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## 1.10. Create Blocks of Code

Another key element of Java is the *code block*. A code block is a grouping of two or more statements. This is done by enclosing the statements between opening and closing curly braces. Once a block of code has been created, it becomes a logical unit that can be used any place that a single statement can. For example, a block can be a target for Java's **if** and **for** statements. Consider this **if** statement:

```
if (w < h) { ← Start of block
    v = w * h;
    w = 0;
} ← End of block
```

Here, if **w** is less than **h**, both statements inside the block will be executed. Thus, the two statements inside the block form a logical unit, and one statement cannot execute without the other also executing. The key point here is that whenever you need to logically link two or more statements, you do so by creating a block. Code blocks allow many algorithms to be implemented with greater clarity and efficiency.

Here is a program that uses a block of code to prevent a division by zero:

```
/*
    Demonstrate a block of code.

    Call this file BlockDemo.java.
*/
class BlockDemo {
    public static void main(String[] args) {
        double i, j, d;

        i = 5;
        j = 10;

        // the target of this if is a block
        if(i != 0) {
            System.out.println("i does not equal zero");
            d = j / i;
            System.out.println("j / i is " + d);
        }
    }
}
```

The target of the if is this entire block.

The output generated by this program is shown here:

```
i does not equal zero
j / i is 2.0
```

#### Ask the Expert

**Q:** Does the use of a code block introduce any run-time inefficiencies? In other words, does Java actually execute the { and }?

**A:** No. Code blocks do not add any overhead whatsoever. In fact, because of their ability to simplify the coding of certain algorithms, their use generally increases speed and efficiency. Also, the { and } exist only in your program's source code. Java does not, per se, execute the { or }.

In this case, the target of the **if** statement is a block of code and not just a single statement. If the condition controlling the **if** is true (as it is in this case), the three statements inside the block will be executed. Try setting **i** to zero and observe the result. You will see that the entire block is skipped.

As you will see later in this book, blocks of code have additional properties and uses. However, the main reason for their existence is to create logically inseparable units of code.