- waiting for the page to load

or

Flow Diagram for Whileloop

Infinite loop-

```
1 package javasessions;
2
3 public class LoopsConcept {
4
5    public static void main(String[] args) {
6
7        //1 to 10
8        //1. while loop:
9
10       int i = 1;
11       while(i<=10) {
12           System.out.println(i);
13       }
14
```

Good while loop-

```
LoopsConcept.java ⋈
 1 package javasessions;
 2
 3 public class LoopsConcept {
 4
 5⊖     public static void main(String[] args) {
 6
 7         //1 to 10
 8         //1. while loop:
 9
10         int i = 1;
11         while(i<=10) {
12             System.out.println(i);//12345678910
13             i++;//11
14         }
15
16
17     }
```

1 to 10 is printed.

++i also prints the same-

```
LoopsConcept.java ⋈
 1 package javasessions;
 2
 3 public class LoopsConcept {
 4
 5⊖     public static void main(String[] args) {
 6
 7         //1 to 10
 8         //1. while loop:
 9
10         int i = 1;
11         while(i<=10) {
12             System.out.println(i);//12345678910
13             //i++;//11
14             ++i;
15         }
```

Prints 1 to 10.

This way of incrementing also works-

```java
 1 package javasessions;
 2
 3 public class LoopsConcept {
 4
 5     public static void main(String[] args) {
 6
 7         //1 to 10
 8         //1. while loop:
 9
10         int i = 1;
11         while(i<=10) {
12             System.out.println(i);//12345678910
13             //i++;//11
14             //++i;
15             i=i+1;
16         }
17
18
```

Prints 1 to 10.

Print odd numbers between 1 to 10-

```
LoopsConcept.java ⌘
  1 package javasessions;
  2
  3 public class LoopsConcept {
  4
  5°     public static void main(String[] args) {
  6
  7         //1 to 10
  8         //1. while loop:
  9
 10         int i = 1;
 11         while(i<=10) {
 12             System.out.println(i);//12345678910
 13             //i++;//11
 14             //++i;
 15             i=i+2;
 16         }
 17
 18
 19     }
 20
 21 }
```

1,3,5,7,9.

Break-

```java
package javasessions;

public class LoopsConcept {

    public static void main(String[] args) {

        //1 to 10
        //1. while loop:

        int i = 1;
        while(i<=10) {
            System.out.println(i);//12345678910
            i++;//11
            //++i;
            //i=i+1;
            break;
        }
```

Output is 1.

Not goes inside loop-

paste while 6 –

```java
package com.day6;

public class while6 {

    public static void main(String[] args) {

//not goes inside while loop.

        int k=1;
        while(k>=50) {
            System.out.println("hello");
        }
        System.out.println("outside while"); //outside while
    }

}

//1
```

```
18
19          //
20          int k=1;
21          while(k<=50) {
22              System.out.println("hello");
23              k++;
24          }
25
```

```
25
26          //1 to 50
27          int p =1;
28          while(p<=50) {
29              System.out.println(p);//1
30                  if(p==5) {
31                      System.out.println("bye");
32                      break;
33                  }
34          }
35
```

Prints 1 infinite times as not breaking.

```
25
26          //1 to 50
27          int p =1;
28          while(p<=50) {
29              System.out.println(p);//12345
30                  if(p==5) {
31                      System.out.println("bye");
32                      break;
33                  }
34              p++;//5
35          }
36
```

1
2
3
4
5
byee

Tab: while10.java | **while9.java** × | while11.java

```java
1  package com.day6;
2
3  public class while9 {
4
5      public static void main(String[] args) {
6
7  //while with if and without break.
8  //        without break.
9          //when we write the counter inside if block wont work.
10         //counter has to be for while block.
11
12             int p=1;
13             while(p<=50) {
14                 System.out.println(p);
15                 if(p==5) {
16                     System.out.println("byee");
17                     p++;
18                 }
19             }
20
21
22  }
23  }
24
```

Tab: while10.java | **while11.java** ×

```java
1  package com.day6;
2
3  public class while11 {
4
5      public static void main(String[] args) {
6
7  //while with if and break.
8  //        with break.
9          //when we write the counter inside if block wont work.
10         //counter has to be for while block.
11
12             int p=1;
13             while(p<=50) {
14                 System.out.println(p);
15                 if(p==5) {
16                     System.out.println("byee");
17                     p++;
18                     break;
19                 }
20             }
21
22
23  }
24  }
25
26  //prints 1 infinite times.
27
```

```
25
26          // 1 to 50
27          int p = 1;
28          while (p <= 50) {
29              //System.out.println(p);// 12345
30              if (p == 5) {
31                  System.out.println("bye");
32                  break;
33              }
34              p++;
35
```
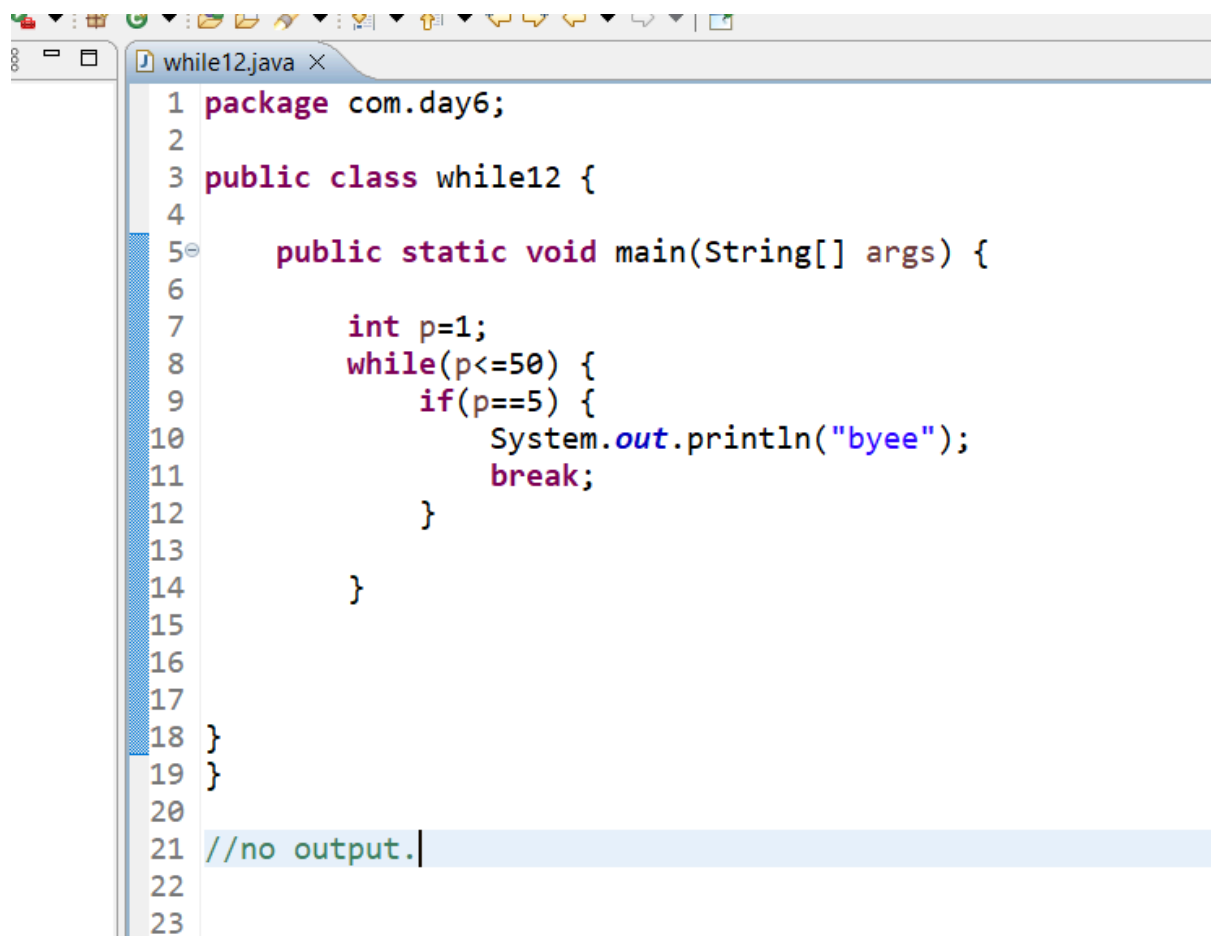
bye

```
1  package com.day6;
2
3  public class while12 {
4
5      public static void main(String[] args) {
6
7          int p=1;
8          while(p<=50) {
9              if(p==5) {
10                 System.out.println("byee");
11                 break;
12             }
13
14         }
15
16
17
18 }
19 }
20
21 //no output.
22
23
```

