1 Introduction to Computers, the Internet and Java

Objectives

In this chapter you'll:

- Learn about exciting recent developments in the computer field.
- Learn computer hardware, software and networking basics.
- Understand the data hierarchy.
- Understand the different types of programming languages.
- Understand the importance of Java and other leading programming languages.
- Understand object-oriented programming basics.
- Learn Internet and web basics.
- Learn a typical Java program-development environment.
- Test-drive a Java application.
- Learn some key recent software technologies.
- See how to keep up-to-date with information technologies.

Outline

1. 1.1 Introduction

2. 1.2 Hardware and Software
    1. 1.2.1 Moore’s Law
    2. 1.2.2 Computer Organization
3. 1.3 Data Hierarchy
4. 1.4 Machine Languages, Assembly Languages and High-Level Languages
5. 1.5 Introduction to Object Technology
    1. 1.5.1 Automobile as an Object
    2. 1.5.2 Methods and Classes
    3. 1.5.3 Instantiation
    4. 1.5.4 Reuse
    5. 1.5.5 Messages and Method Calls
    6. 1.5.6 Attributes and Instance Variables
    7. 1.5.7 Encapsulation and Information Hiding
    8. 1.5.8 Inheritance
    9. 1.5.9 Interfaces
    10. 1.5.10 Object-Oriented Analysis and Design (OOAD)
    11. 1.5.11 The UML (Unified Modeling Language)
6. 1.6 Operating Systems
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    2. 1.6.2 Linux—An Open-Source Operating System
    3. 1.6.3 Apple’s macOS and Apple’s iOS for iPhone®, iPad® and iPod Touch® Devices
    4. 1.6.4 Google’s Android
7. 1.7 Programming Languages
8. 1.8 Java

9. 1.9 A Typical Java Development Environment
10. 1.10 Test-Driving a Java Application
11. 1.11 Internet and World Wide Web
    1. 1.11.1 Internet: A Network of Networks
    2. 1.11.2 World Wide Web: Making the Internet User-Friendly
    3. 1.11.3 Web Services and Mashups
    4. 1.11.4 Internet of Things
12. 1.12 Software Technologies
13. 1.13 Getting Your Questions Answered

1. Self-Review Exercises
2. Answers to Self-Review Exercises
3. Exercises
4. Making a Difference