



1. Write a C program to print welcome message.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    clrscr();
    printf("Hi! Welcome to C!!!");
    getch();
}
```

A screenshot of a Windows Command Prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The window is black with white text. It displays the output of a C program: 'Hi! Welcome to C!!!'. The window has standard Windows-style title bar controls (minimize, maximize, close) at the top right.



2. Write a C program to perform addition of two integer numbers.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a,b,c; // Variable declaration
    clrscr();

    printf("Enter any two integer values: ");
    scanf("%d%d",&a,&b);
    c = a + b;
    printf("SUM of given two numbers is %d",c);
    getch();
}
```

A screenshot of a Windows Command Prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The window shows the output of a C program. The user has entered '10 20' and the program has printed 'SUM of given two numbers is 30'.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer values: 10 20
SUM of given two numbers is 30
```



3. Write a C program to convert distance from cm to mts.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    float cm, mts;
    clrscr();

    printf("Enter the distance in Centimeters: ");
    scanf("%f", &cm);

    mts = cm / 100;
    printf("Given distance in Meters: %.2f mts", mts);

    getch();
}
```

A screenshot of a Windows Command Prompt window titled 'cmd.exe - tc'. The window shows the following text:

C:\WINDOWS\system32\cmd.exe - tc
Enter the distance in Centimeters: 225
Given distance in Meters: 2.25 mts

The window has a standard Windows title bar with minimize, maximize, and close buttons.



4. Write a C program to illustrate increment and decrement operators.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a = 5, b = 10, c, d;
    clrscr();

    c = a++;
    d = ++b;
    printf("Post increment result: %d\n",c);
    printf("Pre increment result: %d\n",d);

    c = a-- + --b;
    printf("Finally C = %d",c);

    getch();
}
```

A screenshot of a Windows Command Prompt window titled 'cmd C:\WINDOWS\system32\cmd.exe - tc'. The window displays the output of the C program. The output shows the results of post-increment, pre-increment, and final assignment operations on variables a, b, and c.

```
Post increment result: 5
Pre increment result: 11
Finally C = 16
```



5. Write a C program to test whether given number is EVEN or ODD.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int num;
    clrscr();

    printf("Enter any integer value: ");
    scanf("%d", &num);

    if(num % 2 == 0)
        printf("\n%d is EVEN number");
    else
        printf("\n%d is ODD number");

    getch();
}
```

The image shows two separate windows of a Windows command prompt (cmd.exe).

The top window has the title bar 'C:\WINDOWS\system32\cmd.exe - tc'. It displays the following interaction:

```
Enter any integer value: 5
5 is ODD number
```


The bottom window also has the title bar 'C:\WINDOWS\system32\cmd.exe - tc'. It displays the following interaction:

```
Enter any integer value: 10
10 is EVEN number
```



6. Write a C program to find largest of three numbers.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a,b,c;
    clrscr();

    printf("Enter any three integer values: ");
    scanf("%d%d%d",&a,&b,&c);

    if(a>b && a>c)
        printf("\n%d is Largest!!!",a);
    else
        if(b>a && b>c)
            printf("\n%d is Largest!!!",b);
        else
            printf("\n%d is Largest!!!",c);

    getch();
}
```

```
c:\ C:\WINDOWS\system32\cmd.exe - tc
Enter any three integer values: 10 20 30
30 is Largest!!!
```

```
c:\ C:\WINDOWS\system32\cmd.exe - tc
Enter any three integer values: 10 50 36
50 is Largest!!!_
```

```
c:\ C:\WINDOWS\system32\cmd.exe - tc
Enter any three integer values: 80 15 45
80 is Largest!!!_
```



7. Write a C program to swap (exchange) given two numbers.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int num1, num2, temp;
    clrscr();

    printf("Enter any two integer values: ");
    scanf("%d%d", &num1, &num2);

    printf("\nBefore SWAP:\nnum1 = %d\nnum2 = %d", num1, num2);

    temp = num1;
    num1 = num2;
    num2 = temp;

    printf("\n\nAfter SWAP:\nnum1 = %d\nnum2 = %d", num1, num2);

    getch();
}
```

A screenshot of a Windows command prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The window shows the execution of the provided C program. The user enters '10 20' when prompted. The program then displays the state before and after swapping the values. The output is:

```
Enter any two integer values: 10 20
Before SWAP:
num1 = 10      num2 = 20
After SWAP:
num1 = 20      num2 = 10
```



