

Write a Program to Output a string to Console.

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

```
void main()
```

```
{
```

```
    clrscr();
```

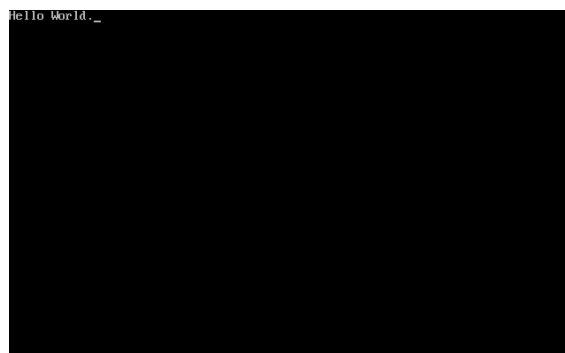
```
    printf("Hello World.");
```

```
    getch();
```

```
}
```



Output:



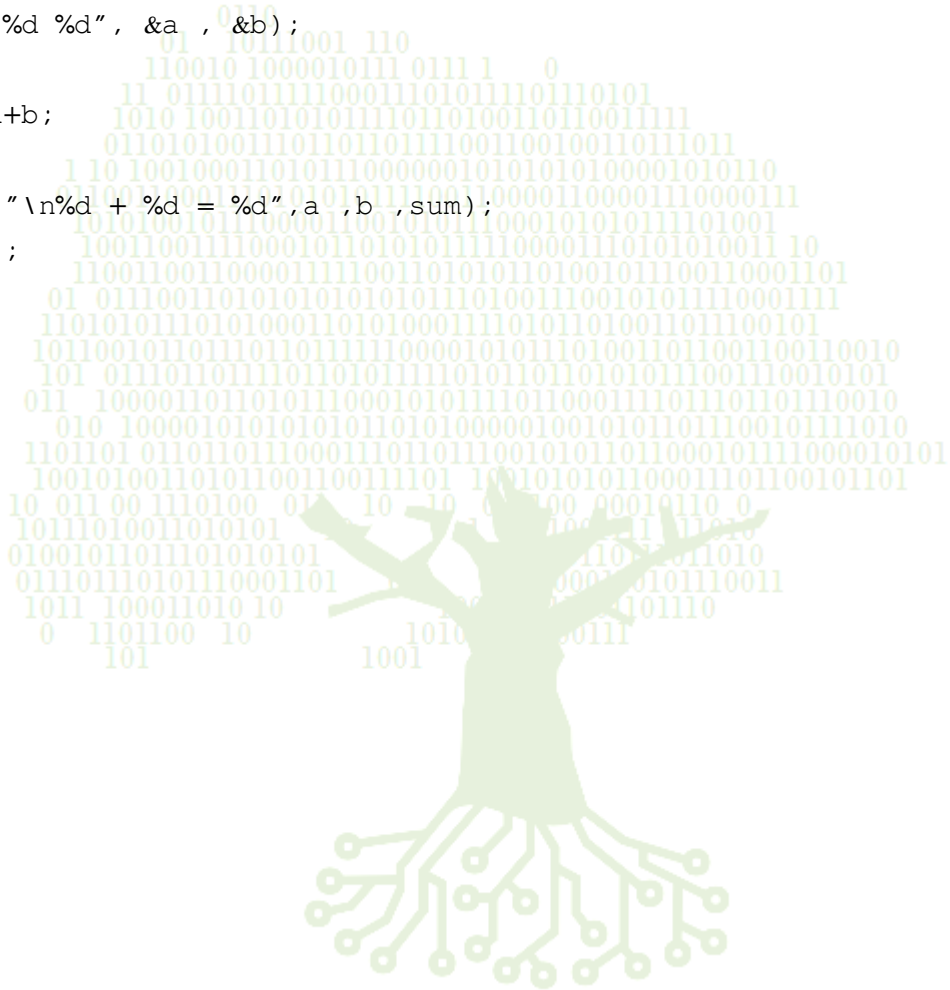
Program to add two Integers.

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

    printf("Enter two Integers for addition: \n");
    scanf("%d %d", &a , &b);

    sum = a+b;

    printf("\n%d + %d = %d",a ,b ,sum);
    getch();
}
```



Output:

```
Enter two Integers for addition:
45
75
45 + 75 = 120_
```

Program to Check whether a Year is Leap Year or Not.

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

    printf("Enter the year: ");
    scanf("%d" ,&year);

    if ( year%4==0 )
    {
        printf("\n%d is a Leap year.",year);
    }
    else
    {
        printf("\n%d is not a Leap year.",year);
    }
    getch();
}
```



Output:

```
Enter the year: 2017
2017 is not a Leap year.
```

Program to find average of two numbers.

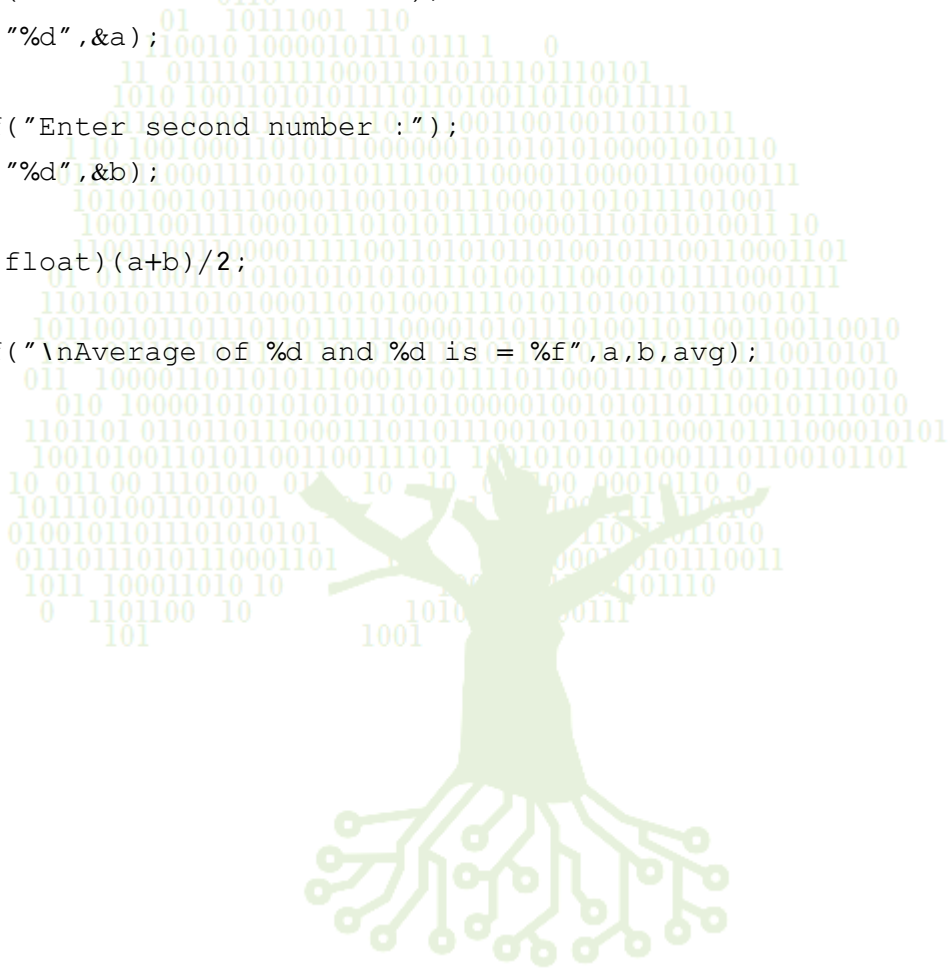
```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b;
    float avg;
    clrscr();

    printf("Enter first number :");
    scanf("%d",&a);

    printf("Enter second number :");
    scanf("%d",&b);

    avg= (float)(a+b)/2;

    printf("\nAverage of %d and %d is = %f",a,b,avg);
    getch();
}
```