//increment it before going inside if loop.

```
26          // 1 to 50
27          int p = 1;
28          while (p <= 50) {
29                  System.out.println(p);// 12345
30                  p++;//5
31                  if (p == 5) {
32                          System.out.println("bye");
33                          break;
34                  }
35
```

Output- 1,2,3,4,bye.

Prints 10 to 1.

```
36
37          //10 to 1:
38          int t = 10;
39          while(t>=1) {
40                  System.out.println(t);//10
41                  t--;
42          }
43
```

Wont go inside loop.- blank output.

```
36
37          //10 to 1:
38          int t = -1;
39          while(t>=1) {
40              System.out.println(t);//10
41              t--;
42          }
```

--t also works-
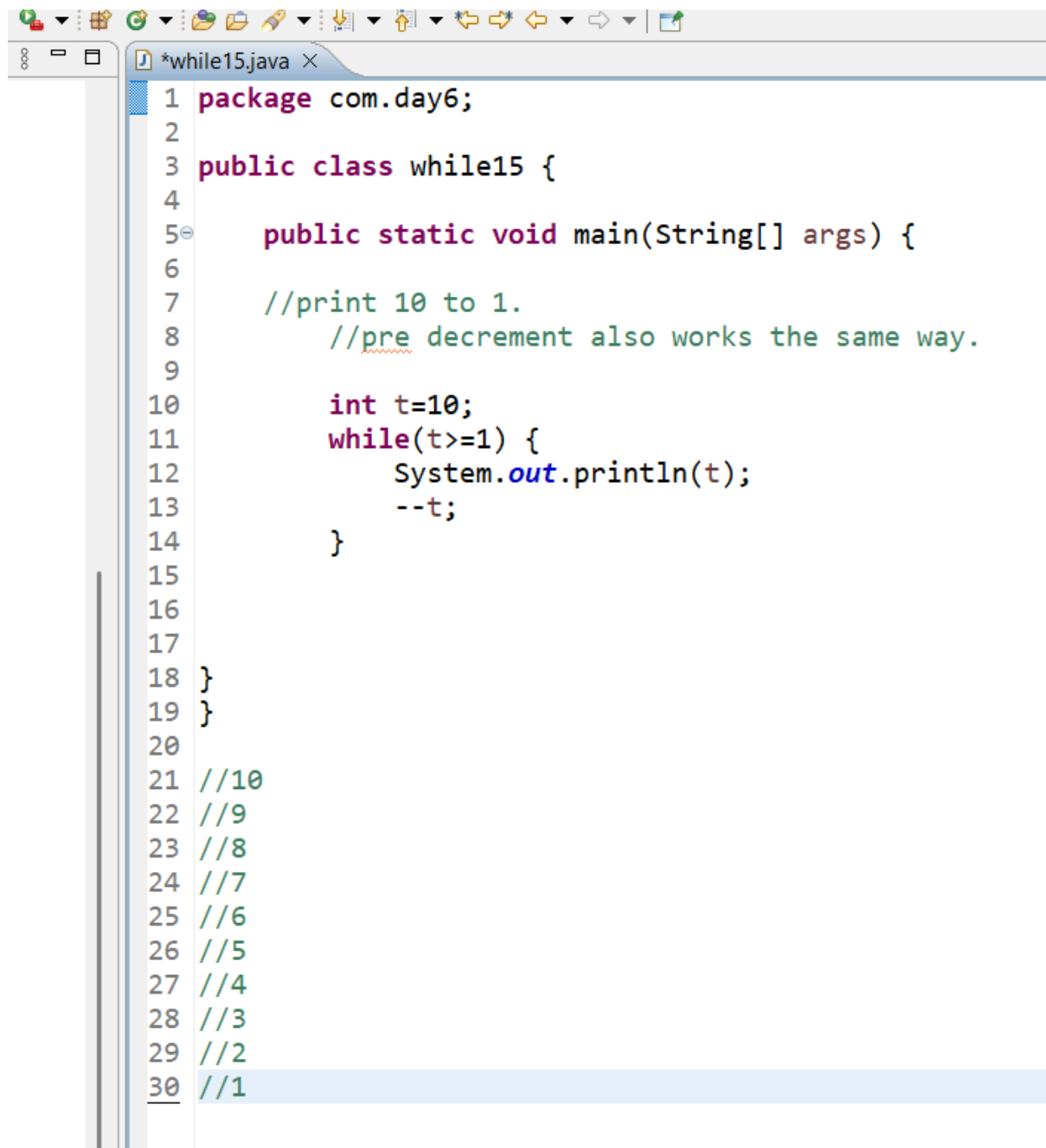
```
36
37          //10 to 1:
38          int t = 10;
39          while(t>=1) {
40              System.out.println(t);//10
41              //t--;
42              --t;
43      }
```

10 to 1.

paste while 15 –

```java
package com.day6;

public class while15 {

    public static void main(String[] args) {

    //print 10 to 1.
        //pre decrement also works the same way.

        int t=10;
        while(t>=1) {
            System.out.println(t);
            --t;
        }



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

t=t-1 also works-

```
36
37          //10 to 1:
38          int t = 10;
39          while(t>=1) {
40              System.out.println(t);//10987654321
41              //t--;
42              //--t;
43              t=t-1;//0
44          }
45
```
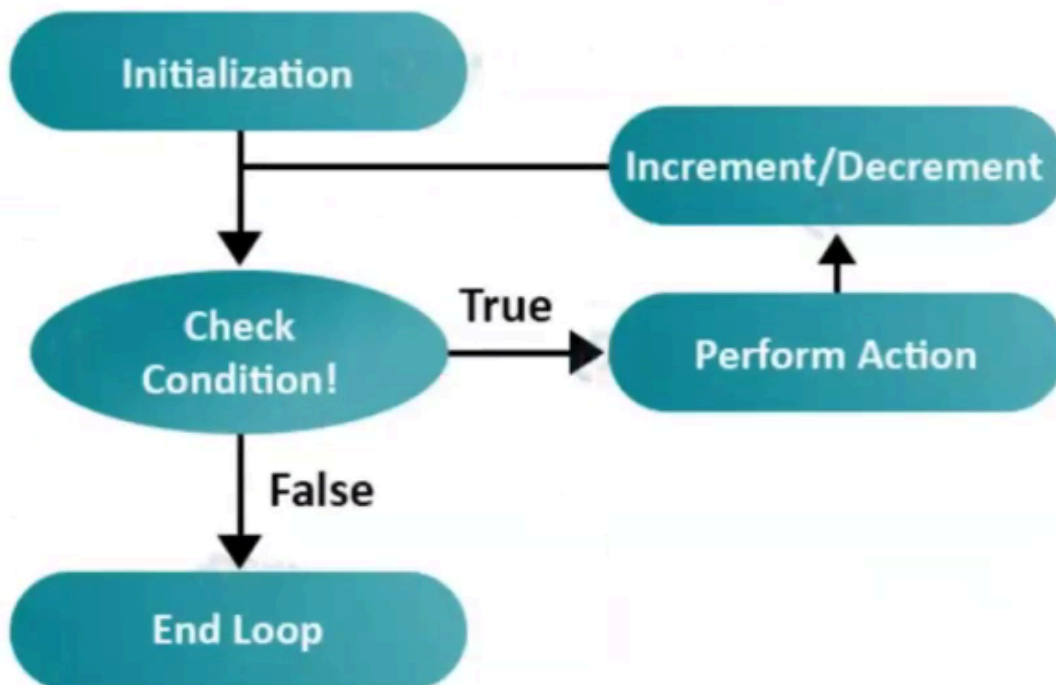
Prints 10 to 1.

negative – another while condition check–