8. Write a C program to print ASCII value of given character.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char ch;
    clrscr();

    printf("Enter any Charcter: ");
    scanf("%c", &ch);

    printf("\nASCII value of given character %c is %d", ch, ch);

    getch();
}
```

The image displays three separate command-line windows from a Windows system, each showing the execution of the C program. The top window shows the output for character 'A' (ASCII 65). The middle window shows the output for character 'R' (ASCII 82). The bottom window shows the output for character 'g' (ASCII 103). Each window has a blue title bar with the text 'C:\WINDOWS\system32\cmd.exe - tc'. The windows are arranged vertically and have a standard Windows-style border with minimize, maximize, and close buttons.



9. Write a C program to find roots of a quadratic equation.

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
    float a,b,c, root1,root2,temp, real, imag;
    clrscr();

    printf("Enter any a, b and c values: ");
    scanf("%f%f%f", &a, &b, &c);

    temp = (b*b) - (4*a*c);
    if(temp>0)
    {
        printf("\nRoots are real:\n");
        root1 = (-b + sqrt(temp))/(2*a);
        root2 = (-b - sqrt(temp))/(2*a);

        printf("\nRoot1 = %.2f",root1);
        printf("\nRoot2 = %.2f",root2);
    }
    else{
        if(temp == 0)
        {
            printf("\nRoots are real:\n");
            root1 = root2 = -b/(2*a);

            printf("\nRoot1 = %.2f",root1);
            printf("\nRoot2 = %.2f",root2);
        }
        else
        {
            real = -b / (2*a);
            imag = sqrt(-temp) / (2*a);
            printf("\nRoots are imaginary:\n");
            printf("Root1 = %.2f + %.2fi",real,imag);
            printf("\nRoot2 = %.2f - %.2fi",real,imag);
        }
    }

    getch();
}
```



```
ca C:\WINDOWS\system32\cmd.exe - tc
Enter any a, b and c values: 1 4 0
Roots are real:
Root1 = 0.00
Root2 = -4.00

ca C:\WINDOWS\system32\cmd.exe - tc
Enter any a, b and c values: 1 2 3
Roots are imaginary:
Root1 = -1.00 + 1.41i
Root2 = -1.00 - 1.41i
```



10. Write a C program to find Area and Circumference of a Circle.

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

#define PI 3.14

void main()
{
    float radius,area,circumference;
    clrscr();

    printf("Enter the radius of circle: ");
    scanf("%f",&radius);

    area = PI*(radius*radius);
    circumference = 2 * PI * radius;

    printf("\nArea = %.2f",area);
    printf("\nCircumference = %.2f",circumference);

    getch();
}
```

The image shows two separate command-line windows from a Windows system. Both windows have a title bar 'C:\WINDOWS\system32\cmd.exe - tc'.

The top window displays the following output:
Enter the radius of circle: 1
Area = 3.14
Circumference = 6.28

The bottom window displays the following output:
Enter the radius of circle: 5
Area = 78.50
Circumference = 31.40



11. Write a C program to find Area of a Triangle.

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

void main()
{
    float base,height,area;
    clrscr();

    printf("Enter the base and height of Triangle: ");
    scanf("%f%f",&base,&height);

    area = (0.5) * base * height;

    printf("\nArea of triangle = %.2f",area);

    getch();
}
```

A screenshot of a Windows command prompt window titled 'cmd.exe - tc'. The window shows the output of the C program. It prompts the user to enter the base and height of a triangle, receives input '2 4', and then displays the calculated area '4.00'.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter the base and height of Triangle: 2 4
Area of triangle = 4.00
```



12. Write a C program to find Factorial of a given integer number.

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

void main()
{
    int num, fact=1, i;
    clrscr();

    printf("Enter any number: ");
    scanf("%d", &num);

    for(i = num; i >= 1; i--)
    {
        fact = fact * i;
    }

    printf("\nFactorial of %d is %d", num, fact);
    getch();
}
```

A screenshot of two separate Windows Command Prompt windows. Both windows have a blue title bar with the text 'C:\WINDOWS\system32\cmd.exe - tc'.

