

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JnanaSangama”, Belgaum -590014, Karnataka.



## C PROGRAMMING LAB RECORD

*Submitted by*  
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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**



***DECLARATION***

I,AAAA , 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.

RITIK SINGH 1BM20IS121

1.0 C program to convert degrees Fahrenheit into degrees celsius.

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

```
int main()
```

```
{
```

```
    float fah,cel;
```

```
    printf("\nEnter temperature in fahrenheit: ");
```

```
    scanf("%f",&fah);
```

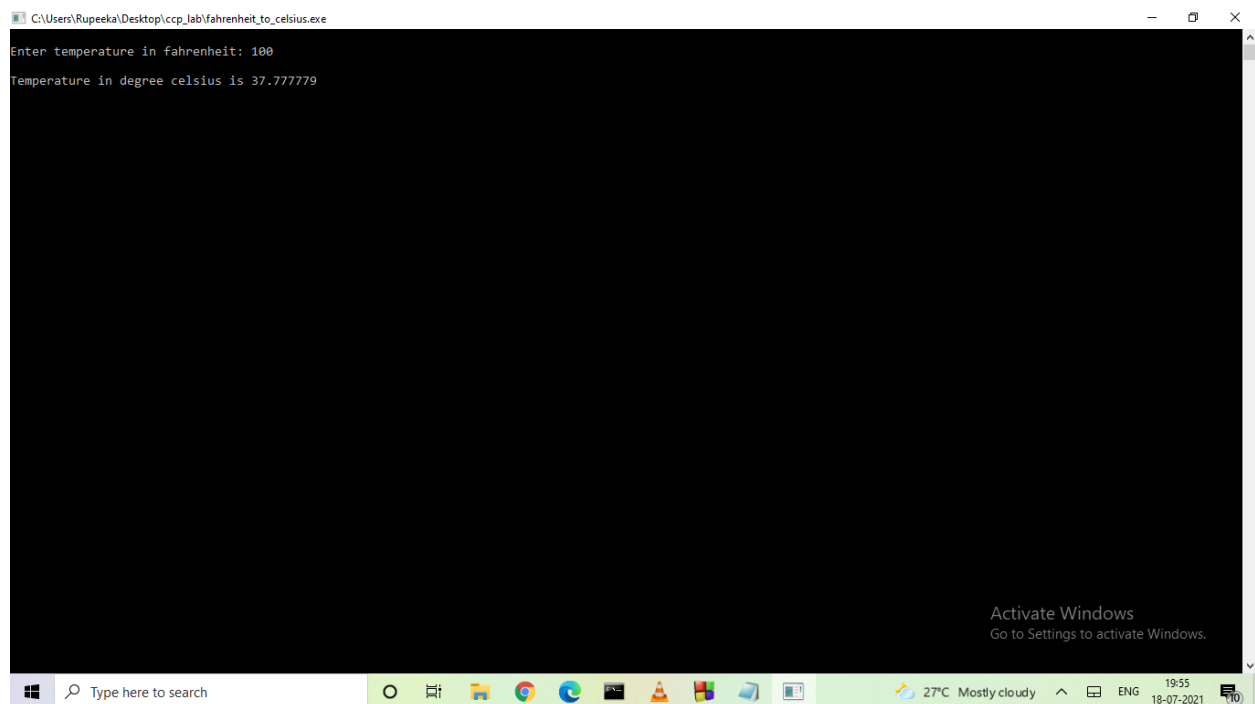
```
    cel = (fah-32)*5/9;
```

```
    printf("\nTemperature in degree celsius is %f",cel);
```

```
    getch();
```

```
    return 0;
```

```
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\Rupeeka\Desktop\ccp\_lab\ahrenheit\_to\_celsius.exe". The prompt displays the following text:

```
Enter temperature in fahrenheit: 100
Temperature in degree celsius is 37.777779
```

The window is set against a black background. At the bottom of the window, there is a Windows taskbar with various icons and a system tray showing the date and time as 19:55 on 18-07-2021. A watermark in the bottom right corner of the window reads "Activate Windows Go to Settings to activate Windows."

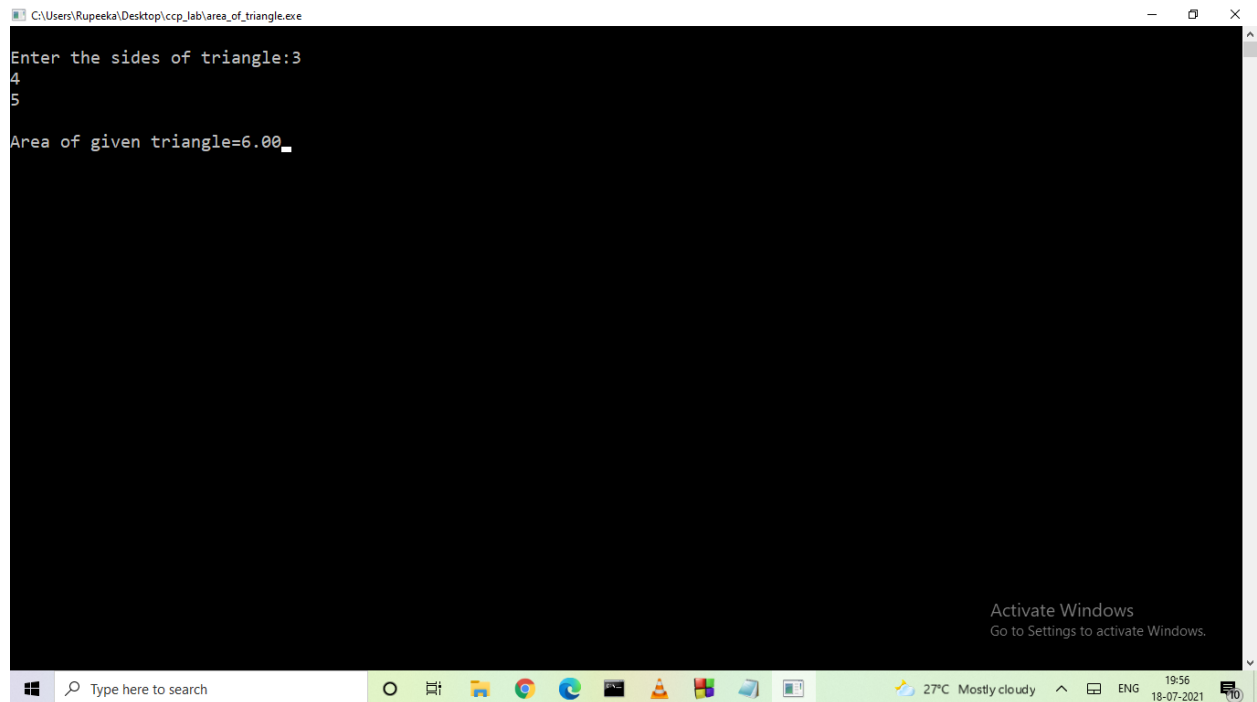
## 2.0 C program to find the area of a triangle

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

float Areaoftriangle(float a,float b,float c);

float main()
{
    float a,b,c,Area;
    printf("\nEnter the sides of triangle:");
    scanf("%f%f%f",&a,&b,&c);
    Area = Areaoftriangle(a,b,c);
    printf("\nArea of given triangle=%.2f",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;
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\Rupeeka\Desktop\ccp\_lab\area\_of\_triangle.exe". The program prompts the user to "Enter the sides of triangle:" and the user enters the values 3, 4, and 5 on separate lines. The program then outputs "Area of given triangle=6.00". The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray on the right displays the weather as "27°C Mostly cloudy", the language as "ENG", and the date and time as "19:56 18-07-2021". An "Activate Windows" watermark is visible in the bottom right corner of the command prompt window.