```
36
37          //10 to 1:
38          int t = 10;
39          while(t>=-1) {
40              System.out.println(t);//109876543210-1
41              //t--;
42              //--t;
43              t=t-1;//-1
44          }
45
```

Prints 10 to -1.

Doesn't go inside while-

```
36
37         //10 to 1:
38         int t = -10;
39         while(t>=-1) {
40             System.out.println(t);//109876543210-1
41             //t--;
42             //--t;
43             t=t-1;//-2
44         }
45
```

Flow Diagram for Forloop

```
Initialization
      |
      |------------------> Increment/Decrement
      v                              ^
Check          True                  |
Condition! ----------> Perform Action
      |
      | False
      v
End Loop
```
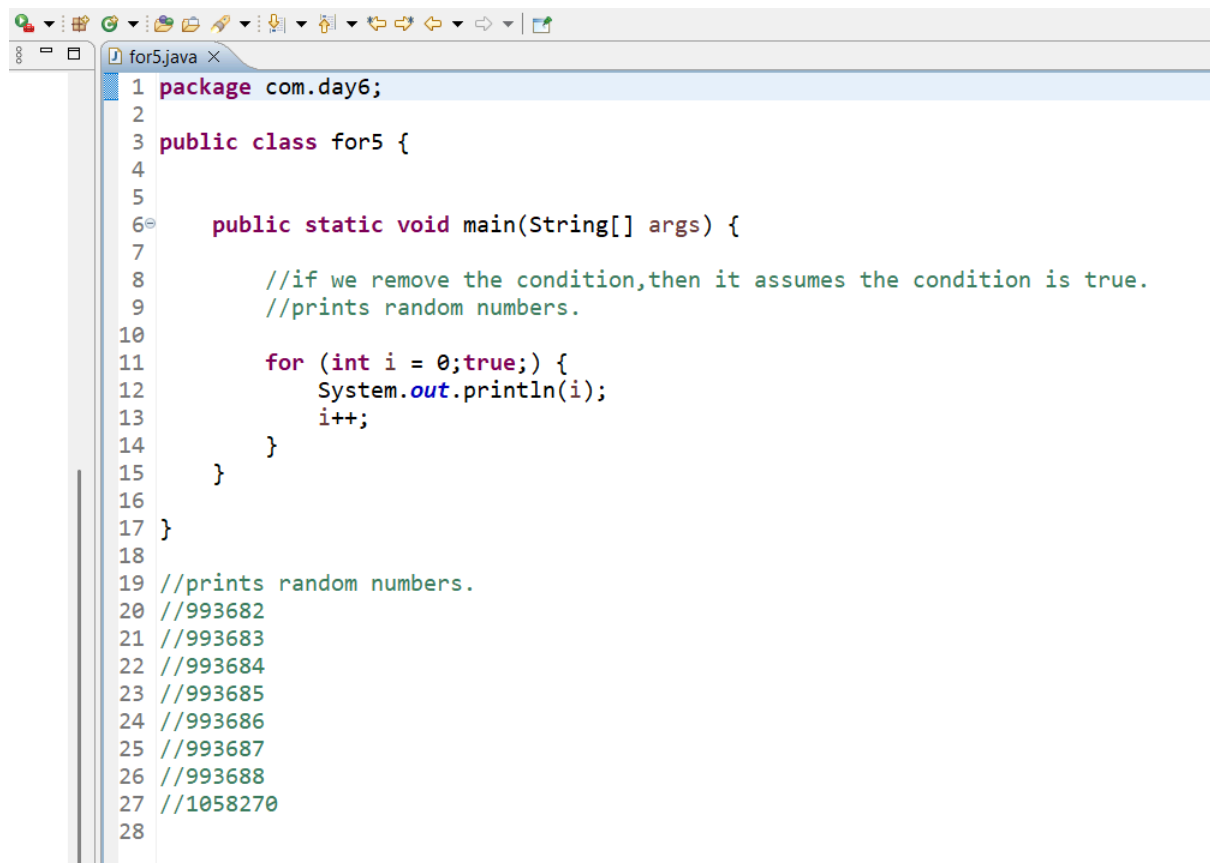
{"Hello"} }

```
49
50         //2. for loop:
51         //1 to 10:
52         for(int d=1; d<=10; d++) {
53             System.out.println(d);//12345678910
54         }
55
```

1 to 10 is printed.

Without increment decrement-

```
49
50         //2. for loop:
51         //1 to 10:
52         for(int d=1; d<=10; ) {
53             System.out.println(d);//12345678910
54         }
```

1 is printed infinite times.

another way to write for loop-

```
49
50         //2. for loop:
51         //1 to 10:
52         for(int d=1; d<=10; ) {
53             System.out.println(d);//12345678910
54             d++;
55         }
56
```

Prints 1 to 10.

Don't give the condition-

```
48
49
50        //2. for loop:
51        //1 to 10:
52        for(int d=1; ; d++) {
53            System.out.println(d);//12345678910
54        }
55
```

Gives random number in output.

By default condition is assumed true when not specified.
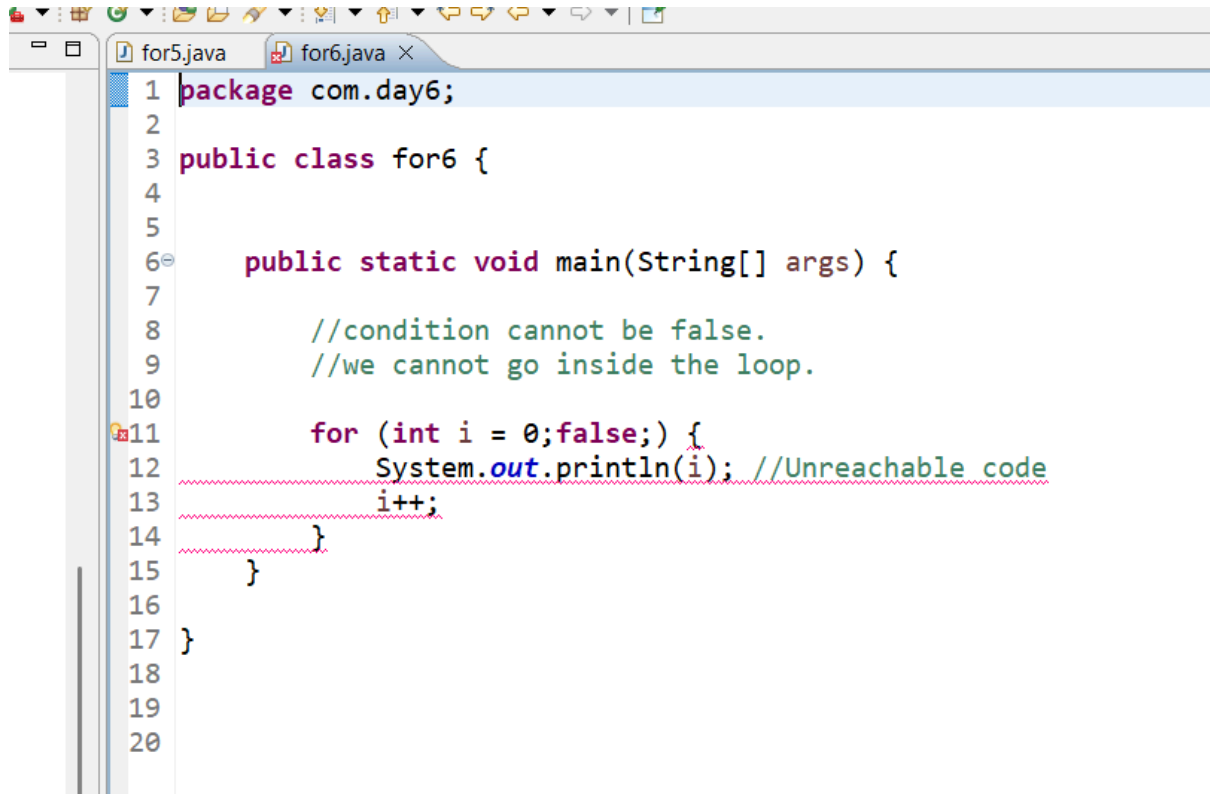
paste for 5

