LECTURE 3: UNDERSTANDING STRUCTURES

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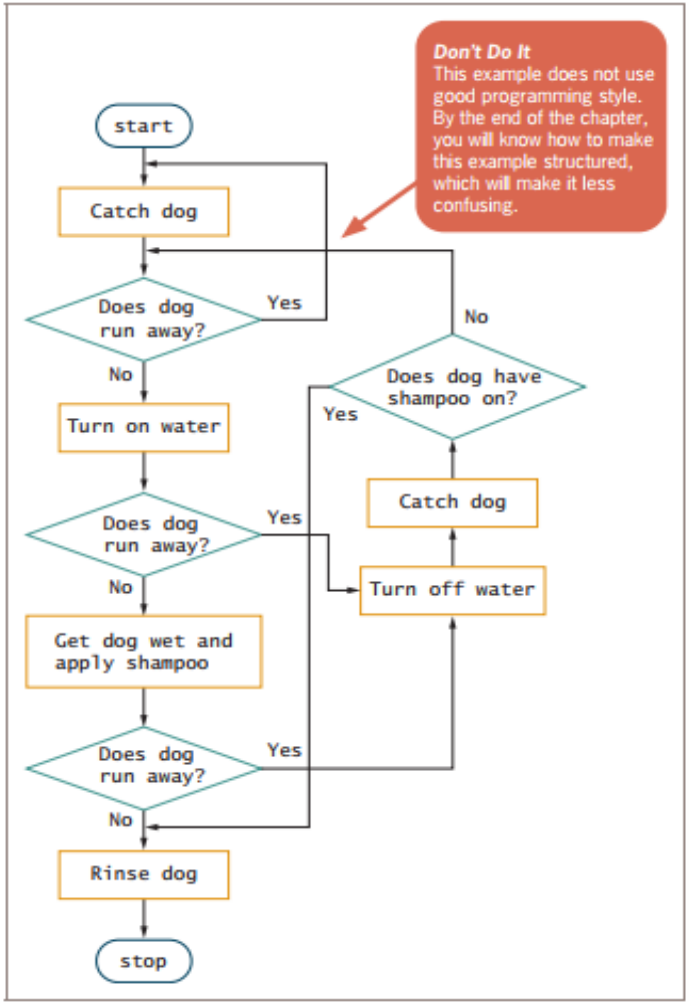
Lecture 3: Understanding Structures

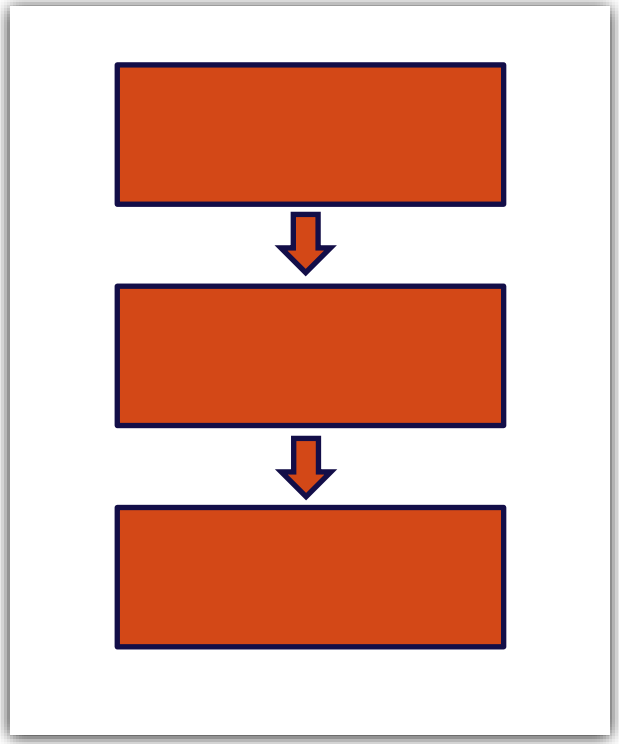
UNDERSTANDING THE THREE BASIC STRUCTURES

