

CN4001/ CD4001

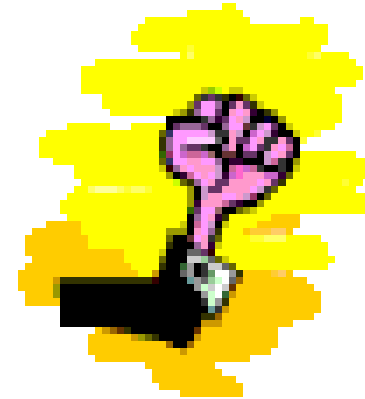
Software Development

Topic 5: Programming with Loops

Part 2b



Different ways of using the loop counter

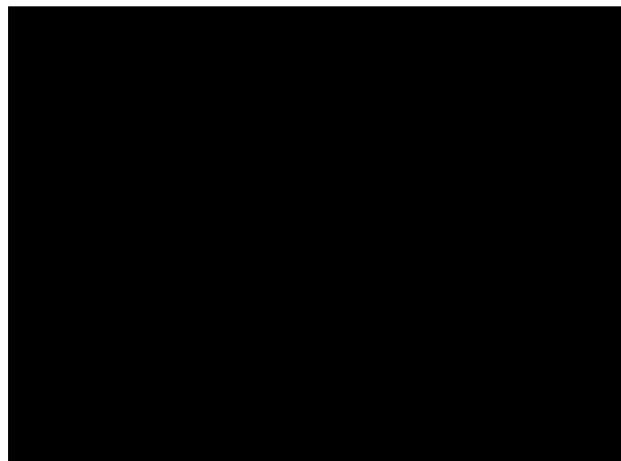


```
for ( int i = 1 ; i <= 5 ; i ++ )  
{  
    System.out.println("*****");  
}
```

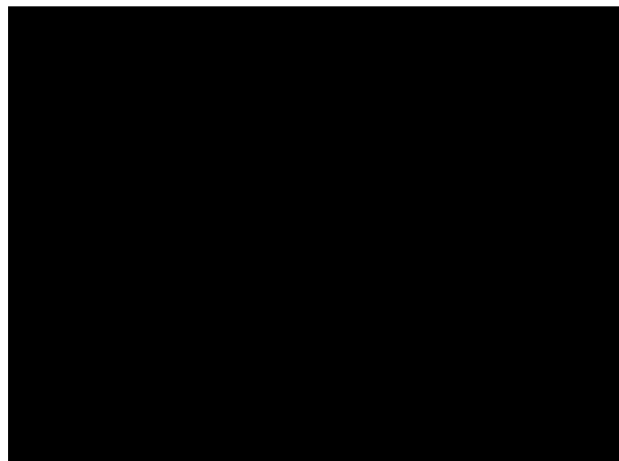
```
for ( int i = 1      ;      i <= 5      ;      i = i + 2      )  
{  
    System.out.println("*****");  
}
```

```
for ( int i = 1      ;      i <= 10      ;      i = i + 2      )  
{  
    System.out.println("*****");  
}
```

```
for ( int i = 1      ;      i <= 10      ;      i = i + 2      )  
{  
    System.out.println("*****");  
}
```

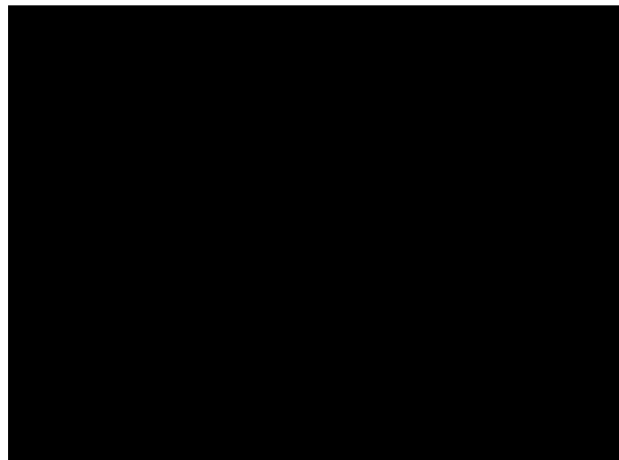


```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```



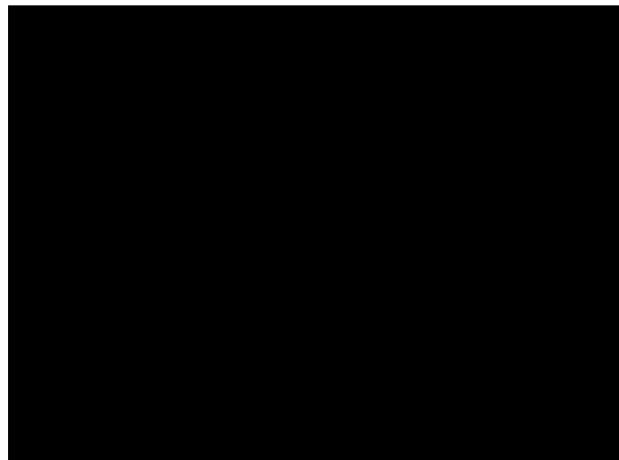
i 1

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```



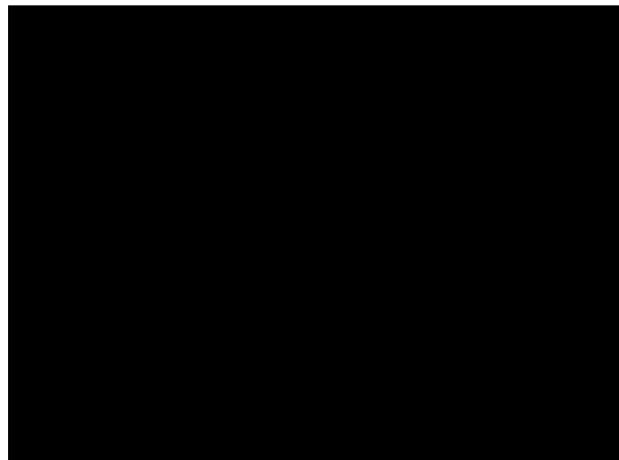
i 1

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```



i 1

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```



i 1

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 1

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 3

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 3

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 3

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 3

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 5

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 5

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 5

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 5

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i **7**

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i **7**

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i **7**

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 7

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i **7**

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 9

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

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

i 9

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 9

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 9

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 11

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 11

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

i 11

```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

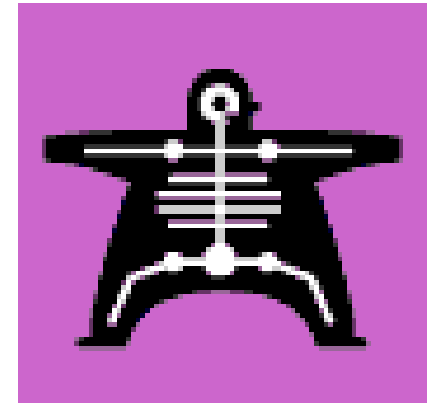
```
for ( int i = 1 ; i <= 10 ; i = i + 2 )  
{  
    System.out.println("*****");  
}
```

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

More examples of 'for' loops



The **body** of the loop



Activity

```
for ( int i = 1      ;      i <= 3      ;      i ++      )  
{  
    System.out.println("First line");  
    System.out.println("Second line");  
}
```

What is the output
from this program?



Activity

```
for ( int i = 1 ; i <= 3 ; i ++ )  
{  
    System.out.println("First line");  
    System.out.println("Second line");  
}
```

First line
Second line
First line
Second line
First line
Second line



Activity

```
for ( int i = 1      ;      i <= 10      ;      i ++      )  
{  
    System.out.println( i );  
}
```

What is the output
from this program?



Activity

```
for ( int i = 1 ; i <= 10 ; i ++ )  
{  
    System.out.println( i );  
}
```

1
2
3
4
5
6
7
8
9
10



Activity

```
for ( int i = 1      ;      i <= 10      ;      i ++      )  
{  
    System.out.println( i*i );  
}
```

What is the output
from this program?



Activity

```
for ( int i = 1      ;      i <= 10      ;      i ++      )  
{  
    System.out.println( i*i );  
}
```

```
1  
4  
9  
16  
25  
36  
49  
64  
81  
100
```



Activity

```
for ( int i = 10 ; i >= 1 ; i = i - 1 )  
{  
    System.out.println( i );  
}
```



Activity

```
for ( int i = 10 ; i >= 1 ; i -- )  
{  
    System.out.println( i );  
}
```

What is the output
from this program?



