Pseudo Code Flowchart

Hoan Ng

Traditional Modelling Methods

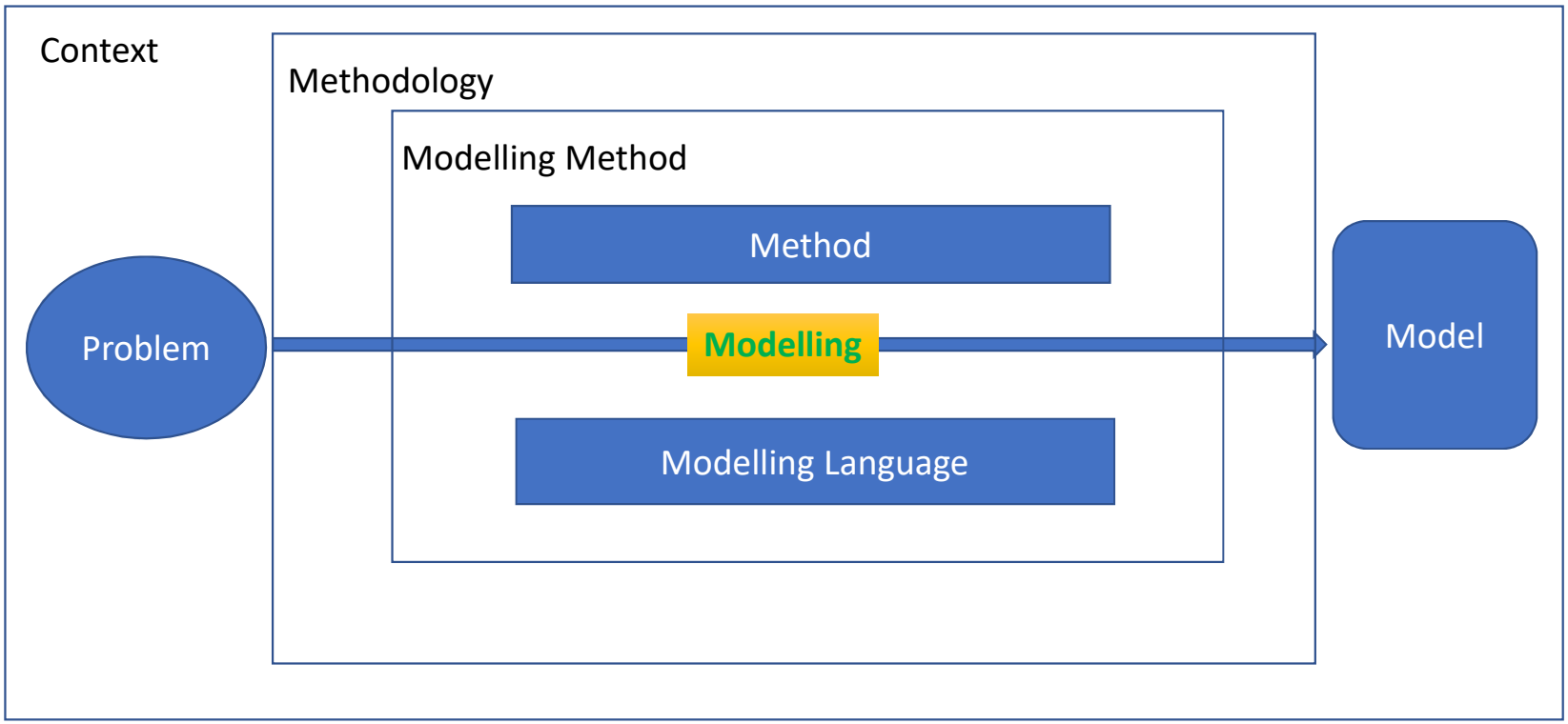
Agenda

Pseudo Code

Flowchart

Example

Modelling Methods



What is Pseudo Code?

- Detailed and readable description (in structured English) of what a computer program or algorithm must do (states the steps to the problem solution)
  - Statements are written in simple English
  - Each instruction/step is written on a separate line
  - Keywords and indentation are used to signify particular control structures
  - Each set of instructions is written from top to bottom, with only one entry and one exit

Pseudo Code

- Used as a detailed step in the process of developing a program.
- It allows designers or lead programmers to express the design in great detail and provides programmers a detailed template for the next step of writing code in a specific programming language

Basic computer operations

- A computer can receive information
- A computer can put out information
- A computer can perform arithmetic
- A computer can assign a value to a variable or memory location
- A computer can compare two variables and select one of two alternate actions
- A computer can repeat a group of actions

keywords

- for start and finish
  BEGIN MAINPROGRAM, END MAINPROGRAM
- for initialization
  INITIALISATION, END INITIALISATION
- for subprogram
  BEGIN SUBPROGRAM, END SUBPROGRAM
- for selection
  IF, THEN, ELSE, ENDIF
- for multi-way selection
  CASEWHERE, OTHERWISE, ENDCASE
- for pre-test repetition
  WHILE, ENDWHILE
- for post-test repetition
  REPEAT, UNTIL

Writing Pseudo Code

- **Keywords** are written in **CAPITALS**.
- **Structural elements** come in **pairs**, e.g.
  - for every BEGIN there is an END
  - for every IF there is an ENDIF, etc.
- **Indenting** is used to **show structure** in the algorithm.
- The names of **subprograms** are **underlined**.
  This means that when refining the solution to a problem, a word in an algorithm can be underlined and a subprogram developed.
- This feature enables the use of the **'top-down' development** concept, where details for a particular process need only be considered within the relevant sub-routine.

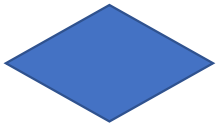
What is Flowchart?

- A diagrammatic representation that illustrates the sequence of operations to be performed to get the solution of a problem.
- Generally drawn in the early stages of formulating computer solutions.
- Facilitate communication between programmers and business people.
- Play a vital role in the programming of a problem and are quite helpful in understanding the logic of complicated and lengthy problems. Once the flowchart is drawn, it becomes easy to write the program in any high level language. Often we see how flowcharts are helpful in explaining the program to others. Hence, it is correct to say that a flowchart is a must for the better documentation of a complex program.

Basic Flowchart Symbols

Rounded box - use it to represent an event which occurs automatically. Such an event will trigger a subsequent action, for example `receive telephone call', or describe a new state of affairs.

Rectangle or box - use it to represent an event which is controlled within the process. Typically this will be a step or action which is taken. In most flowcharts this will be the most frequently used symbol.

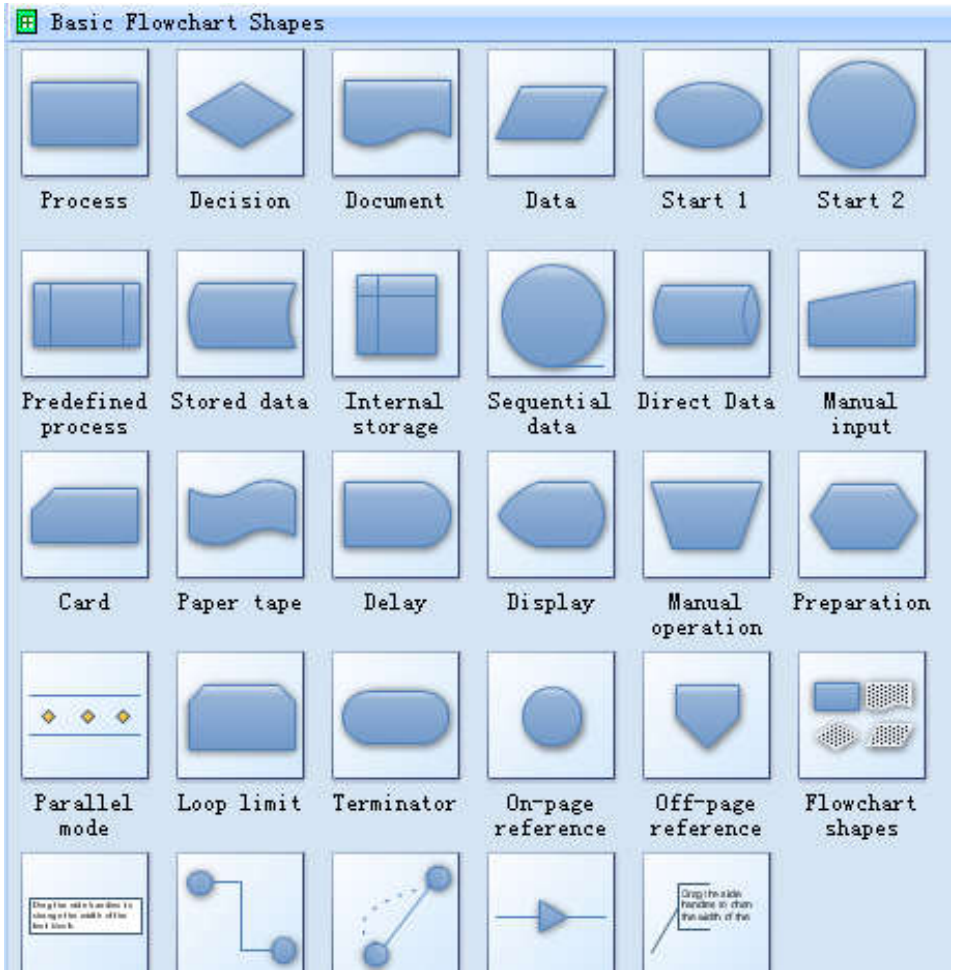


Diamond - use it to represent a decision point in the process. Typically, the statement in the symbol will require a `yes' or `no' response and branch to different parts of the flowchart accordingly.

Circle - use it to represent a point at which the flowchart connects with another process. The name or reference for the other process should appear within the symbol.

Guides for drawing flowchart

- Flowcharts are usually drawn using some standard symbols; however, some special symbols can also be developed when required



Example

- Pseudocode

#Start Program

#Prompt for assignment

#Set a counter

#Loop through grades

#Get student grade

#Increment counter

#End loop

#Calculate Average

#Print Average

#End Program