

Assignment 5 – Nested Loop

Pattern programs are nothing but patterns consisting of numbers, alphabets, or symbols in a particular form. These kinds of pattern programs can be solved easily using for loop condition.

#1 - Rectangle Pattern Programs in C++

The diagram illustrates a 3x5 grid of red asterisks. The left side, labeled "Solid Rectangle", shows a full 3x5 grid of asterisks. The right side, labeled "Hollow Rectangle", shows a 3x5 grid where only the perimeter asterisks are present, with the interior cells being empty.

#2 - Pyramid Pattern Programs in C++ using stars

Half Pyramid

Inverted Half Pyramid

Hollow Inverted Half Pyramid

Full Pyramid

Inverted Full Pyramid

Hollow Full Pyramid

Assignment 5 – Nested Loop

#3 - Pyramid Pattern Programs in C++, using numbers

```
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

#5 - Diamond Pattern Programs in C++, using stars

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

Solid Diamond

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

Hollow Diamond

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

Solid Half
Diamond