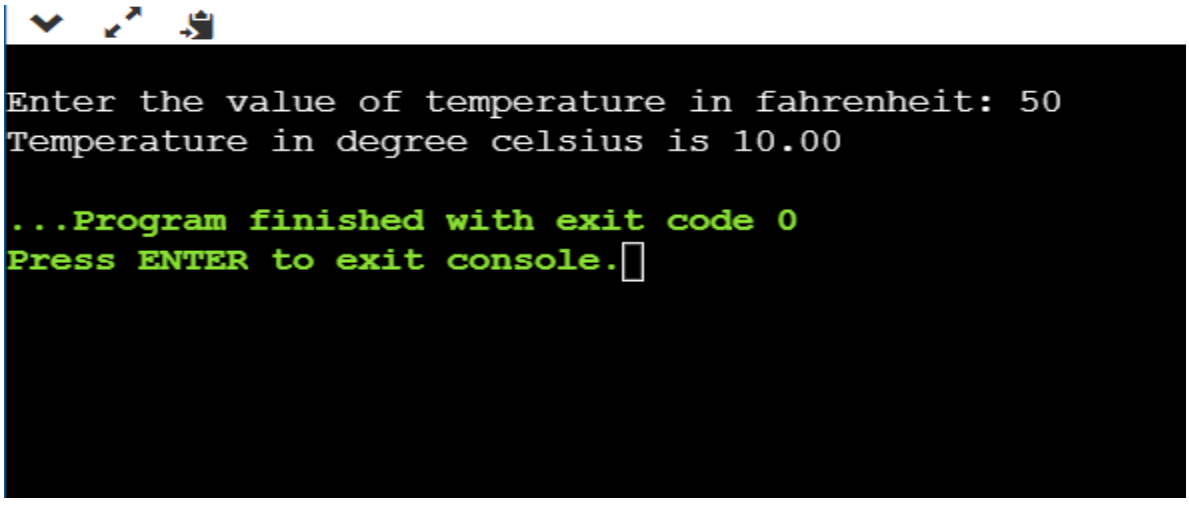
We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

Karan Yadav(1BM20CS069)

## 1. C program to convert degrees Fahrenheit into degrees celsius.

```
#include<stdio.h>
int main()
{
float celsius,fahrenheit;
clrscr();
printf(" Enter the temperature in fahrenheit:");
scanf("%f",&fahrenheit);
celsius=0.56*(fahrenheit-32);
printf("%f fahrenheit =%f celsius",fahrenheit,celsius);
getch();
return(0);
}
```