```
1 package com.day6;
2
3 public class for5 {
4
5
6   public static void main(String[] args) {
7
8       //if we remove the condition,then it assumes the condition is true.
9       //prints random numbers.
10
11      for (int i = 0;true;) {
12          System.out.println(i);
13          i++;
14      }
15  }
16
17 }
18
19 //prints random numbers.
20 //993682
21 //993683
22 //993684
23 //993685
24 //993686
25 //993687
26 //993688
27 //1058270
28
```
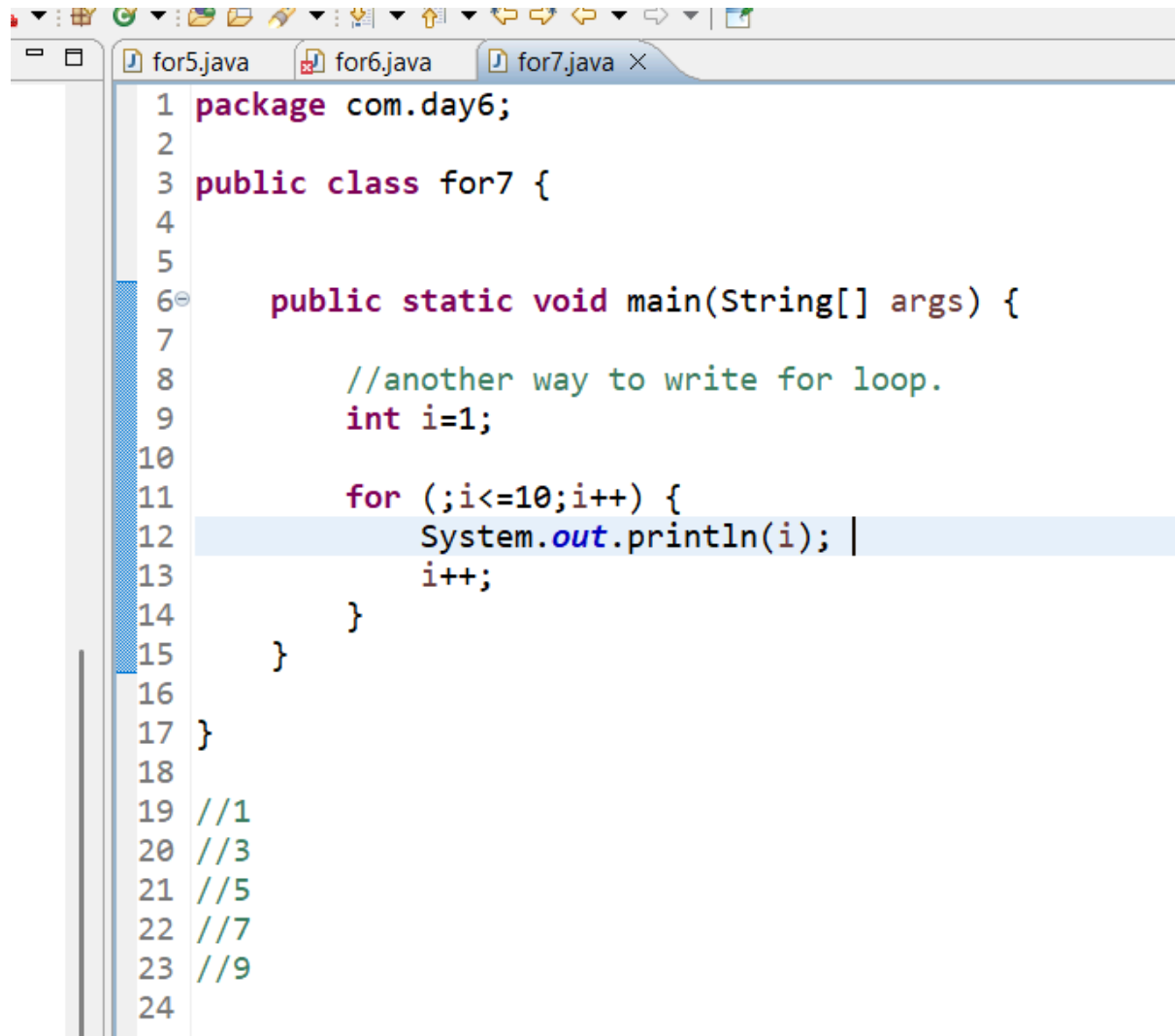
Cannot write false here-

paste for 6

```java
package com.day6;

public class for6 {



    public static void main(String[] args) {


        //condition cannot be false.
        //we cannot go inside the loop.

        for (int i = 0;false;) {
            System.out.println(i); //Unreachable code
            i++;
        }
    }

}
```
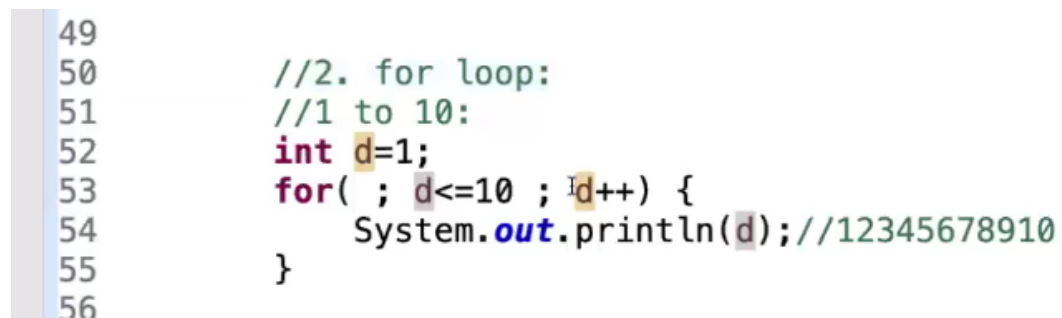
paste for 7

```
for5.java    for6.java    for7.java ×
 1  package com.day6;
 2
 3  public class for7 {
 4
 5
 6      public static void main(String[] args) {
 7
 8          //another way to write for loop.
 9          int i=1;
10
11          for (;i<=10;i++) {
12              System.out.println(i); |
13              i++;
14          }
15      }
16
17  }
18
19  //1
20  //3
21  //5
22  //7
23  //9
24
```

```
49
50          //2. for loop:
51          //1 to 10:
52          int d=1;
53          for( ; d<=10 ; d++) {
54              System.out.println(d);//12345678910
55          }
56
```

Prints 1 to 10.

