VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

C PROGRAMMING LAB RECORD

Submitted by

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Under the Guidance of
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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

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B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECALARATION

I, Prem.M.Gowda ,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 "CProgramming" 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 theacademic 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.

PREM.M.GOWDA(1BM20CS115)

Program 1

```
//1.Develop a C program to convert degrees Fahrenheit into degrees
celsius.
#include<stdio.h>
int main(){
      float fahrenheit;
      float celsius;
      printf("Enter the temperature in degree Fahrenheit\n");
      scanf("%f",&fahrenheit);
      celsius=((fahrenheit-32)*5)/9;
      printf("Temperature in Celsius :\t %0.2f",celsius);
      return 0;
}
```

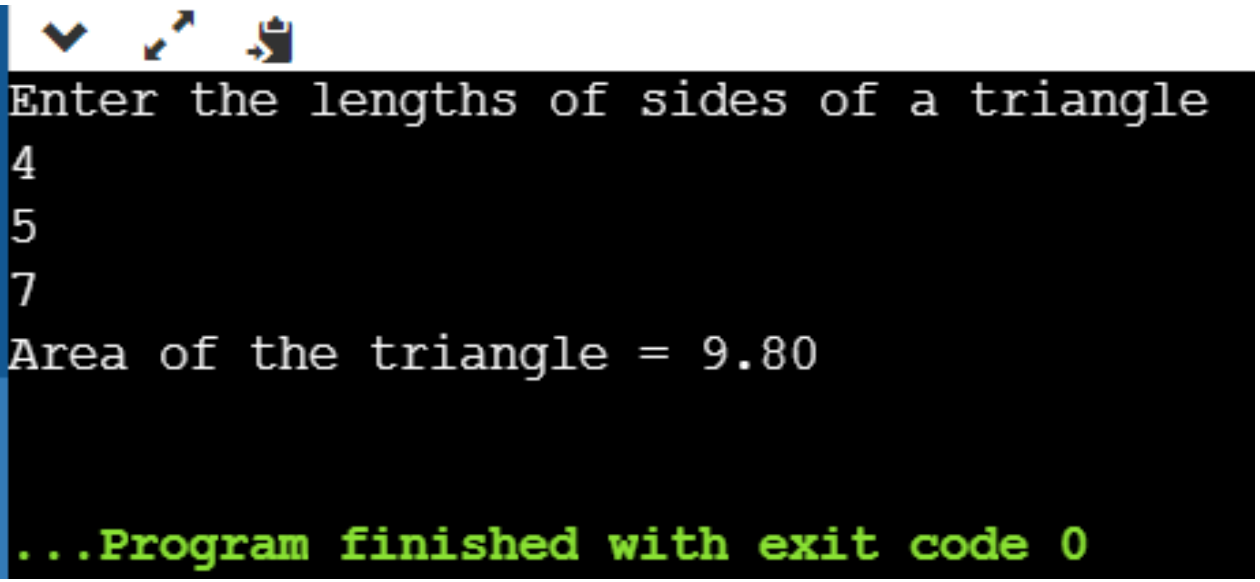
Output of 1st program:

```
Enter the temperature in degree Fahrenheit
98
Temperature in Celsius :          36.67%
```

Program 2

```
//2. Develop a C program to find the area of a triangle given its sides as
input using functions.
#include <stdio.h>
#include <math.h>
int areacalculate(int a,int b,int c)
{
	float s , area , s1;
	s1=a+b+c;
	s = s1/2;
	area = sqrt(s*(s-a)*(s-b)*(s-c));
	printf("Area of Triangle of given sides is %0.2f",area);
	return 0;
}
int main(){
	int a1,b1,c1;
	printf("Enter three side of triangle\n");
	scanf("%d %d %d",&a1,&b1,&c1);
	areacalculate(a1,b1,c1);
	return 0;
}
```

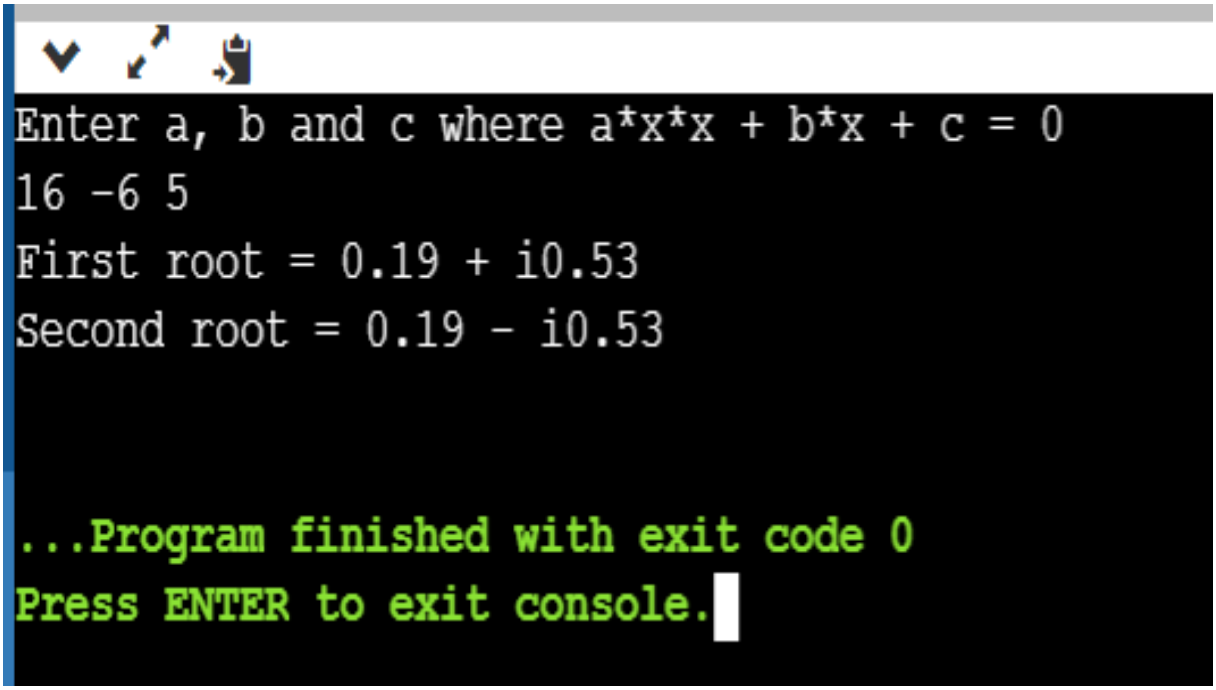
Output of 2nd Program:



Program 3

```
//3. Develop a C program to find all possible roots of a quadratic
equation.
#include<stdio.h>
#include<math.h>
int roots(int a, int b,int c)
{
      float d,r1,r2,img;
      d=(b*b)-(4*a*c);
      if(d>0){
            r1=(-b + sqrt(d))/(2*a);
            r2=(-b - sqrt(d))/(2*a);
            printf("Roots are real and distinct %0.2f,%0.2f",r1,r1);
      }
      else if(d==0){
            r1 = ((-b)/(2*a));
            printf("Roots are real and equal %0.2f,%0.2f",r1,r1);
      }
      else if(d<0){
            r1=(-b)/(2*a);
            img= sqrt(-d)/(2*a);
            printf("Roots are imaginary and distinct %0.2f + %0.2fi ,
%0.2f - %0.2fi",r1,img,r1,img);
      }
      return 0;
}
int main()
{
      int a,b,c;
      printf("Enter the values of a,b,c");
      scanf("%d %d %d",&a,&b,&c);
      roots(a,b,c);
}
```

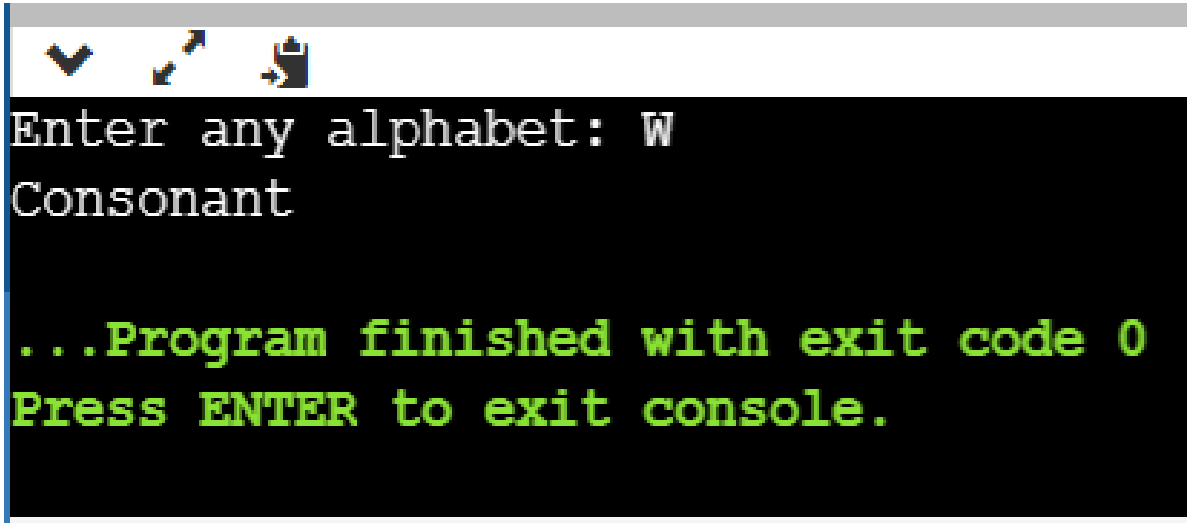
Output of 3rd program:



Program 4

```
/*4.Develop a C program to determine whether the entered character is a vowel or
consonant using switch case statement.*/
#include<stdio.h>
int vowel(char c)
{
        switch(c)
        {
                case 'A':
                case 'E':
                case 'I':
                case 'O':
                case 'U':
                case 'a':
                case 'e':
                case 'i':
                case 'o':
                case 'u':
                printf("Entered Character is Vowel");
                break;
                default:
                printf("Entered character is Consonent");
                break;
        }
        return 0;
}
int main()
{
        char c;
        printf("Enter the alphabets to be verified \n");
        scanf("%c",&c);
        vowel(c);
        return 0;
}
```