Activity

```
for ( int i = 10 ; i >= 1 ; i -- )  
{  
    System.out.println( i );  
}
```

10
9
8
7
6
5
4
3
2
1



Activity

```
for ( int i = 10 ; i >= 1 ; i -- )  
{  
    if ( i > 5 )  
    {  
        System.out.println( i );  
    }  
}
```

**What is the output
from this program?**



Activity

```
for ( int i = 10 ; i >= 1 ; i -- )  
{  
    if ( i > 5 )  
    {  
        System.out.println( i );  
    }  
}
```

10
9
8
7
6

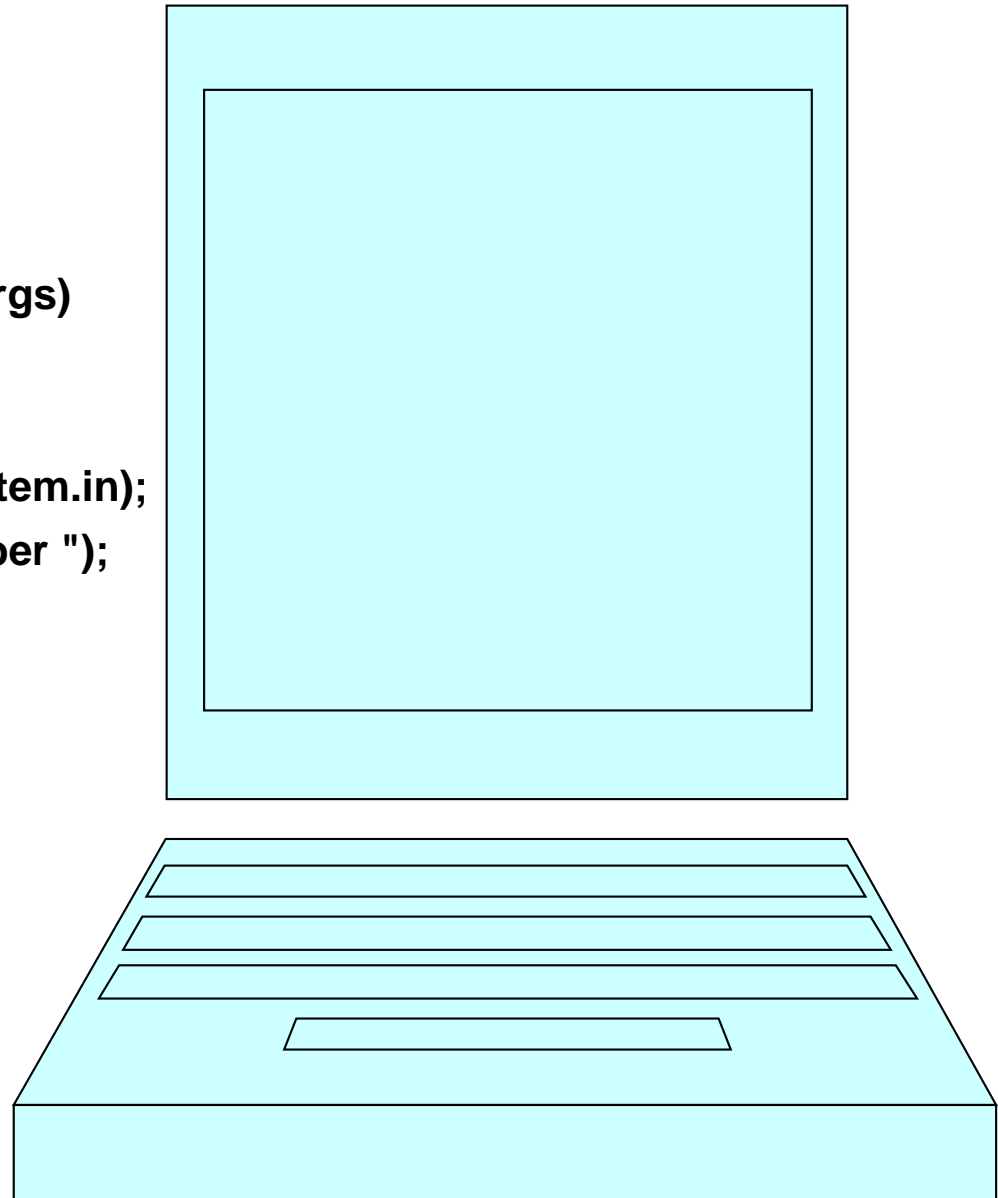


```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        int num;
        Scanner kb = new Scanner(System.in);
        System.out.print("Enter a number ");
        num = kb.nextInt();
        for (int i= 1; i< num; i++)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



What is the output of this program if the user enters 5 when prompted?

```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        int num;
        Scanner kb = new Scanner(System.in);
        System.out.print("Enter a number ");
        num = kb.nextInt();
        for (int i= 1; i< num; i++)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```




```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → int num;
        → Scanner kb = new Scanner(System.in);
        → System.out.print("Enter a number ");
        → num = kb.nextInt();
        → for (int i= 1; i< num; i++)
            {
                → System.out.println("YES");
                → System.out.println("NO");
            }
        → System.out.println("OK");
    }
}

```

Enter a number 5

YES

NO

YES

NO

YES

NO

YES

NO

OK

i = 5

```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        int num;
        Scanner kb = new Scanner(System.in);
        System.out.print("Enter a number ");
        num = kb.nextInt();
        for (int i= 1; i< num; i++)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```

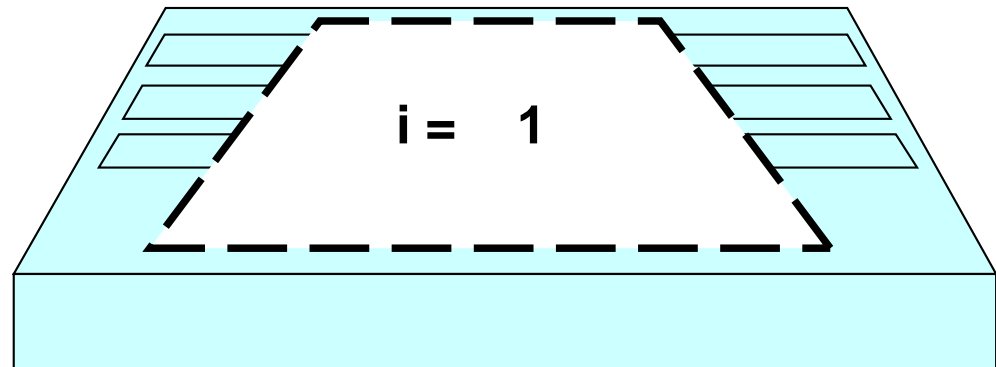
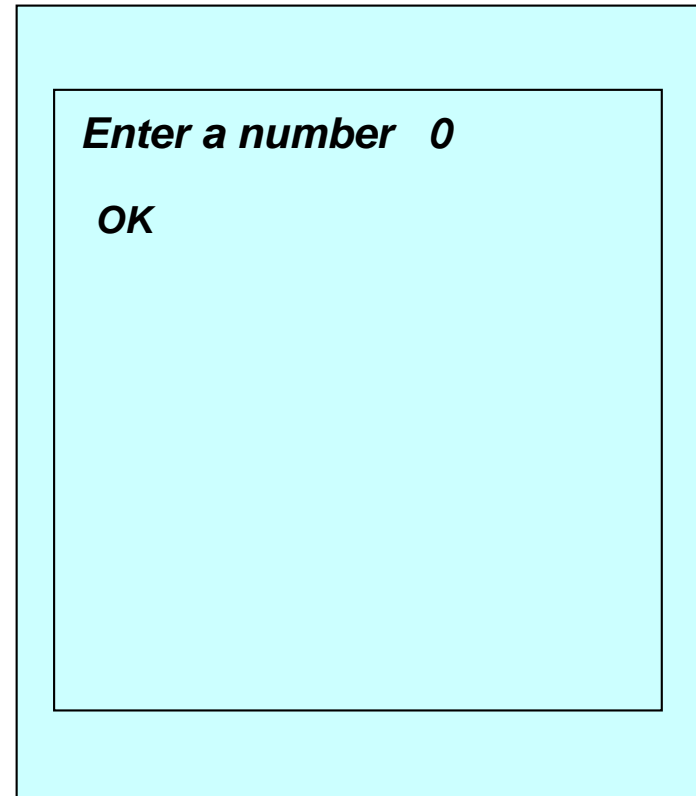


What is the output of this program if the user enters 0 when prompted?