The top window shows the output of a factorial calculation:
Enter any number: 5
Factorial of 5 is 120

The bottom window shows the output of another factorial calculation:
Enter any number: 3
Factorial of 3 is 6



13. Write a C program to test whether given number is PRIME or NOT.

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

void main()
{
    int num, count=0, i;
    clrscr();

    printf("Enter any number: ");
    scanf("%d", &num);

    for(i = 2; i < num; i++)
    {
        if(num%i == 0)
            count++;
    }
    if(count == 0)
        printf("\nGiven number is PRIME!!!");
    else
        printf("\nGiven number is NOT PRIME!!!");

    getch();
}
```

The image shows two separate windows of a Windows command prompt (cmd.exe).

The top window has the title bar "C:\WINDOWS\system32\cmd.exe - tc". It displays the following interaction:

```
Enter any number: 19
Given number is PRIME!!!
```


The bottom window also has the title bar "C:\WINDOWS\system32\cmd.exe - tc". It displays the following interaction:

```
Enter any number: 9
Given number is NOT PRIME!!!
```



14. Write a C program to print all PRIME numbers up to 'n'.

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

void main()
{
    int num, count, i, value;
    clrscr();

    printf("Enter any number: ");
    scanf("%d", &num);

    printf("\nAll PRIME numbers from 1 to %d are\n\n", num);
    value = 1;
    while(value<=num) {
        count = 0;
        for(i = 2; i < value; i++) {
            if(value%i == 0)
                count++;
        }
        if(count == 0)
            printf("%d\t", value);
        value++;
    }
    getch();
}
```

A screenshot of a Windows command prompt window titled 'cmd.exe - tc'. The window shows the output of the program. The user has entered '20' and the program has printed all prime numbers from 1 to 20. The output is as follows:

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any number: 20
All PRIME numbers from 1 to 20 are
1      2      3      5      7      11     13     17     19
```



15. Write a C program to print all EVEN numbers from 1 to 50.

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

void main()
{
    int count = 1;
    clrscr();

    printf("\nEven numbers from 1 to 50:\n");
    while(count<=50)
    {
        if(count%2 == 0)
            printf("%3d",count);
        count++;
    }

    getch();
}
```

A screenshot of a Windows command prompt window titled 'cmd.exe C:\WINDOWS\system32\cmd.exe - tc'. The window displays the text 'Even numbers from 1 to 50:' followed by a list of even integers from 2 to 50, each preceded by a space. The window has standard window controls (minimize, maximize, close) at the top right.

```
Even numbers from 1 to 50:
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
```



16. Write a C program to print Fibonacci series of first 'n' elements.

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

void main()
{
    int a=0,b=1,c,n,count = 3;
    clrscr();

    printf("Enter the number of elements to be display: ");
    scanf("%d", &n);

    printf("\nFibonacci series of first %d elements:\n",n);
    printf("\n%d\t%d",a,b);
    while(count<=n)
    {
        c = a + b;
        printf("\t%d",c);
        a = b;
        b = c;
        count++;
    }

    getch();
}
```

A screenshot of a Windows command prompt window titled 'cmd.exe - tc'. The window shows the execution of the C program. The user enters '10' when prompted for the number of elements. The program then displays the Fibonacci series of the first 10 elements: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter the number of elements to be display: 10
Fibonacci series of first 10 elements:
0      1      1      2      3      5      8      13     21     34
```



17. Write a C program to print REVERSE of given integer number.

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

void main()
{
    int num, reverse=0, remainder;
    clrscr();

    printf("\nEnter any integer number: ");
    scanf("%d", &num);

    while(num>0)
    {
        remainder = num % 10;
        reverse = reverse * 10 + remainder;
        num = num / 10;
    }
    printf("\nReverse of given number is %d", reverse);

    getch();
}
```

The image shows two separate command-line windows from a Windows operating system. Both windows have a title bar 'C:\WINDOWS\system32\cmd.exe - tc' and standard window controls (minimize, maximize, close).

The top window displays the following interaction:
Enter any integer number: 123
Reverse of given number is 321

The bottom window displays the following interaction:
Enter any integer number: 987
Reverse of given number is 789



18. Write a C program to test whether given number is POLINDROME or NOT.

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

void main()
{
    int num, reverse=0, remainder, temp;
    clrscr();

    printf("\nEnter any integer number: ");
    scanf("%d", &num);
    temp = num;

    while(num>0)
    {
        remainder = num % 10;
        reverse = reverse * 10 + remainder;
        num = num / 10;
    }
    if(temp == reverse)
        printf("\nGiven number is PALINDROME!!!");
    else
        printf("\nGiven number is NOT POLINDROME!!!");

    getch();
}
```

The screenshot shows a Windows command prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The user has entered the number '525' and the program output is 'Given number is PALINDROME!!!'. The window has standard minimize, maximize, and close buttons at the top right.

