

```
1 // Exploring the for loop
2 // Executes a fixed number of times with a fixed increment or decrement
3 // The for has the counter and the condition built in.
4 // No separate counter needed
5 // No separate condition applicable
6
7 public class TheForLoop7 {
8
9     public static void main(String[] args) {
10
11         // Global variables for the whole method
12         int square = 0, theRandom = 0, counter = 0, stop = 0, step = 0;
13
14         // Counting from 0 to 9
15         System.out.println("One");
16         for(int i = 0; i < 10; i++)
17             System.out.print(i + "\t");
18
19         System.out.println();
20
21         // Counting from 100 to 109
22         System.out.println("Two");
23         for(int i = 100; i < 110; i++)
24             System.out.print(i + "\t");
25
26         System.out.println();
27
28         // Counting in odd numbers
29         System.out.println("Three - counting in odds");
30         for(int i = 1; i < 20; i = i + 2)
31             System.out.print(i + "\t");
32
33         System.out.println();
34
35         // Counting from 10 down to 1
36         System.out.println("Four - counting down");
37         for(int i = 10; i >= 1; i--)
38             System.out.print(i + "\t");
39
40         System.out.println();
41
42         // Counting from 100, incrementing i by 10 each time
43         System.out.println("Five");
44         for(int i = 100; i <= 200; i = i + 10)
45             System.out.print(i + "\t");
46
47         System.out.println();
48
49         // Counting from 0 upwards and increasing i by its own value
50         System.out.println("Six");
51         for(int i = 0; i < 200; i++) {
52             i = i + i;
53             System.out.print(i + "\t");
54         }
55
56         System.out.println();
57
58         // First 10 square numbers
59         System.out.println("Seven - square numbers");
60         for(int i = 0; i < 10; i++) {
61             square = i * i;
62             System.out.print(square + "\t");
63         }
64
65         System.out.println();
66
67         // Ten random numbers. Range from 1 to 10 inclusive
68         System.out.println("Eight - randoms");
69         for(int i = 0; i < 10; i++) {
70             theRandom = (int)(Math.random() * 10) + 1;
71             System.out.print(theRandom + "\t");
```

```

72     }
73
74     System.out.println();
75
76     // When you need the value of the counter elsewhere (outside the code block)
77     // Declare the counter globally, not in the code block
78     System.out.println("Nine - global variable");
79     for(counter = 0; counter < 10; counter++)
80         System.out.print(counter + "\t");
81
82     System.out.println();
83
84     // When you need to take control of the values outside the code block
85     System.out.println("Nine - global variables");
86     counter = 3234;
87     stop = counter + 10;
88     step = 2;
89
90     for(; counter < stop; counter = counter + step)
91         System.out.print(counter + "\t");
92
93     System.out.println();
94
95 }
96 }
97 =====
98
99 OUTPUT
100
101 ----jGRASP exec: java TheForLoop7
102 One - counting
103 0  1  2  3  4  5  6  7  8  9
104 Two - counting
105 100 101 102 103 104 105 106 107 108 109
106 Three - counting in odds
107 1  3  5  7  9  11  13  15  17  19
108 Four - counting down
109 10 9  8  7  6  5  4  3  2  1
110 Five
111 100 110 120 130 140 150 160 170 180 190 200
112 Six
113 0  2  6  14  30  62  126 254
114 Seven - square numbers
115 0  1  4  9  16  25  36  49  64  81
116 Eight - randoms
117 9  7  6  10  1  6  5  2  10  8
118 Nine - global variable
119 0  1  2  3  4  5  6  7  8  9
120 Nine - global variables
121 3234 3236 3238 3240 3242
122
123 ----jGRASP: operation complete.

```