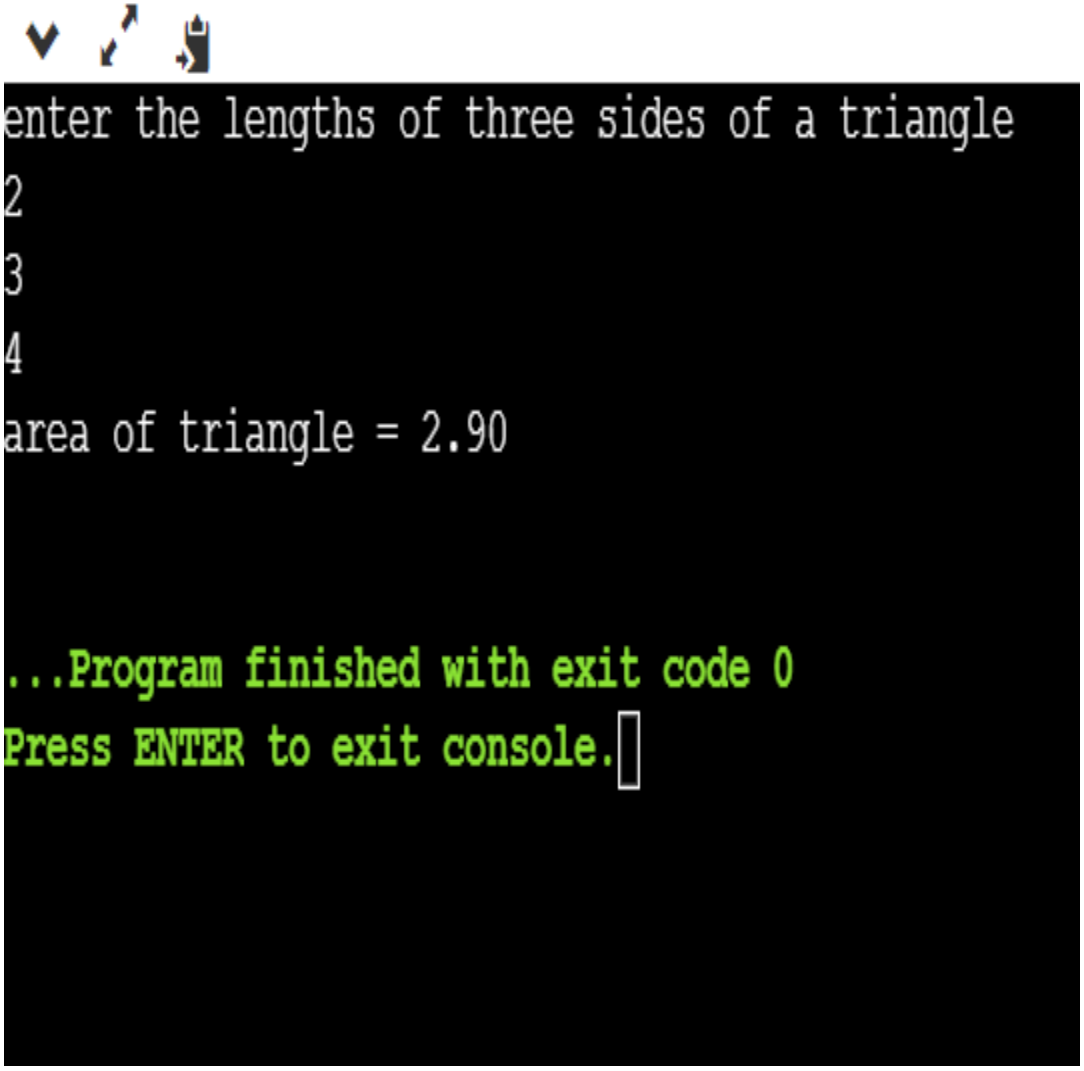
## Output #1



## 2. C program to find the area of a triangle given its sides as input using functions.

```
#include <stdio.h>
#include <conio.h>
#include <math.h>
float areaoftriangle(float, float, float);
int main()
{
float a, b, c, area;
printf("enter the lengths of three sides of a triangle\n");
scanf("%f %f %f", &a, &b, &c);
area=areaoftriangle(a, b, c);
printf("area of triangle = %.2f\n", area);
getch();
return 0;
}
float areaoftriangle(float a, float b, float c)
{
float s, area;
s = (a+b+c)/2;
area = sqrt(s*(s-a)*(s-b)*(s-c));
return area;
}
```

## Output #2

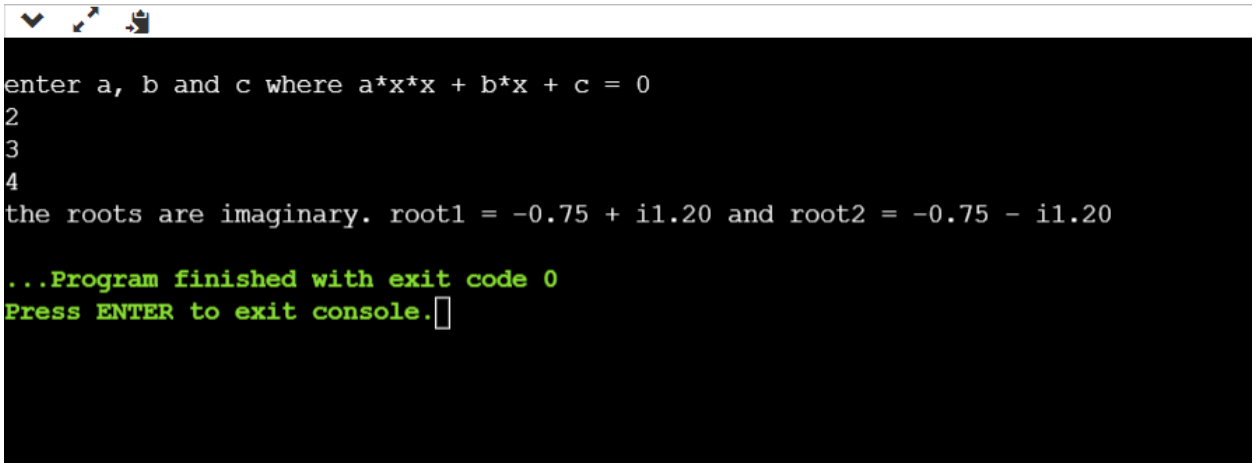

enter the lengths of three sides of a triangle
2
3
4
area of triangle = 2.90
...Program finished with exit code 0
Press ENTER to exit console.

## 3. C program to find all possible roots of a quadratic equation.

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
float a, b, c, d, root1, root2, r, imag;
printf("\nenter a, b and c where a*x*x + b*x + c = 0\n");
scanf("%f %f %f", &a, &b, &c);
d = (b*b) - (4*a*c);


if (d > 0)
 {
root1 = (-b + sqrt(d))/(2*a);
root2 = (-b -sqrt(d))/(2*a);
printf("\n the roots are real and unequal. root1 = %.2f and root2 = %.2f", root1, root2);
}
else if (d == 0)
{
root1 = root2 = -b/(2*a);
printf("\n the roots are real and equal. root1 = %.2f and root2 = %.2f", root1, root2);
}
else {
```

```
r = -b/(2*a);

imag = sqrt(-d)/(2*a);

printf("the roots are imaginary. root1 = %.2f + i%.2f and root2 = %.2f - i%.2f", r, imag, r, imag);

}

getch();

