

Tender Heart High School

Class IX

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Topic: Nested For loop

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Dear Students

Earlier in previous chapter we have done three types of loops that is for loop, while loop and do-while loop. Now today we start with Nested loop. In your syllabus only nested for loop is there and

These types of Patterns you get in your Syllabus:

1. Rectangular
2. Triangular (Right angled)
3. Series involving single variable

What is nested loop?

```

for (
    {
    inner {
    }
    }
  
```

outer

A loop within another loop is known as nested loop

What is double loop?

```

for (
{
}
for (
{
}
}
  
```

loop after loop is double loop

if we want to print only first line then we required single for loop with following code i.e

```
for(int a=1; a<=5; a++)
```

```
{
```

```
    System.out.print(a);
```

```
}
```

Now we require 4 rows of same pattern for which we require 2 loops

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

class Pattern1

```
{
```

```
    public static void main()
```

```
{
```

```
        for(int i=1; i<=4; i++)
```

```
{
```

```
            for(int a=1; a<=5; a++)
```

```
{
```

```
                System.out.print(a);
```

```
}
```

```
                System.out.println()
```

```
}
```

only print because I want to print all 5 elements in 1 row

to shift cursor from one row

to another

Q2

```

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

```

In this pattern only the difference is in printing the value i.e. which value we want to print

```

class pattern2
{

```

```

    public static void main()
    {

```

```

        for (i=1; i<=4; i++)
        {

```

```

            for (a=1; a<=5; a++)
            {

```

```

                System.out.print(i);
            }

```

```

        System.out.println();
    }

```

Normally inner loop is used for columns and outer loop is for rows.

Q3

```

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

```

In this 5 rows are there but columns are not same like in

1st - 1 column

2nd - 2 column

```

class pattern3
{

```

```

    public static void main()
    {

```

```

        for (int i=1; i<=5; i++)
        {

```

```

            for (int a=1; a<=i; a++)
            {

```

```

                System.out.print(a);
            }
        System.out.println();
    }

```

4
 5 5
 6 6 6
 7 7 7 7
 8 8 8 8 8

class pattern4

{

public static void main()

{

for(int i=4; i<=8; i++)

{

for(int a=4; a<=i; a++)

{

System.out.print(i);

}

System.out.println();

}

}

Q Write the programme for the following patterns:-

(i)

```

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

(ii)

```

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

(iii)

```

7 6 5 4 3 2 1
7 6 5 4 3 2
7 6 5 4 3
7 6 5 4
7 6 5
7 6
7
  
```

(iv)

```

1 2 3 4 5 6 7
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
  
```

(v)

```

7
7 6
7 6 5
7 6 5 4
7 6 5 4 3
7 6 5 4 3 2
7 6 5 4 3 2 1
  
```

(vi)

```

1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
1 0 1 0 1 0
1 0 1 0 1 0 1
  
```

vii

```

1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
6 5 4 3 2 1
  
```

Only nested-loop for generating the pattern is given. Students must start their program from class means write complete program.

```
for (int i = 1; i <= 5; i++)
```

```
{  
    for (int a = 1; a <= i; a++)
```

```
{  
        System.out.print(a);
```

```
    }  
    System.out.println();
```

```
}
```

```
for (int i = 4; i >= 1; i--)
```

```
{
```

```
    for (int a = 1; a <= i; a++)
```

```
{
```

```
        System.out.print(a);
```

```
    }
```

```
    System.out.println();
```

```
}
```

```
for (int i = 1; i <= 5; i++)
```

```
{
```

```
    for (int a = 1; a <= i; a++)
```

```
{
```

```
        System.out.print(i + " ");
```

```
    }
```

```
    System.out.println();
```

```
}
```

```
iii for (int i = 1; i <= 7; i++)  
    {  
        for (int a = 7; a >= i; a--)  
        {  
            System.out.print(a + " ");  
        }  
        System.out.println();  
    }
```

```
iv for (int i = 7; i >= 1; i--)  
    {  
        for (int a = 1; a <= i; a++)  
        {  
            System.out.print(a + " ");  
        }  
        System.out.println();  
    }
```

```
v for (int i = 7; i >= 1; i--)  
    {  
        for (int a = 7; a >= i; a--)  
        {  
            System.out.print(a + " ");  
        }  
        System.out.println();  
    }
```



```

for (int i=1; i<=7; i++)
{
    for (int a=1; a<=i; a++)
    {
        if (a%2 == 0)
        {
            System.out.print (0);
        }
        else
        {
            System.out.print (1);
        }
    }
    System.out.print (\n);
}

```

```

for (int i=1; i<=6; i++)
{
    for (int a=i; a>=1; a--)
    {
        System.out.print (a+" ");
    }
    System.out.print (\n);
}

```