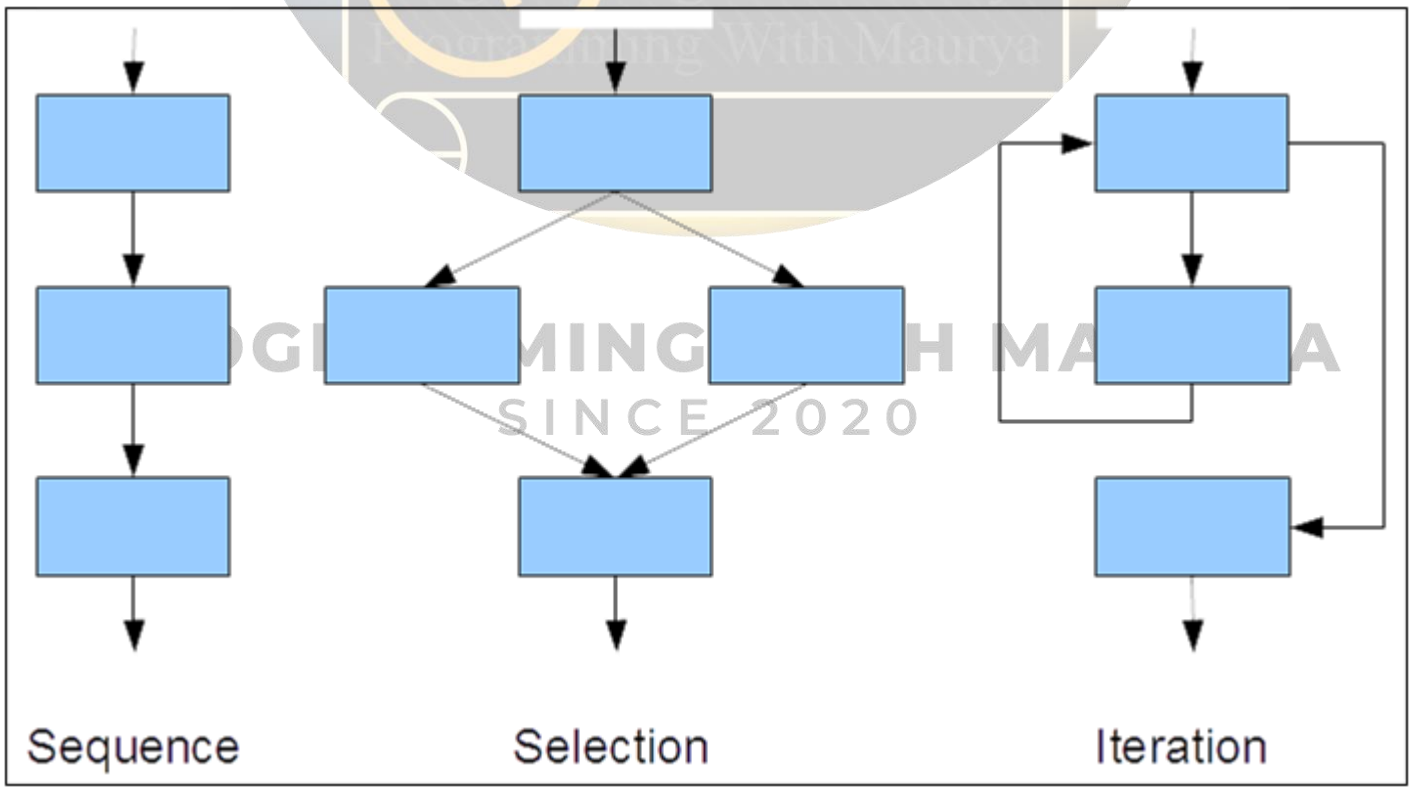
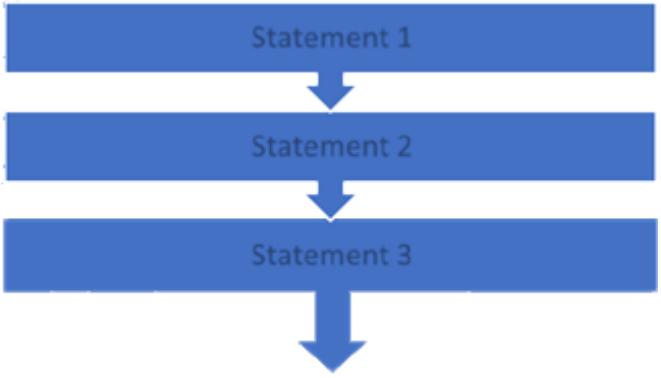
Conditional and Iterative Statements