```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → int num;
        → Scanner kb = new Scanner(System.in);
        → System.out.print("Enter a number ");
        → num = kb.nextInt();
        → for (int i= 1; i< num; i++)
            {
                System.out.println("YES");
                System.out.println("NO");
            }
        → System.out.println("OK");
    }
}

```

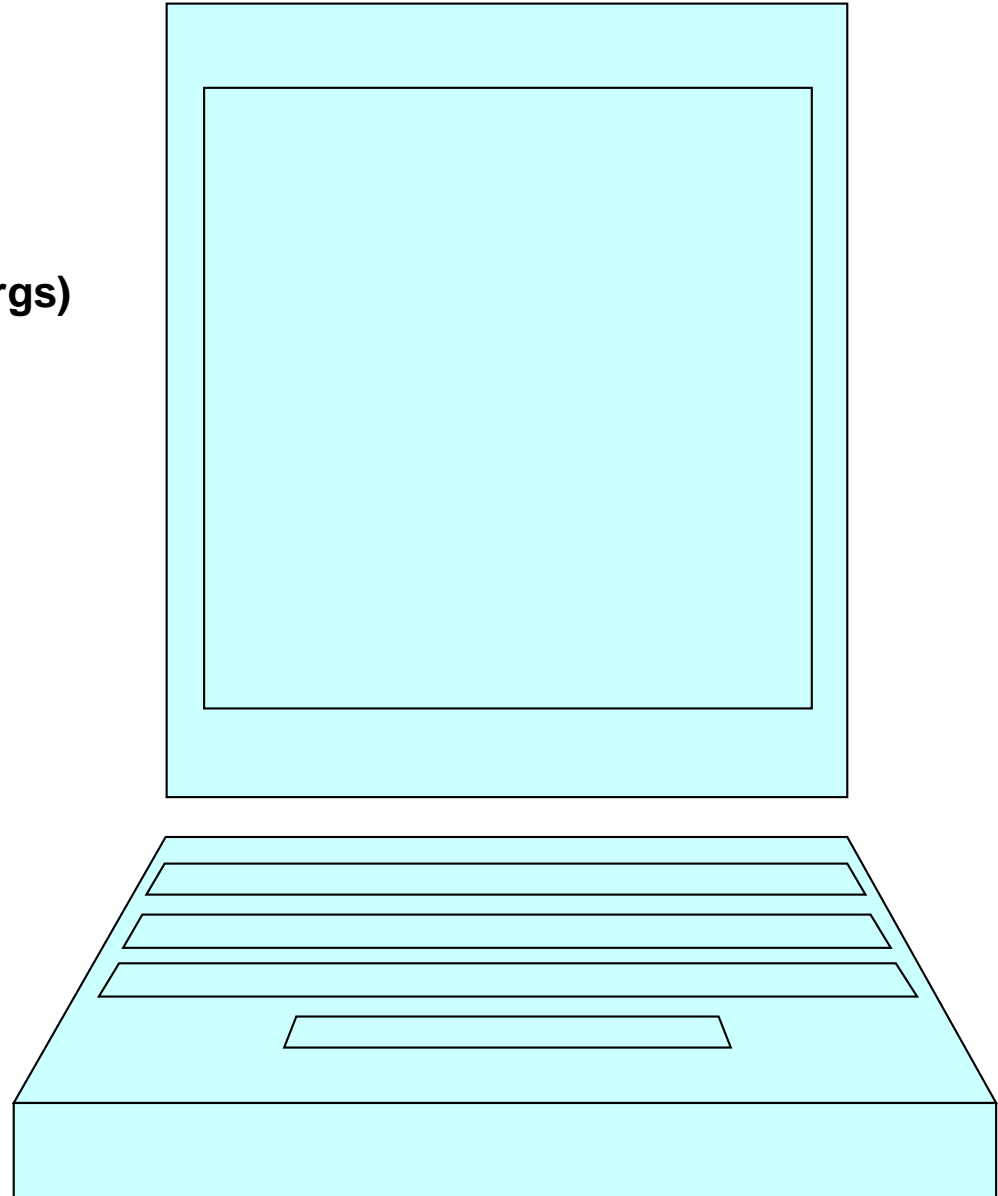


```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```

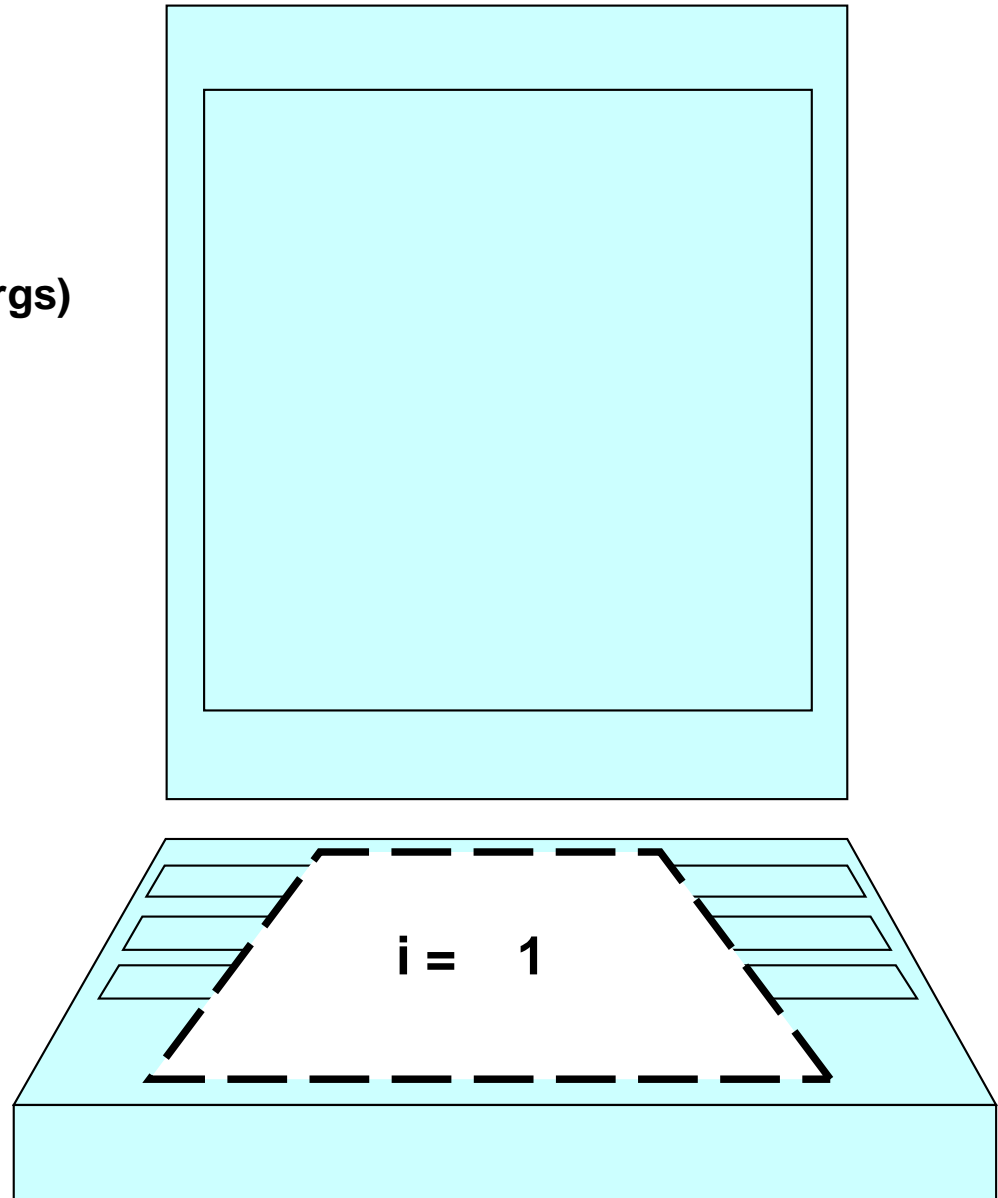


What is the output of this program?