}
```

# Output #3

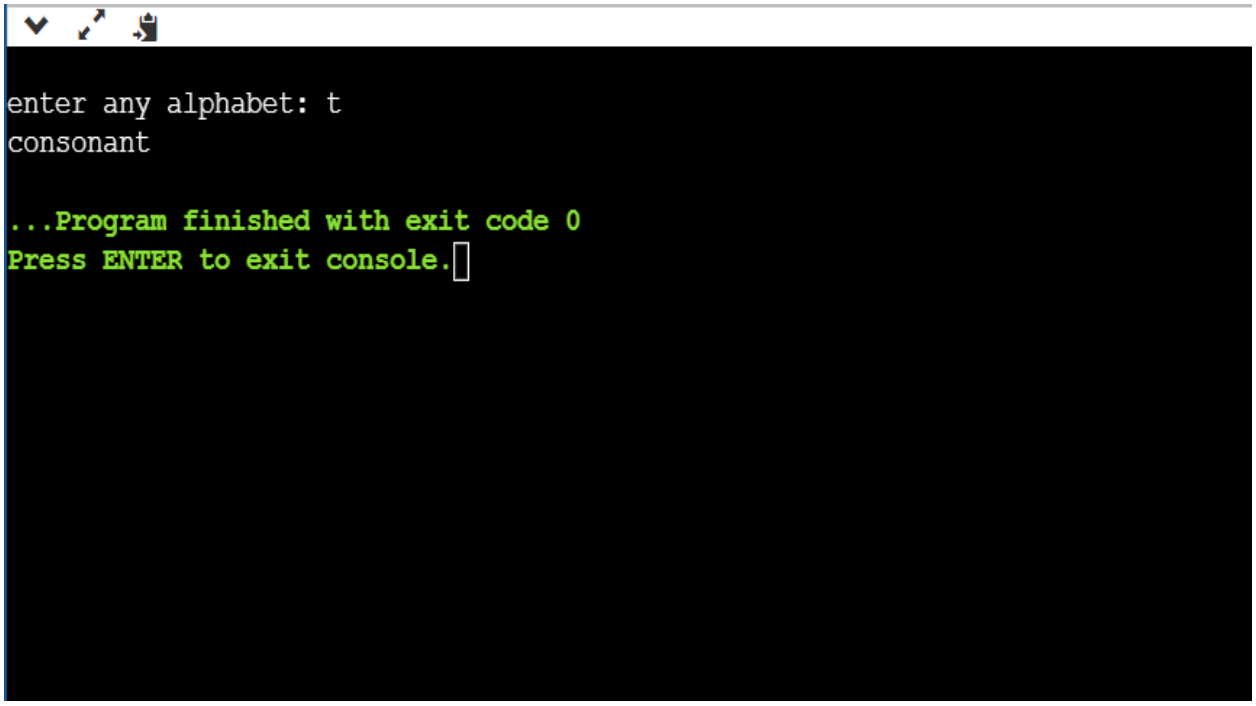


## 4. C program to determine whether the entered character is a vowel or consonant using switch case statement.

```
#include <stdio.h>
#include <conio.h>
int main()
{
char ch;
printf("\nenter any alphabet: ");
scanf("%c", &ch);
switch(ch)
{
case 'a':
case 'e':
case 'i':
case 'o':
case 'u':
case 'A':
case 'E':
case 'I':
case 'O':
case 'U':
printf("vowel");
break;
```

```
default:
printf("consonant");
getch();
}
return (0);
}
```

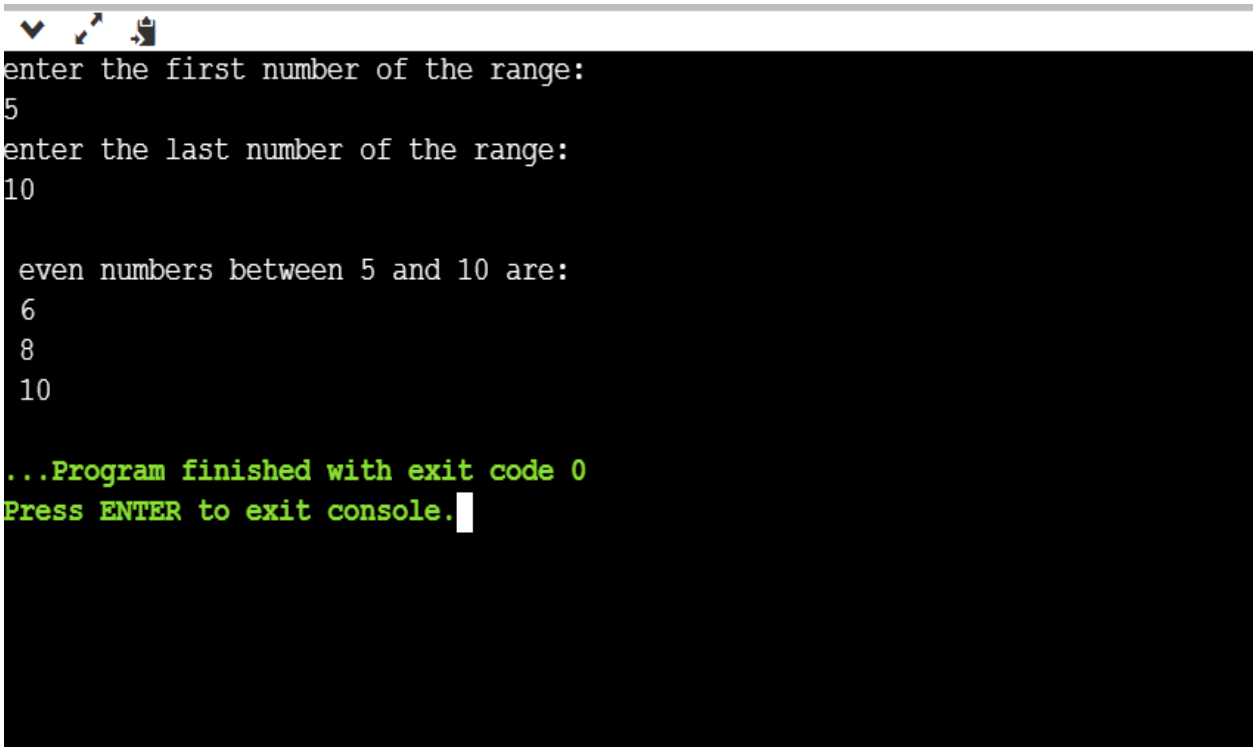
## Output #4



# 5. C program to print even numbers from M to N.

```
#include <stdio.h>
#include <conio.h>
int main()
{
int n1, n2, rem, i;
printf("enter the first number of the range: \n");
scanf("%d", &n1);
printf("enter the last number of the range: \n");
scanf("%d", &n2);
printf("\n even numbers between %d and %d are: ", n1, n2);
for(i=n1; i<=n2; i++)
{
rem=i%2;
if(rem==0)
printf("\n %d",i);
getch();
}
return (0);
}
```

# Output #5


enter the first number of the range:
5
enter the last number of the range:
10
even numbers between 5 and 10 are:
6
8
10
...Program finished with exit code 0
Press ENTER to exit console.

# 6.Program to calculate the sum of squares of first n odd numbers.

```
#include <stdio.h>
#include <conio.h>
int main()
{
int num, i, sum=0;
printf("\nenter the value for n: ");
scanf("%d", &num);
for(i=1; i<=num; i++)
sum =sum+(i*i);
printf("\nthe sum of square of n odd numbers is %d\n", sum);
getch();
return(0);
}
```

## Output #6

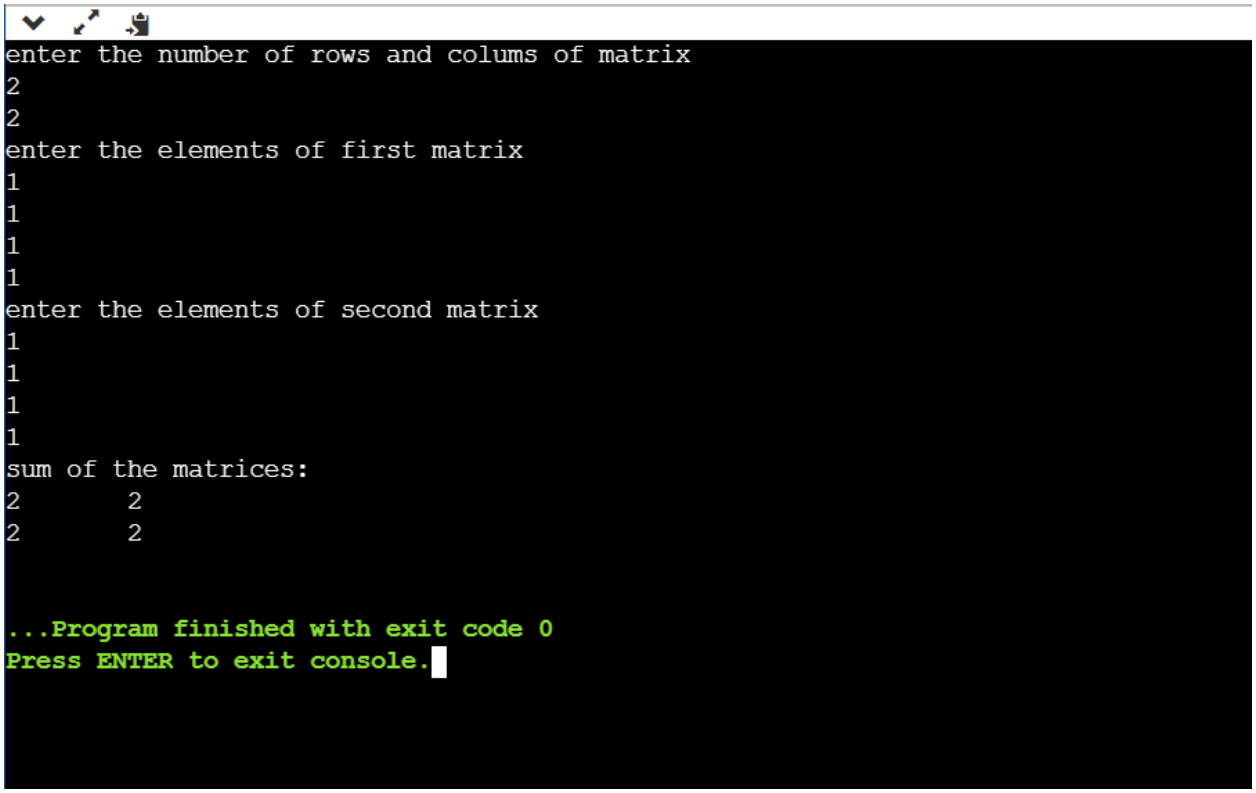
```
enter the value for n: 3

the sum of square of n odd numbers is 14


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

# 7.Program to perform addition of two Matrices.

```
#include <stdio.h>
#include <conio.h>
int main()
{
int m, n, c, d, first[10][10], second[10][10], sum[10][10];

printf("enter the number of rows and colums of matrix\n");
scanf("%d %d", &m, &n);
printf("enter the elements of first matrix\n");
for(c=0; c<m; c++)
for(d=0; d<n; d++)
scanf("%d", &first[c][d]);
printf("enter the elements of second matrix\n");
for(c=0; c<m; c++)
for(d=0; d<n; d++)
scanf("%d", &second[c][d]);
printf("sum of the matrices:\n");
for(c=0; c<m; c++)
{
for(d=0; d<n; d++)
{
sum[c][d]=first[c][d]+second[c][d];
printf("%d\t", sum[c][d]);
}
printf("\n");
```

```
}
getch();
return (0);
}
```

