



CCJ-123-DASAR PENGEMBANGAN PERANGKAT LUNAK (PERTEMUAN-8)

www.esaunggul.ac.id

Dosen Pengampu :

5165-Kundang K Juman,

Prodi Teknik Informatika Fakultas Ilmu Komputer



Chapter 2

Problem Solving

Outline and Objective



Program Development Cycle
Programming Tools

Programming Languages:



- Machine Language
- Assembly Language
- High level Language

Machine Language

- The fundamental language of the computer's processor, also called **Low Level Language**.
- All programs are converted into machine language before they can be executed.
- Consists of combination of 0's and 1's that represent high and low electrical voltage.

Assembly Language

- A low level language that is similar to machine language.
- Uses **symbolic** operation code to represent the machine operation code.

High Level Language

- Computer (programming) languages that are easier to learn.
- Uses English like statements.
- Examples are C ++, Visual Basic, Pascal, Fortran and

Program Development Cycle:



1. **Analyze:** Define the problem
2. **Design:** Plan the solution to the problem
3. Choose the **Interface:** Select the objects

Program Development Cycle:

4. **Code:** Translate the algorithm into a programming language.
5. **Debug and Test:** Locate and remove any errors in the program.
6. Complete the **Documentation:** Organize all the materials that describe the program.

Programming Tools:



- Flowchart
- Pseudocode
- Hierarchy Chart (Structure chart)

What is a flowchart?

- Logic diagram to describe each step that the program must perform to arrive at the solution.
- A popular logic tool used for showing an algorithm in graphics form.

Continue flowchart

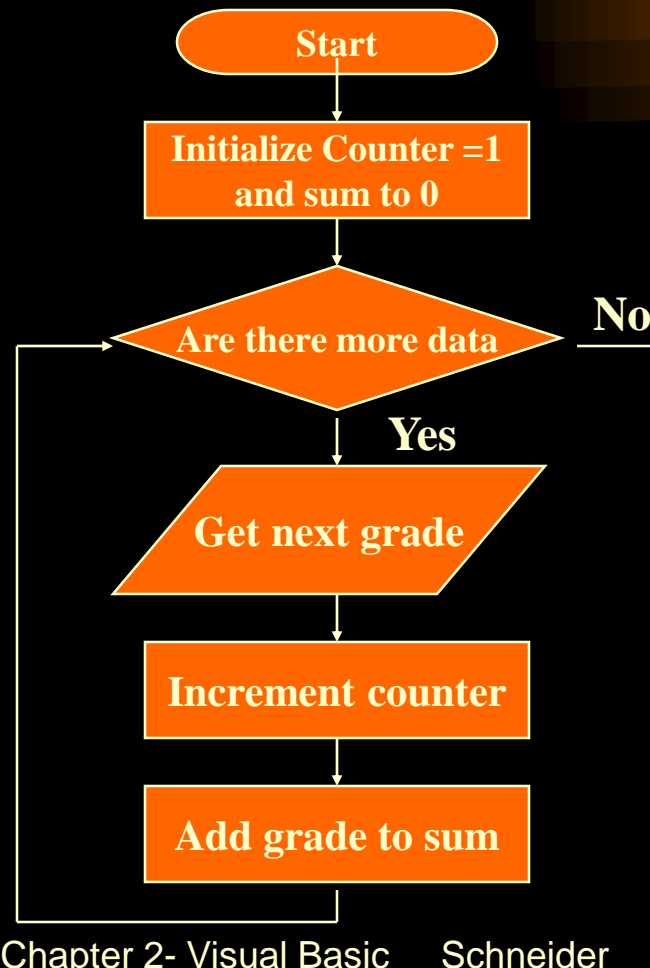
- Programmer prepares flowchart before coding.
- Most common flowchart symbols are:



Purpose of Flowcharting:

- An aid in developing the logic of a program.
- Verification that all possible conditions have been considered in a program.
- Provides means of communication with others about the program.
- A guide in coding the program.
- Documentation for the program.

Example of Flowchart:



Desk Checking

- The process of testing the flowchart with different data as input, and checking the output.
- The test data should include nonstandard data as well as typical data.

What is a Pseudocode?

- A program design technique that uses English words.
- Has no formal syntactical rules.

Example of Pseudocode:

- Determine the average grade of a class:

Do while there are more data

 Get the next Grade

 Add the Grade to the Sum

 Increment the Counter

Loop

Compute average = Sum / Counter

Display average

What is a Hierarchy Chart?

- Shows the overall program's structure.
- Describes what each part, or module, of the program does.
- Also how each module relates to other modules in the program.

Example of Hierarchy Chart:

