# *CHAPTER 1*

## Self-Review Exercises 1.1

1. programs
2. input unit, output unit, memory unit, arithmetic and logic unit (ALU), central processing unit (CPU), and secondary storage unit
3. machine language, assembly language, and high-level language
4. compilers
5. Android
6. Release
7. Accelerometer

## Self-Review Exercises 1.2

1. java
2. javac
3. .java
4. .class
5. Bytecodes

## Self-Review Exercises 1.3

1. encapsulation
2. classes
3. object-oriented analysis and design (OOAD)
4. inheritance
5. Unified Modeling Language (UML)
6. Attributes

## Self-Review Exercises 1.4

1. input unit
2. programming
3. Assembly language
4. Output unit
5. Primary storage (RAM) and secondary storage (hard disk, SSD)
6. Arithmetic and Logic Unit (ALU)
7. Central Processing Unit (CPU)
8. High-level
9. machine language
10. Control unit

## Self-Review Exercises 1.5

1. Java
2. C
3. Transmission Control Protocol (TCP)
4. C++

## Self-Review Exercises 1.6

1. edit, compile, load, verify, and execute
2. Integrated Development Environment (IDE)
3. Java Virtual Machine (JVM)
4. virtual machine (VM)
5. class loader
6. bytecode verifier

## Self-Review Exercises 1.7

* Compilation Phase: The Java source code (.java file) is compiled using the javac compiler. The compiler translates the Java code into bytecode stored in a .class file.
* Execution Phase: The JVM loads the .class file, the bytecode verifier checks the bytecode for security issues, and the Java interpreter (JVM) executes the bytecode line by line or optimizes it using Just-In-Time (JIT) compilation.

## Self-Review Exercises 1.8

Object: A wristwatch

Attributes: Color, size, material, brand, battery life

Behaviors: Telling time, setting an alarm, displaying date

Class: A general category of watches (e.g., digital watches, analog watches)

Inheritance: An alarm clock is a subclass of a watch with additional features

Modeling: Designing different types of watches before production

Messages: User interactions, such as setting the time

Encapsulation: The internal mechanism of the watch is hidden from the user

Interface: The display and buttons that allow interaction

Information Hiding: The battery mechanism is not visible to the user