## Output #7



# 8. C program to copy one string to another string and find its length without using built in functions.

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
int main()
{
char s1[100], s2[100];
int i;
printf("\n enter the string: ");
gets(s1);
for(i=0; s1[i]!='\0'; i++)
{
s2[i]=s1[i];
}
printf("\n original string = %s", s1);
printf("\n copied string = %s", s2);
for(i=0; s1[i]!='\0';++i);
printf("\n length of original string = %d", i);
getch();
return (0);
}
```

# Output #8


enter the string: This is a program
original string = This is a program
copied string = This is a programQO
length of original string = 17
...Program finished with exit code 0
Press ENTER to exit console.

## 9. C program to create student structure, read two student details( Student roll number, name, section, department, fees, and results i.e., total marks obtained) and print the student details who has scored the highest.

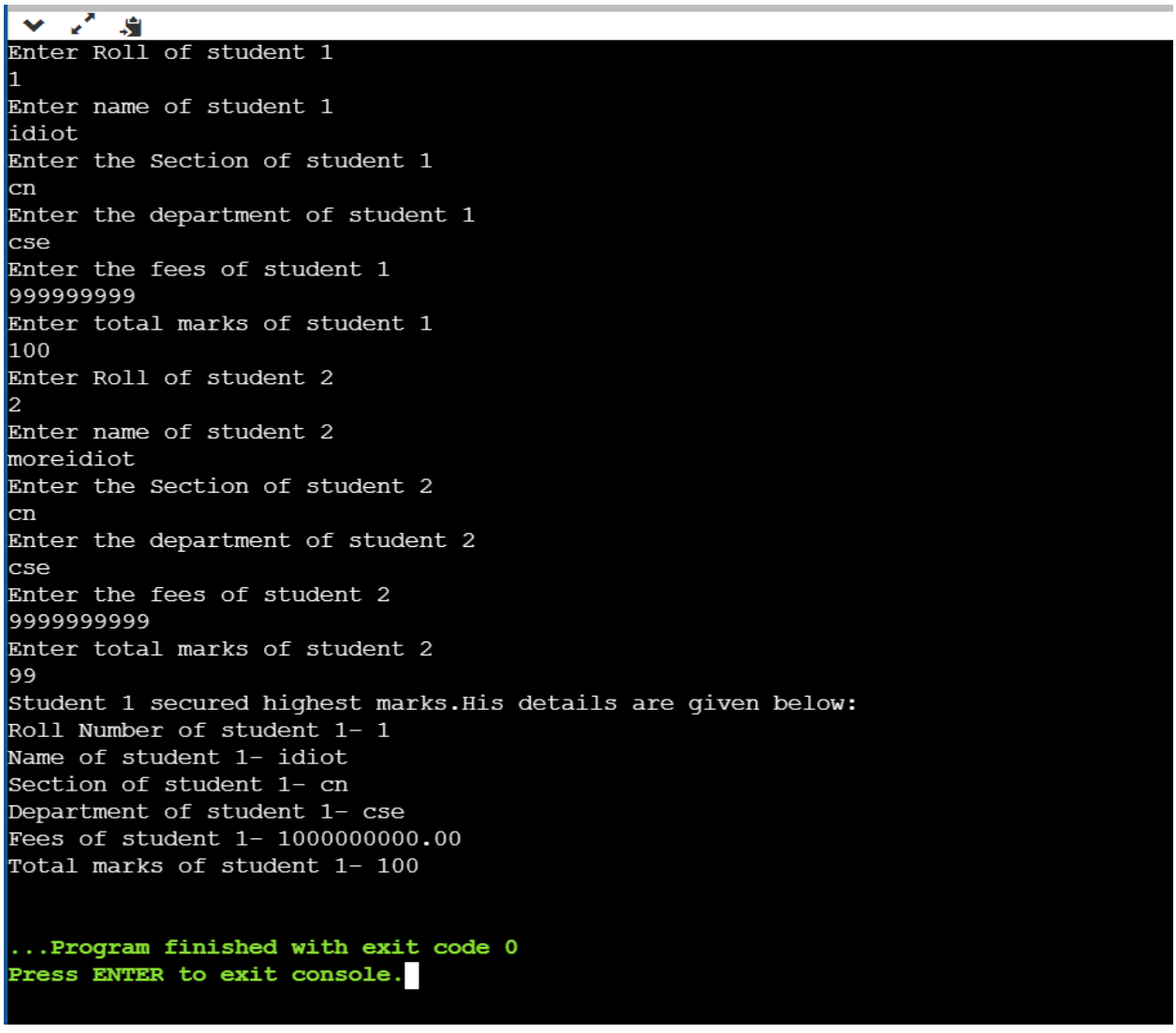
```
#include<stdio.h>
struct student{
int rollnumber;
char name[20];
char section[20];
char dept[10];
float fees;
int totalmarks;
};
int main()
{
int i;
struct student stud1,stud2;
printf("Enter Roll of student 1\n");
scanf("%d",&stud1.rollnumber);
printf("Enter name of student 1\n");
scanf("%s",stud1.name);
printf("Enter the Section of student 1\n");
```