- Sequence
- Selection
- Loop



01

SEQUENCE STRUCTURE

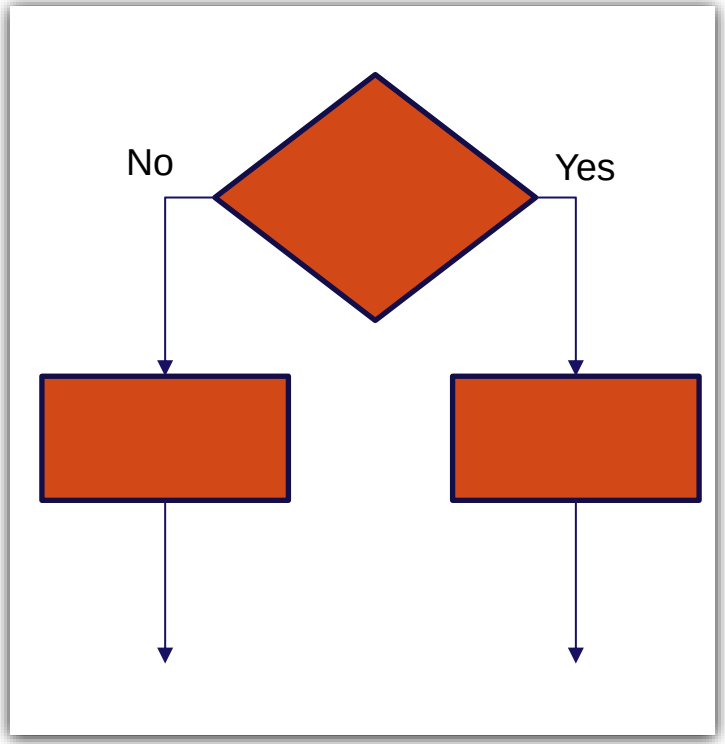


SEQUENCE STRUCTURE

It performs actions or tasks in order, one after the other. A sequence can contain any number of tasks, but there is no option to branch off and skip any of the tasks. Once you start a series of actions in a sequence, you must continue step by step until the sequence ends.

02

SELECTION STRUCTURE



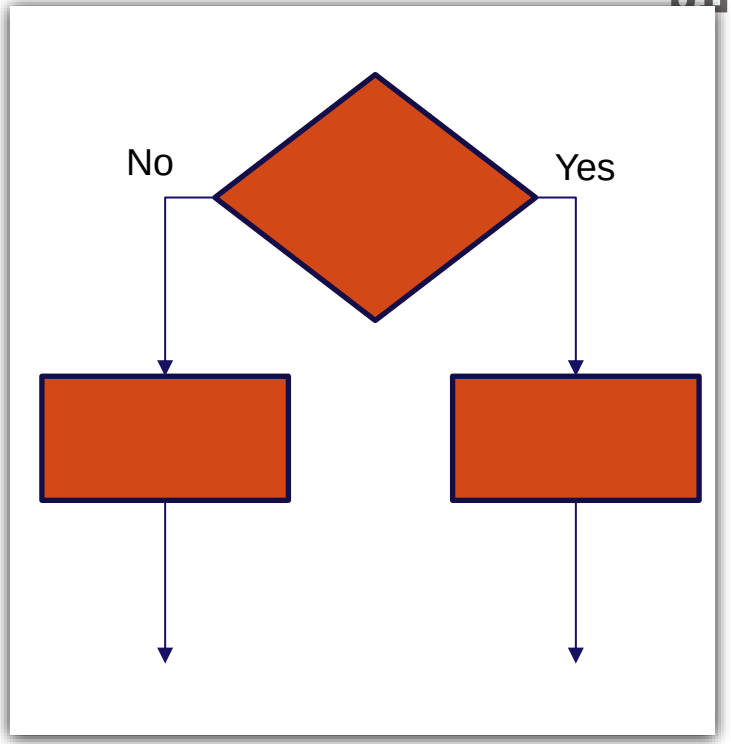
SELECTION STRUCTURE

or **decision structure**

With this structure, one of two courses of action is taken based on the answer to a question.

- A flowchart that describes a selection structure begins with a decision symbol, and the branches of the decision must join at the bottom of the structure.
- Pseudocode that describes a selection structure starts with if. Pseudocode uses the end-structure statement endif to clearly show where the structure ends.

