SPM 2102
PROGRAMMING LANGUAGE 1

The Concept of Control Structure In Programming

By

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Learning Objectives

At the end of this lesson, students should know :

Structured Programming ;

- Linear Structure.
- Selection Structure :
  - Single selection
  - Double selection
  - Multi selection
  - Nested selection (*pilihan bersarang*)
- Looping Structure

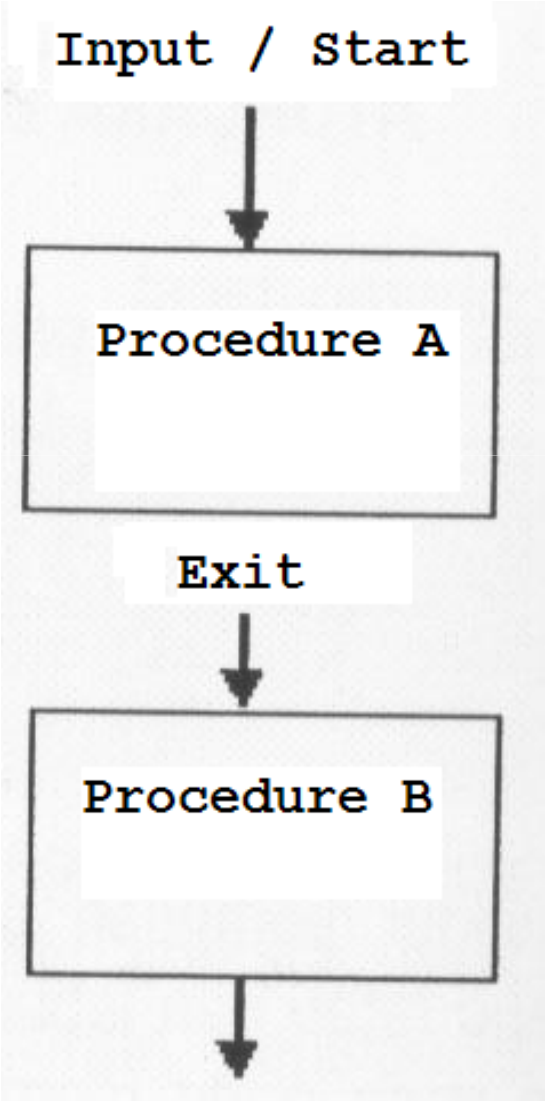
Structured Programming

+ Why Structured Programming?
= Make a programming easy to understand

- Also known as Logic Structure in programming
- Structured programming is based on 3 basic controlling :
    - Linear Structure.
    - Selection Structure.
    - Looping Structure.
- This structure is top-down design
- Advantages - simple & easy to understand

Structured Programming

Linear Structure.



Structured Programming

Linear Structured

- "Linear" refer to routine programming that linear (step by step programming) (A – B – C – E --- Z)

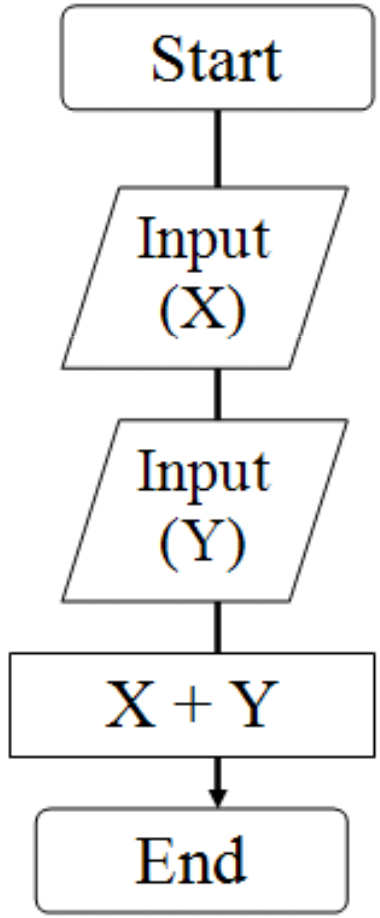
- Routine = procedure : a set of instruction in logical unit

Structured Programming

Linear Structured

- Basically, linear structured used to solve simple problem.

