Introduction to Computers, the Internet and the World Wide Web: Solutions

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The chief merit of language is clearness.
—Galen

Our life is frittered away by detail. … Simplify, simplify.
—Henry David Thoreau

Man is still the most extraordinary computer of all.
—John F. Kennedy

Objectives

In this chapter you'll learn:

- Basic hardware and software concepts.
- Object-technology concepts, such as classes, objects, attributes, behaviors, encapsulation and inheritance.
- The different types of programming languages.
- A typical C++ program development environment.
- The history of the industry-standard object-oriented system modeling language, the UML.
- The history of the Internet and the World Wide Web, and the Web 2.0 phenomenon.
- To test-drive C++ applications in GNU C++ on Linux and Microsoft's Visual C++® on Windows®.

Student Solution Exercises

1.5 Why might you want to write a program in a machine-independent language instead of a machine-dependent language? Why might a machine-dependent language be more appropriate for writing certain types of programs?

ANS: Machine independent languages are useful for writing programs to be executed on multiple computer platforms. Machine dependent languages are appropriate for writing programs to be executed on a single platform.

1.7 Why is so much attention today focused on object-oriented programming?

ANS: Object-oriented programming enables the programmer to build reusable software components that model items in the real world. Building software quickly, correctly, and economically has been an elusive goal in the software industry. The modular, object-oriented design and implementation approach has been found to increase productivity while reducing development time, errors, and cost.

1.9 Give a brief answer to each of the following questions:

a) Why does this text discuss structured programming in addition to object-oriented programming?

ANS: Objects are composed in part of structured program pieces.

b) What kinds of messages do people send to one another?

ANS: People send messages through body language, speech, writings, e-mail, telephones, etc.

c) Objects send messages to one another across well-defined interfaces. What interfaces does a car radio (object) present to its user (a person object)?

ANS: Dials and buttons that allow the user to select a station, adjust the volume, adjust bass and treble, play a CD or tape, etc.