```
C:\Users\Rupeeka\Desktop\ccp_lab\area_of_triangle.exe
Enter the sides of triangle:3
4
5
Area of given triangle=6.00_
```

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

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

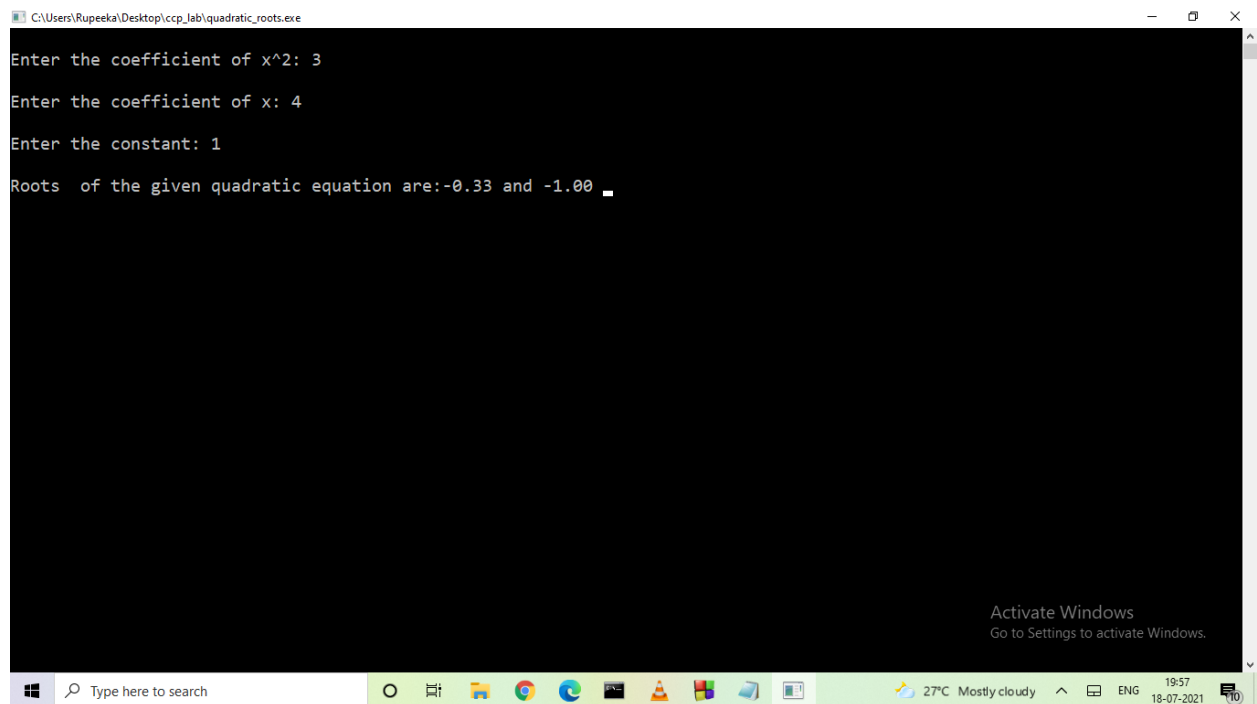
int main()
{
    int a,b,c;
    float discriminant,root1,root2,realpart,imaginarypart;
    printf("\nEnter the coefficient of x^2: ");
    scanf("%d",&a);
    printf("\nEnter the coefficient of x: ");
    scanf("%d",&b);
    printf("\nEnter the constant: ");
    scanf("%d",&c);
    discriminant = b*b - 4*a*c;
    //Real and unequal roots

    if (discriminant>0){
        root1 = (-b+sqrt(b*b-4*a*c))/(2*a);
        root2 = (-b-sqrt(b*b-4*a*c))/(2*a);
        printf("\nRoots of the given quadratic equation are:%.2f and %.2f ",root1,root2);
    }

    //real and equal roots
    else if(discriminant==0){
        root1 = -b/(2*a);
        root2 = root1;
    }

    //Imaginary roots
    else{
```

```
    realpart = -b/(2*a);  
    imaginarypart = sqrt(-discriminant)/(2*a);  
    printf("\nRoots are:%.2f %.2f %.2f %.2f",realpart,imaginarypart,realpart,imaginarypart);  
}  
  
getch();  
return 0;  
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\Rupeeka\Desktop\ccp\_lab\quadratic\_roots.exe". The program prompts the user to enter the coefficients of a quadratic equation. The user has entered 3 for the coefficient of  $x^2$ , 4 for the coefficient of  $x$ , and 1 for the constant. The program then displays the roots of the equation as -0.33 and -1.00. The Windows taskbar at the bottom shows the search bar, taskbar icons, system tray with weather (27°C, Mostly cloudy), language (ENG), and date/time (19:57, 18-07-2021). An "Activate Windows" watermark is visible in the bottom right corner of the command prompt window.