- Eg : X + Y = 2 + 4 = 6

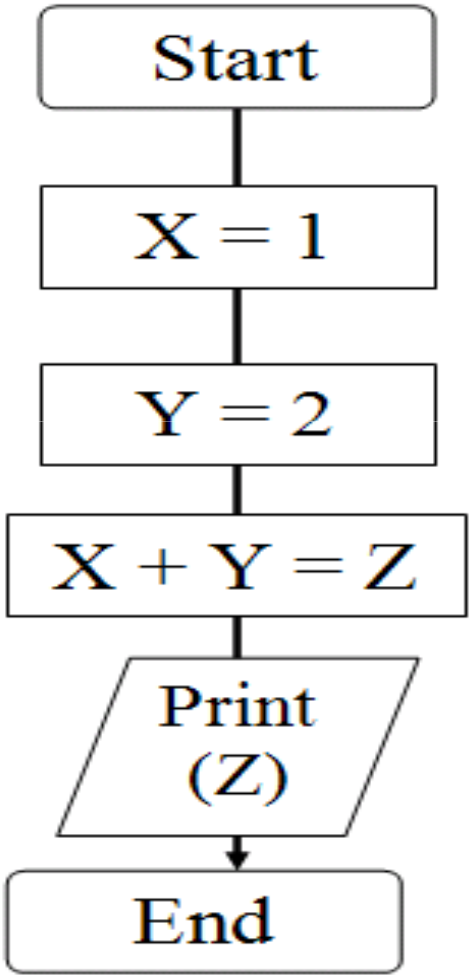


Structured Programming

Linear Structured

Pseudo Code

1. Input X
2. Input Y
3. Calculate X + Y = Z
4. Output / Print Z
5. End



Structured Programming

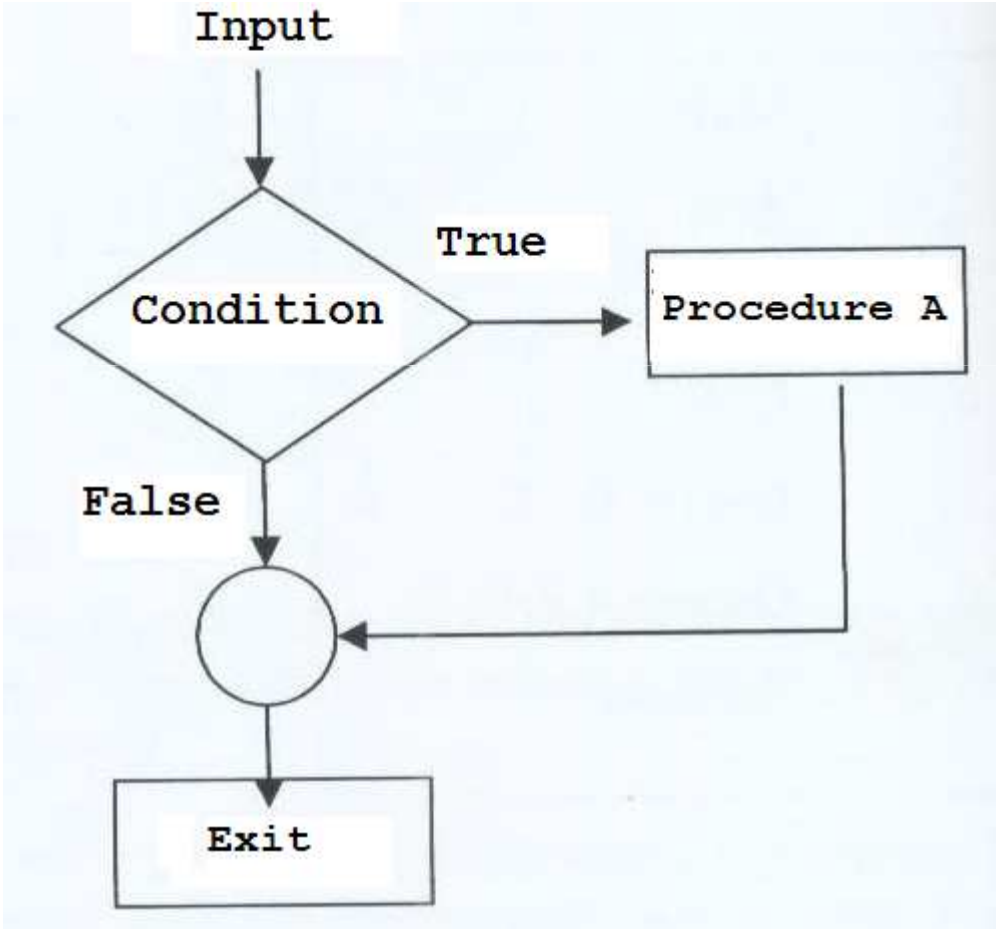
Linear Structured

- Other example :
- Student record application
