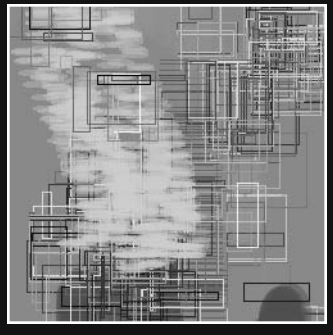
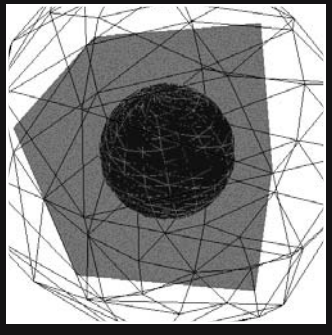
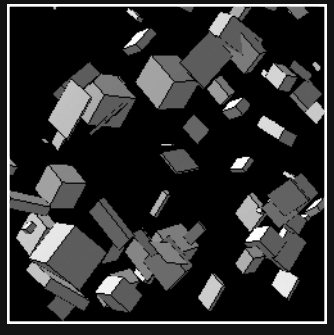
5 THE PROCESSING ENVIRONMENT

Processing, besides being a language of sorts, is an integrated development environment (IDE)—an IDE created by artists for artists. The Processing development environment is simple to learn and use, and doesn't add to the complexity of learning to program, as with many other IDEs. In fact, the Processing IDE really does substantially simplify the process of coding, even for absolute beginners. Even Flash, which is another very popular IDE of sorts, also geared toward artists, has a steep learning curve, and its complexity can get in the way on pure coding projects. In contrast, the Processing IDE has a well-designed interface and core functionality that allows you to work efficiently; it's a huge improvement over working in your old text editor.

Processing is also a language-specific IDE—a Java IDE—but as you'll soon see, a pretty unique one. Processing's seeming simplicity is deceptive, and in one very significant way, Processing goes further than most other IDEs. Processing has its own built-in procedural programming language that enables coders to write Java graphics programs (**sketches** in Processing speak) without the complexity or rigid object-oriented structure normally required to write Java. In addition, Processing has three modes of working, allowing coders, as they increase their programming literacy, to move from Processing's simplified procedural approach, to a hybrid approach that uses some more-advanced programming constructs, to ultimately working in pure Java—all in the same IDE. This multimode capability makes Processing a great environment in which to learn graphics programming, and it's one of the reasons that it's being included in more and more digital arts curricula at schools around the world.

In this chapter, I'll show you how the IDE works, walk you through the features of the environment, and introduce you to various concepts that are useful to know before you get started.

How it works

When you double-click the Processing icon, the Processing environment opens up, which as mentioned is a Java program—technically a Java application. Java applications run through a Java interpreter, or Java Virtual Machine (JVM), installed on your computer. The JVM was either installed with your operating system, as with OS X, or when you installed Processing (or Java separately), on other platforms. The virtual machine is part of Java's runtime environment, commonly referred to as the JRE. Java also has a software development kit, or JDK. The JRE includes the JVM, Java's core classes, and some supporting files. The JDK includes everything in the JRE, plus a compiler and some additional tools and files. The JVM installed on your system was built for your specific operating system and translates or interprets between your compiled Java programs and your specific operating system (OS). What's cool, or at least efficient, about this approach is that, theoretically, the same code you write on a Mac will run on a Linux or Windows system, with each of the virtual machines on the different platforms doing the translation at runtime. I wrote "theoretically" because there are some cross-platform display issues, but it essentially works. This cross-platform functionality is one of Java's strengths, allowing Java to be used across different operating systems, as well as on the Web and in other devices—all that is required is a JVM.