```
C:\Users\Rupeeka\Desktop\ccp_lab\quadratic_roots.exe  
Enter the coefficient of x^2: 3  
Enter the coefficient of x: 4  
Enter the constant: 1  
Roots of the given quadratic equation are:-0.33 and -1.00
```

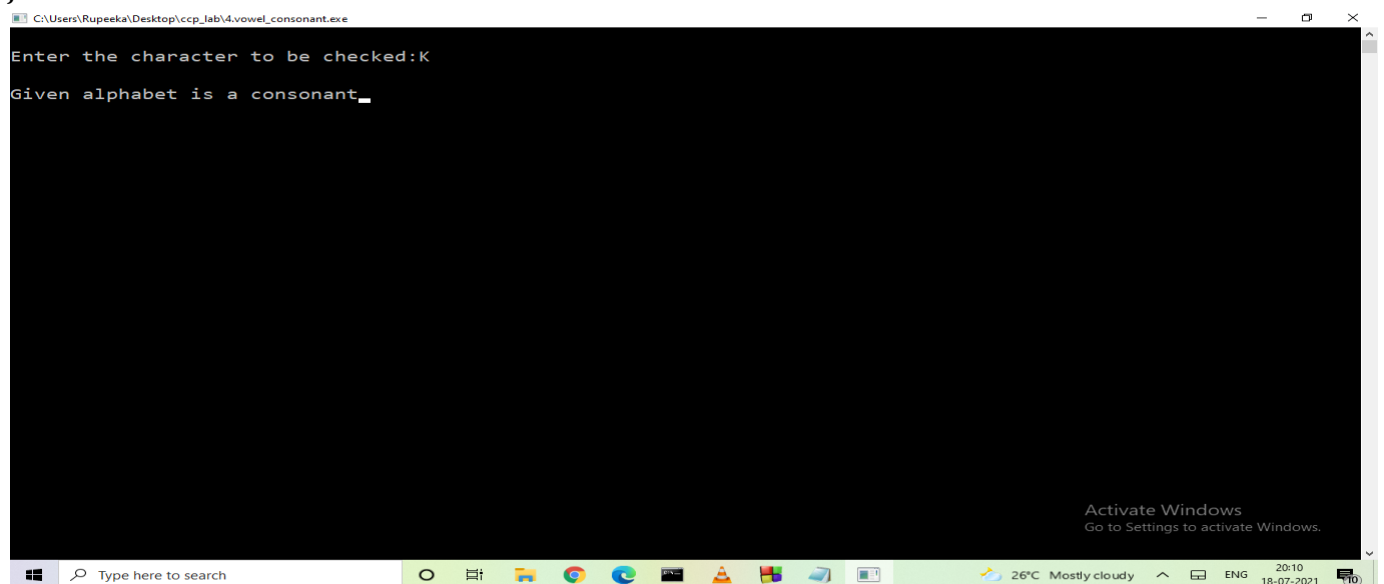
## 4.0C program to determine whether the entered character is a vowel or consonant

```
#include <stdio.h>

int main()
{
    char vowel_lower,vowel_upper,input;
    printf("\nEnter the character to be checked:");
    scanf("%ch",&input);

    vowel_lower = (input=='a' || input=='e' || input=='i' || input=='o' || input=='u');
    vowel_upper = (input=='A' || input=='E' || input=='I' || input=='O' || input=='U');
    if (vowel_lower || vowel_upper)
        printf("\nGiven alphabet is a vowel");

    else{
        printf("\nGiven alphabet is a consonant");
    }
    getch();
    return 0;
}
```



```
C:\Users\Rupeeka\Desktop\ccp_lab\4.vowel_consonant.exe
Enter the character to be checked:K
Given alphabet is a consonant_