Output:

```
Enter first number :15
Enter second number :37
Average of 15 and 37 is = 26.000000
```

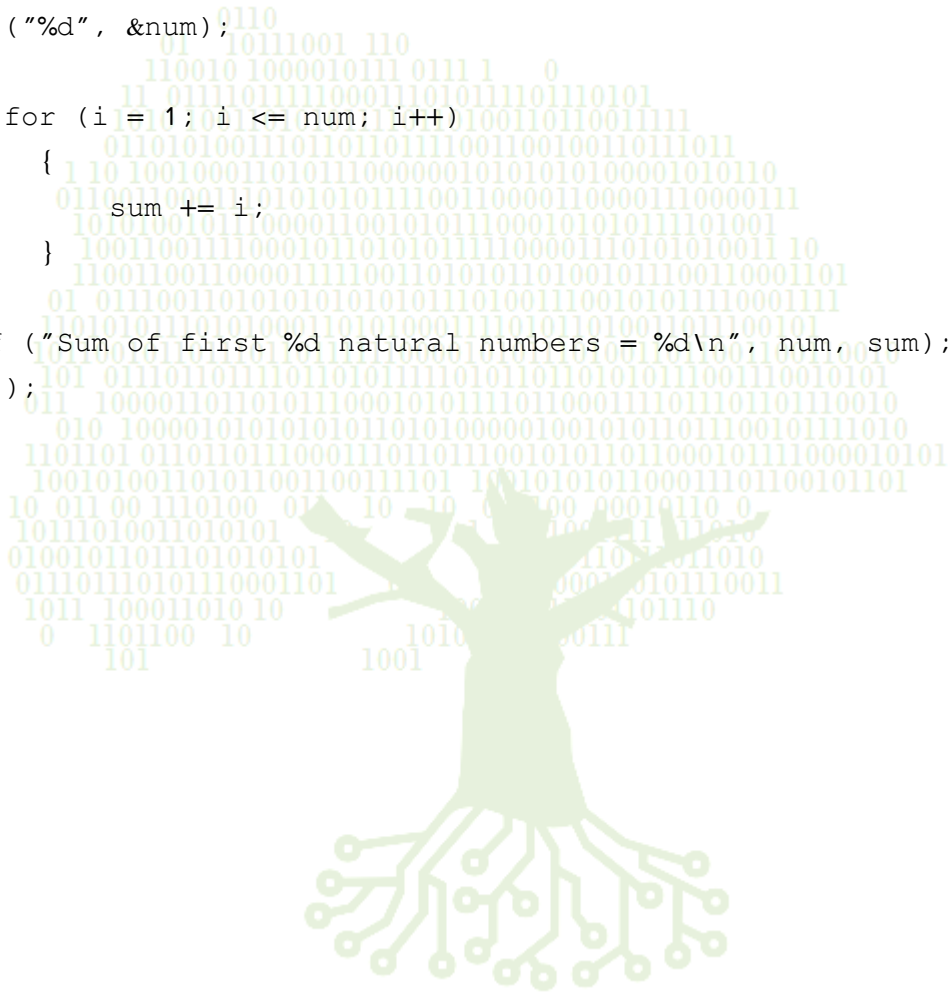
Program to find sum of first N Numbers.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, num, sum = 0;
    clrscr();

    printf("Enter a number to find sum upto: ");
    scanf ("%d", &num);

    for (i = 1; i <= num; i++)
    {
        sum += i;
    }

    printf ("Sum of first %d natural numbers = %d\n", num, sum);
    getch();
}
```

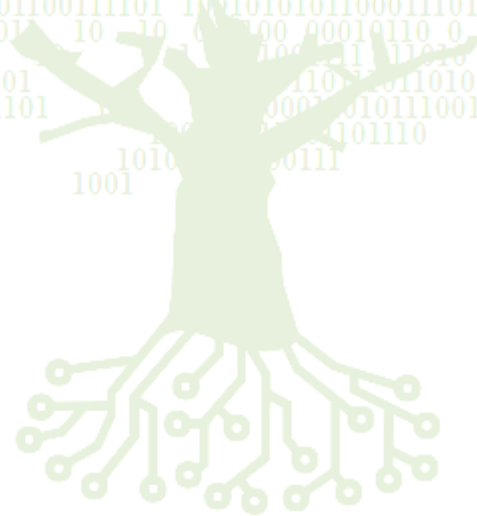


Output:

```
Enter an number to find sum upto: 48
Sum of first 48 natural numbers = 1176
```

Program to swap Values stored in two variables.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int val1, val2, temp=0;
    clrscr();
    printf("Enter First Integer: ");
    scanf("%d" ,&val1);
    printf("\nEnter Second Integer: ");
    scanf("%d" ,&val2);
    printf("\nYour Entered Values are %d & %d" ,val1 ,val2);
    {
        temp=val1;
        val1=val2;
        val2=temp;
    }
    printf("\nValues after swapping are %d & %d" ,val1 ,val2);
    getch();
}
```



Output:

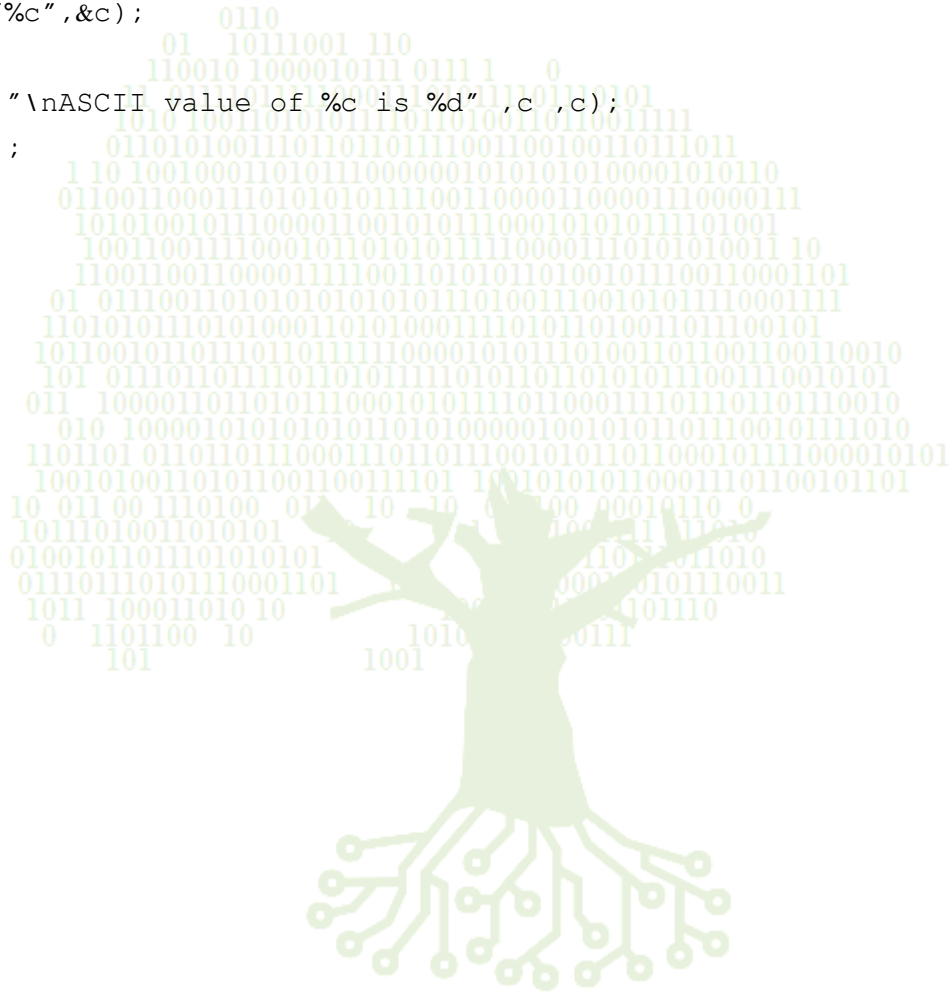
```
Enter First Integer: 17
Enter Second Integer: 39
Your Entered Values are 17 & 39
Values after swapping are 39 & 17_
```

Program to find ASCII value of given character.

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

    printf("Enter a character to find its ASCII value: ");
    scanf("%c",&c);

    printf("\nASCII value of %c is %d",c,c);
    getch();
}
```



Output:

```
Enter a character to find its ASCII value: A
ASCII value of A is 65_
```

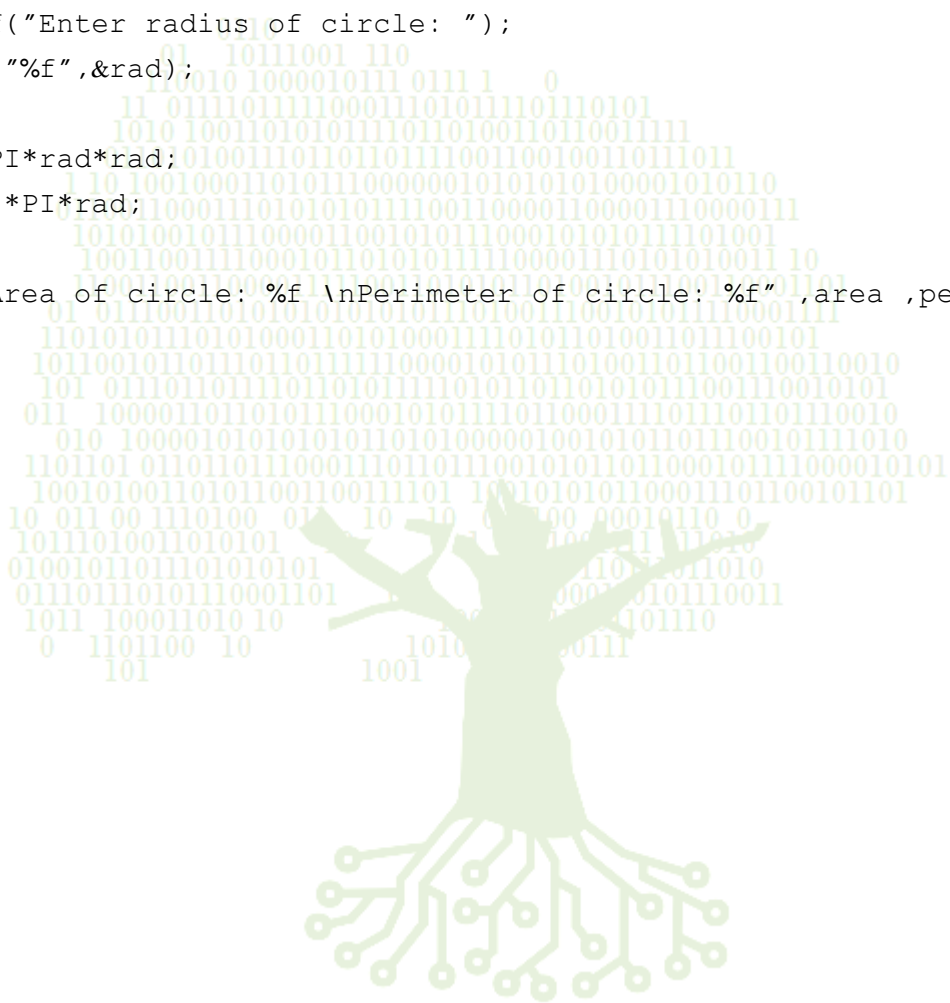
Program to find Area and Perimeter of a Circle.

```
#include <stdio.h>
#include <conio.h>
#define PI 3.14
void main()
{
    float rad,area, perm;
    clrscr();

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

    area=PI*rad*rad;
    perm=2*PI*rad;

    printf("Area of circle: %f \nPerimeter of circle: %f",area ,perm);
    getch();
}
```



Output:

```
Enter radius of circle: 7
Area of circle: 153.860001
Perimeter of circle: 43.959999
```

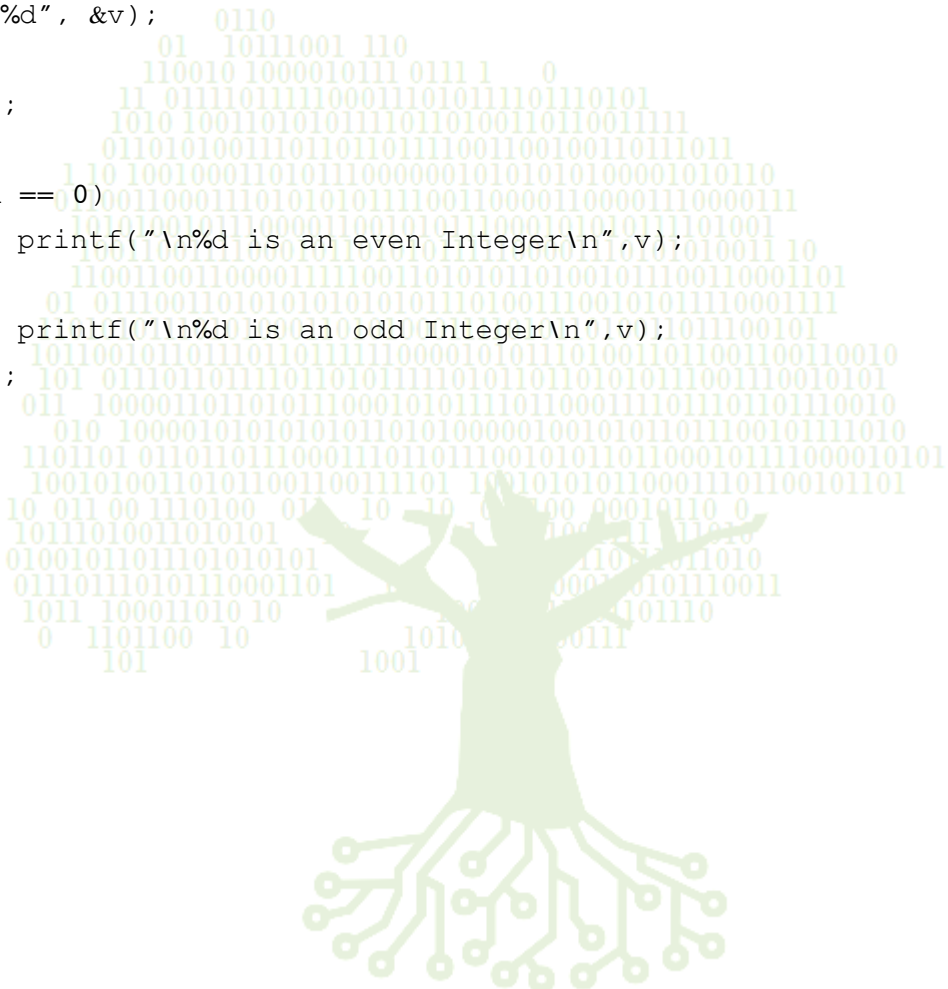

Program to find whether an Integer is even or odd.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int v=0, rem;
    clrscr();

    printf("Enter an Integer: ");
    scanf("%d", &v);

    rem=v%2;

    if (rem ==0)
        printf("\n%d is an even Integer\n",v);
    else
        printf("\n%d is an odd Integer\n",v);
    getch();
}
```



Output:

```
Enter an Integer: 98
98 is an even Integer
```

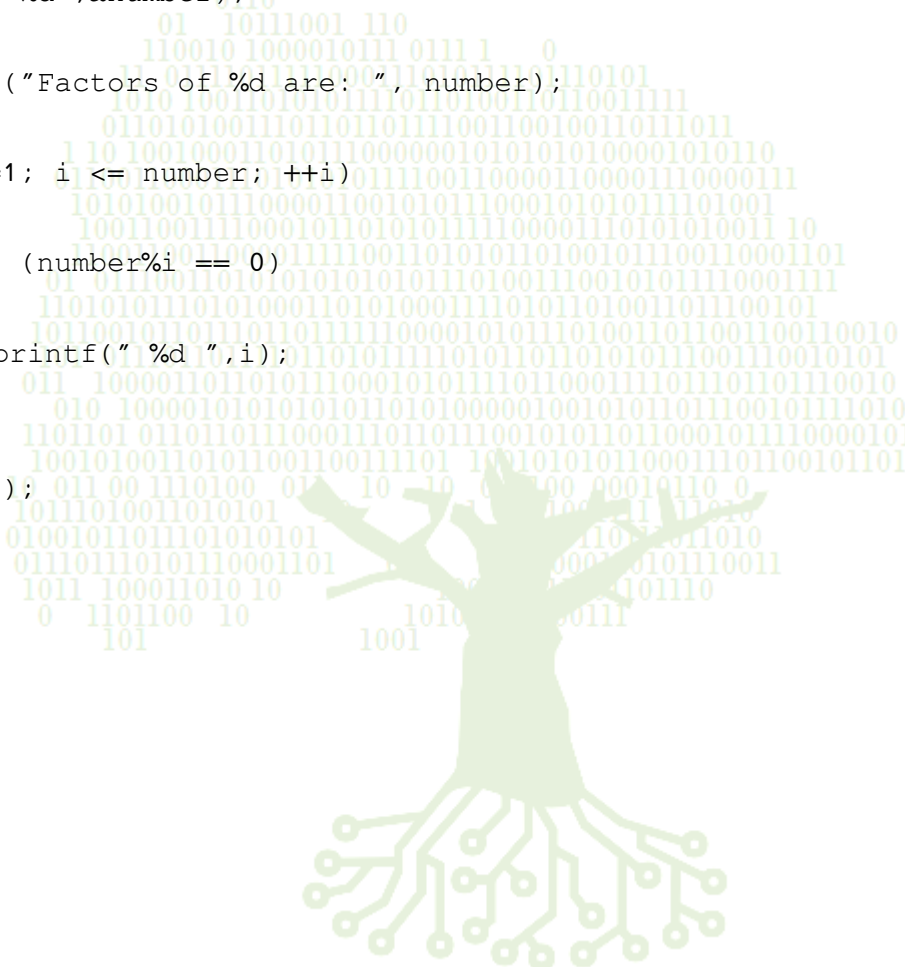
Program to find all Possible Factors of a given positive integer.

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

    printf("Enter a positive integer: ");
    scanf("%d",&number);

    printf("Factors of %d are: ", number);

    for(i=1; i <= number; ++i)
    {
        if (number%i == 0)
        {
            printf(" %d ",i);
        }
    }
    getch();
}
```



Output:

```
Enter a positive integer: 118
Factors of 118 are: 1 2 59 118
```

Program to get Fibonacci series up to Nth term.

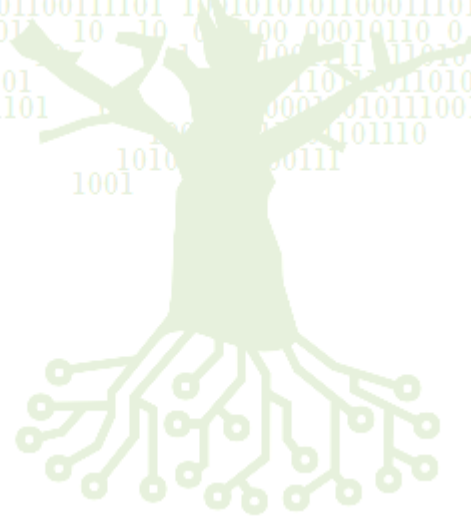
```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n, t1 = 0, t2 = 1, nextTerm;

    clrscr();

    printf("Enter the number of terms: ");
    scanf("%d", &n);

    printf("Fibonacci Series: ");

    for (i = 1; i <= n; ++i)
    {
        printf("\n%d", t1);
        nextTerm = t1 + t2;
        t1 = t2;
        t2 = nextTerm;
    }
    getch();
}
```



Output:

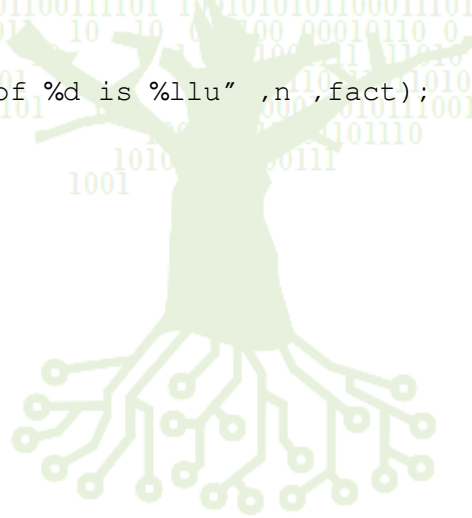
```
Enter the number of terms: 13
Fibonacci Series:
0
1
1
2
3
5
8
13
21
34
55
89
144_
```

Program to find Factorial of a given positive integer.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n;
    unsigned long long fact=1;
    clrscr();

    printf("Enter an Positive Integer to find Factorial of: ");
    scanf("%d" ,&n);

    if ( n<0 )
        printf("\nError! You Entered a Negative Value");
    else
    {
        for (i = 1; i <= n; ++i)
        {
            fact *= i;
        }
        printf("\nFactorial of %d is %llu" ,n ,fact);
    }
    getch();
}
```



Output:

```
Enter an Positive Integer to find Factorial of: 11
Factorial of 11 is 39916800
```

Program to find the largest integer in an array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n;
    int arr[999], temp;
    clrscr();
    printf("Enter total number of elements(1 to 100): ");
    scanf("%d", &n);
    printf("\n");
    for(i = 0; i < n; ++i)
    {
        printf("Enter Number %d: ", i+1);
        scanf("%d", &arr[i]);
    }
    for(i = 1; i < n; ++i)
    {
        if(arr[0] < arr[i])
        {
            temp = arr[0];
            arr[0] = arr[i];
            arr[i] = temp;
        }
    }
    printf("Largest element = %d", arr[0]);
    getch();
}
```

Output:

```
Enter total number of elements: 9
Enter Number 1: 3
Enter Number 2: 2
Enter Number 3: 5
Enter Number 4: 6
Enter Number 5: 4
Enter Number 6: 1
Enter Number 7: 8
Enter Number 8: 9
Enter Number 9: 7
Largest element = 9_
```

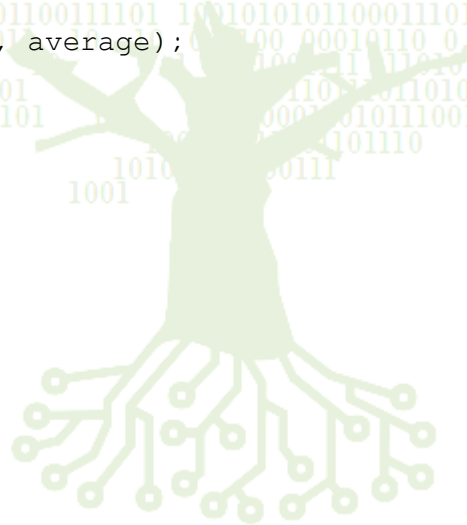
Program to find average of given Integers in an Array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int marks[10], i, n;
    float sum = 0, average;
    clrscr();

    printf("Enter No. of Integers to find Average from: ");
    scanf("%d", &n);

    for(i=0; i<n; ++i)
    {
        printf("Enter number%d: ", i+1);
        scanf("%d", &marks[i]);
        sum += marks[i];
    }
    average = sum/n;

    printf("Average = %f", average);
    getch();
}
```



Output:

```
Enter No. of Integers to find Average from: 3
Enter number1: 9
Enter number2: 11
Enter number3: 14
Average = 11.333333
```

Program to Convert Celsius to Fahrenheit & Vice Versa.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float fh,cl;
    int choice;
    clrscr();

    printf("\n1: Convert temperature from Fahrenheit to Celsius.");
    printf("\n2: Convert temperature from Celsius to Fahrenheit.");
    printf("\nEnter your choice (1, 2): ");

    scanf("%d",&choice);
    if(choice ==1){
        printf("\nEnter temperature in Fahrenheit: ");
        scanf("%f",&fh);
        cl= (fh - 32) / 1.8;
        printf("Temperature in Celsius: %.2f",cl);
    }
    else if(choice==2){
        printf("\nEnter temperature in Celsius: ");
        scanf("%f",&cl);
        fh= (cl*1.8)+32;
        printf("Temperature in Fahrenheit: %.2f",fh);
    }
    else{
        printf("\nInvalid Choice !!!");
    }
    getch();
}
```

Output:

```
1: Convert temperature from Fahrenheit to Celsius.
2: Convert temperature from Celsius to Fahrenheit.
Enter your choice (1, 2): 1
Enter temperature in Fahrenheit:
29
Temperature in Celsius: -1.67
```


Program to find LCM of two Integers.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n1, n2, minMultiple;
    clrscr();

    printf("Enter two positive integers: ");
    scanf("%d %d", &n1, &n2);

    minMultiple = (n1>n2) ? n1 : n2;

    while(1)
    {
        if( minMultiple%n1==0 && minMultiple%n2==0 )
        {
            printf("The LCM of %d and %d is %d.", n1, n2,minMultiple);
            break;
        }
        ++minMultiple;
    }
    getch();
}
```



Output:

```
Enter two positive integers: 11
32
The LCM of 11 and 32 is 352.
```

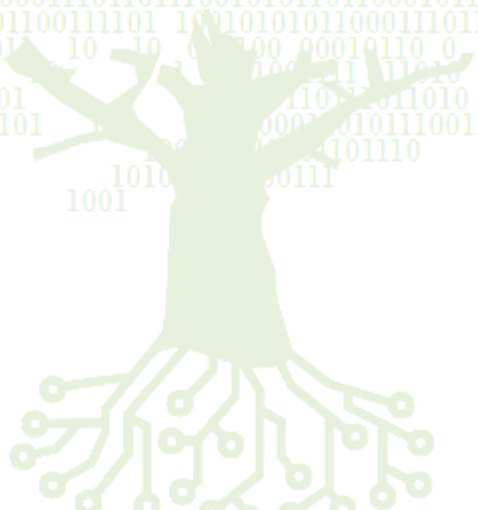

Program to find HCF of two Integers.