- First routine : Input : name, course, matrix
- Second routine : display name, course, matrix, (sort by name)

- Just input, process and display

Structured Programming

Selection Structure.



Structured Programming

Selection Structured

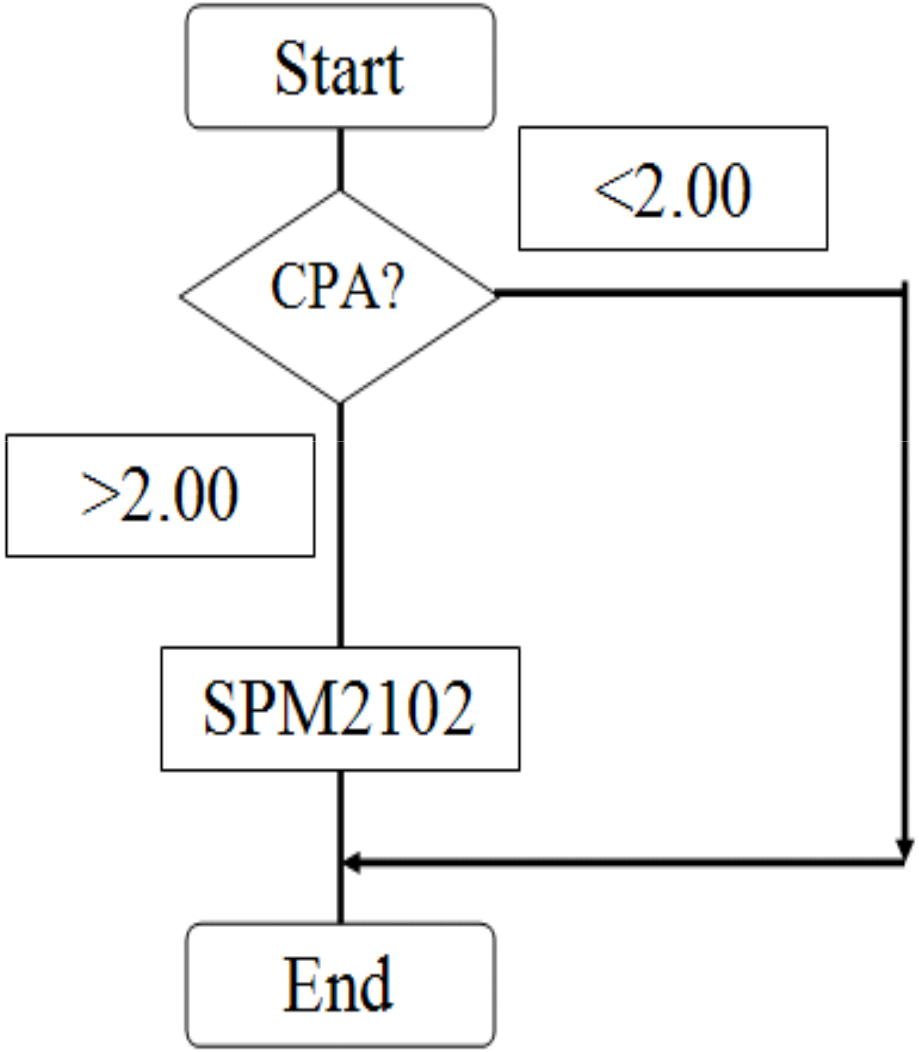
- Next procedure or next decision depend on previous condition and input