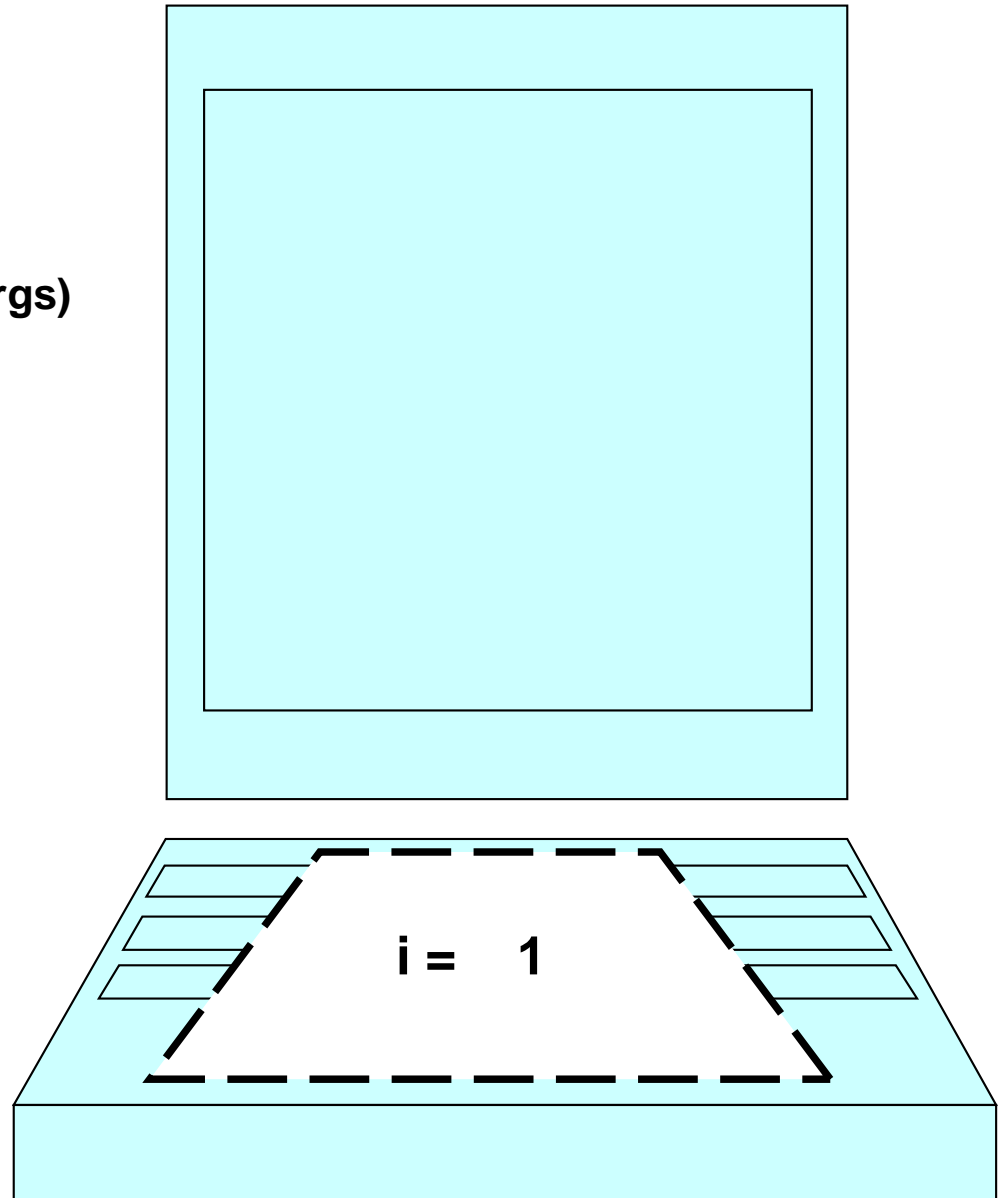
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



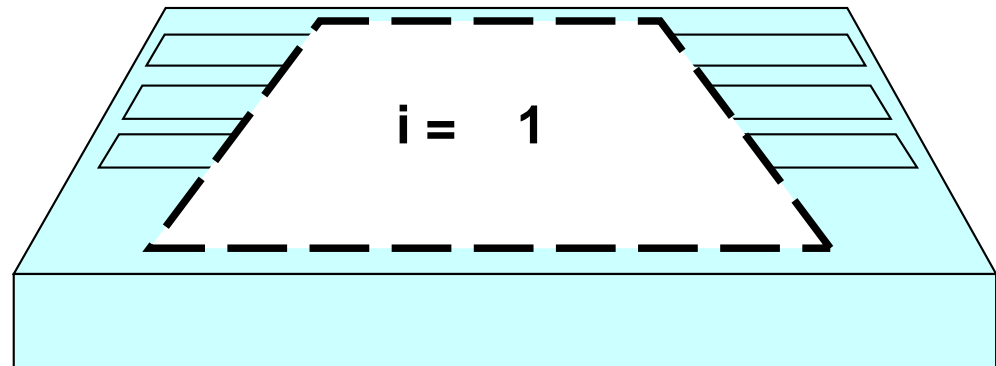
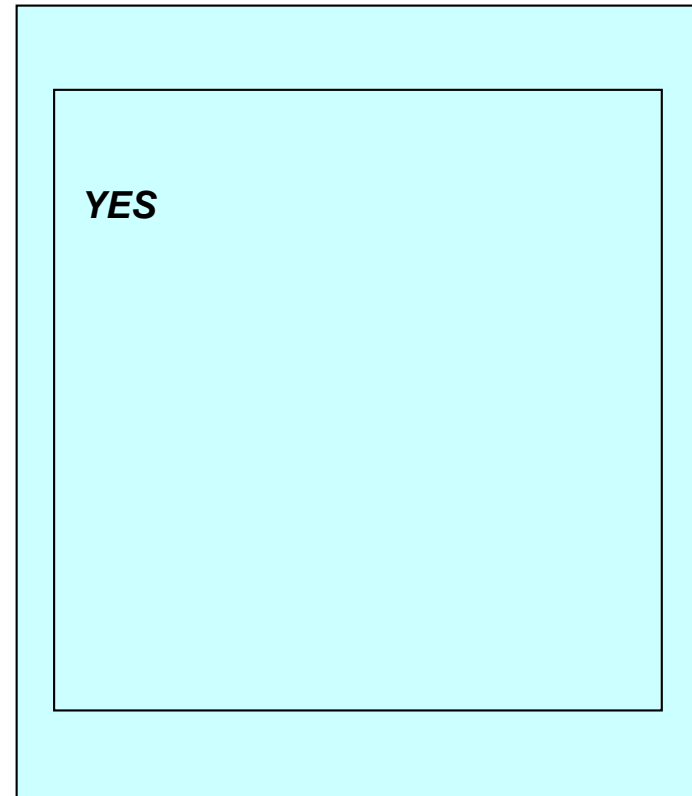
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



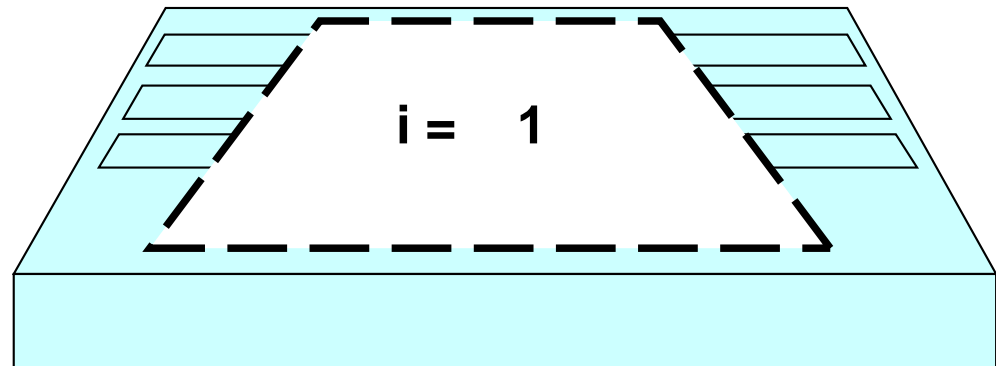
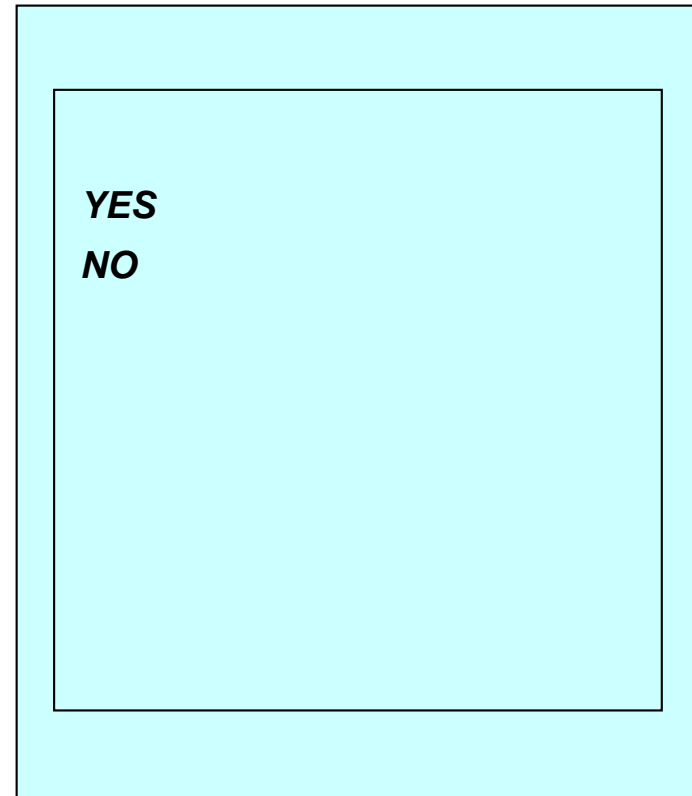
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        ➡ for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