The screenshot shows a second Windows command prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The user has entered the number '123' and the program output is 'Given number is NOT POLINDROME!!!'. The window has standard minimize, maximize, and close buttons at the top right.



19. Write a C program to test whether given number is ARMSTRONG number or NOT.

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

void main()
{
    int num,sum=0,remainder,temp;
    clrscr();

    printf("\nEnter any integer number: ");
    scanf("%d", &num);
    temp = num;

    while(num>0) {
        remainder = num % 10;
        sum = sum + pow(remainder,3);
        num = num / 10;
    }
    if(temp == sum)
        printf("\nGiven number is ARMSTRONG!!!");
    else
        printf("\nGiven number is NOT ARMSTRONG!!!");

    getch();
}
```

The image shows two separate windows of the Windows Command Prompt (cmd.exe).

The top window has the title bar "C:\WINDOWS\system32\cmd.exe - tc". It displays the following interaction:

```
Enter any integer number: 123
Given number is NOT ARMSTRONG!!!
```


The bottom window also has the title bar "C:\WINDOWS\system32\cmd.exe - tc". It displays the following interaction:

```
Enter any integer number: 153
Given number is ARMSTRONG!!!_
```



20. Write a C program to perform Addition of two numbers using functions.

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

void main()
{
    int num1,num2,result;
    int addition(int,int);
    clrscr();

    printf("\nEnter any two integer numbers: ");
    scanf("%d%d",&num1,&num2);

    result = addition(num1,num2);

    printf("\nSUM of given numbers is %d",result);

    getch();
}

int addition(int a, int b)
{
    return(a+b);
}
```

A screenshot of a Windows Command Prompt window titled 'cmd.exe - tc'. The window shows the output of the C program. It prompts the user to enter two integers, receives '10 20', calculates their sum as '30', and then exits.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer numbers: 10 20
SUM of given numbers is 30
```



21. Write a C program to perform all Arithmetic operations using functions.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int num1,num2,result;
    int addition(int,int);
    int subtraction(int,int);
    int multiplication(int,int);
    int division(int,int);
    int modulo(int,int);
    clrscr();

    printf("\nEnter any two integer numbers: ");
    scanf("%d%d",&num1,&num2);

    printf("\n%d + %d = %d",num1,num2,addition(num1,num2));
    printf("\n%d - %d = %d",num1,num2,subtraction(num1,num2));
    printf("\n%d * %d = %d",num1,num2,multiplication(num1,num2));
    printf("\n%d / %d = %d (float value is type casted!)",num1,num2,division(num1,num2));
    printf("\n%d %% %d = %d",num1,num2,modulo(num1,num2));
    getch();
}

int addition(int a, int b){
    return(a+b);
}
int subtraction(int a, int b){
    return(a-b);
}
int multiplication(int a, int b){
    return(a*b);
}
int division(int a, int b){
    if(b == 0){
        printf("\nDivision is not possible!!!!");
        return;
    }
    else
        return(a/b);
}
int modulo(int a, int b){
    return(a%b);
}
```



```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer numbers: 5 2
5 + 2 = 7
5 - 2 = 3
5 * 2 = 10
5 / 2 = 2 <float value is type casted!>
5 % 2 = 1
```



22. Write a C program to find SUM of individual digits of given integer number.

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

void main()
{
    int num,sum=0,remainder;
    clrscr();

    printf("\nEnter any integer number: ");
    scanf("%d", &num);

    while(num>0)
    {
        remainder = num % 10;
        sum = sum + remainder;
        num = num / 10;
    }
    printf("\nSUM of individual digits of given number is %d",sum);