- Next routine or procedure depend previous condition ; true (1) or false (0)

Structured Programming

Selection Structured

- Situation :
  All students can take SPM2102 for next semester except who gets < 2.00 in CGPA



Structured Programming

Selection Structured

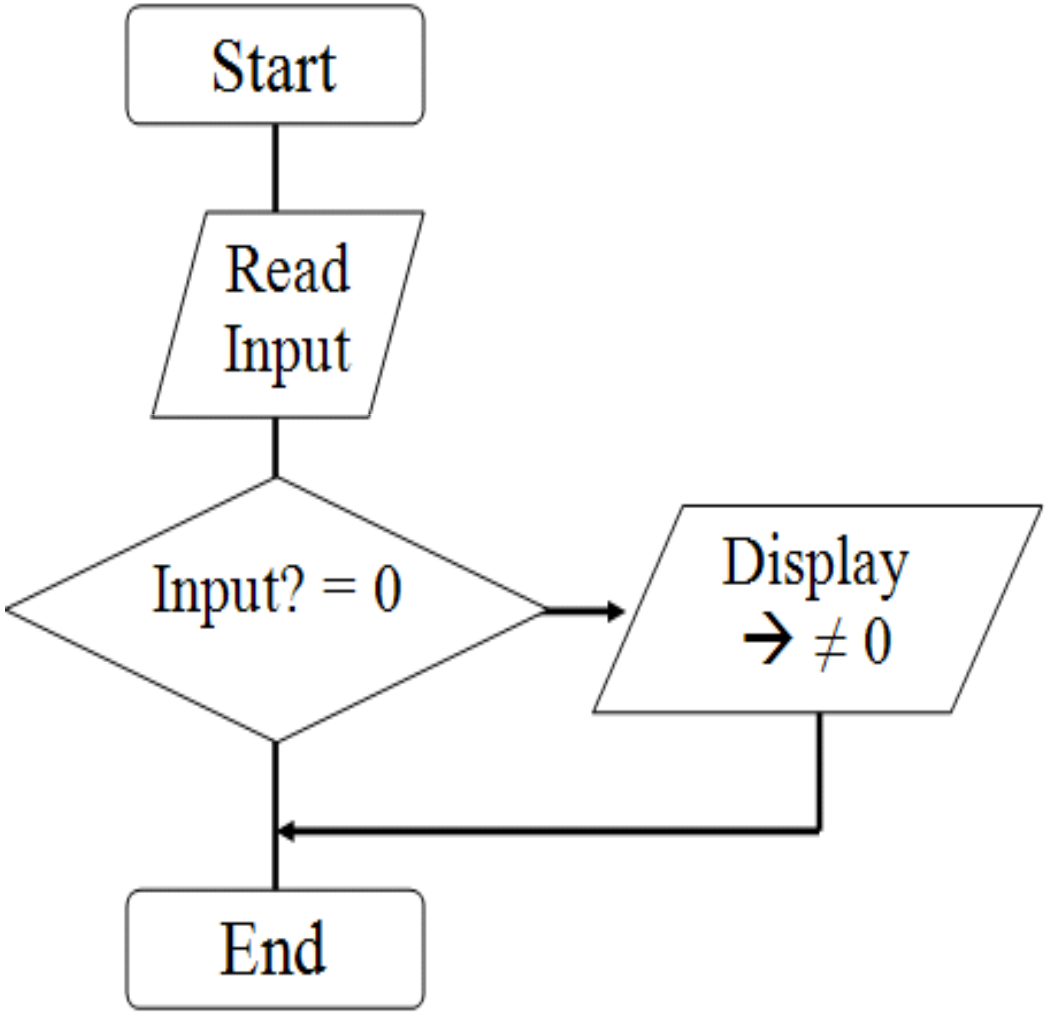
- There 4 design of selection structured :

