

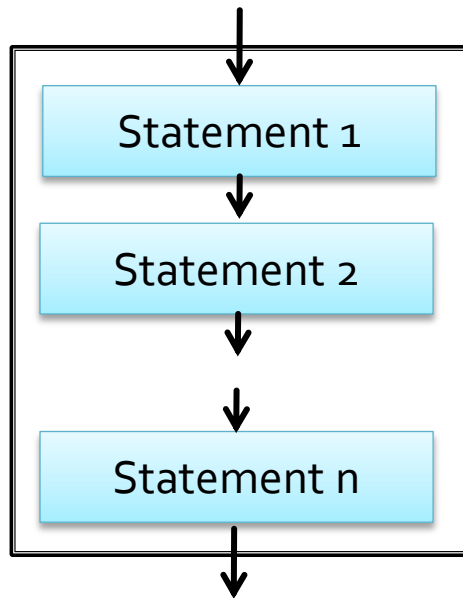
Programming in R and Python

Lecture 10: Object-oriented programming in Python

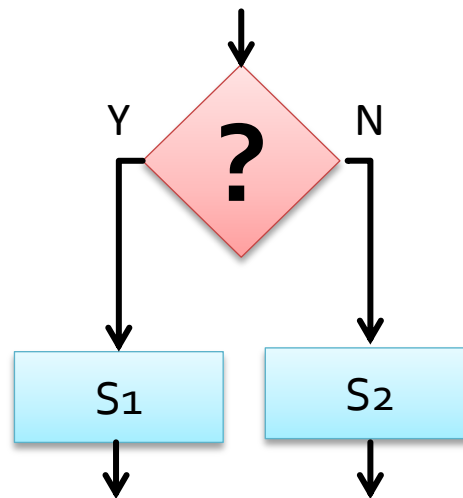
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Structured programming

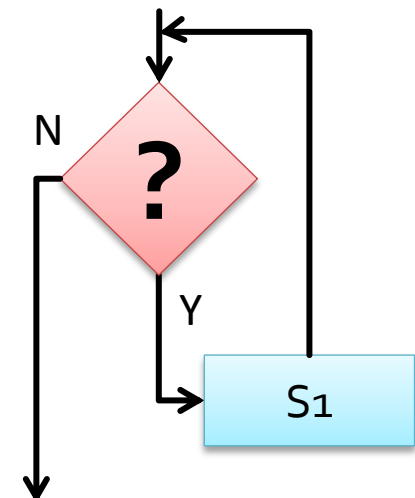
Paradigm proposed in 60s aimed at improving clarity and quality of code (**goto** elimination).



subroutine



conditional



repetition

Object-oriented programming

In structured programming data and operations are separated, which is not how people see the reality.

In object-oriented programming (OOP) problems are modeled by objects, which are characterized by:

- state (data – attributes, fields),
- behaviour (operations – methods).

Class – category of similar objects with common features.

OOP concepts

- Abstraction – focus on the functionality (class interface), separate it from implementation details.
- Encapsulation – object state locked in a class, internals hidden from outside.
- Inheritance – modeling of the generalization-specialization relationship.
- Polymorphism – objects of different types can be accessed through the same interface.

Code time...

Thank you for your attention!