

## Program on Looping

1. Write a C program to print all natural numbers from 1 to n. - using while loop
2. Write a C program to print all natural numbers in reverse (from n to 1). - using while loop
3. Write a C program to print all alphabets from a to z. - using while loop
4. Write a C program to print all even numbers between 1 to 100. - using while loop
5. Write a C program to print all odd number between 1 to 100.
6. Write a C program to find sum of all natural numbers between 1 to n.
7. Write a C program to find sum of all even numbers between 1 to n.
8. Write a C program to find sum of all odd numbers between 1 to n.
9. Write a C program to print multiplication table of any number.
10. Write a C program to count number of digits in a number.
11. Write a C program to find first and last digit of a number.
12. Write a C program to find sum of first and last digit of a number.
13. Write a C program to swap first and last digits of a number.
14. Write a C program to calculate sum of digits of a number.
15. Write a C program to calculate product of digits of a number.
16. Write a C program to enter a number and print its reverse.
17. Write a C program to check whether a number is palindrome or not.
18. Write a C program to find frequency of each digit in a given integer.
19. Write a C program to enter a number and print it in words.
20. Write a C program to print all ASCII character with their values.
21. Write a C program to find power of a number using for loop.
22. Write a C program to find all factors of a number.
23. Write a C program to calculate factorial of a number.
24. Write a C program to find HCF (GCD) of two numbers.
25. Write a C program to find LCM of two numbers.
26. Write a C program to check whether a number is Prime number or not.
27. Write a C program to print all Prime numbers between 1 to n.
28. Write a C program to find sum of all prime numbers between 1 to n.
29. Write a C program to find all prime factors of a number.

30. Write a C program to check whether a number is Armstrong number or not.
31. Write a C program to print all Armstrong numbers between 1 to n.
32. Write a C program to check whether a number is Perfect number or not.
33. Write a C program to print all Perfect numbers between 1 to n.
34. Write a C program to check whether a number is Strong number or not.
35. Write a C program to print all Strong numbers between 1 to n.
36. Write a C program to print Fibonacci series up to n terms.

## Patterns Assignment

```

* * * * *
* * * * *
* * * * *

```

Solid Rectangle

Hollow Rectangle

```

* * * * *
*           *
*           *
* * * * *

```

```

*
* *
* * *
* * * *
* * * * *
* * * * *

```

Half Pyramid

```

* * * * *
* * * *
* * *
* *
*

```

Inverted Half Pyramid

```

* * * * *
*       *
*       *
* *
*

```

Hollow Inverted Half Pyramid

```

      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * *

```

Full Pyramid

```

* * * * *
 * * * *
  * * *
   * *
    *

```

Inverted Full Pyramid

```

      *
     * *
    *   *
   *     *
  *       *
 *         *
* * * * *

```

Hollow Full Pyramid

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

Half Pyramid

```

1 2 3 4 5
1 2 3 4
1 2 3
1 2
1

```

Inverted  
Half Pyramid

```

1
1 2
1 3
1 4
1 2 3 4 5

```

Hollow  
Half Pyramid

```

      1
    2 3 2
  3 4 5 4 3
4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5

```

Full Pyramid

```

      1
    1 2
  1 3
1 4
1 2 3 4 5

```

Hollow Full Pyramid

```

1 2 3 4 5
2 5
3 5
4 5
5

```

Hollow Inverted  
Half Pyramid

```

1
1 2 1
1 2 3 2 1
1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1

```

```

A
A B A
A B C B A
A B C D C B A
A B C D E D C B A

```

```

      1
    1 2 1
  1 2 3 2 1
1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1

```

```

*****1*****
*****2*2*****
*****3*3*3*****
*****4*4*4*4*****
*****5*5*5*5*5*****

```

Different types of Palindrome Pyramid Patterns

```

      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * *
* * * * *
 * * * *
  * * *
   * *
    *

```

Solid Diamond

```

      *
     * *
    *   *
   *     *
  *       *
 *         *
*           *
 *         *
  *       *
   *     *
    *   *
     * *
      *

```

Hollow Diamond

```

      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * *
* * * * *
 * * * *
  * * *
   * *
    *

```

Solid Half  
Diamond

3	1	1	*
44	2*2	2*3	* 1 *
555	3*3*3	4*5*6	* 1 2 1 *
6666	4*4*4*4	7*8*9*10	* 1 2 3 2 1 *
555	4*4*4*4	7*8*9*10	* 1 2 1 *
44	3*3*3	4*5*6	* 1 *
3	2*2	2*3	*
	1	1	

Different types of Solid Half Diamonds

```

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1

```

**Floyd's Triangle Pattern Program in C, C++, Java, Python**

## Pascal's Triangle Pattern Program in C, C++, Java, Python

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1
```

## Hollow Diamond Inscribed in a Rectangle

## Hollow Diamond Inscribed in a Rectangle

```
* * * * * * * * * *
* * * *      * * * *
* * *      * * *
* *      * *
*      *
*      *
* *      * *
* * *      * * *
* * * *      * * * *
* * * * * * * * * *
```

## Butterfly Pattern Printing

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*
```

## Diagonal & Sides of a Rectangle

```
*****
**      **
*  *  *  *
*    *    *
*  *  *  *
**      **
*****
```

## Diagonal & Sides of a Rhombus/Diamond

```

  *
 * * *
*   *   *
*     *     *
* * * * * * * *
*     *     *
*   *   *
 * * *
  *
```

## Left and Right Arrows

```

  *           Left Arrow  *
   *           *
    *           *
     *           *
      *           *
*****          *****
      *           *
     *           *
    *           *
   *           *
  *           *
 *   Right Arrow  *
```

## Rhombus Pattern Program in C, C++, Java

```
*****
*****
*****
*****

*****
*   *
*   *
*   *
*****
```

Solid Rhombus

Hollow Rhombus

Triangle with numbers

```
      1
     2 3
    4 5 6
   7 8 9 10
```

C program to print following Pyramid:

```
0
01 01
010 010
0101 0101
0101001010
```

C program to print following Pyramid:

```
1
12 21
123 321
1234 4321
1234554321
```

C program to print following pyramid

```
123454321
1234321
12321
121
1
```

C program to print character pyramid as given below:

```
A
B C
D E F
G H I J
K L M N O
```

```
/*
C program to print following character pyramid:
ABCDEDCBA
ABCD DCBA
ABC CBA
AB BA
A A
*/
```

```
/*
C program to print following pyramid:
A
BAB
CBABC
DCBABCD
EDCBABCDE
*/
```

```
/*
C program to print following pyramid
A
ABA
ABCBA
ABCD CBA
ABCDEDCBA
*/
```