

Pausing the Action in a Java Program

When you run a Java program, it executes the statements in the program one at a time from top to bottom as quickly as you can. But sometimes you want to slow things down, to give the user time to see something, or to give a program some rhythm. Here are two ways to do that.

Waiting for the User...

Suppose you have two full screens of information to display (maybe you are giving instructions on how to use your program, or showing a slideshow of pictures). You want to show the first screen, then wait for the user to press a button, then move on. For this, you use...

```
c.getChar( );
```

When the program gets to this point, it will pause and wait for the user to hit a key before moving on. Try it!

Putting the Java Runtime Environment to sleep...

The `Thread.sleep()` statement causes the computer to pause, or “sleep” for the number of milliseconds (**ms**) you specify. A millisecond is a thousandth of a second, or .001 seconds. 1000 milliseconds is 1 second. If you want to pause for 500 ms, you would use:

```
Thread.sleep(500);
```

Here are some other examples:

```
Thread.sleep(1000); //pause for 1 second
```

```
Thread.sleep(250); //pause for a quarter of a second
```

```
Thread.sleep(100); //pause for a tenth of a second
```

Any program that uses the `Thread.sleep()` program must make the following change to the header of the main method. Instead of writing:

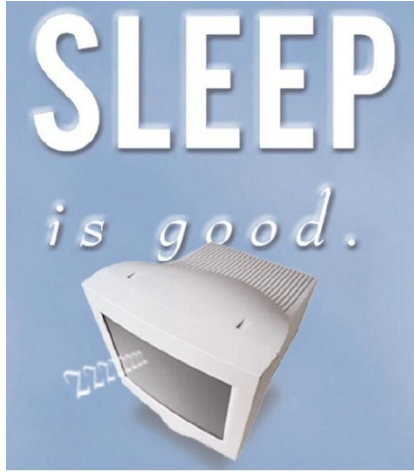
```
public static void main(String[] args)
```

You add a couple of words to the end like this:

```
public static void main(String[] args) throws InterruptedException
```



Thread.Sleep Example



You can use `Thread.sleep()` to make all kinds of cool effects, including flashing colors or text or shapes... text or pictures that appear on the screen slowly.... you can even make something appear to move across the screen.

Suppose you wanted to flash some text on and off. Here is an **algorithm** (a sequence of steps) for flashing text once on the screen:

1. Write the text to the screen.
2. Pause for 500 ms
3. Clear the screen
4. Pause for 500 ms

You can repeat those 4 steps for as many times as you want your program to flash the text.

In the course conference, you will find a program called **VirusAlert.java** that uses this algorithm to make text flash in a Java program.