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

    printf("Enter the two numbers to find their HCF: ");
    scanf("%d%d", &a, &b);

    result = hcf(a, b);
    printf("The HCF of %d and %d is %d.\n", a, b, result);
    getch();
}

int hcf(int a, int b)
{
    while (a != b)
    {
        if (a > b)
        {
            a = a - b;
        }
        else
        {
            b = b - a;
        }
    }
    return a;
}
```



Output:

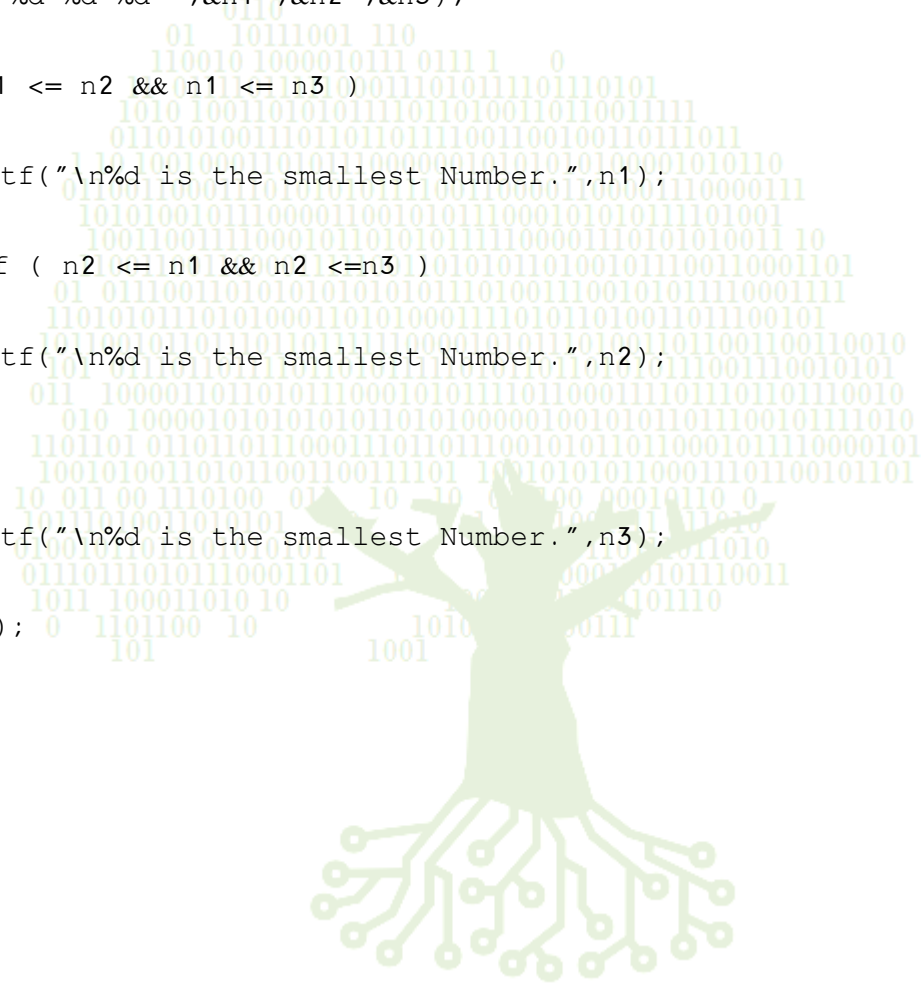
```
Enter the two numbers to find their HCF: 54
12
The HCF of 54 and 12 is 6.
```

Program to find the Smallest No. out of three numbers.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n1, n2, n3;
    clrscr();

    printf("\nEnter Three Numbers: ");
    scanf("%d %d %d", &n1, &n2, &n3);

    if ( n1 <= n2 && n1 <= n3 )
    {
        printf("\n%d is the smallest Number.", n1);
    }
    else if ( n2 <= n1 && n2 <= n3 )
    {
        printf("\n%d is the smallest Number.", n2);
    }
    else
    {
        printf("\n%d is the smallest Number.", n3);
    }
    getch();
}
```



Output:

```
Enter Three Numbers: 45
94
13
13 is the smallest Number._
```

Program to find the exponential value of a Number.


```
#include <stdio.h>
#include <conio.h>
void main()
{
    int base, exponent;
    long long result = 1;
    clrscr();

    printf("Enter a base number: ");
    scanf("%d", &base);

    printf("Enter an exponent: ");
    scanf("%d", &exponent);

    while (exponent != 0)
    {
        result *= base;
        --exponent;
    }

    printf("Answer = %lld", result);
    getch();
}
```



Output:

```
Enter a base number: 12
Enter an exponent: 4
Answer = 20736_
```

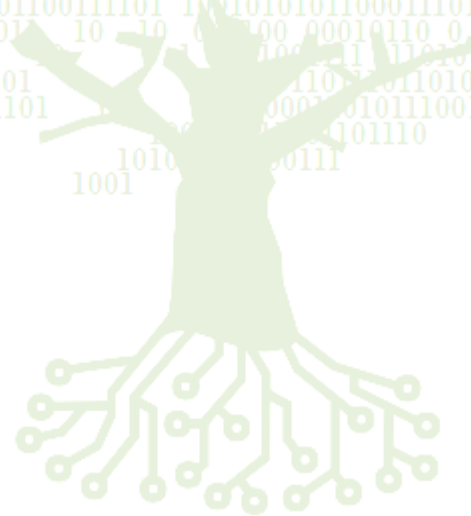
Program to find the Quotient & Remainder of Division.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int divn, divs, quo, rem;
    clrscr();

    printf("Enter Dividend: ");
    scanf("%d" ,&divn);

    printf("\nEnter Divisor: ");
    scanf("%d" ,&divs);
    {
        quo=divn/divs;
        rem=divn%divs;
    }

    printf("\nQuotient: %d" ,quo);
    printf("\nRemainder: %d" ,rem);
    getch();
}
```



Output:

```
Enter Dividend: 39
Enter Divisor: 3
Quotient: 13
Remainder: 0_
```

Program to check whether a given no. is prime number or not.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n, i, flag = 0;
    clrscr();


    printf("Enter a positive integer: ");
    scanf("%d", &n);
    for(i = 2; i <= n/2; ++i)
    {
        if(n%i == 0)
        {
            flag = 1;
            break;
        }
    }
    if (n == 1)
    {
        printf("1 is neither a prime nor a composite number.");
    }
    else
    {
        if (flag == 0)
            printf("%d is a prime number.", n);
        else
            printf("%d is not a prime number.", n);
    }
    getch();
}
```