```
48
49
50        //2. for loop:
51        //1 to 10:
52        int d=1;
53        for( ; d<=10 ; ) {
54            System.out.println(d);//12345678910
55            d++;
56        }
57
```

Prints 1 to 10.

Note- colon is mandatory to write else error.
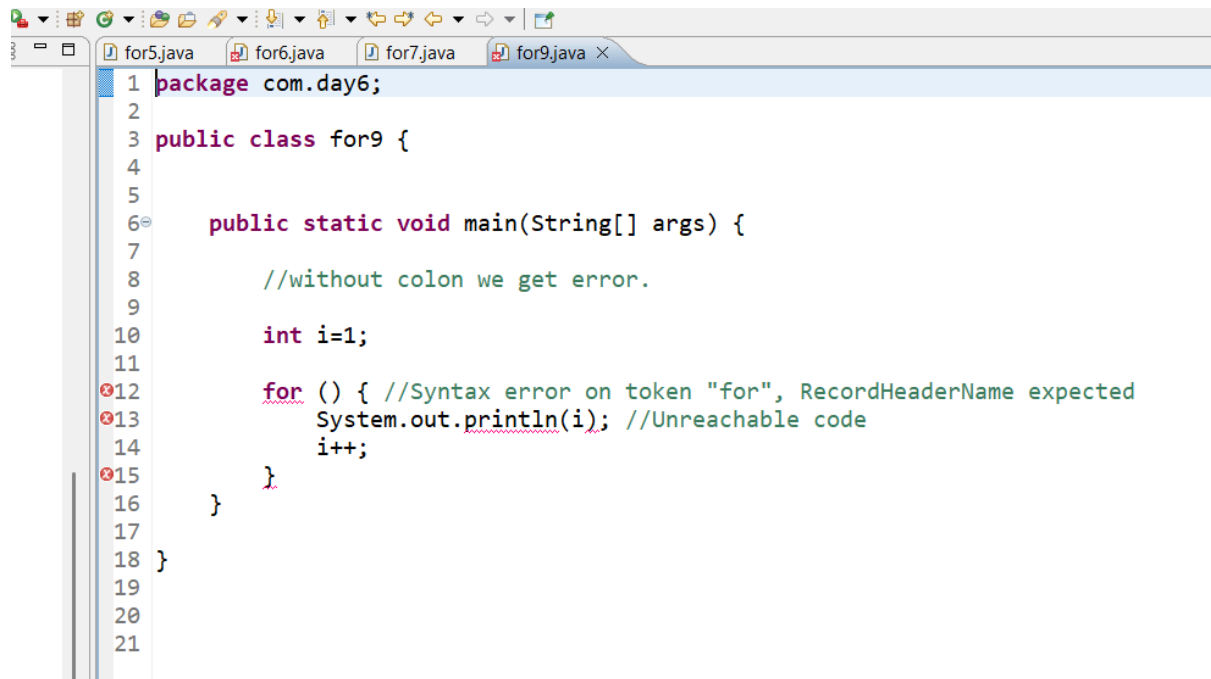
```
49
50        //2. for loop:
51        //1 to 10:
52        int d=1;
53        for( ;   ; ) {
54            System.out.println(d);//12345678910
55            d++;
56        }
57
```
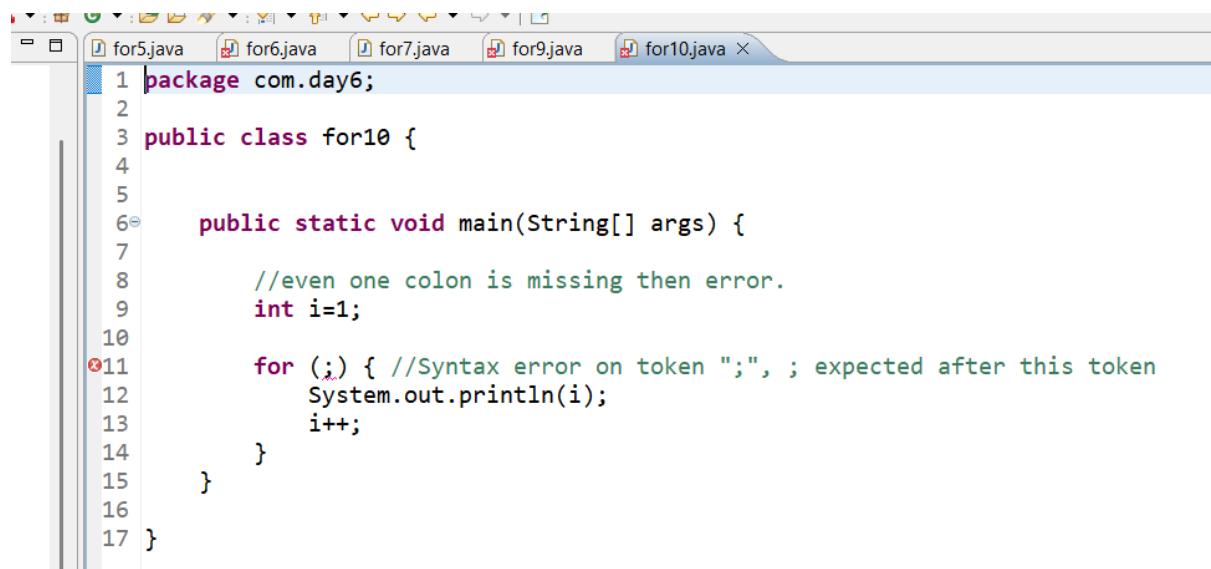
Infinite for loop starting from 1.

paste for 9, for 10 -

```
package com.day6;

public class for9 {

    public static void main(String[] args) {

        //without colon we get error.

        int i=1;

        for () { //Syntax error on token "for", RecordHeaderName expected
            System.out.println(i); //Unreachable code
            i++;
        }
    }
}
```
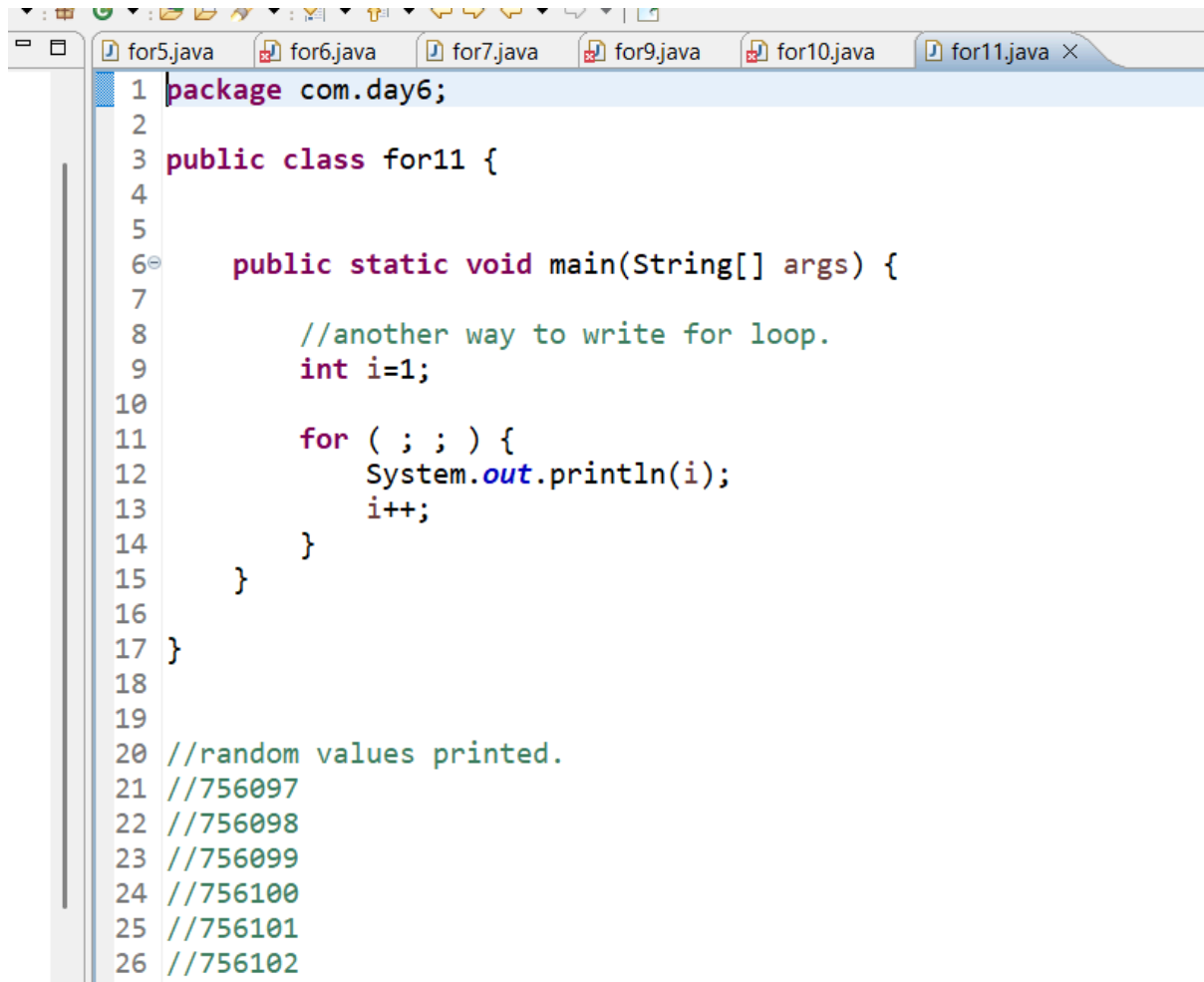
```
package com.day6;