1. Single selection
2. Double selection
3. Multi selection
4. Nested selection (*pilihan bersarang*)

Structured Programming

Single selection

1. Start
2. Read the value
3. If value ≠ 0
4. Then display the value
5. End

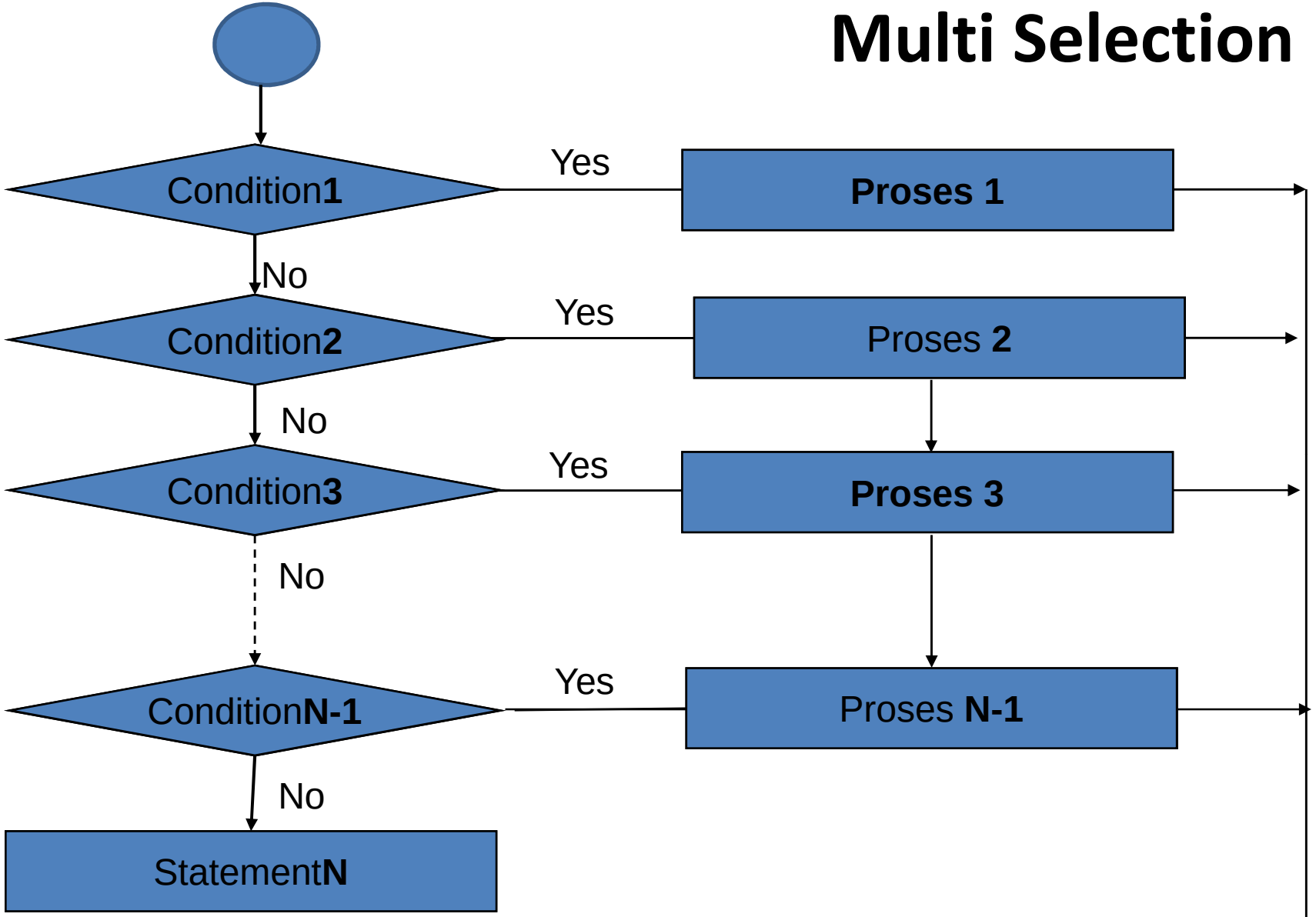


Structured Programming