Activate Windows
Go to Settings to activate Windows.
```

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

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

int main()
{
    int i,m,n;
    printf("\nEnter m: ");
    scanf("%d",&m);
    printf("\nEnter n: ");
    scanf("%d",&n);
    for(i=m;i<=n;i++){
        if(i%2==0){
            printf("\n%d",i);
        }
    }

    getch();
    return 0;
}
```



```
C:\Users\Rupeeka\Desktop\cpp_lab\5.Evenno_m_to_n.exe

Enter m: 5

Enter n: 27

6
8
10
12
14
16
18
20
22
24
26
_

Activate Windows
Go to Settings to activate Windows.
```

## 6.0 C program to calculate the sum of squares of first n odd numbers.

```
#include <stdio.h>

#include <math.h>

int main()
{
    int n,i,square,square_sum;
    printf("\nEnter n: ");
    scanf("%d",&n);

    square_sum=0;

    for(i=1;i<=n;i++){
        if(i%2!=0){
            square = i*i;
            printf("%d ",square);
            square_sum+=square;
        }
    }
    printf("\nSum is %d:",square_sum);

    getch();
    return 0;

}
```

```
C:\Users\Rupeeka\Desktop\ccp_lab\6.Sum_of_sqr_firstn_odd_no.exe

Enter n: 11
1 9 25 49 81 121
Sum is 286: 
```

Activate Windows  
Go to Settings to activate Windows.

Type here to search

26°C Mostly cloudy 20:19 18-07-2021

## 7.0 C a program to perform addition of two Matrices.

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

int main()
{
    int m1[10][10],m2[10][10],i,j,r,c,sum[10][10];

    printf("\nEnter the number of rows:");
    scanf("%d",&r);
    printf("\nEnter the number of columns:");
    scanf("%d",&c);
    printf("\nEnter the elements of 1st Matrix:");

    for(i=0;i<r;i++){
        for(j=0;j<c;j++){
            printf("\nEnter element m1 %d %d:",i+1,j+1);
            scanf("%d",&m1[i][j]);
        }
    }
    printf("\nEnter the elements of 2nd Matrix:");
    for(i=0;i<r;i++){
        for(j=0;j<c;j++){
            printf("\nEnter element m2 %d %d:",i+1,j+1);
            scanf("%d",&m2[i][j]);
        }
    }

    //Sum of matrices
    for(i=0;i<r;i++){
        for(j=0;j<c;j++){
            sum[i][j] = m1[i][j] + m2[i][j];
        }
    }
```

```

    }

    ///Printing sum of two matrices::

    for(i=0;i<r;i++){
        for(j=0;j<c;j++){
            printf("\nSum:%d",sum[i][j]);
        }
    }

    getch();

    return 0;
}

```

C:\Users\Rupeeka\Desktop\cpp\_lab\add\_2\_matrices.exe

```

Enter the number of rows:2
Enter the number of columns:2
Enter the elements of 1st Matrix:
Enter element m1 1 1:1
Enter element m1 1 2:11
Enter element m1 2 1:2
Enter element m1 2 2:22
Enter the elements of 2nd Matrix:
Enter element m2 1 1:1
Enter element m2 1 2:2
Enter element m2 2 1:2
Enter element m2 2 2:2
Sum:2
Sum:13
Sum:4
Sum:24

```

Activate Windows  
Go to Settings to activate Windows.

Type here to search

26°C Mostly cloudy 20:24 18-07-2021

## 8.0 C program to copy one string to another string and find its length

```
#include <stdio.h>

int main()
{
    char s1[100],s2[50], i,j,l;
    printf("Enter any String = ");
    gets(s1);
    printf("Enter another string = ");
    gets(s2);
    while(s1[i]!='\0')
        i++;
    l=i;
    while(s2[j]!='\0')
    {
        s1[i]=s2[j];
        i++;
        j++;
    }
    l=i;
    printf("Length of the string=%d\n",l);
    s1[i]='\0';
    printf("After copying the string = ");
    puts(s1);
    return 0;
}
```

```
C:\Users\Rupeeka\Desktop\8.copy_one_string_to_other.exe
Enter any String = Hello
Enter another string = I am Ritik Singh
Length of the string=22
After copying the string = Hello I am Ritik Singh