Output:

```
Enter a positive integer: 97
97 is a prime number.
```

Program to find all prime no's in a given range.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int low, high, i, flag;
    clrscr();
    printf("Enter two numbers(intervals): ");
    scanf("%d %d", &low, &high);
    printf("Prime numbers between %d and %d are: ", low, high);
    while (low < high)
    {
        flag = 0;
        for(i = 2; i <= low/2; ++i)
        {
            if(low % i == 0)
            {
                flag = 1;
                break;
            }
        }
        if (flag == 0)
            printf("%d ", low);
        ++low;
    }
    getch();
}
```



Output:

```
Enter two numbers(intervals): 12
25
Prime numbers between 12 and 25 are: 13 17 19 23 _
```

Program to show working of a simple calculator.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char operator;
    double FN,SN;
    clrscr();
    printf("Enter an operator (+, -, *, /): ");
    scanf("%c", &operator);
    printf("Enter two operands: ");
    scanf("%lf %lf",&FN, &SN);
    switch(operator)
    {
        case '+':
            printf("%.1lf + %.1lf = %.1lf",FN, SN, FN + SN);
            break;
        case '-':
            printf("%.1lf - %.1lf = %.1lf",FN, SN, FN - SN);
            break;
        case '*':
            printf("%.1lf * %.1lf = %.1lf",FN, SN, FN * SN);
            break;
        case '/':
            printf("%.1lf / %.1lf = %.1lf",FN, SN, FN / SN);
            break;
        default:
            printf("Error! operator is not correct");
    }
    getch();
}
```

Output:

```
Enter an operator (+, -, *, /): /
Enter two operands: 45
2
45.0 / 2.0 = 22.5
```

Program to convert Decimal to Binary.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int n, c, k;

    clrscr();

    printf("Enter an integer in decimal number system\n");
    scanf("%d", &n);

    printf("%d in binary number system is:\n", n);

    for (c = 31; c >= 0; c--)
    {
        k = n >> c;

        if (k & 1)
            printf("1");
        else
            printf("0");
    }

    printf("\n");
    getch();
}
```

Output:

[illegible]

Program to convert Decimal to Hexadecimal.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    long decimalnum, quotient, remainder;
    int i, j = 0;
    char hexadecimalnum[100];
    clrscr();

    printf("Enter decimal number: ");
    scanf("%ld", &decimalnum);

    quotient = decimalnum;
    while (quotient != 0)
    {
        remainder = quotient % 16;
        if (remainder < 10)
            hexadecimalnum[j++] = 48 + remainder;
        else
            hexadecimalnum[j++] = 55 + remainder;
        quotient = quotient / 16;
    }
    for (i = j; i >= 0; i--)
        printf("%c", hexadecimalnum[i]);
    getch();
}
```

Output:

```
Enter decimal number: 3313448
5328F28_
```

Program to check whether a String is palindrome or not.

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    clrscr();
    char string[25], reverse_string[25] = {'\0'};
    int i, length = 0, flag = 0;

    printf("Enter a string \n");
    gets(string);
    for (i = 0; string[i] != '\0'; i++)
    {
        length++;
    }
    for (i = length - 1; i >= 0; i--)
    {
        reverse_string[length - i - 1] = string[i];
    }
    for (i = 0; i < length; i++)
    {
        if (reverse_string[i] == string[i])
            flag = 1;
        else
            flag = 0;
    }
    if (flag == 1)
        printf("%s is a palindrome \n", string);
    else
        printf("%s is not a palindrome \n", string);
    getch();
}
```

Output:

```
Enter a string
radar
radar is a palindrome
```

Program to find Determinant of a 3x3 Matrix.

```
#include<stdio.h>
#include<conio.h>
int main(){

    int a[3][3], i, j;
    long determinant;
    clrscr();

    printf("Enter the 9 elements of matrix: ");
    for(i = 0 ;i < 3;i++){
        for(j = 0;j < 3;j++){
            scanf("%d", &a[i][j]);
        }
    }

    printf("\nThe matrix is\n");
    for(i = 0;i < 3; i++){
        printf("\n");
        for(j = 0;j < 3; j++){
            printf("%d\t", a[i][j]);
        }
    }

    determinant = a[0][0] * ((a[1][1]*a[2][2]) - (a[2][1]*a[1][2])) - a[0][1] *
    (a[1][0] * a[2][2] - a[2][0] * a[1][2]) + a[0][2] * (a[1][0] * a[2][1] -
    a[2][0] * a[1][1]);

    printf("\nDeterminant of 3X3 matrix: %ld", determinant);
    getch();
}
```

Output:

```
Enter the 9 elements of matrix: 89
31
656
13
48
93
11
56
34

The matrix is
89    31    656
13    48    93
11    56    34
Determinant of 3X3 matrix: 27555
```

Program to convert Uppercase to Lowercase & Vice Versa.

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

void main()
{
    char sentence[100];
    int count, ch, i;
    clrscr();
    printf("Enter a sentence\n");
    for (i = 0; (sentence[i] = getchar()) != '\n'; i++)
    {
        ;
    }
    sentence[i] = '\0';
    count = i;
    printf("The given sentence is : %s", sentence);
    printf("\n Case changed sentence is: ");
    for (i = 0; i < count; i++)
    {
        ch = islower(sentence[i])? toupper(sentence[i]) : tolower(sentence[i]);
        putchar(ch);
    }
    getch();
}
```

Output:

```
Enter a sentence
This is a Sentence.
The given sentence is : This is a Sentence.
Case changed sentence is: THIS IS A sENTENCE.
```

Program to find Largest No. in an Array.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int array[50], size, i, largest;
    clrscr();

    printf("\n Enter the size of the array: ");
    scanf("%d", &size);

    printf("\n Enter %d elements of the array: ", size);
    for (i = 0; i < size; i++)
        scanf("%d", &array[i]);
    largest = array[0];
    for (i = 1; i < size; i++)
    {
        if (largest < array[i])
            largest = array[i];
    }
    printf("\n largest element present in the given array is : %d", largest);
    getch();
}
```

Output:

```
Enter the size of the array: 4
Enter 4 elements of the array: 5
9
3
23
largest element present in the given array is : 23_
```

Program to sort a list of integers in ascending order using Bubble Sort.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int array[100], n, c, d, swap;
    clrscr();

    printf("Enter number of elements\n");
    scanf("%d", &n);
    printf("Enter %d integers\n", n);

    for (c = 0; c < n; c++)
        scanf("%d", &array[c]);
    for (c = 0 ; c < n - 1; c++)
    {
        for (d = 0 ; d < n - c - 1; d++)
        {
            if (array[d] > array[d+1]) /* For decreasing order use < */
            {
                swap = array[d];
                array[d] = array[d+1];
                array[d+1] = swap;
            }
        }
    }
    printf("Sorted list in ascending order:\n");
    for (c = 0; c < n; c++)
        printf("%d\n", array[c]);
    getch();
}
```