```
scanf("%s",stud1.section);
printf("Enter the department of student 1\n");
scanf("%s",stud1.dept);
printf("Enter the fees of student 1\n");
scanf("%f",&stud1.fees);
printf("Enter total marks of student 1\n");
scanf("%d",&stud1.totalmarks);
printf("Enter Roll of student 2\n");
scanf("%d",&stud2.rollnumber);
printf("Enter name of student 2\n");
scanf("%s",stud2.name);
printf("Enter the Section of student 2\n");
scanf("%s",stud2.section);
printf("Enter the department of student 2\n");
scanf("%s",stud2.dept);
printf("Enter the fees of student 2\n");
scanf("%f",&stud2.fees);
printf("Enter total marks of student 2\n");
scanf("%d",&stud2.totalmarks);

if(stud1.totalmarks>stud2.totalmarks)
{
printf("Student 1 secured highest marks.His details are given below:\n");
printf("Roll Number of student 1- %d\n",stud1.rollnumber);
printf("Name of student 1- %s\n",stud1.name);
printf("Section of student 1- %s\n",stud1.section);
printf("Department of student 1- %s\n",stud1.dept);
```

```
printf("Fees of student 1- %0.2f\n",stud1.fees);
printf("Total marks of student 1- %d\n",stud1.totalmarks);
}
else if(stud1.totalmarks==stud2.totalmarks)
{
printf("Student 1 and 2 secured same marks\n");
printf("Roll Number of student 1- %d\n",stud1.rollnumber);
printf("Name of student 1- %s\n",stud1.name);
printf("Section of student 1- %s\n",stud1.section);
printf("Department of student 1- %s\n",stud1.dept);
printf("Fees of student 1- %0.2f\n",stud1.fees);
printf("Total marks of student 1- %d\n",stud1.totalmarks);
printf("Roll Number of student 2- %d\n",stud2.rollnumber);
printf("Name of student 2- %s\n",stud2.name);
printf("Section of student 2- %s\n",stud2.section);
printf("Department of student 2- %s\n",stud2.dept);
printf("Fees of student 2- %0.2f\n",stud2.fees);
printf("Total marks of student 2- %d\n",stud2.totalmarks);
}
else
{
printf("Student 2 secured highest marks.His details are below:\n");
printf("Roll Number of student 2- %d\n",stud2.rollnumber);
printf("Name of student 2- %s\n",stud2.name);
printf("Section of student 2- %s\n",stud2.section);
printf("Department of student 2- %s\n",stud2.dept);
printf("Fees of student 2- %0.2f\n",stud2.fees);
```