Process returned 0 (0x0)   execution time : 15.530 s
Press any key to continue.
```

Activate Windows  
Go to Settings to activate Windows.

Type here to search

26°C Mostly cloudy 20:46 18-07-2021

## 9.0 C program for student evaluation

```
#include<stdio.h>

void main()
{
    struct student
    {
        int rollno;
        char name[20];
        char sec[3];
        char dept[20];
        int totalmarks;
    }
    student1,student2;

    printf("Enter the name of student 1 and student 2\n");
    scanf("%s%s",student1.name,student2.name);

    printf("Enter the roll number of student 1 and student 2\n");
    scanf("%d%d",&student1.rollno,&student2.rollno);

    printf("Enter section of student 1 and student 2\n");
    scanf("%s%s",student1.sec,student2.sec);

    printf("Enter the department of student 1 and student 2\n");
    scanf("%s%s",student1.dept,student2.dept);

    printf("Enter the total marks of student 1 and student 2\n");
    scanf("%d%d",&student1.totalmarks,&student2.totalmarks);

    printf("*****STUDENT 1 DETAILS*****\n");

    printf("Name = %s\n",student1.name);
    printf("Roll no = %d\n",student1.rollno);

    printf("Section = %s\n",student1.sec);
    printf("Department = %s\n",student1.dept);
    printf("Total marks = %d\n",student1.totalmarks);
```



```

printf("*****STUDENT 2 DETAILS*****\n");
printf("Name = %s\n",student2.name);
printf("Roll no = %d\n",student2.rollno);
printf("Section = %s\n",student2.sec);
printf("Department = %s\n",student2.dept);
printf("Total marks = %d\n",student2.totalmarks);
if(student1.totalmarks>student2.totalmarks)
{
printf("\nStudent 1 got highest marks\n");
}
else
{
printf("\nStudent 2 got highest marks\n");
}
}

```

```

C:\Users\Rupeeka\Desktop\ccp_lab\9.Student_details.exe
Enter the name of student 1 and student 2
Ritik
Subesh
Enter the roll number of student 1 and student 2
24
11
Enter section of student 1 and student 2
CN
CE
Enter the department of student 1 and student 2
ISE
CSE
Enter the total marks of student 1 and student 2
90
95
*****STUDENT 1 DETAILS*****
Name = Ritik
Roll no = 24
Section = CN
Department = ISE
Total marks = 90
*****STUDENT 2 DETAILS*****
Name = Subesh
Roll no = 11
Section = CE
Department = CSE
Total marks = 95

Student 2 got highest marks

Process returned 0 (0x0)   execution time : 42.976 s
Press any key to continue.

```

## 10.C program for arithmetic operations using pointers

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

```
int main()
```

```
{
```

```
    int n1,n2,sum,diff,mul;
```

```
    float div,rem;
```

```
    int *ptr1,*ptr2;
```

```
    ptr1=&n1;
```

```
    ptr2=&n2;
```

```
    printf("\nEnter two numbers:");
```

```
    scanf("%d%d",ptr1,ptr2);
```

```
    sum=(*ptr1) + (*ptr2);
```

```
    diff=(*ptr1)-(*ptr2);
```

```
    mul=(*ptr1)*(*ptr2);
```

```
    div = (*ptr1)/(*ptr2);
```

```
    rem = (*ptr1)%(*ptr2);
```

```
    printf("\nSum is: %d",sum);
```

```
    printf("\nDifference is: %d",diff);
```

```
    printf("\nProduct is: %d",mul);
```

```
    printf("\nQuotient is: %f",div);
```

```
    printf("\Remainder is: %f",rem);
```

```
    return 0;
```

```
}
```

```
C:\Users\Rupeeka\Desktop\cpp_lab\10.arithmetic_operations_pointers.exe

Enter two numbers:11
5

Sum is: 16
Difference is: 6
Product is: 55
Quotient is: 2.000000
Remainder is: 1.000000
Process returned 0 (0x0)   execution time : 8.066 s
Press any key to continue.
```

Activate Windows  
Go to Settings to activate Windows.

Type here to search

26°C Mostly cloudy 20:38 18-07-2021 ENG