

## Compiling and Running Programs

1. Frequently in these labs you will be asked to compile a sample program. Below is a copy of a Java program that displays a drawing. Copy and paste it into your compiler's text editor. Save it as `Art.java`.

```
/**
 * Displays an 'art' drawing
 */
public class Art
{
    public static void main(String[] argv)
    {
        String s1 = " *   *   *   *   *   * ";
        String s2 = "  *  *  *  *  *  * ";
        String s3 = " _____ \\n";
        String s4 = " _____ \\n";

        System.out.print(s4 + s1 + s3 + s2 + s3);
        System.out.print(s1 + s3 + s2 + s3);
        System.out.print(s1 + s3 + s2 + s3);
        System.out.print(s1 + s3 + s2 + s3);
        System.out.print(s4 + s4 + s4 + s4 + s4);
    }
}
```

Describe what you did to create the file `Art.java`.

2. Once you have typed in (or pasted in) a program, you need to *compile* it to create an executable file. Again, these steps depend on your compilation environment. Determine the steps for your computer system, then go ahead and compile `Art.java`.
3. Finally, it is time to *execute* the program. Once again, the steps depend on your computer system. Describe what happened when the program executed.

## Writing Simple Programs

4. Your initial Java programs will be contained entirely in one file. There are some elements that all the programs will share because of the requirements of the Java language. When you build a program, your compiler looks for code of the form:

```
public class ClassName
{
    public static void main(String[] args)
    {
        /*
        your work goes here
        */
    }
}
```

The textbook has a program that prints the message `Hello, World!` on the screen. Try changing it to display `Hello, Universe!` Type the program into your compiler's editor, compile and test. What program did you produce?

## Detecting Syntax and Logic Errors

5. There are numerous opportunities for errors in any program, often in places that seem too simple to require attention.

What do you think the following program is designed to do?

```
public class Cube
{
    public static void main()
    {
        double height = 3.0; \\ inches
        double cubeVolume = height * height * height;
        double surfaceArea = 8 * height
        System.out.print("Volume = ")
        System.out.println(cubeVolume);
        System.out.print("Surface area = ");
        System.out.println(surfaceArea);
    }
}
```

Will it work as supposed? If not, what problems can you identify?

6. Fix the syntax errors. What program did you compile successfully?
7. The program has two logic errors. Fix them and supply the corrected program.