Tishk International University Engineering Faculty Computer Programming and Algorithm Lecture 4



Computer Programming and Algorithm Flow Charts

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Previous Lecture

- 1. Commands
- 2. Tokens
- 3. Basic Language Features
- 4. Variables
- 5. Input
- 6. Control IF-ELSE IF IF

Outline

1. Flowchart

Flowchart

Flowchart is a graphical representation of an algorithm mostly used by the programmers as a program-tool to solve problems. By using symbols which are connected to indicate the flow of information and process.

Flow Chart can help improve a number of skills for both teachers and students. Some of these skills included:

- Understanding the sequence of a process,
- Understanding different stages in a process,
- Understanding the relationship between different stages,
- Understanding which step may need more attention,
- Understanding the ultimate goal, and
- Analyzing a problem and seeking out the solution.

1. Terminal: oval shape to indicate start, stop, and halt; which are the first and last symbols in the flowchart.



2. Input/Output: A parallelogram present any function of input/output type. Such as when the program needs to read the input from input input device or display the output at output device.



3. Processing: As box, to present arithmetic instruction such as adding, subtracting, multiplication and division, or to present any type of internal process inside the processor for instance moving data internally.



4. Decision / Comparator: diamond symbol represents a decision point, based on the operator the decision will be yes/no or true/false.



5. Connections: circle symbol will be used to to spread the complexity of drawing the flowchart, to divide in into more than one page.



6. Flow lines: flow lines will be used to indicate the sequence in the executed instruction.



Example1: Draw a flowchart that reads two input number from input device, then display the largest of two numbers.



Exercise1: draw the flow chart and write C++ code to compare between two numbers (x and y), if x bigger than y, subtract them, while if x smaller than y add them.

Exercise2: draw the flow chart and write C++ code to check x and y numbers if they are even or odd.

Homework: draw the flow chart and write C++ code to compare between two numbers (x and y), if x bigger than y multiply x and y, while if x smaller than y find the modulus value.