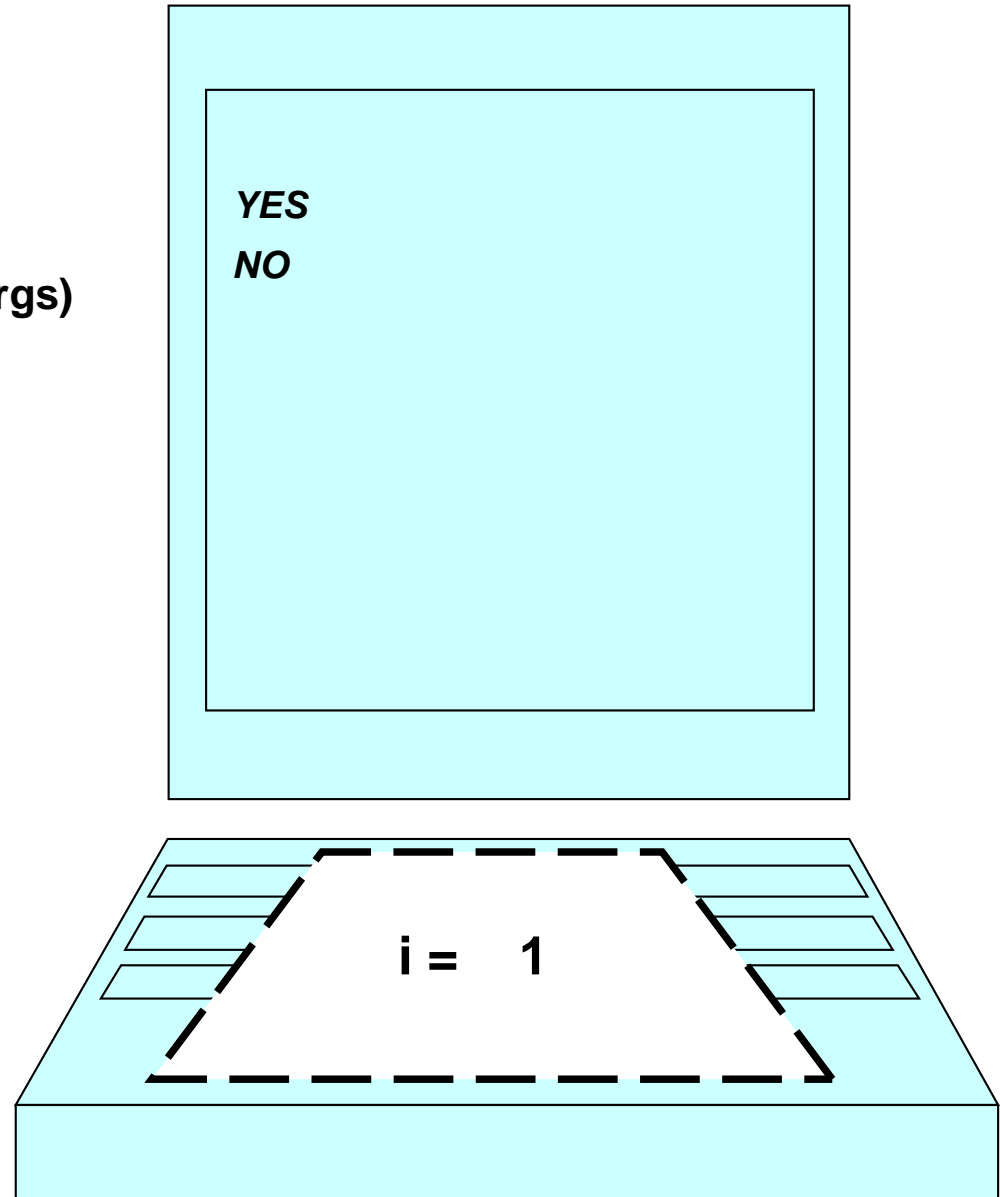
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



