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CHAPTER 13: PROGRAMMING LANGUAGES

- 1) Program Specification
  - 5 steps to complete while in process:
    - i) Objectives
    - ii) Outputs
    - iii) Inputs
    - iv) Processing
    - v) Document
- Program can be classified as:
  - a collection of instructions that can be executed by a computer to perform a specific task.
  - set of instructions computer needs to follow to process data.
- Generation of Programming Languages
  - -1st Gen: Machine languages
  - -2nd Gen: Assembly languages
  - -3rd Gen: High level procedural languages (3GLs)
  - -4th Gen: Task-oriented languages (4GLs)
  - -5th Gen: Problem and Constraint languages (5GL)
- Object-oriented programming (OOP)
  - Focuses less on procedures, more on relationships between objects.
- CASE Tools
  - -Known as Computer-aided software engineering (CASE).
  - -Automates portions of the development process:
    - i) Program design
    - ii) Coding
    - iii)Testing
- 6) Program Maintenance
  - Ensures program is effective, has no errors, and effective.
    - Two activity categories: - Operations - Changing needs
- 2) Program design
  - Plan a solution using structured programming techniques.
    - i) Top-down design
      - Identify the program modules required.
    - ii) Pseudocode
      - Provide an outline of the logic.
      - Summarize the program you will write.
    - iii) Flowcharts
      - Graphically show the sequence of steps required in shapes
    - iv) Logic Structures
      - -Concatenation structure
      - Selection structure
      - Repetition structure
- 3) Program Code
  - A step of writing the program or coding.
  - Divided into 2 program code:
    - Content-markup languages such as HTML and XML.
    - Programming languages such as C, C++ , Java.
- 4) Program Test
  - A process of debugging to eliminate errors and test code.
    - Program test examples:
      - Syntax errors
      - -Logic errors
      - Testing process
- 5) Program Documentation
  - Written descriptions about a program.
  - -Important for people who will use or support the program:
    - -Users
    - -Operators
    - -Programmers

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