

## Chapter 1 Summary

Chapter 1 introduces the basics of computer systems, distinguishing between hardware (CPU, memory, and I/O devices) and software (operating systems and applications). It explains that computers operate digitally and store data in binary form. We learn how the operating system manages resources, how networks like the Internet function, and the significance of protocols (TCP/IP) and web technologies (URLs, HTML). Finally, Java's syntax and compilation to platform-independent bytecode are introduced, along with core object-oriented principles like classes, inheritance, and polymorphism.

## Chapter 2 Summary

Chapter 2 focuses on data and expressions in Java, starting with character strings and the rules for concatenation. It covers declaring and initializing variables, using constants, and understanding the eight primitive data types—particularly how integer and floating-point arithmetic work. Operator precedence, integer division, and the role of casting, widening, and narrowing conversions receive special attention. The chapter concludes by introducing interactive programs through the `Scanner` class, showing how user input is handled and integrated into Java applications.

## Chapter 3 Summary

Chapter 3 delves into using classes and objects in Java. It begins by showing how object references work—emphasizing that variables store addresses, not the objects themselves—and discusses the consequences of aliases (multiple references to the same object). The chapter explores the `String` class more deeply, introducing methods like `length()` and `substring()`, and then moves on to other useful classes: `Random` for pseudorandom numbers, `Math` for common mathematical operations, and formatting classes (`NumberFormat` and `DecimalFormat`) for output. It introduces enumerated types, which define a fixed set of constant values, and wrapper classes (e.g., `Integer`, `Double`) that wrap primitive types, enabling features like automatic “autoboxing” and “unboxing” between primitives and their object counterparts.