public class for10 {

    public static void main(String[] args) {

        //even one colon is missing then error.
        int i=1;

        for (;) { //Syntax error on token ";", ; expected after this token
            System.out.println(i);
            i++;
        }
    }
}
```

paste for 11 -

```
for5.java    for6.java    for7.java    for9.java    for10.java    for11.java ×
 1 package com.day6;
 2
 3 public class for11 {
 4
 5
 6⊖     public static void main(String[] args) {
 7
 8             //another way to write for loop.
 9             int i=1;
10
11             for ( ; ; ) {
12                 System.out.println(i);
13                 i++;
14             }
15         }
16
17 }
18
19
20 //random values printed.
21 //756097
22 //756098
23 //756099
24 //756100
25 //756101
26 //756102
```
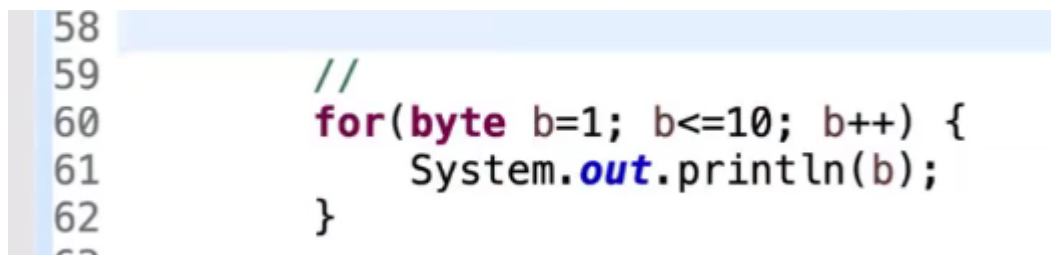
Byte also works-

```
58
59             //
60             for(byte b=1; b<=10; b++) {
61                 System.out.println(b);
62             }
```

prints 1 to 10.

Short also works-

```
59          //
60          for(short b=1; b<=10; b++) {
61              System.out.println(b);
62          }
63
```

prints 1 to 10.

Char-

```
66
67          for(char ch='a'; ch<='z'; ch++) {
68              System.out.println(ch);
69          }
70
```

Prints a to z.

Prints ascii table-

```
66          //a=97
67          //b=98
68          //z=122
69          for(char ch='a'; ch<='z'; ch++) {
70              System.out.println(ch + " = " + (byte)ch);
71          }
```

prints ascii of small letters.

Ascii for capital letters-

```
66          //a=97                                              K = 7
67          //b=98                                              L = 7
68          //z=122                                             M = 7
69          for(char ch='A'; ch<='Z'; ch++) {                   N = 7
70              System.out.println(ch + " = " + (byte)ch);      O = 7
71          }                                                   P = 8
72                                                              Q = 8
```

prints ascii of capital letters.

Double also allowed-

```
73          System.out.println("--------------");
74          //double:
75          for(double d=1.0; d<=5.0; d++) {
76              System.out.println(d);
77          }
78
```

Prints 1.0 to 5.0.

For with break-

```
52
53          for(int d=1 ; d<=10  ; d++ ) {
54              System.out.println(d);//12345678910
55              break;
56          }
```

Returns 1.

```
78
79
80        //when to use while loop:
81        //when number of iterations are not fixed, then use while loop
82        //calendar handling
83        //infinite scrolling on facebook, linkedin, swiggy, zomato
84        //wait for element on the page: 5, 10, 12, 15, 20, 0
85        //wait for page loading:
86        //webtable with pagination:
87        //carousels
88
```

```
88
89
90        //when to use for loop:
91        //when number of iterations are  fixed, then use for loop
92        //month drop down: 1 to 12
93        //Arrays, ArrayList: for loop
94        //footer links
95        //drop downs with fixed data
96        //movie ticket for a movie: 120 seats
97
```

Infinite for loop-

```
96        //movie ticket for a movie: 120 seats
97
98        for(;;) {
99            System.out.println("welcome to hotel TAJ");
100       }
101
```

Disco lights, name plate on shops are the uses.

Infinite while loop-

```
103
104       while(true) {
105           System.out.println("welcome to hotel TAJ");
106       }
```
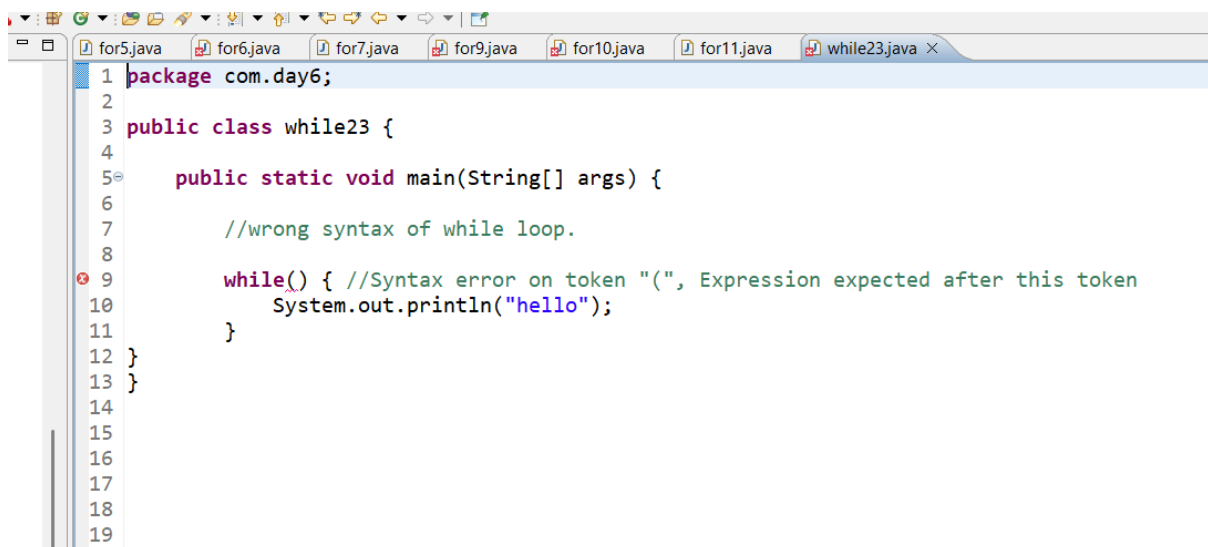
Same as for loop.

Dead code example-

```
103
104    while(false) {
105        System.out.println("welcome to hotel TAJ");
106    }
107
```

Wrong syntax-

paste while 23

```
for5.java    for6.java    for7.java    for9.java    for10.java    for11.java    while23.java ✕
 1  package com.day6;
 2
 3  public class while23 {
 4
 5      public static void main(String[] args) {
 6
 7          //wrong syntax of while loop.
 8
 9          while() { //Syntax error on token "(", Expression expected after this token
10              System.out.println("hello");
11          }
12  }
13  }
14
15
16
17
18
19
```

Note-

When we write i++ or ++i, then they work the same. Only when we assign to another variable, then the pre and post increment/decrement is applicable.