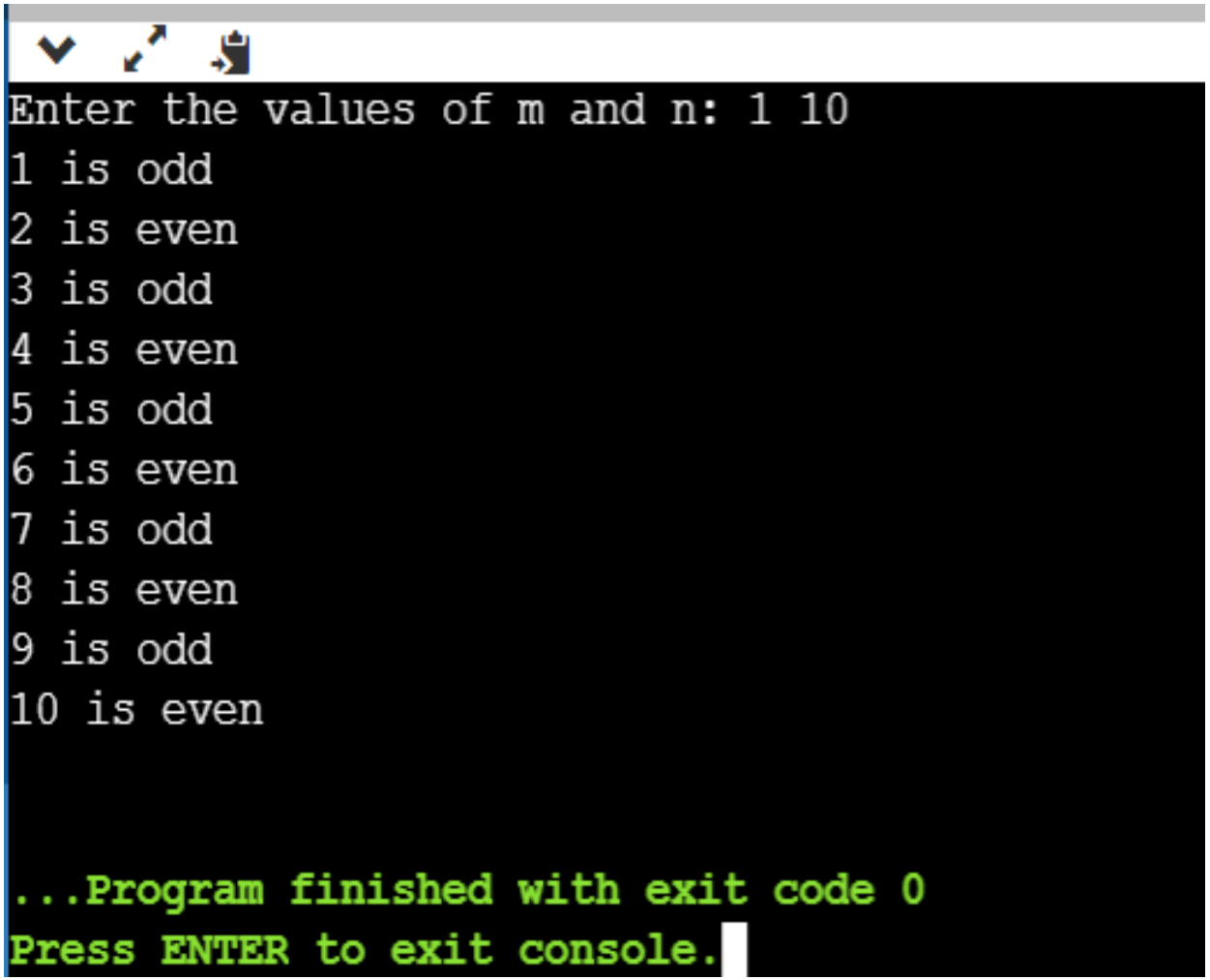
Output of 4th program:



Program 5

```
//5.Develop a C program to print even numbers from M to N.
#include<stdio.h>
int evenr(int m,int n)
{
	int i;
	printf("Even Numbers from range %d-%d is: \n",m,n);
	if(m%2!=0)
	{
		m=2*m;
	}
	for(i=m;i<=n;i=i+2)
	{
		printf("%d",i);
		printf("\n");
	}
	return 0;
}
int main()
{
	int m,n;
	printf("Enter the Range M-N to print even numbers\n");
	scanf("%d %d",&m,&n);
	evenr(m,n);
	return 0;
}
```