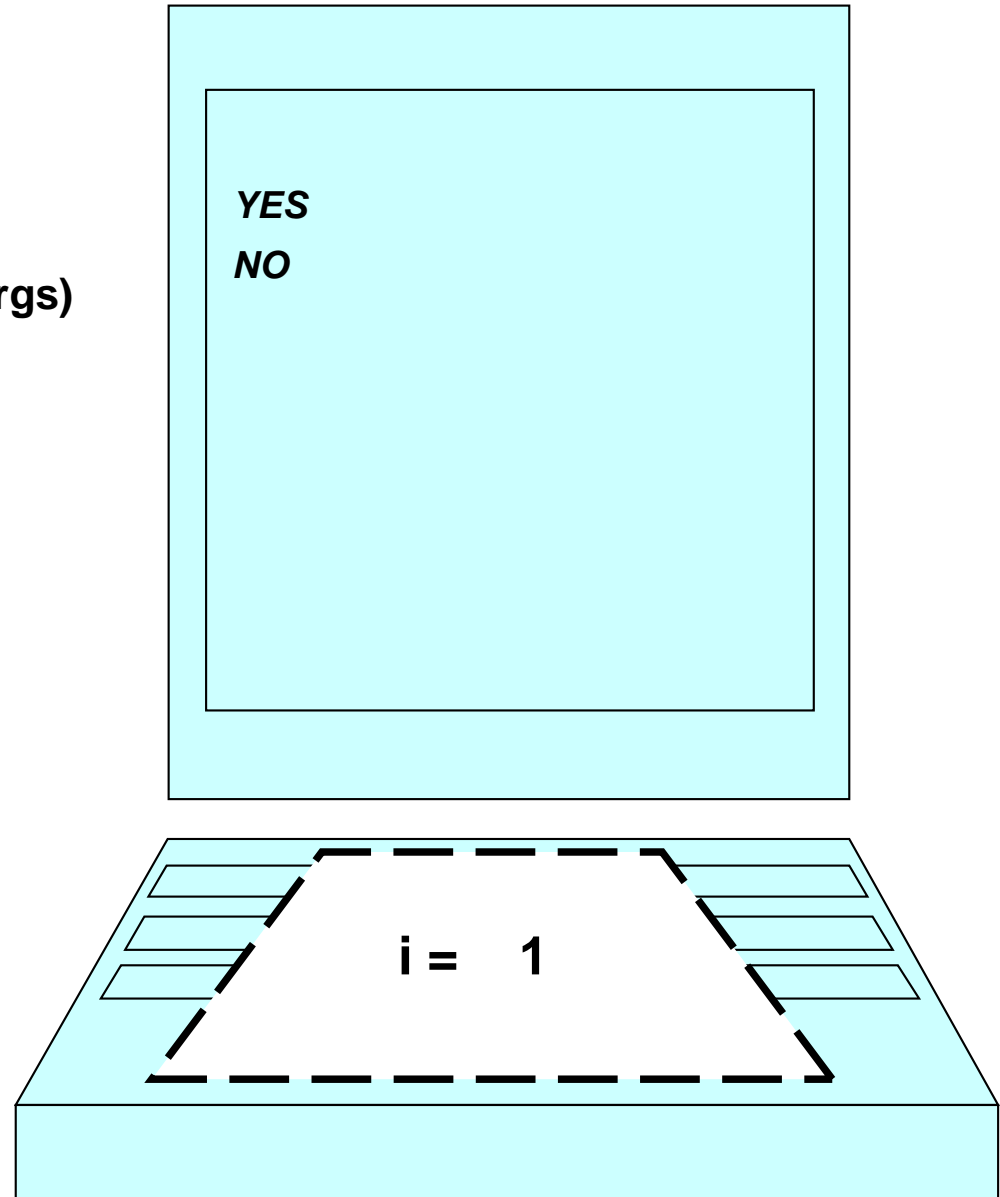

```
import java.util.*;
public class Iteration
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    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



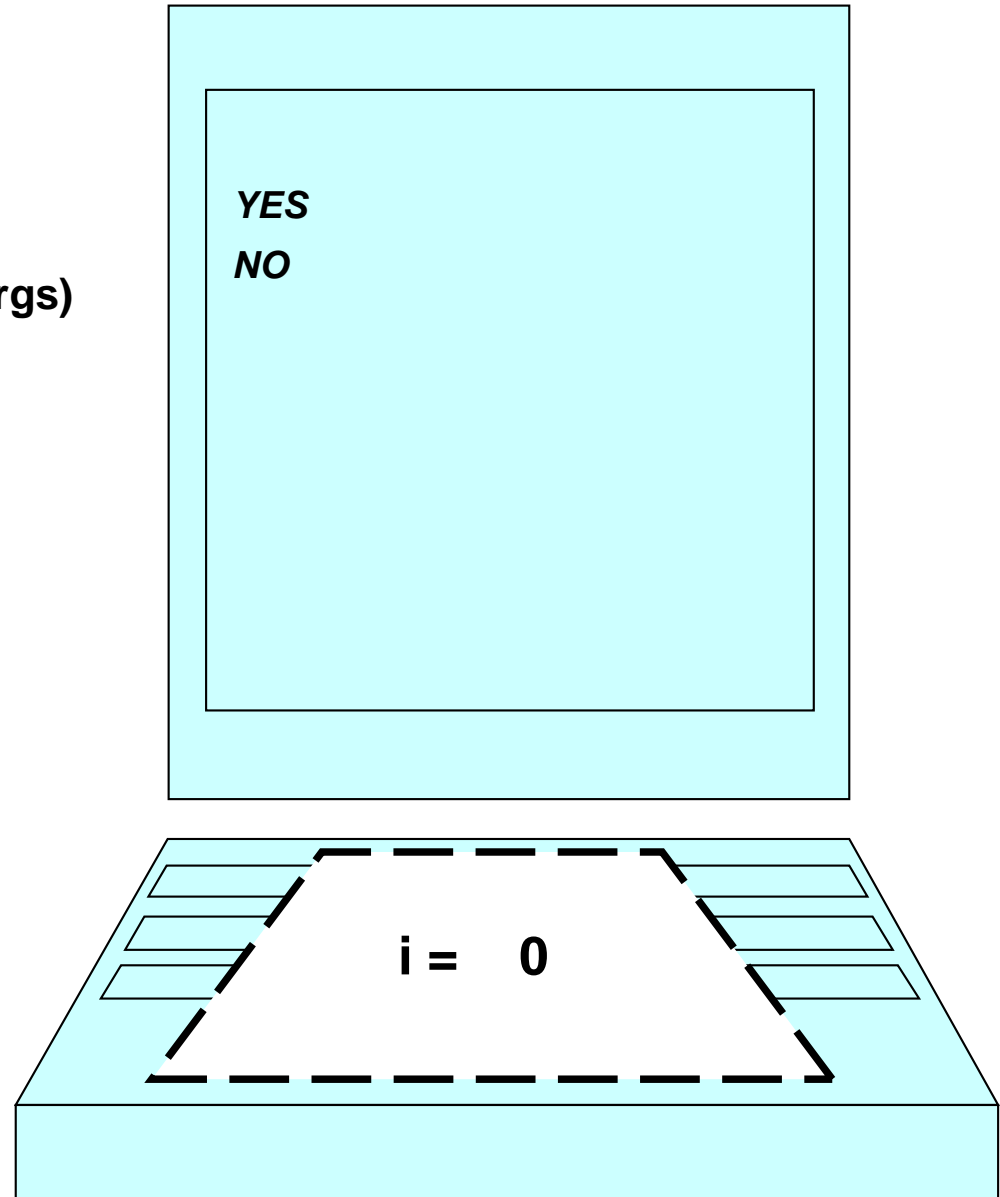
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import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



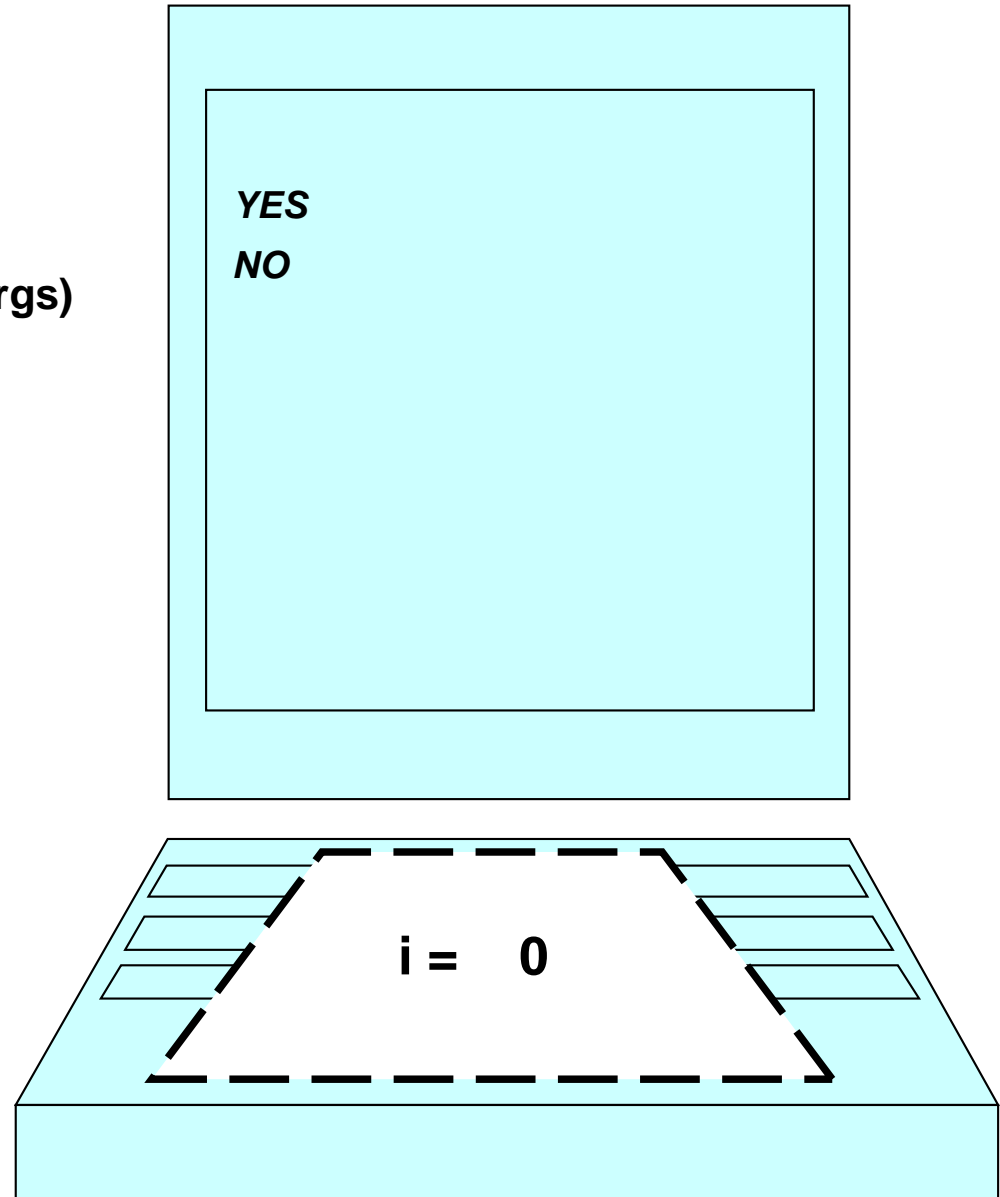
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import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



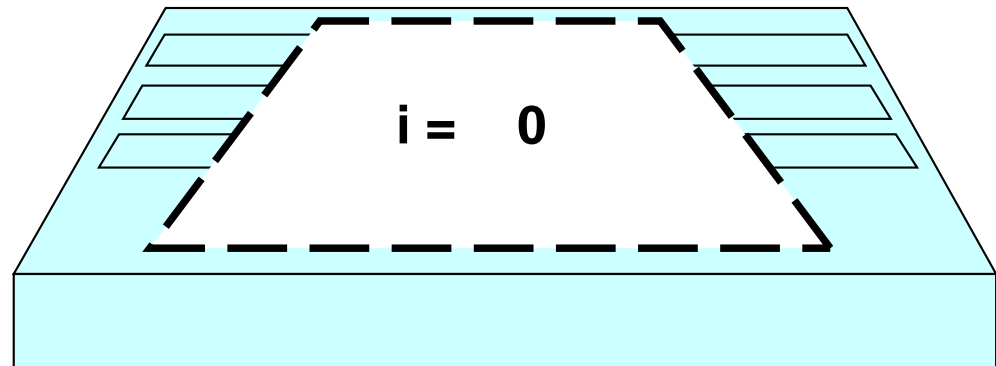