```
9
10        int i = 1;
11        while (i <= 10) {
12            ++i;
13            System.out.println(i);// 12
14            // 11
15            // ++i;
```

Prints 2 to 11.

```
8       // 1. while loop:
9
10        int i = 1;
11        while (i <= 10) {
12            //System.out.println(i);// 1234567891011
13            //i++;// 11
14            // ++i;
15            // i=i+1;
16            // break;
17            System.out.println(++i);// 12345678.1011
18
19        }
20
```
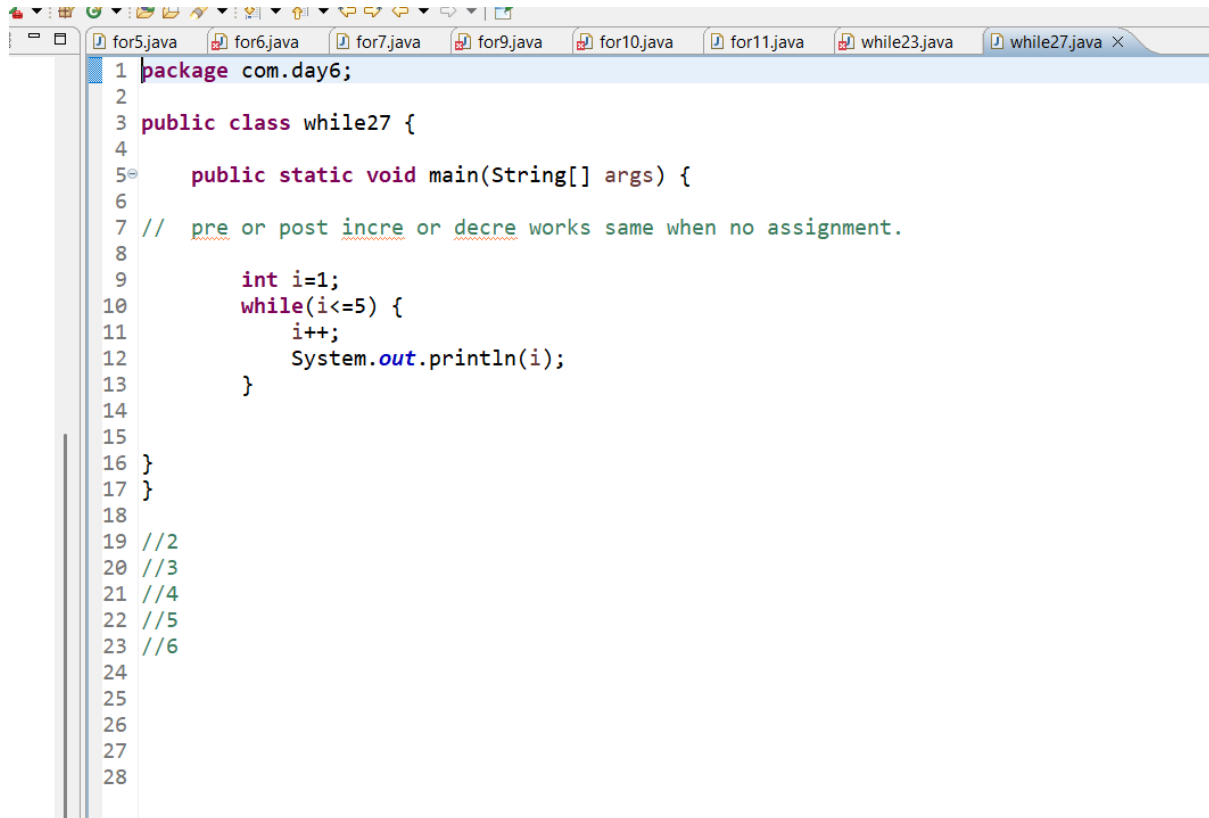
Prints 2 to 11.

```
9
10        int i = 1;
11        while (i <= 10) {
12            //System.out.println(i);// 1234567891011
13            //i++;// 11
14            // ++i;
15            // i=i+1;
16            // break;
17            System.out.println(i++);// 12345678.1011
18
19        }
20
```

Prints 1 to 10.

paste while 27

```
for5.java    for6.java    for7.java    for9.java    for10.java    for11.java    while23.java    while27.java ✕
1 package com.day6;
2
3 public class while27 {
4
5    public static void main(String[] args) {
6
7 //  pre or post incre or decre works same when no assignment.
8
9        int i=1;
10       while(i<=5) {
11           i++;
12           System.out.println(i);
13       }
14
15
16 }
17 }
18
19 //2
20 //3
21 //4
22 //5
23 //6
24
25
26
27
28
```

```
111
112    byte h = 1;//127
113    while(true) {
114        h++;
115        System.out.println(h);
116    }
117
118
119
```

Prints 1 to 127 then prints -128 to 0 and then 0 to 127 and then -128 to 0 and this cycle continues.

```
118
119     System.out.println(10 + " " + 20);
120
```

Prints 10 20.

```
121
122
123         int m = 1;
124         while(m<=10) {//true
125             m++;
126             System.out.println(m);
127         }
128
```

Prints 2 to 11.

```
126 //
127 //      }
128
129         for(int m=1; m<=10;) {
130             m++;
131             System.out.println(m);
132         }
133
```

Prints 2 to 11.

Unreachable code-

```
127 //          }
128
129         for(int m=1; false;) {
130                 m++;
131                 System.out.println(m);
132         }
133
```

Infinite loop-

```
127 //          }
128
129         for(int m=1; true;) {
130                 m++;
131                 System.out.println(m);
132         }
133
```

prints random number infinite times.

Print 1 to 11-

```
127 //          }
128
129         for(int m=0; m<=10;) {
130                 m++;
131                 System.out.println(m);
132         }
```

Print 1 to 10-