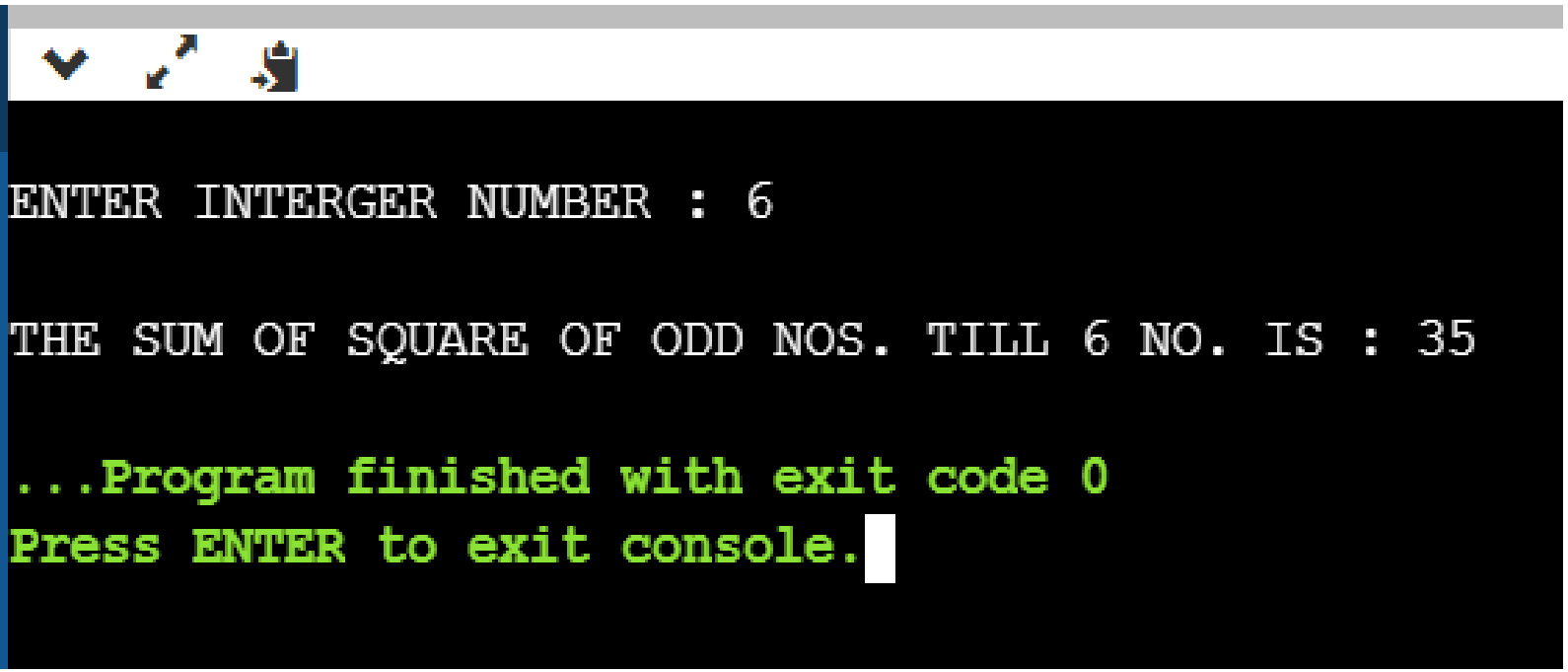
Output of 5th program:



Program 6

```
//6.Develop a program to calculate the sum of squares of first n odd numbers.
#include<stdio.h>
int square(int a)
{
	return (a*a);
}
int squareodd(int n)
{
	int sumo=0;
	for(int i=1;i<=2*n;i++)
	{
		if(i%2!=0)
		{
			sumo=sumo+square(i);
		}
	}
	return sumo;
}
int main()
{
	int n,sumo;
	printf("Enter the value of N for which squares to be calculated");
	scanf("%d",&n);
	sumo=squareodd(n);
	printf("Sum of squares of first %d odd numbers :%d ",n,sumo);
	return 0;
}
```

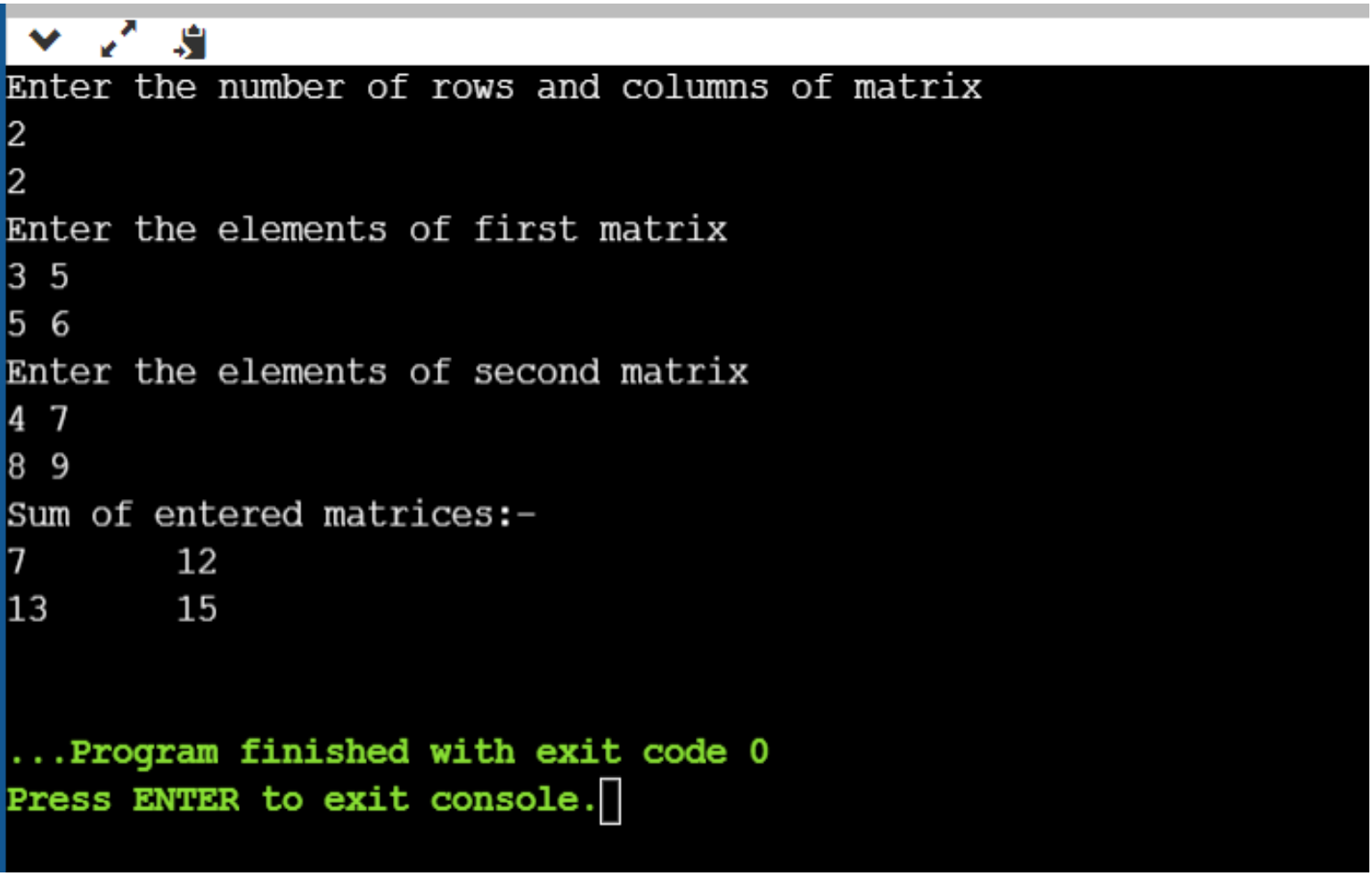
Output of 6th program:



Program 7

```
//7.Develop a program to perform addition of two Matrices.
#include<stdio.h>
#include<stdlib.h>
int main()
{
	int   mat1[10][10],mat2[10][10],mat3[10][10]={0},n1,m1,n2,m2,n3,m3;
	printf("Enter number of Rows in 1st matrix\n");
	scanf("%d",&n1);
	printf("Enter Number of columns in 1st matrix\n");
	scanf("%d",&m1);
	printf("Enter number of Rows in 2nd matrix\n");
	scanf("%d",&n2);
	printf("Enter Number of columns in 2nd matrix\n");
	scanf("%d",&m2);
	if(n1!=n2 && m1!=m2)
	{
		printf("Enter correct number of rows and columns");
		exit(0);
	}
	printf("Enter the elements of the matrix1\n");
	for(int i=0;i<n1;i++)
	{
		for(int j=0;j<m1;j++)
		{
			scanf("%d",&mat1[i][j]);
		}
	}
	printf("Enter the elements of the matrix2\n");
	for(int i=0;i<n2;i++)
	{
		for(int j=0;j<m2;j++)
		{
			scanf("%d",&mat2[i][j]);
		}
	}
	if(n1==n2 && m1==m2)
	{
		n3=n1;
		m3=m1;
		for(int i=0;i<n3;i++)
		{
			for(int j=0;j<m3;j++)
			{
				mat3[i][j]=mat1[i][j]+mat2[i][j];
			}
		}
		printf("Matrices sum is \n");
		for(int i=0;i<n3;i++)
		{
			printf("\n");
			for(int j=0;j<m3;j++)
			{
				printf("%d\t",mat3[i][j]);
			}
		}
	}
	return 0;
}
```

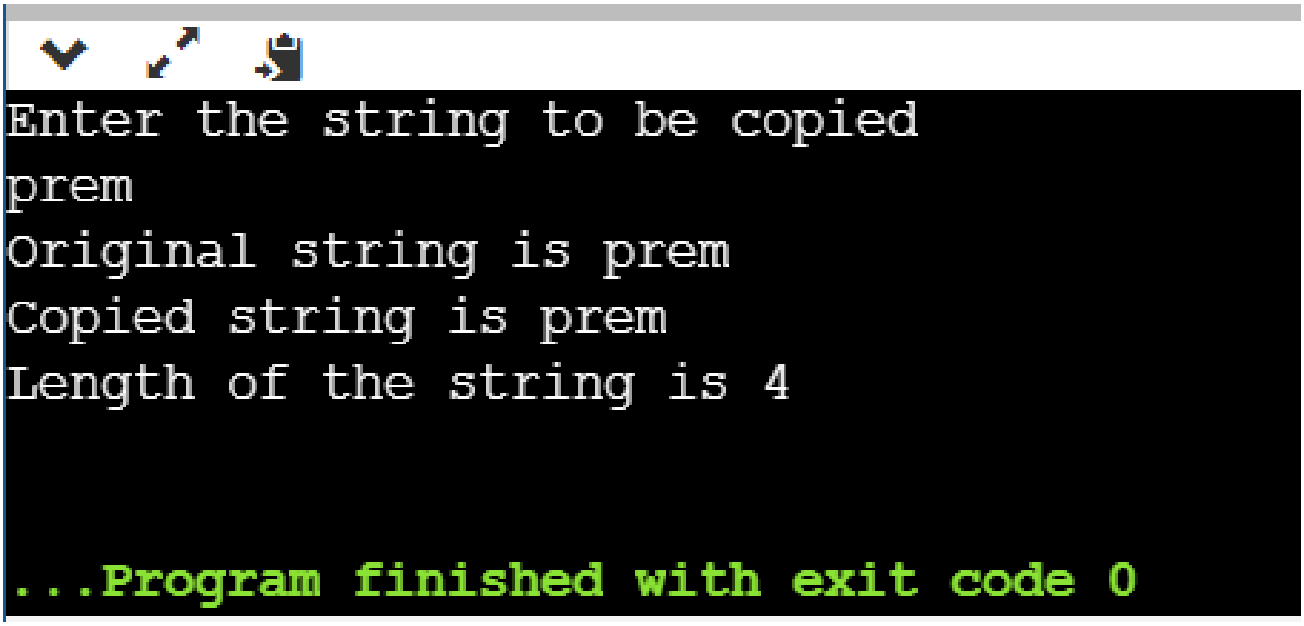
Output of 7th program:



Program 8

```
//8. Develop a C program to copy one string to another string and find its
length
without using built in functions.
#include<stdio.h>
int len(char str[20])
{
	int i=0,count=0;
	while(str[i]!='\0')
	{
		count += 1;
		i++;
	}
	return count;
}
int main()
{
	char  str1[20],str2[20];
	int i=0,j=0;
	printf("Enter the string to be copied\n");
	scanf("%s",str1);
	while(str1[i] != '\0')
	{
		str2[j]=str1[i];
		i++;
		j++;
	}str2[j]='\0';
	printf("Original string is %s\n",str1);
	printf("Copied string is %s\n",str2);
	printf("Length of the string is %d\n",len(str1));
	return 0;
}
```

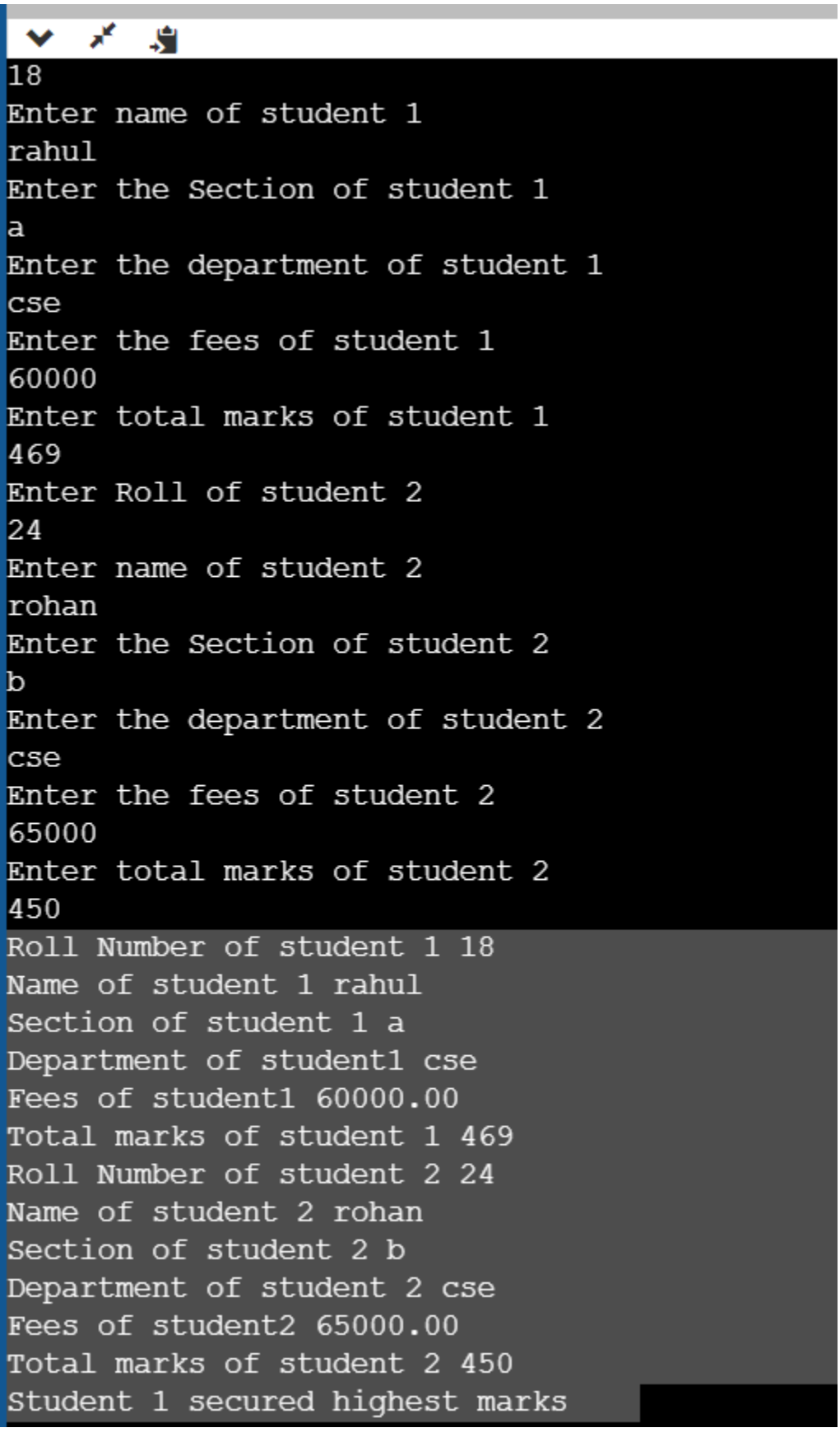
Output of 8th program:



Program 9

```
//9.Develop a 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);
        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 student1 %s\n",stud1.dept);
        printf("Fees of student1 %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 student2 %0.2f\n",stud2.fees);
        printf("Total marks of student 2 %d\n",stud2.totalmarks);
        if(stud1.totalmarks>stud2.totalmarks)
        {
                printf("Student 1 secured highest marks");
        }
        else if(stud1.totalmarks==stud2.totalmarks)
        {
                printf("Student 1 and 2 secured same marks");
        }
        else
        {
                printf("Student 2 secured highest marks");
        }
        return 0;
}
```

Output of 9th problem:

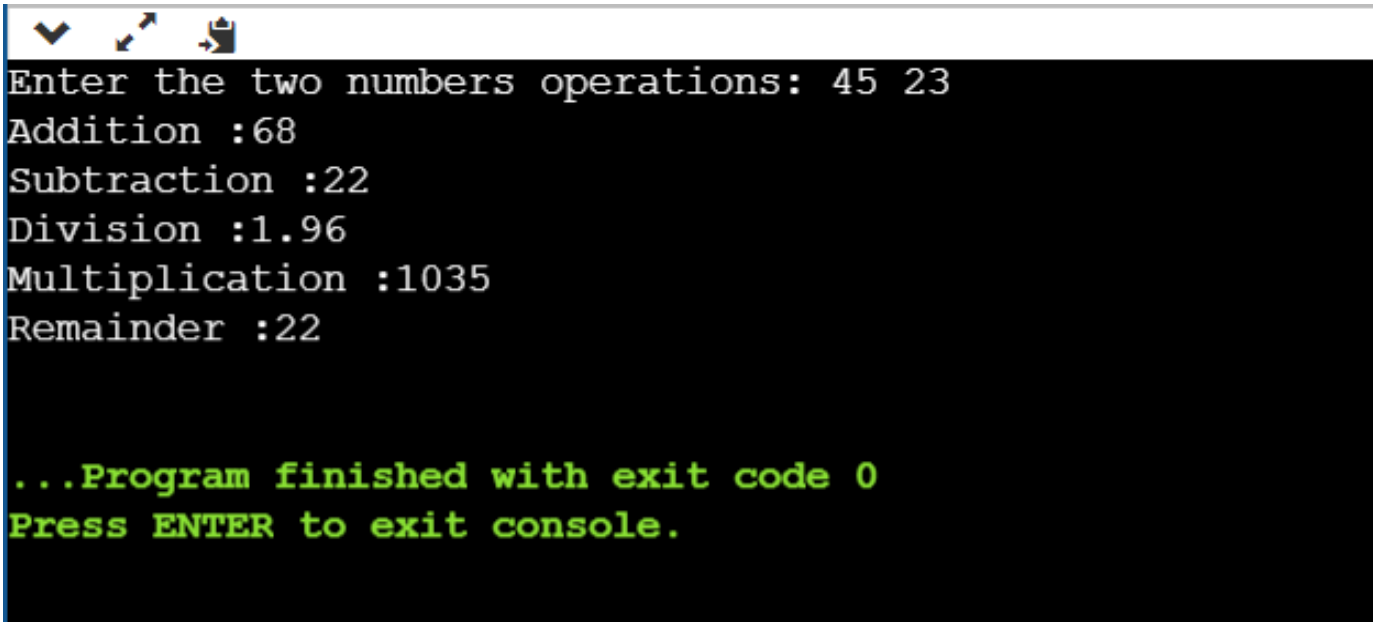


```
18
Enter name of student 1
rahul
Enter the Section of student 1
a
Enter the department of student 1
cse
Enter the fees of student 1
60000
Enter total marks of student 1
469
Enter Roll of student 2
24
Enter name of student 2
rohan
Enter the Section of student 2
b
Enter the department of student 2
cse
Enter the fees of student 2
65000
Enter total marks of student 2
450
Roll Number of student 1 18
Name of student 1 rahul
Section of student 1 a
Department of student1 cse
Fees of student1 60000.00
Total marks of student 1 469
Roll Number of student 2 24
Name of student 2 rohan
Section of student 2 b
Department of student 2 cse
Fees of student2 65000.00
Total marks of student 2 450
Student 1 secured highest marks
```

Program 10

```
/*10. Develop a C program to perform arithmetic
operations (addition, subtraction,
multiplication, division and remainder) on two integers
using pointers.*/
#include<stdio.h>
int operations(int *, int *, int *, int *, int*, float
*, int *);
int main()
{
     int a,b;
     int  add,sub,multiplication,rem;
     float division;
     printf("Enter the two numbers operations: ");
     scanf("%d %d",&a,&b);
     operations(&a, &b, &add, &sub, &multiplication,
&division, &rem);
     printf("Addition :%d\n",add);
     printf("Subtraction :%d\n",sub);
     printf("Division :%0.2f\n",division);
     printf("Multiplication  :%d\n",multiplication);
     printf("Remainder :%d\n",rem);
     return 0;
}
int operations(int *a, int *b, int *add, int *sub, int
*multiplication, float *division, int *rem)
{
     *add=*a+*b;
     *sub=*a-*b;
     *multiplication=*a**b;
     *division=(float)(*a)/(*b);
     *rem=(*a)%(*b);
     return 0;
}
```