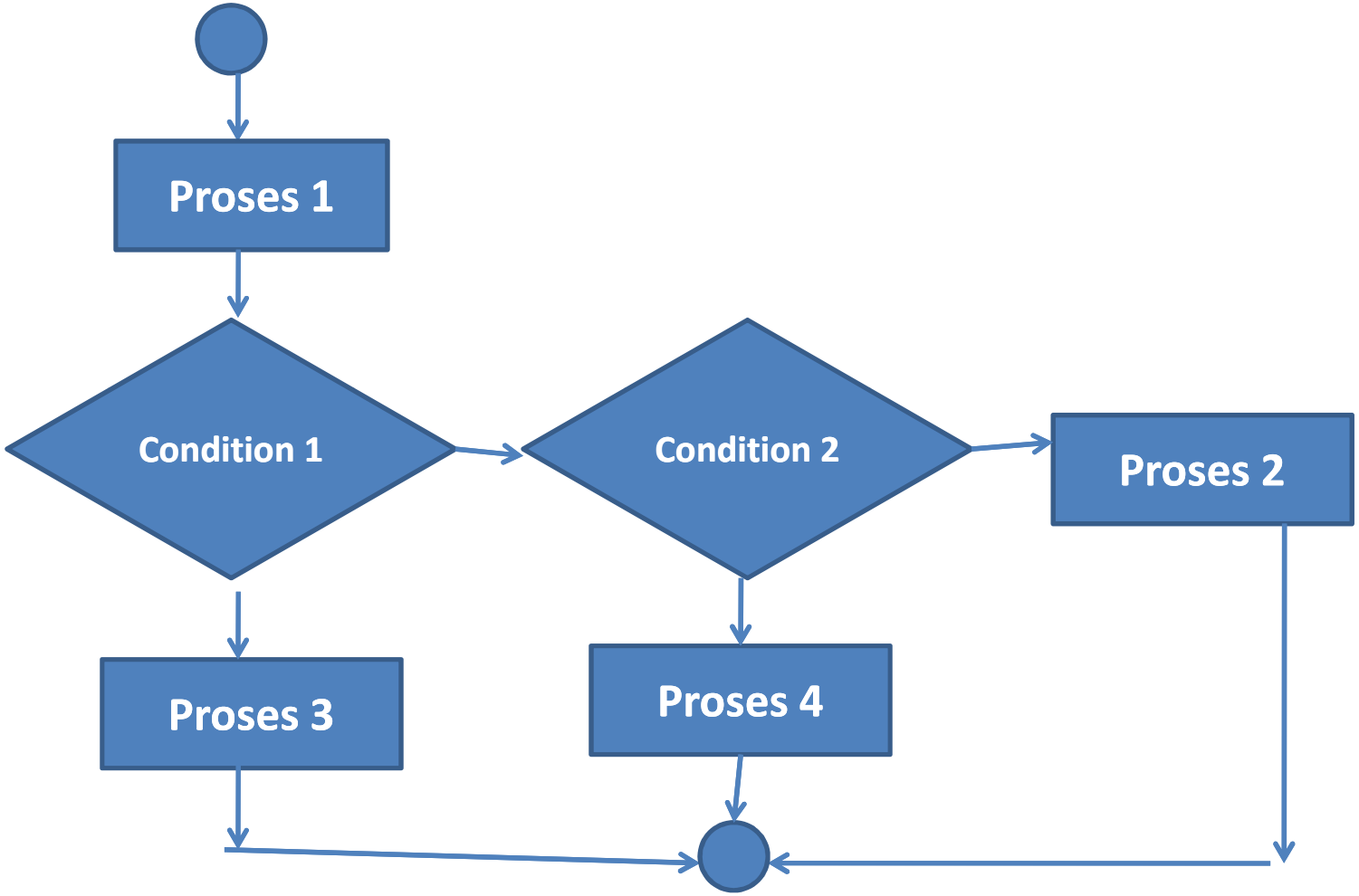
Multi Selection

- More than two condition or selection
- One input must be tested on more than two condition
- If first condition are false, then the second Condition will be tested. Else, other action / routine will be taken

