6.8 Java API Packages

As you've seen, Java contains many *predefined* classes that are grouped into categories of related classes called *packages*. Together, these are known as the Java Application Programming Interface (Java API), or the Java class library. A great strength of Java is the Java API's thousands of classes. Some key Java API packages that we use in this book are described in Fig. 6.5, which represents only a small portion of the *reusable components* in the Java API.

Fig. 6.5

Java API packages (a subset).

Package	Description
`java.awt.event`	The **Java Abstract Window Toolkit Event Package** contains classes and interfaces that enable event handling for GUI components in both the `java.awt` and `javax.swing` packages. (See Chapter 26, Swing GUI Components: Part 1, and Chapter 35, Swing GUI Components: Part 2.)
`java.awt.geom`	The **Java 2D Shapes Package** contains classes and interfaces for working with Java's advanced two-dimensional graphics capabilities. (See Chapter 27, Graphics and Java 2D.)
	The **Java Input/Output Package** contains

`java.io`	classes and interfaces that enable programs to input and output data. (See Chapter 15, Files, Input/ Output Streams, NIO and XML Serialization.)
`java.lang`	The **Java Language Package** contains classes and interfaces (discussed throughout the book) that are required by many Java programs. This package is imported by the compiler into all programs.
`java.net`	The **Java Networking Package** contains classes and interfaces that enable programs to communicate via computer networks like the Internet. (See online Chapter 28, Networking.)
`java.security`	The **Java Security Package** contains classes and interfaces for enhancing application security.
`java.sql`	The **JDBC Package** contains classes and interfaces for working with databases. (See Chapter 24, Accessing Databases with JDBC.)
`java.util`	8 The **Java Utilities Package** contains utility classes and interfaces that enable storing and processing of large amounts of data. Many of these classes and interfaces have been updated to support Java SE 8's lambda capabilities. (See Chapter 16, Generic Collections.)
`java.util.concurrent`	The **Java Concurrency Package** contains utility classes and interfaces for implementing programs that can perform multiple tasks in parallel. (See Chapter 23, Concurrency.)
`javax.swing`	The **Java Swing GUI Components Package** contains classes and interfaces for Java's Swing GUI components. This package still uses some elements of the older `java.awt` package. (See Chapter 26, Swing GUI Components: Part 1, and Chapter 35, Swing GUI Components: Part 2.)
	The **Java Swing Event Package** contains classes and interfaces that enable event

`javax.swing.event`	handling (for example, responding to button clicks) for GUI components in package `javax.swing`. (See Chapter 26, Swing GUI Components: Part 1, and Chapter 35, Swing GUI Components: Part 2.)
`javax.xml.ws`	The **JAX-WS Package** contains classes and interfaces for working with web services in Java. (See online Chapter 32, Web Services.)
`javafx` packages	JavaFX is Java's preferred GUI, graphics and multimedia technology for the future. We cover JavaFX extensively throughout the book.
Some Java SE 8 Packages Used in This Book	
`java.time`	8 The Java SE 8 **Date/Time API Package** contains classes and interfaces for working with dates and times. (See Chapter 23, Concurrency.)
`java.util.function` and `java.util.stream`	These packages contain classes and interfaces for working with Java SE 8's functional programming capabilities. (See Chapter 17, Lambdas and Streams.)

The set of packages available in Java is quite large. In addition to those summarized in Fig. 6.5, Java includes packages for complex graphics, advanced graphical user interfaces, printing, advanced networking, security, database processing, multimedia, accessibility (for people with disabilities), concurrent programming, cryptography, XML processing and many other capabilities. For an overview of the packages in Java, visit

```
http://docs.oracle.com/javase/8/docs/api/overview-sum
```

You can locate additional information about a predefined Java class's methods in the Java API documentation at

```
http://docs.oracle.com/javase/8/docs/api
```

When you visit this site, click the **Index** link to see an alphabetical listing of all the classes and methods in the Java API. Locate the class name and click its link to see the online description of the class. Click the **METHOD** link to see a table of the class's methods. Each `static` method will be listed with the word "`static`" preceding its return type.