```
printf("Total marks of student 2- %d\n",stud2.totalmarks);
}
return 0;
}
```

# Output #9

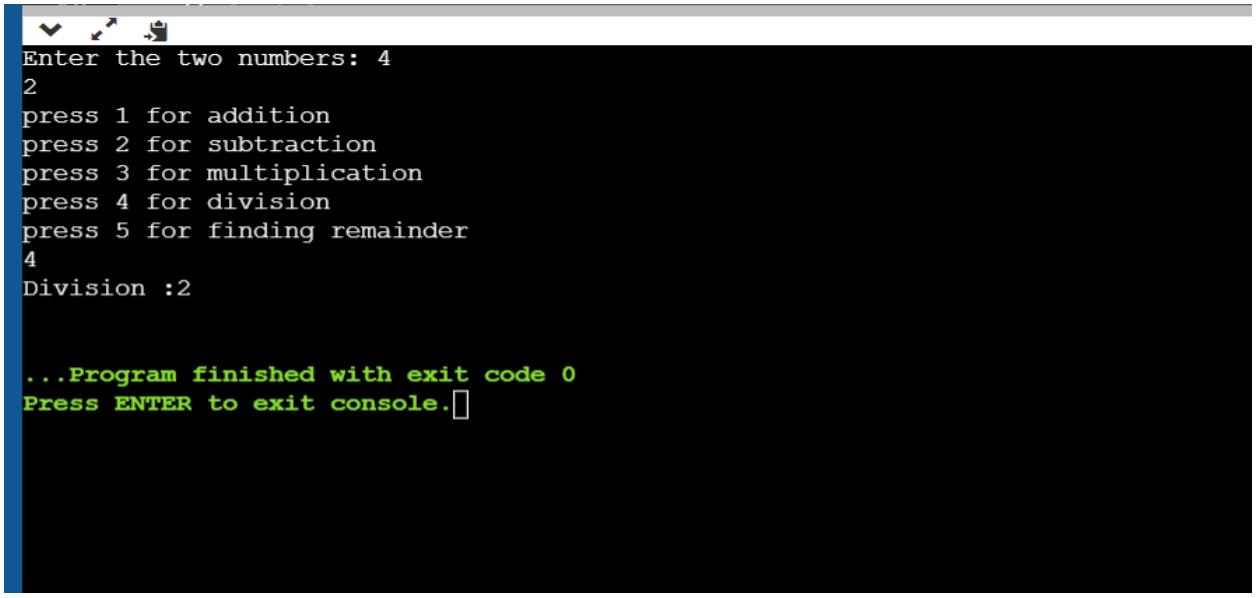


# 10. C program to perform arithmetic operations (addition, subtraction, multiplication, division and remainder) on two integers using pointers.

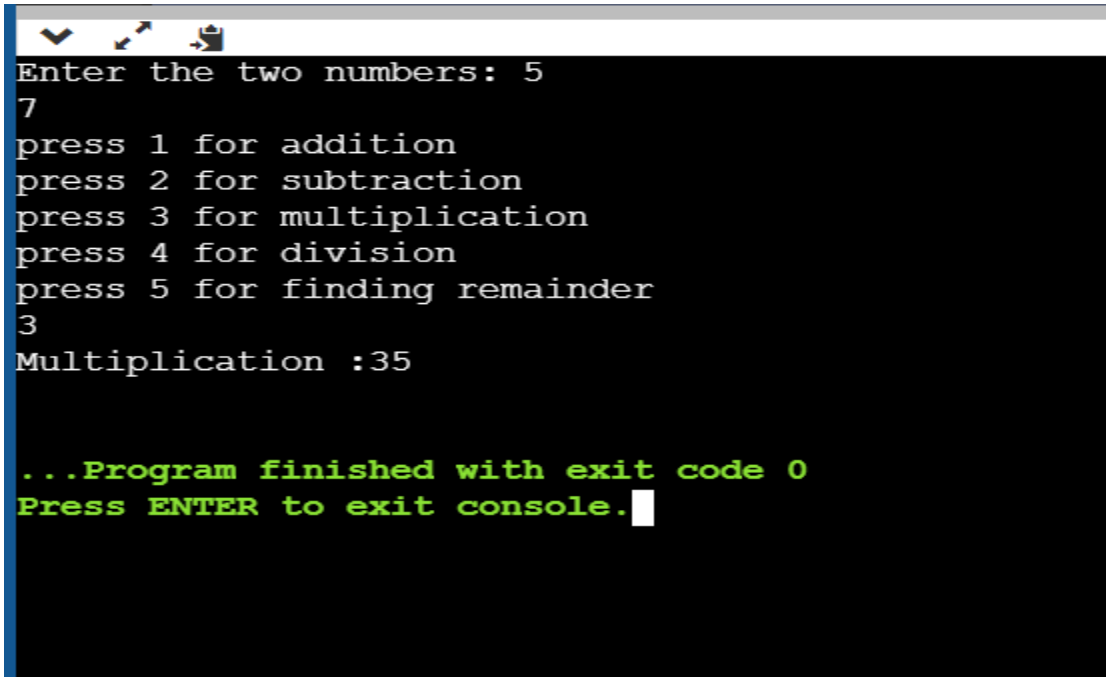
```
#include<stdio.h>
int main()
{
int a,b,z,*p,*q,result;
printf("Enter the two numbers: ");
scanf("%d %d",&a,&b);
p=&a;
q=&b;

printf("press 1 for addition\n");
printf("press 2 for subtraction\n");
printf("press 3 for multiplication\n");
printf("press 4 for division\n");
printf("press 5 for finding remainder\n");
scanf("%d",&z);
if(z==1)
{
```

```
result=*p + *q;
printf("Addition :%d\n",result);
}
if(z==2)
{
result=*p - *q;
printf("Subtraction :%d\n",result);
}
if(z==4)
{
result=*p / *q;
printf("Division :%d\n",result);
}
if(z==3)
{
result=*p * *q;
printf("Multiplication :%d\n",result);
}
if(z==5)
{
result=*p % *q;
printf("Remainder :%d\n",result);
}
return 0;
}
```

# Output #10




**(When user chooses division,i.e. presses 4)**

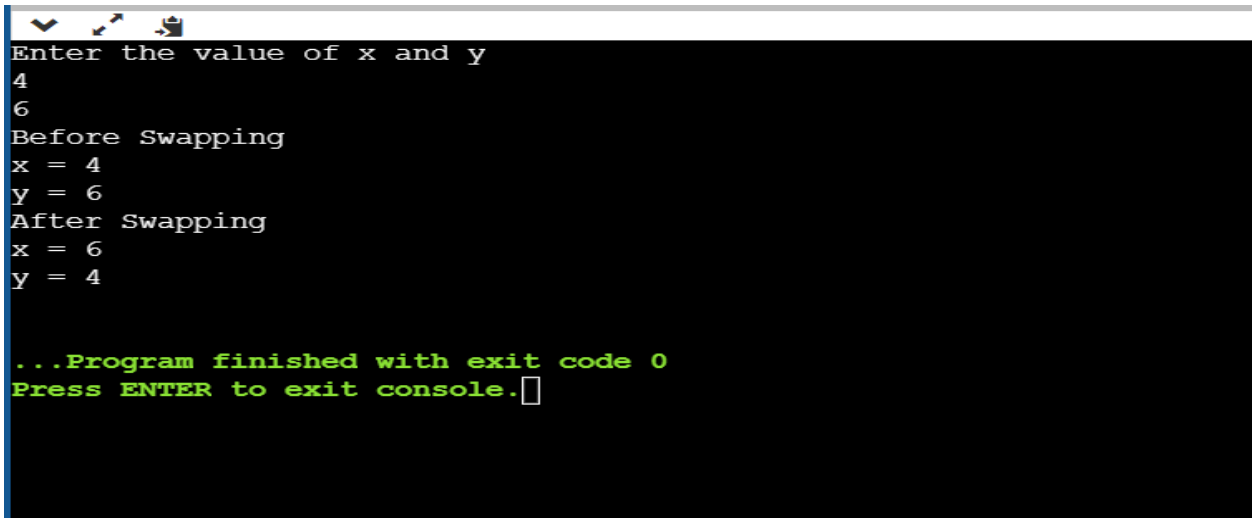



**(When user chooses multiplication,i.e. presses 3)**

# 11. Illustrate pointers in swapping two numbers.