    getch();
}
```

The image shows two separate command-line windows from a Windows operating system. Both windows have a blue title bar with the text 'C:\WINDOWS\system32\cmd.exe - tc'.

The top window displays the following interaction:
Enter any integer number: 123
SUM of individual digits of given number is 6

The bottom window displays the following interaction:
Enter any integer number: 143
SUM of individual digits of given number is 8



23. Write a C program to perform all Arithmetic operations using 'switch' statement.

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

void main()
{
    int num1,num2;
    char choice;
    clrscr();

    printf("\nEnter any two integer numbers: ");
    scanf("%d%d",&num1,&num2);

    printf("\nEnter operation symbol (+,-,*,/,%): ");
    choice = getch();

    switch(choice)
    {
        case '+': printf("\n%d + %d = %d",num1,num2,num1+num2); break;
        case '-': printf("\n%d - %d = %d",num1,num2,num1-num2); break;
        case '*': printf("\n%d * %d = %d",num1,num2,num1*num2); break;
        case '/': if(num2==0)
                    printf("\nDivision not possible!!!!");
                    else
                    printf("\n%d / %d = %d",num1, num2, num1/num2);
                    break;
        case '%': printf("\n%d %% %d = %d",num1,num2,num1%num2); break;
        default: printf("\nWrong input!!!!");
    }
    getch();
}
```

Three separate screenshots of a Windows command prompt window titled 'cmd.exe - tc'.

The first screenshot shows the user entering two integers (10 and 20) and the multiplication operator (*). The output shows the result of 10 multiplied by 20, which is 200.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer numbers: 10 20
Enter operation symbol (<+, -, *, /, %>):
10 * 20 = 200_
```

The second screenshot shows the user entering two integers (5 and 2) and the addition operator (+). The output shows the result of 5 plus 2, which is 7.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer numbers: 5 2
Enter operation symbol (<+, -, *, /, %>):
5 + 2 = 7
```

The third screenshot shows the user entering two integers (8 and 5) and the multiplication operator (*). The output shows the result of 8 multiplied by 5, which is 3.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter any two integer numbers: 8 5
Enter operation symbol (<+, -, *, /, %>):
8 * 5 = 3
```



Write a C program to find GCD or HCF of given two integer numbers.

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

void main()
{
    int num1, num2, temp=1, gcd;
    clrscr();

    printf("\nEnter any two integer numbers: ");
    scanf("%d%d", &num1, &num2);

    while(temp <= num1 || temp <= num2)
    {
        if(num1%temp == 0 && num2%temp == 0)
            gcd = temp;
        temp++;
    }
    printf("\nGCD of %d and %d is %d", num1, num2, gcd);

    getch();
}
```

The image shows two separate command-line windows from a Windows operating system. Both windows have a blue title bar with the text 'C:\WINDOWS\system32\cmd.exe - tc'.

The top window displays the following interaction:
Enter any two integer numbers: 9 27
GCD of 9 and 27 is 9

The bottom window displays the following interaction:
Enter any two integer numbers: 14 35
GCD of 14 and 35 is 7



24. Write a C program to calculate the following.

$$\text{Sum} = 1 - x^2/2! + x^4/4! - x^6/6! + x^8/8! - x^{10}/10!$$

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

void main()
{
    int x,i=0,n=0;
    float sum=0;
    long fact(int);
    clrscr();

    printf("\nEnter the value of 'x': ");
    scanf("%d", &x);

    while(i<=10)
    {
        sum = sum+ (pow (-1, n) *pow (x, i) /fact (i));
        i=i+2;
        n++;
    }
    printf ("\nSUM = %ld", sum);

    getch();
}

long fact(int a)
{
    long f=1;
    while(a!=0) {
        f = f*a;
        a--;
    }
    return f;
}
```

A screenshot of a Windows command prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The window shows the output of the program. It prompts the user to enter the value of 'x' (2), then displays the result 'SUM = -2147483648'.

```
C:\WINDOWS\system32\cmd.exe - tc
Enter the value of 'x': 2
SUM = -2147483648
```



25. Write a C program to calculate the following.

$$s = ut + \frac{1}{2} at^2$$

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

void main()
{
    float u,t,s,a;
    clrscr();

    printf("\nEnter the initial speed: ");
    scanf("%f",&u);
    printf("\nEnter the time taken: ");
    scanf("%f",&t);
    printf("\nEnter the acceleration: ");
    scanf("%f",&a);

    s = (u*t) + (0.5)*a*pow(t,2);
    printf("\nResult = %.2f",s);

    getch();
}
```

A screenshot of a Windows command prompt window titled 'C:\WINDOWS\system32\cmd.exe - tc'. The window contains the following text:

```
Enter the initial speed: 2
Enter the time taken: 5
Enter the acceleration: 6
Result = 85.00_
```

The window has a standard Windows title bar with minimize, maximize, and close buttons.