

Counted loops (for loops)

```
for (int i=0; i<8; i=i+1)
{
    System.out.println ("Hello");
}
```

How many times will the following loops output the word "Hello" to the screen?

```
for (int i=5; i<17; i=i+2)
{
    System.out.println ("Hello");
}
```

```
for (int i=2; i<12; i=i+3)
{
    System.out.println ("Hello");
}
```

```
for (int m=1; m<13; m=m+6)
{
    System.out.println ("Hello");
}
```

Indicate the for loop required to output the following numbers to the screen:

3
6
9
12
15

5
25
45
65
85

1
4
9
16
25

Conditional loops (Do and While)

The for loops we have been using are counted loops because they will be executed a given number of times. Conditional loops, on the other hand, are loops in which the programmer is not sure the exact amount of times the loop will be executed. The loop exits when a certain condition is met.

Take a look at the JAVA program below:

```
int num;

while (true)
{
    System.out.println ("Enter a number: ");
    num= keyedInput.nextInt();
    if (num<=5)
        {break;}
    System.out.println ("That number is greater than 5!");
}
```

In this program the loop will continue until the value entered by the user is greater than 5. In this program the while condition is automatically set to true, and we only exit the loop by performing the break command (which occurs if we encounter a number greater than 5). Take a look at the following example:

```
int num;
num=1;

while (num<20)
{
    num=num*2;
    System.out.println (num);
}
```

In while loops we must be very careful about where the condition is tested. In the above small program, what numbers will be outputted to the screen?

What about the following two while loops, what is the difference?

<pre>int num; num=5; while (num<4) { num=num+1; System.out.println (num); }</pre>	<pre>int num; num=5; do { num=num+1; System.out.println (num); }while (num<4);</pre>
OUTPUT:	OUTPUT:

Indicate the number of time the word "Hello" is outputted to the screen in the following loops:

SMALL PROGRAM	# OF TIMES Hello APPEARS ON SCREEN
<pre>int num; num=4; while (num<4) { System.out.println ("Hello"); num=num+1; }</pre>	_____
<pre>int num; num=20; while (num>17) { System.out.println ("Hello"); num=num-1; }</pre>	_____
<pre>int num; num=13; while (num<=16) { System.out.println ("Hello"); num=num+2; }</pre>	_____
<pre>int num; num=1; while (true) { System.out.println ("Hello"); if (num>5) {break;} num=num+1; }</pre>	_____
<pre>int num; num=1; while (true) { num=num+1; if (num>5) {break;} System.out.println ("Hello"); }</pre>	_____
<pre>for (int i=1;i<6;i=i+1) { System.out.println ("Hello"); }</pre>	_____
<pre>int num; num=1; while (num<10) {System.out.println("Hello"); num=num+2; if (num>6) {break;} }</pre>	_____