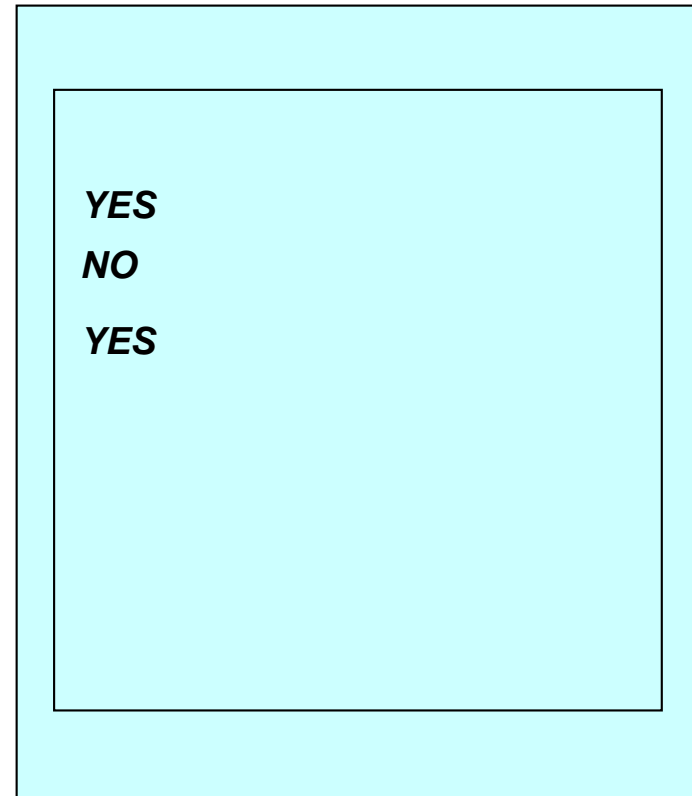
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



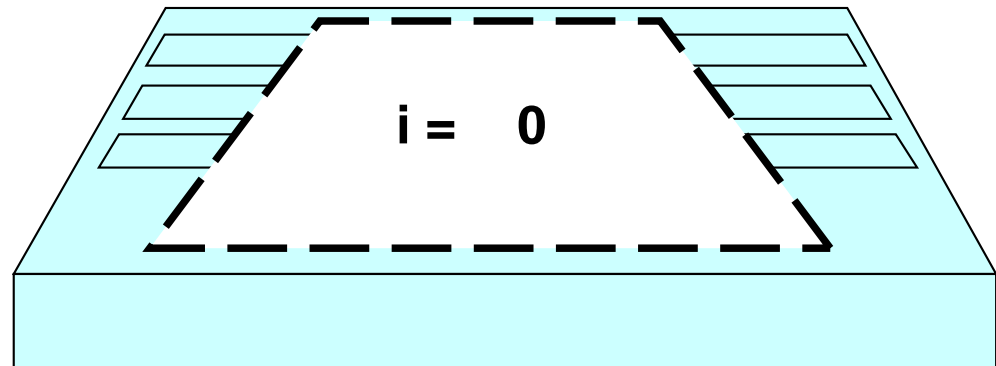
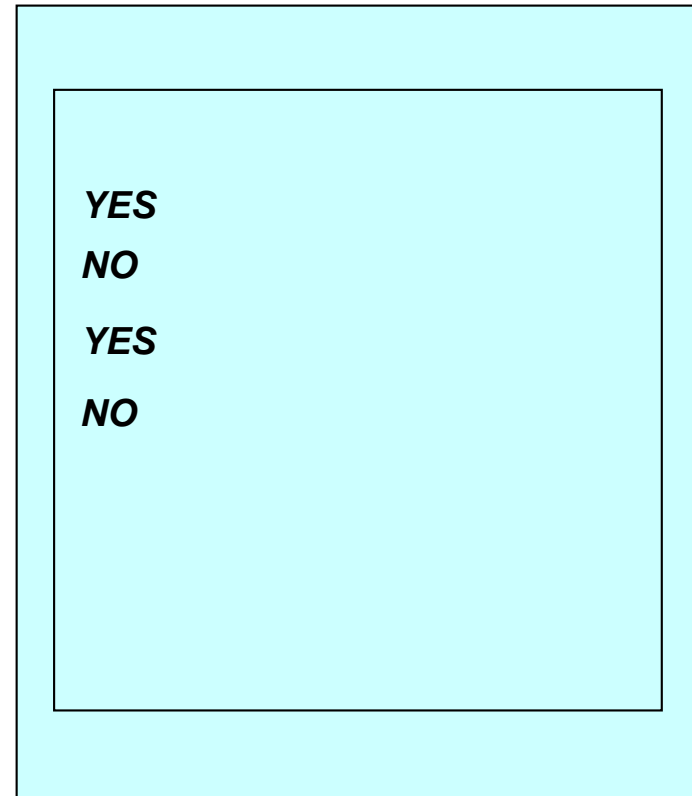
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



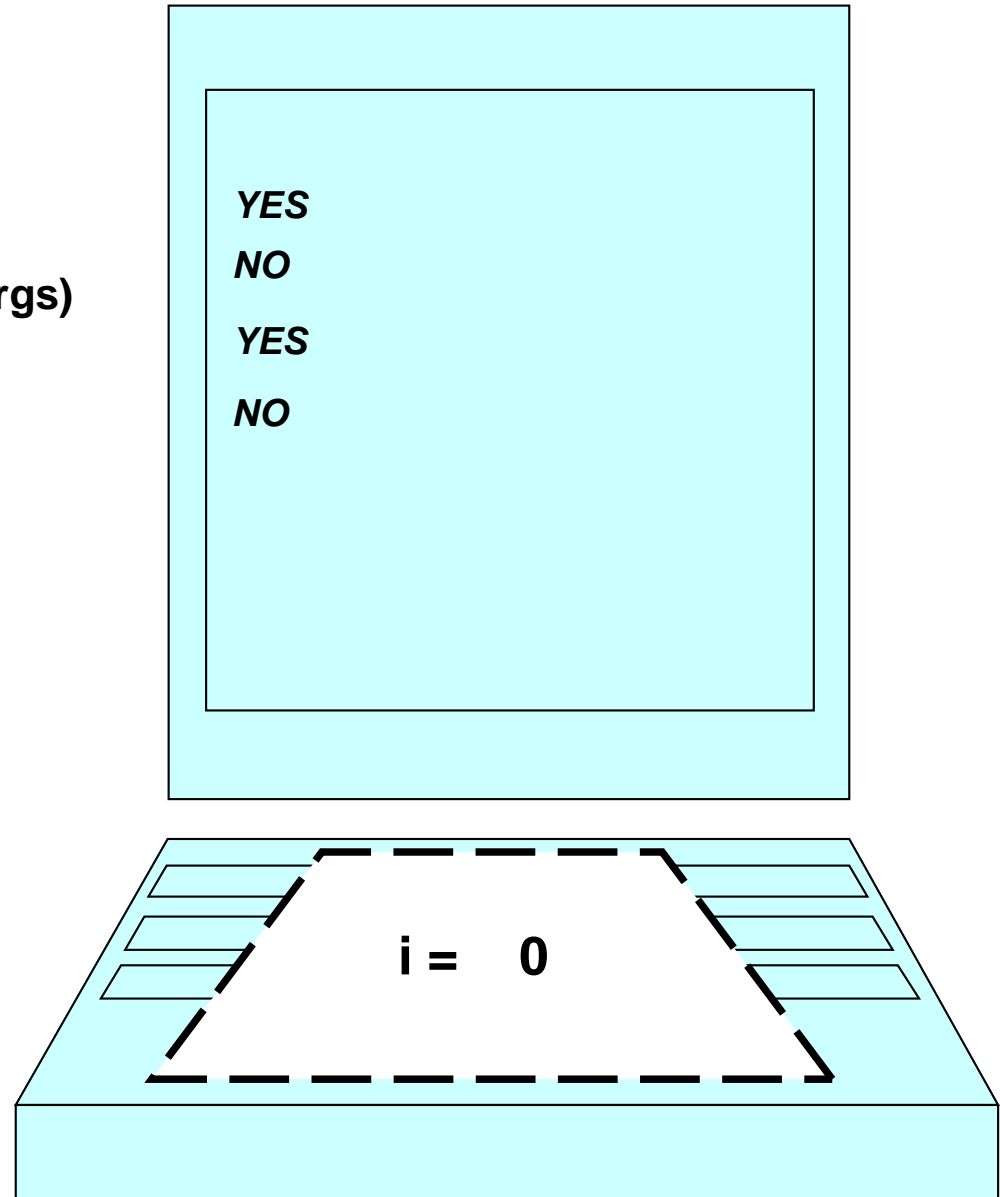
```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```



```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}

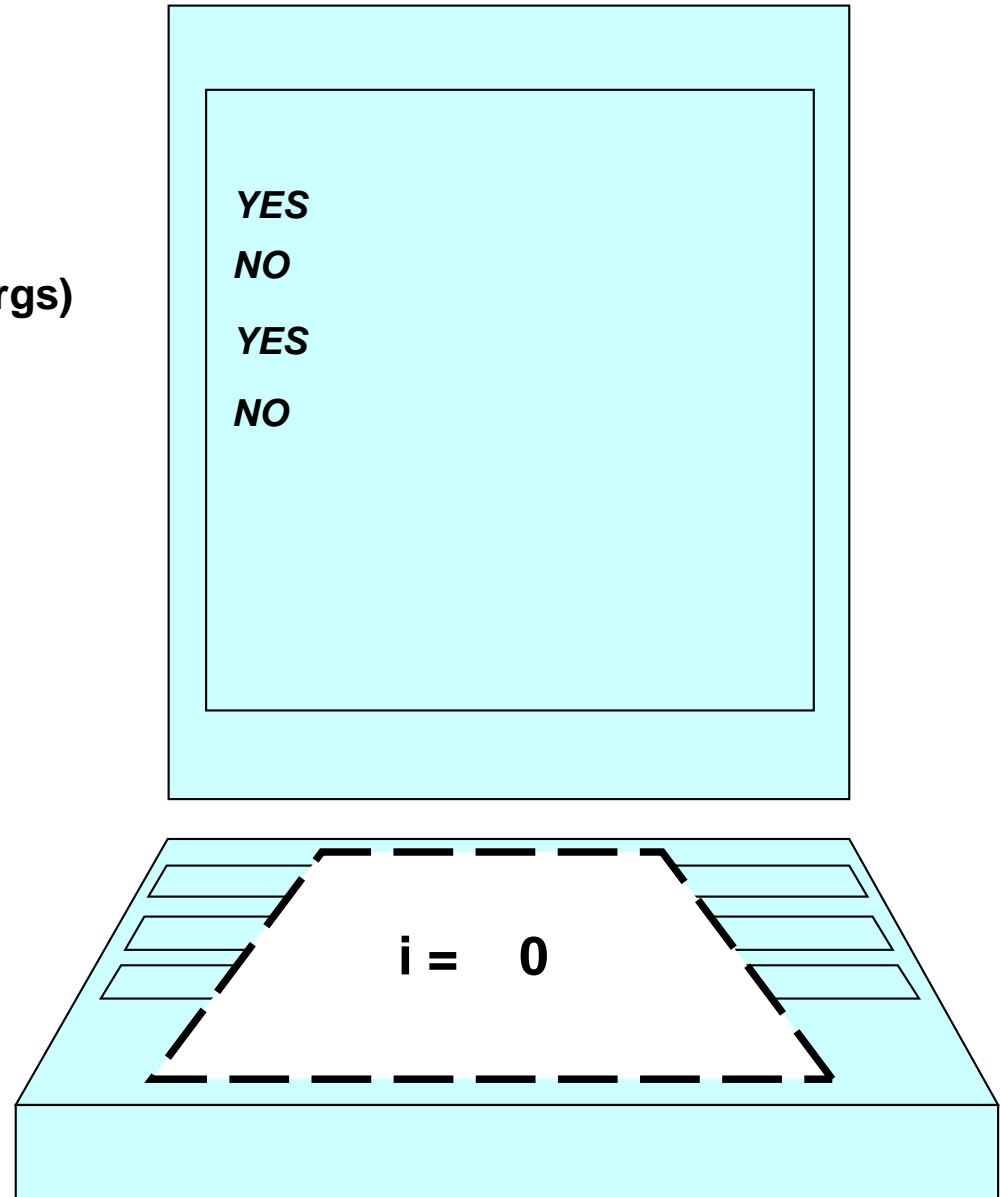
```




```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}

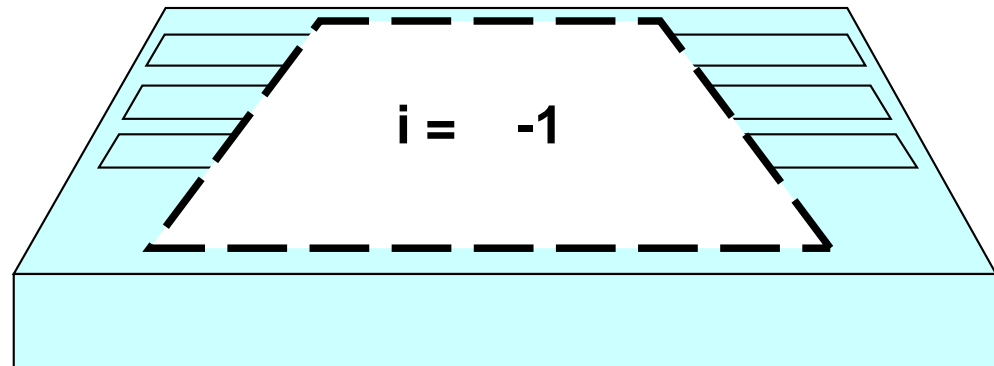
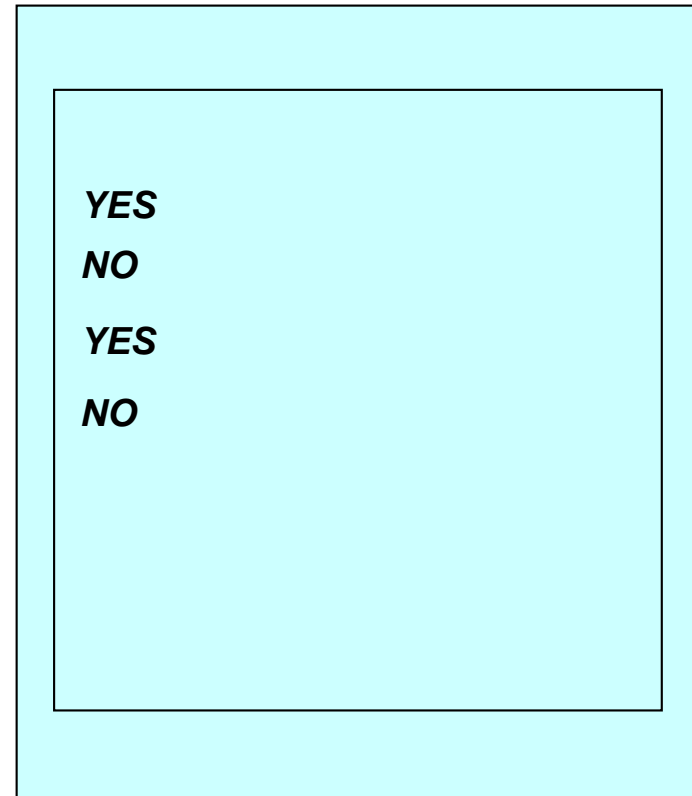