```
#include <stdio.h>
 int main()
{
   int x, y, *a, *b, temp;
    printf("Enter the value of x and y\n");
   scanf("%d%d", &x, &y);
  printf("Before Swapping\nx = %d\ny = %d\n", x, y);
  a = &x;
   b = &y;
    temp = *b;
   *b = *a;
   *a = temp;
    printf("After Swapping\nx = %d\ny = %d\n", x, y);
  return 0;
}
```

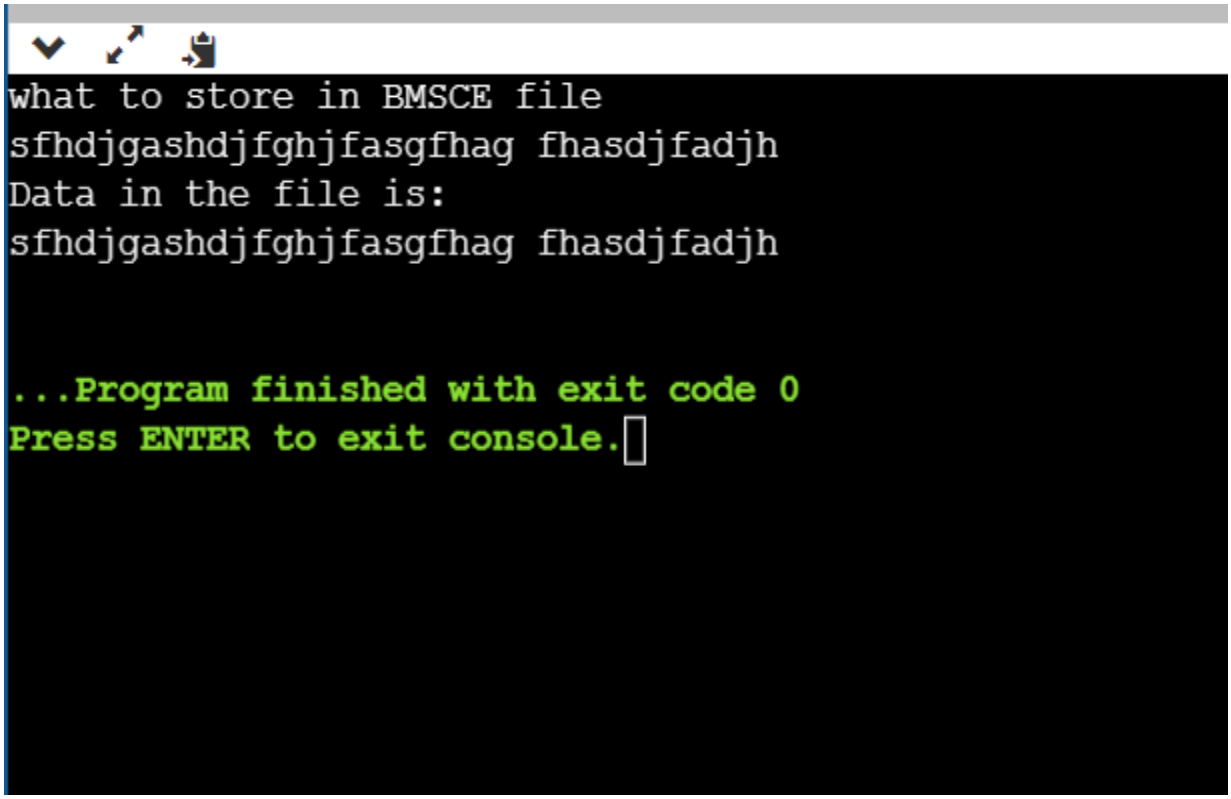
## Output #11



## 12. Read data from the keyboard, write it to a file called BMSCE, again read the same data from the BMSCE file, and display it on the screen/console.

```
#include<stdio.h>
int main()
{
char something[100];
FILE *fp;
fp=fopen("BMSCE.txt","w");
printf("what to store in BMSCE file\n");
fgets(something,200,stdin);
fputs(something,fp);
fclose(fp);
fp=fopen("BMSCE.txt","r");
printf("Data in the file is:\n");
while(fgets(something,200,fp) != NULL)
{
printf("%s",something);
}
return 0;
}
```

# Output #12


what to store in BMSCE file
sfhdjgashdjfghjfasgfhag fhasdjfadjh
Data in the file is:
sfhdjgashdjfghjfasgfhag fhasdjfadjh
...Program finished with exit code 0
Press ENTER to exit console.