Output:

```
Enter number of elements
5
Enter 5 integers
1
5
9
46
13
Sorted list in ascending order:
1
5
9
13
46
```

Program to sort a list of integers in ascending order using Insertion Sort.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int n, array[1000], c, d, t;
    clrscr();

    printf("Enter number of elements\n");
    scanf("%d", &n);

    printf("Enter %d integers\n", n);
    for (c = 0; c < n; c++)
        scanf("%d", &array[c]);
    for (c = 1 ; c <= n - 1; c++)
    {
        d = c;
        while ( d > 0 && array[d-1] > array[d]) {
            t = array[d];
            array[d] = array[d-1];
            array[d-1] = t;

            d--;
        }
    }

    printf("Sorted list in ascending order:\n");

    for (c = 0; c <= n - 1; c++) {
        printf("%d\n", array[c]);
    }
    getch();
}
```

Output:

```
Enter number of elements
6
Enter 6 integers
4
6
499
132
96
45
Sorted list in ascending order:
4
6
46
96
132
499
```

Program to sort a list of integers in ascending order using Selection Sort.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int array[100], n, c, d, position, swap;
    clrscr();
    printf("Enter number of elements\n");
    scanf("%d", &n);

    printf("Enter %d integers\n", n);

    for (c = 0; c < n; c++)
        scanf("%d", &array[c]);
    for (c = 0; c < (n - 1); c++)
    {
        position = c;
        for (d = c + 1; d < n; d++)
        {
            if (array[position] > array[d])
                position = d;
        }
        if (position != c)
        {
            swap = array[c];
            array[c] = array[position];
            array[position] = swap;
        }
    }
    printf("Sorted list in ascending order:\n");

    for (c = 0; c < n; c++)
        printf("%d\n", array[c]);
    getch();
}
```

Output:

```
Enter number of elements
4
Enter 4 integers
5
46
13
47
Sorted list in ascending order:
5
13
46
47
-
```


Program to Generate 10 Random No's in the range of 1 to 100.

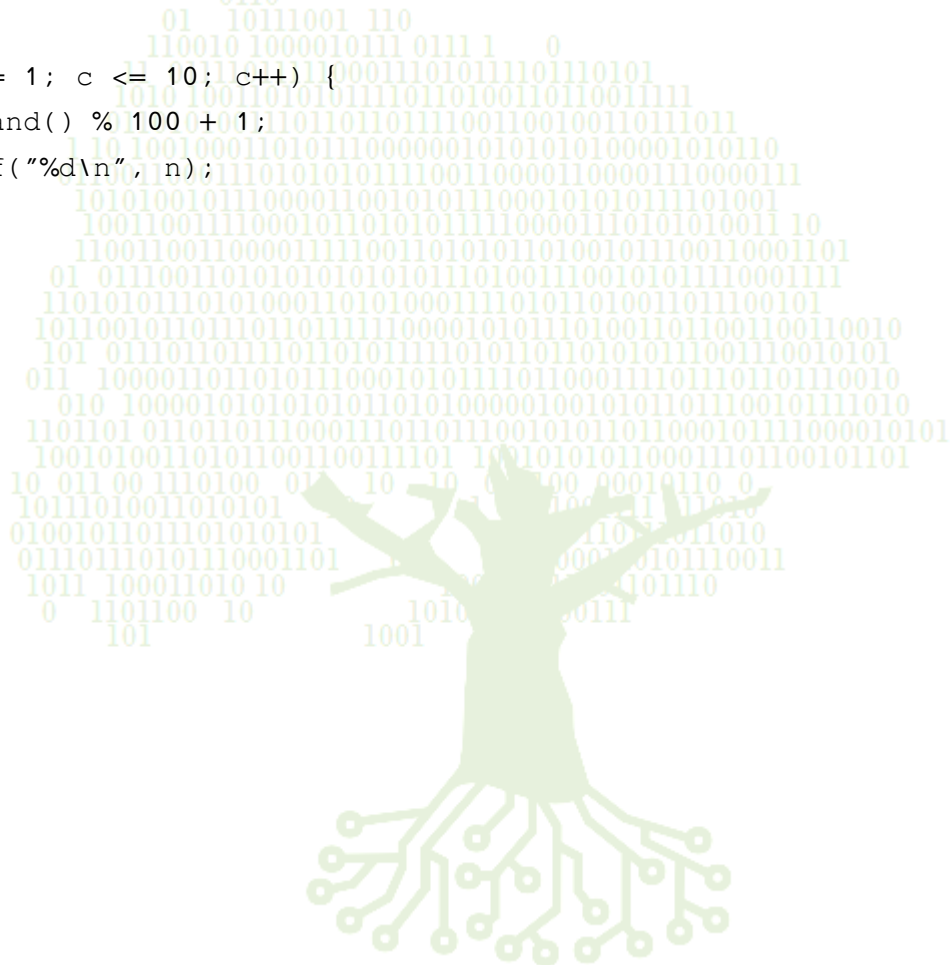
```
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>

int main() {
    int c, n;
    clrscr();

    printf("Ten random numbers in [1,100]\n");

    for (c = 1; c <= 10; c++) {
        n = rand() % 100 + 1;
        printf("%d\n", n);
    }

    getch();
}
```



Output:

```
Ten random numbers in [1,100]
47
31
83
91
57
18
36
16
49
27
-
```

Program to check frequency of repeated character in the string.

```
#include <stdio.h>
#include <string.h>
#include <conio.h>
void find_frequency(char [], int []);

int main()
{
    char string[100];
    int c, count[26] = {0};
    clrscr();

    printf("Input a string\n");
    gets(string);

    find_frequency(string, count);
    printf("Character Count\n");
    for (c = 0 ; c < 26 ; c++)
        printf("%c \t %d\t", c + 'a', count[c]);

    getch();
}

void find_frequency(char s[], int count[]) {
    int c = 0;
    while (s[c] != '\0') {
        if (s[c] >= 'a' && s[c] <= 'z' )
            count[s[c] - 'a']++;
        c++;
    }
}
```

Output:

```
Input a string
the quick brown fox jumps over the lazy dog.
Character Count
a 1 b 1 c 1 d 1 e 3
f 1 g 1 h 2 i 1 j 1
k 1 l 1 m 1 n 1 o 4
p 1 q 1 r 2 s 1 t 2
u 2 v 1 w 1 x 1 y 1
z 1
```

Program to Compare whether two Strings are equal or not.

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

int main()
{
    char a[100], b[100];
    clrscr();

    printf("Enter a string\n");
    gets(a);

    printf("Enter a string\n");
    gets(b);

    if (strcmp(a,b) == 0)
        printf("The strings are equal.\n");
    else
        printf("The strings are not equal.\n");

    getch();
}
```



Output:

```
Enter a string
C Programming File by Himanshu Pal.
Enter a string
C Programming File by Himanshu Pal.
The strings are equal.
```