```



```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}

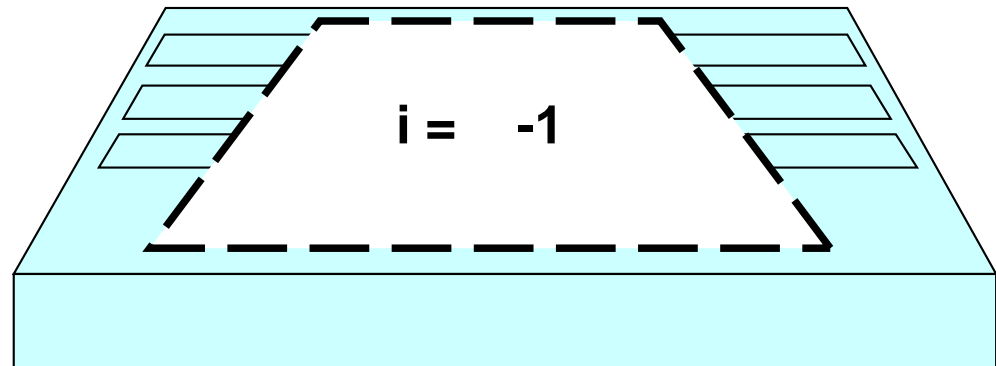
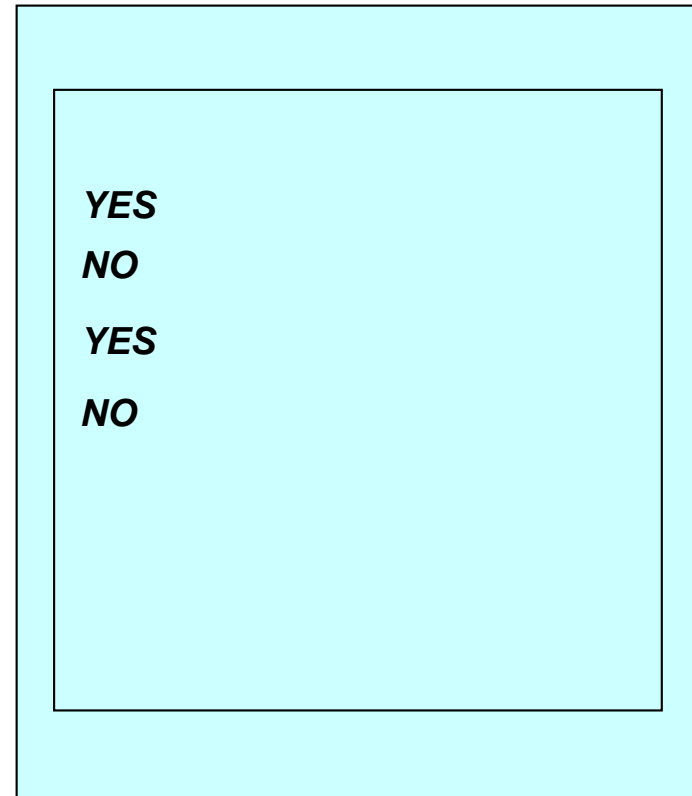
```



```

import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        → for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}

```



```
import java.util.*;
public class Iteration
{
    public static void main(String[] args)
    {
        for (int i= 1; i<= 10; i--)
        {
            System.out.println("YES");
            System.out.println("NO");
        }
        System.out.println("OK");
    }
}
```