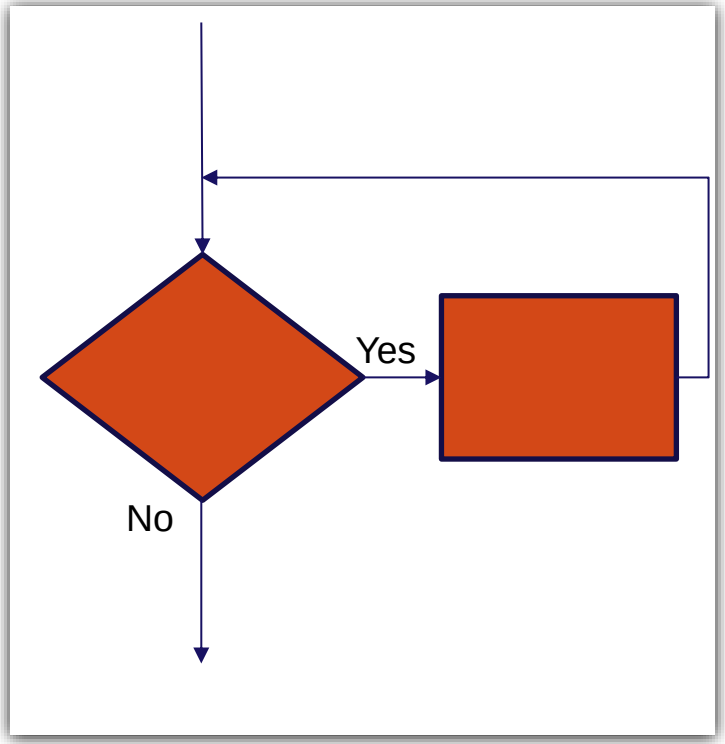
SELECTION STRUCTURE



03

LOOP STRUCTURE

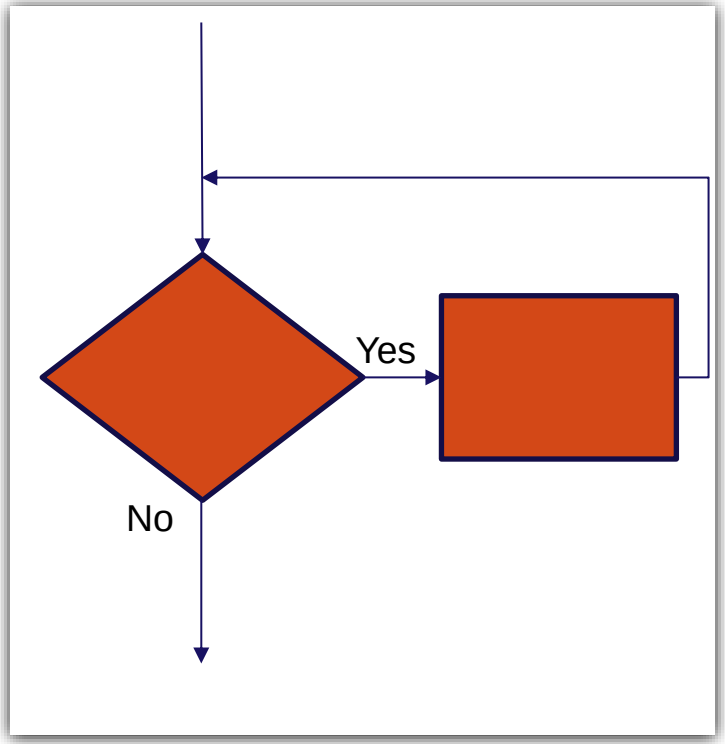
LOOP STRUCTURE



A loop continues to repeat actions while a condition remains true.

- The action or actions that occur within the loop are the loop body. In the most common type of loop, a condition is evaluated; if the answer is true, you execute the loop body and evaluate the condition again. If the condition is still true, you execute the loop body again and then reevaluate the condition. This continues until the condition becomes false, and then you exit the loop structure.
- Programmers call this structure a while loop;

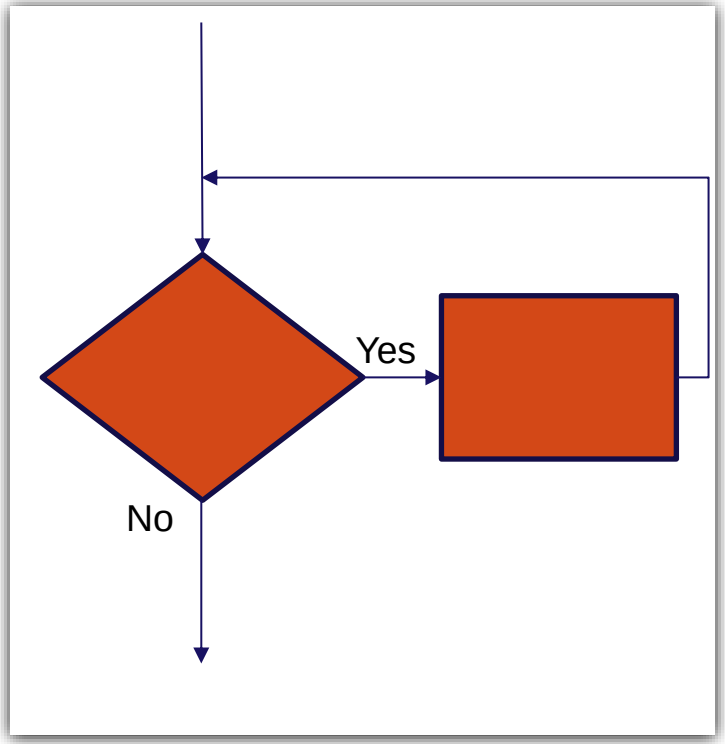
LOOP STRUCTURE



Pseudocode that describes this type of loop starts with while and ends with the end-structure statement endwhile.

A flowchart that describes the
while loop structure always begins with a decision symbol that has a branch that returns to a
spot prior to the decision. You may hear programmers refer to looping as repetition or iteration.

LOOP STRUCTURE



Example:

while testCondition continues to be true **do**
someProcess
endwhile

while unread pages remain in the reading assignment
read another unread page
determine whether there are more pages to read
endwhile