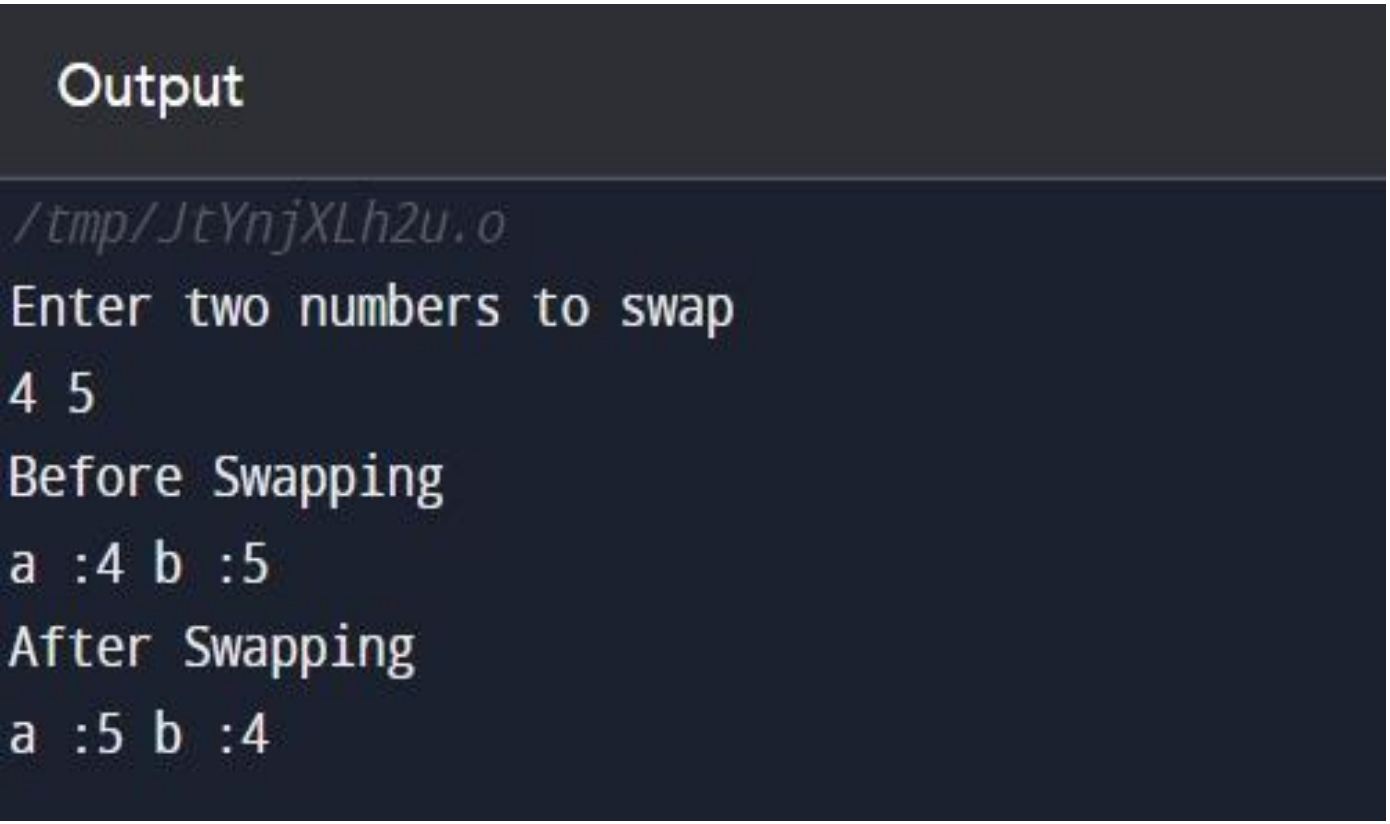
Output of 10th program:



Program 11

```
//11. Illustrate pointers in swapping two numbers.
#include<stdio.h>
int swapptr(int *, int *);
int main()
{
      int a,b;
      printf("Enter two numbers to swap\n");
      scanf("%d %d",&a,&b);
      printf("Before Swapping\n");
      printf("a :%d b :%d\n",a,b);
      swapptr(&a, &b);
      printf("After Swapping\n");
      printf("a :%d b :%d",a,b);
      return 0;
}
int swapptr(int *a, int *b)
{
      int *temp;
      *temp=*a;
      *a=*b;
      *b=*temp;
      return 0;
}
```

Output of 11th program:



Program 12

```
/*12. Demonstrate how to read data from the keyboard, write it to
a file called BMSCE.txt,again read the same data from the BMSCE
file,and display it on the screen/console.*/
#include<stdio.h>
int main()
{
      char feedback[40];
      FILE *fp;
      fp=fopen("BMSCE.txt","w");
      printf("Write something about BMSCE\n");
      fgets(feedback,200,stdin);
      fputs(feedback,fp);
      fclose(fp);
      fp=fopen("BMSCE.txt","r");
      printf("Data read from the file:\n");
      while(fgets(feedback,200,fp) != NULL)
      {
            printf("%s",feedback);
      }
      return 0;
}
```

Output of 12th Program:

```
Write something about BMSCE
Hello everyone,This is Prem from BMSCE,BMSCE is one of the oldest college in Karnataka
Data read from the file:
Hello everyone,This is Prem from BMSCE,BMSCE is one of the oldest college in Karnataka
*** stack smashing detected ***: ./a.out terminated


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

BMSCE text file created from 12th program:

main.c | BMSCE.txt

```
1  Hello everyone,This is Prem from BMSCE,BMSCE is one of the oldest college in Karnataka
2
```