- Control Statements in Python are the statements which control or change the flow of execution of a program.
  There are number of control statements available in Python, that decides the flow of execution.
- Types of statements in python
  - Statements are the instructions given to the computer to perform any kind of action, be it data movements, and be it making decisions or be it repeating actions.
  - Empty statement
    - A statement which does nothing is known as empty statement.
    - In python empty statement is ***pass*** statement.
    - A pass statement is useful in those places where the syntax of language requires the presence of a statement but where the logic of the program does not.
  - Simple statement
    - Any single executable statement is a simple statement in Python.
  - Compound statement
    - A compound statement represents a group of statements executed as a unit. The compound statements of Python are written in a specific pattern as shown below:

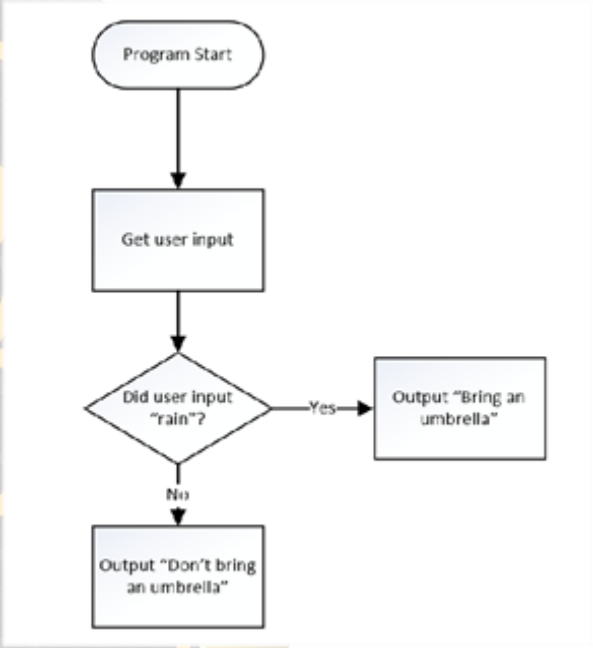
      <compound statement header> (<Header>):
      <indentedbodycontainingmultiplesimpleand/orcompound statements>(<body>)
- Statement flow control



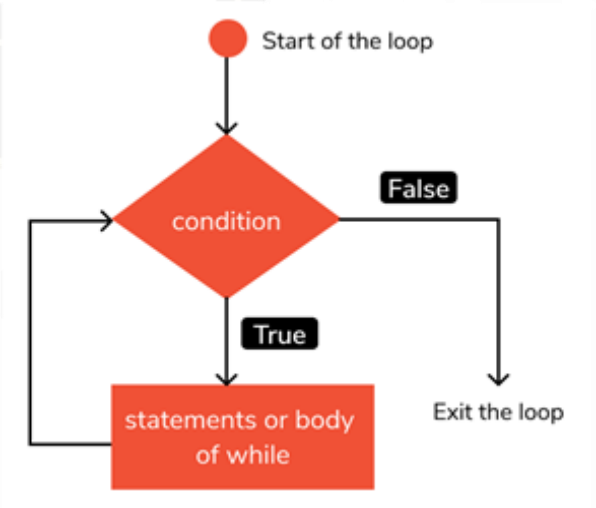
- Sequence
  - The sequence construct means the statements are being executed sequentially.
  - Sequence refers to the normal flow of control in a program and is the simplest one.
  - When the final statement of program is executed, the program is done.



- Selection
  - The selection construct means the execution of statements depending upon a condition-test.
  - If a condition evaluates to True, a course of action is followed otherwise if False then another course-of-action is followed.



- Iteration(looping)
  - In programming, loops are a sequence of instructions that does a specific set of instructions or tasks based on some conditions and continue the tasks until it reaches certain conditions.
  - It is seen that in programming, sometimes we need to write a set of instructions repeatedly - which is a tedious task, and the processing also takes time.
  - So, in programming, we use iteration technique to repeat the same or similar type of tasks based on the specified condition.



- Algorithm
  - An algorithm is a step-by-step procedure to solve a given problem.
  - Read and analyse the given problem
  - Decide about basic sub-task need to solve a problem
  - Order these subtask
  - Algorithms are commonly written out with tools like pseudocode, flow chats or decision trees and tables.

 Flowcharts

- A flowchart is a graphical representation of steps in algorithm to solve a given problem.