Multi Selection

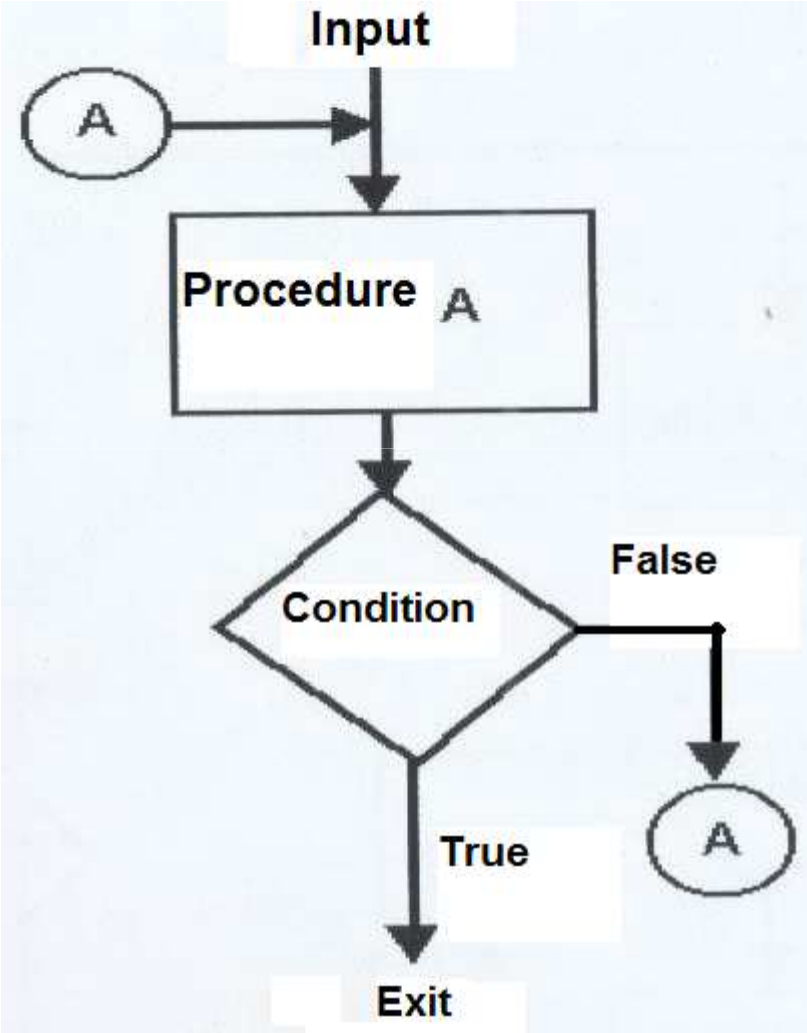


Structured Programming



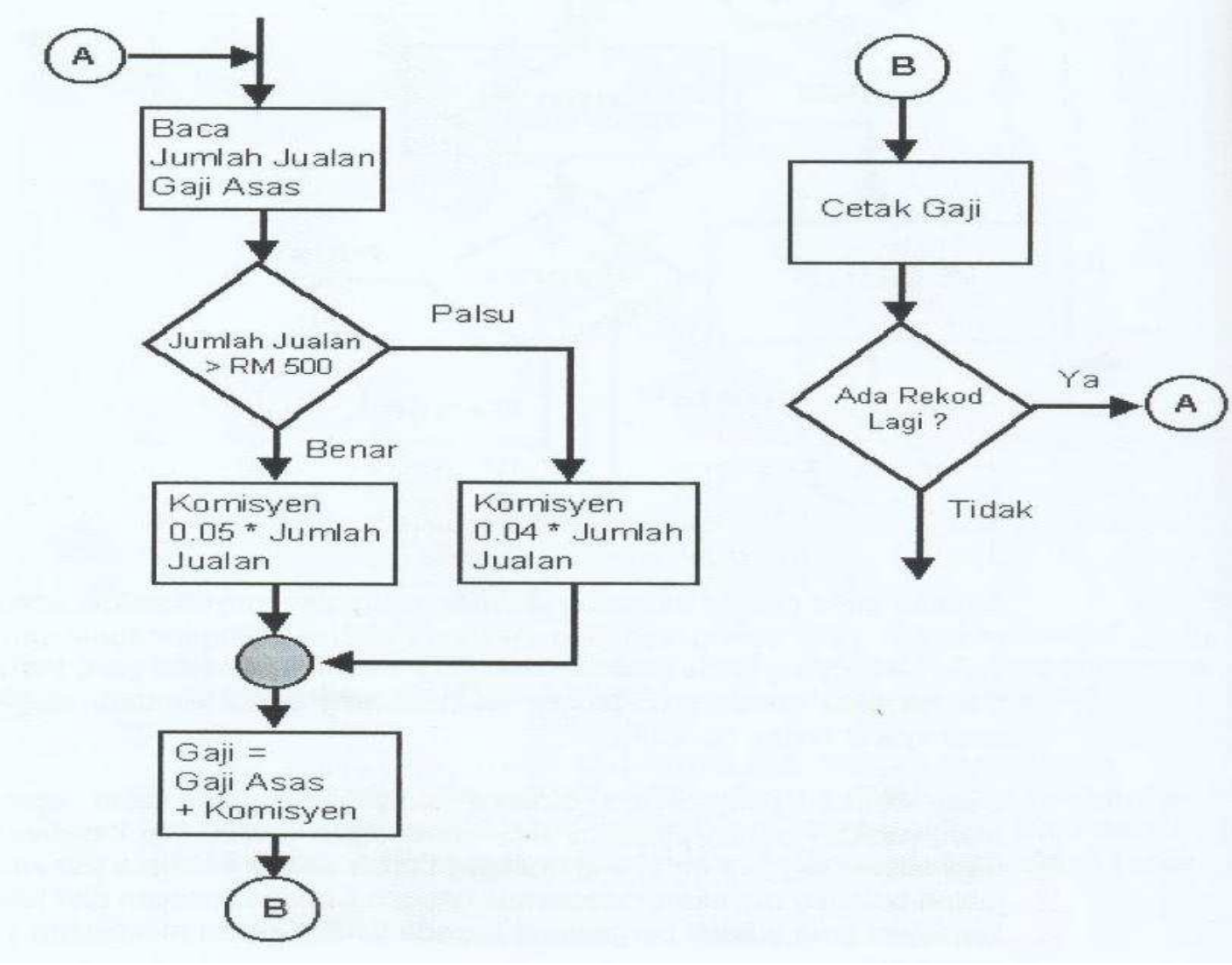
Structured Programming

Looping Structure.



Structured Programming

Looping Structured



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