```
126 //                  System.out.println(m);
127 //          }
128
129         for(int m=0; m<10;) {
130             m++;
131             System.out.println(m);
132         }
133
134
```

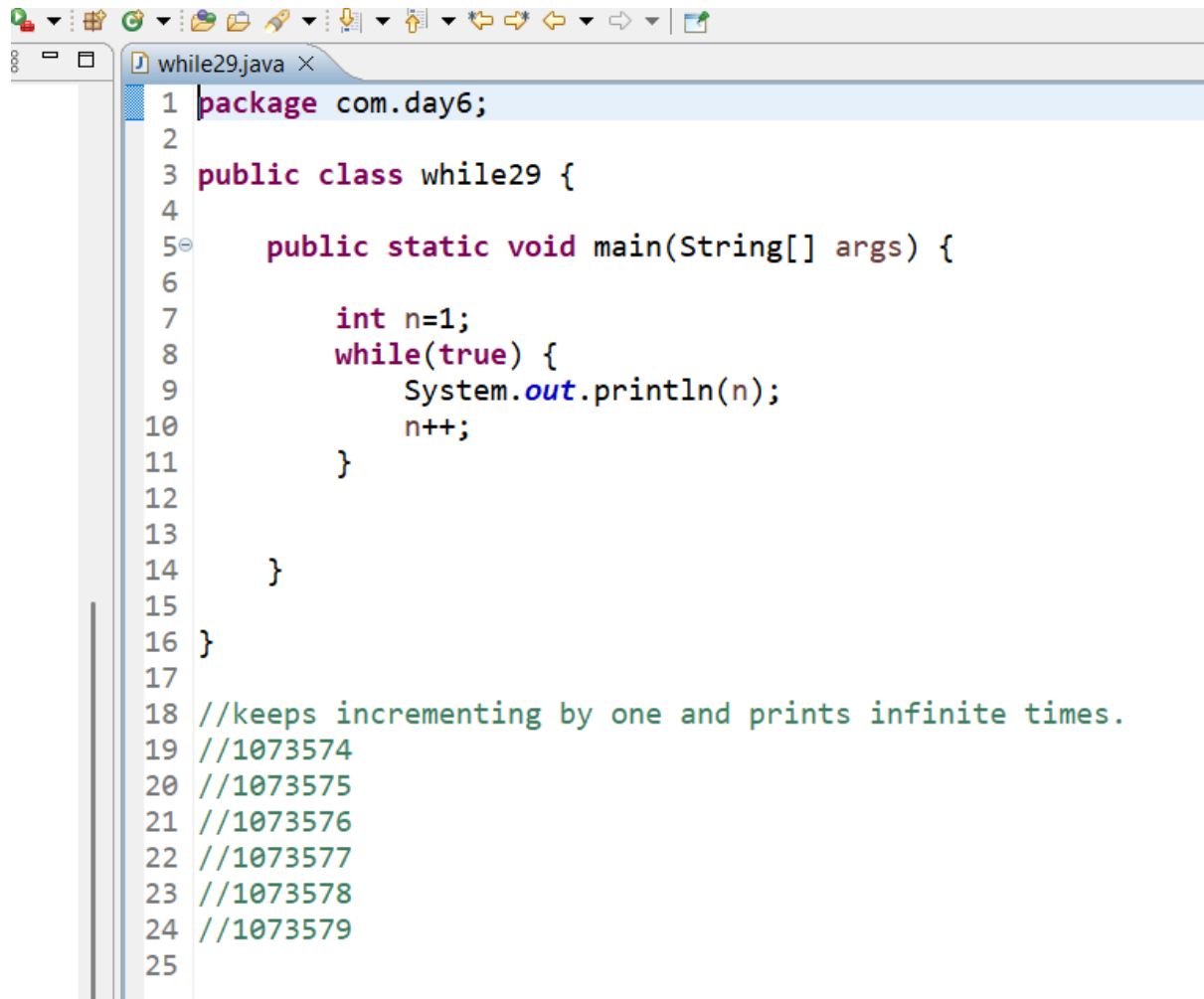# Print 1 to 10-

```
123
124         int n = 1;
125         while (true) {
126
127             System.out.println(n);//1
128             n++;
129             if(n==11) {
130                 break;
131             }
132         }
133
```
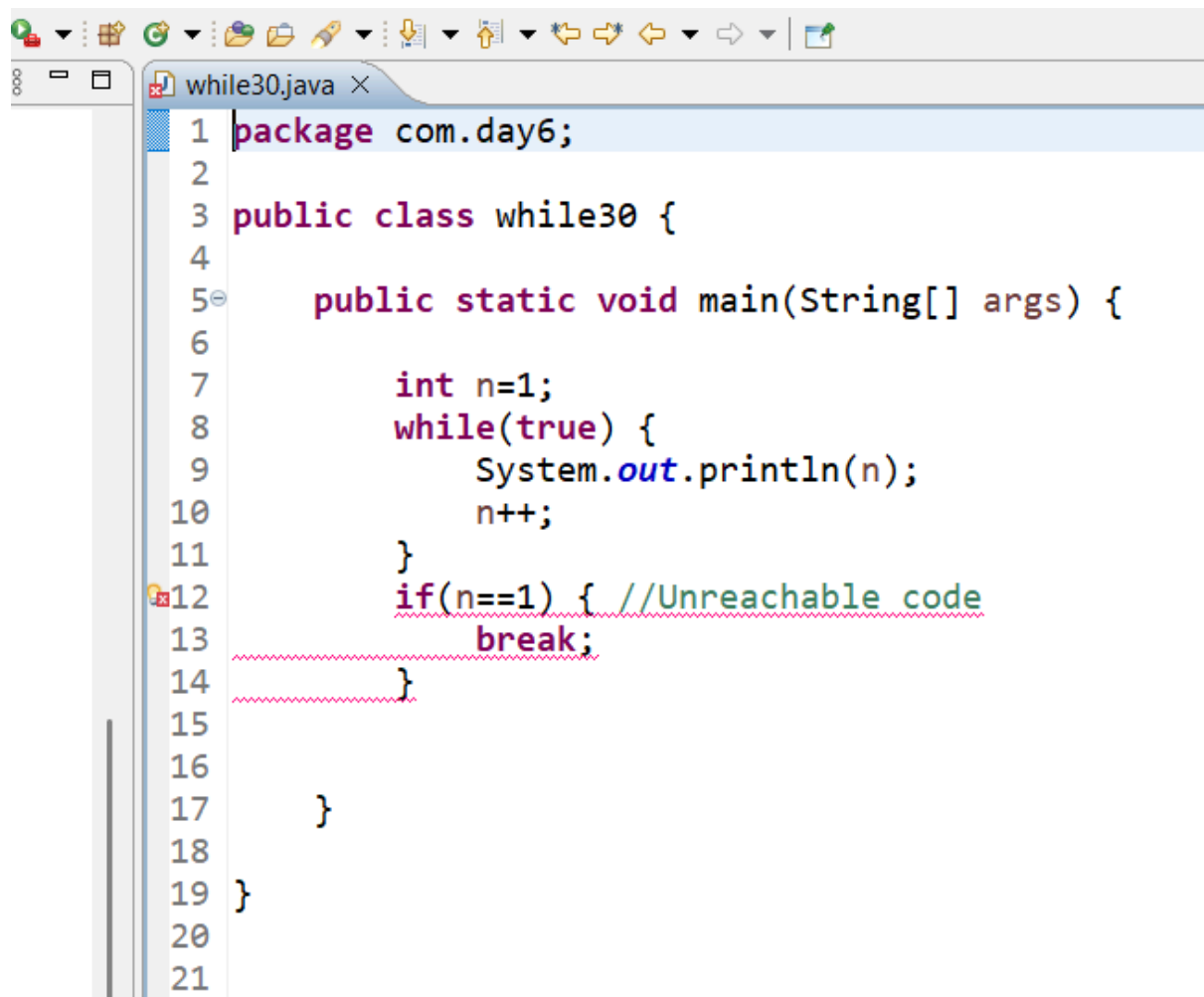
paste while 29-

```java
package com.day6;

public class while29 {

    public static void main(String[] args) {

        int n=1;
        while(true) {
            System.out.println(n);
            n++;
        }

    }

}

//keeps incrementing by one and prints infinite times.
//1073574
//1073575
//1073576
//1073577
//1073578
//1073579
```

paste while 30-

```java
package com.day6;

public class while30 {

    public static void main(String[] args) {

        int n=1;
        while(true) {
            System.out.println(n);
            n++;
        }
        if(n==1) { //Unreachable code
            break;
        }

    }

}
```