Teaching London Computing

Programming for GCSE Topic 8.2: Pseudo Code and Flowcharts

Queen Mary University of London

King's College London

Computing At School
EDUCATE · ENGAGE · ENCOURAGE

Department for Education

SUPPORTED BY
MAYOR OF LONDON

Network of Excellence Computer Science Teaching
UNIVERSITY PARTNER

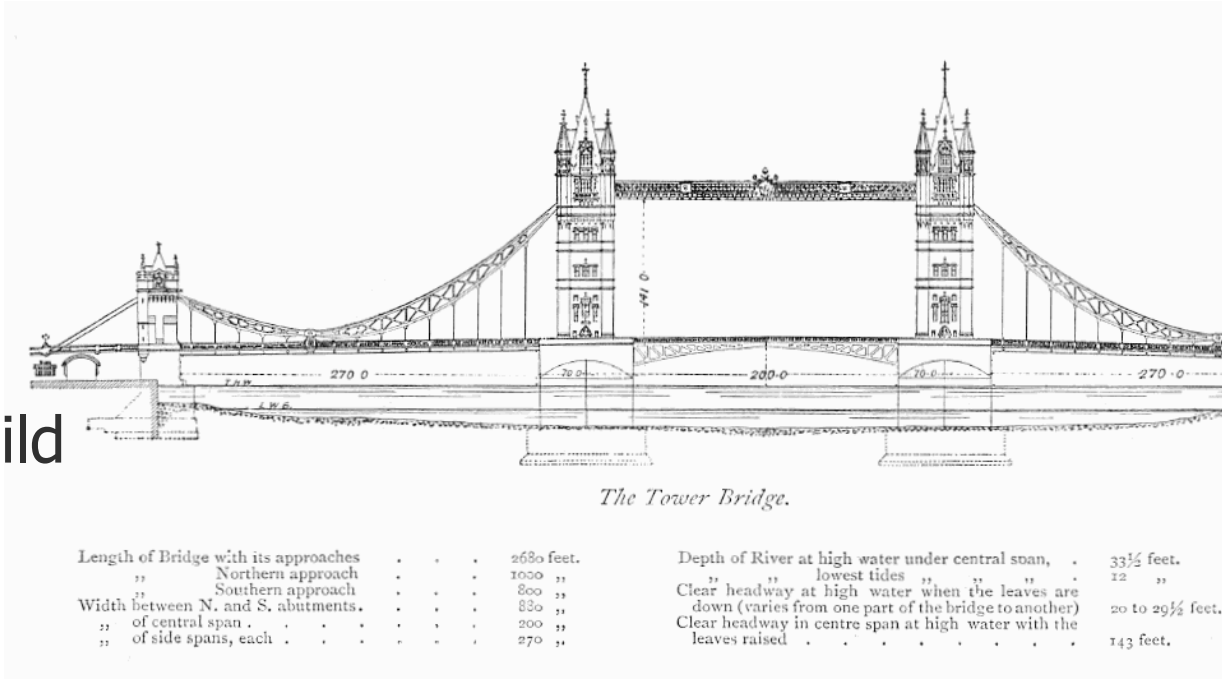
William Marsh
School of Electronic Engineering and Computer Science
Queen Mary University of London

Aims

- Design: what it about?
- Pseudo code
- Flowcharts
- My views

Design

- Plan
  - Before you build
  - How for s/w?



The Tower Bridge.

Length of Bridge with its approaches	2680 feet.	Depth of River at high water under central span,	33½ feet.
,, Northern approach	1000 ,,	,, ,, lowest tides ,, ,, ,,	12 ,,
,, Southern approach	800 ,,	Clear headway at high water when the leaves are down (varies from one part of the bridge to another)	20 to 29½ feet.
Width between N. and S. abutments	880 ,,	Clear headway in centre span at high water with the leaves raised	143 feet.
,, of central span	200 ,,		
,, of side spans, each	270 ,,		

- Software is a description!

- Steps towards a solution

Pseudo Code

Pseudo Code

- Careless or informal code
- Useful for
  - Making a start
  - Breaking a problem done (i.e. design)
  - Algorithms without code
- AQA has defined a syntax
  - *Does this miss the point?*

Example: Shopping List

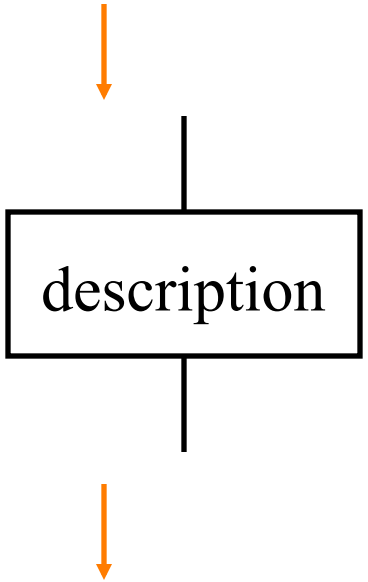
```
initialise shopping list and list of purchase
forever
    get command
    if command is 'add'
        get item and add it to shopping list
    if command is 'buy'
        get item; transfer from shopping to purchase list
    if command is 'print'
        print both lists
```

FLOWCHARTS

Statement Block

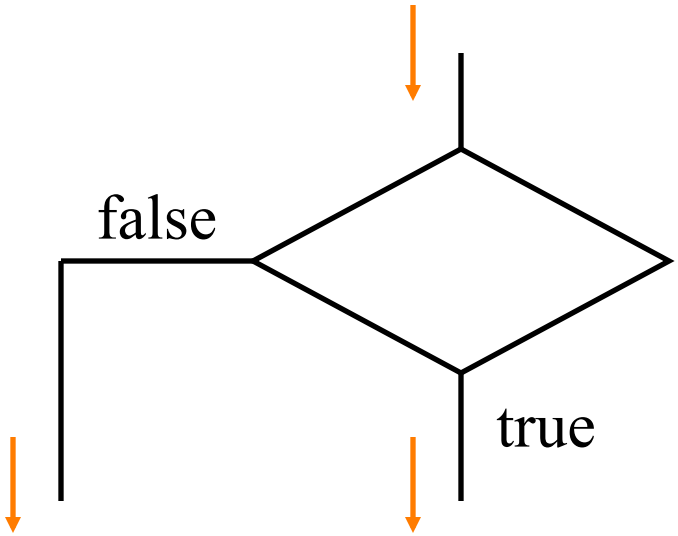
- Group of instructions
- No jumps
- *Comments!*

- Arrows implicit
  - downwards
  - across



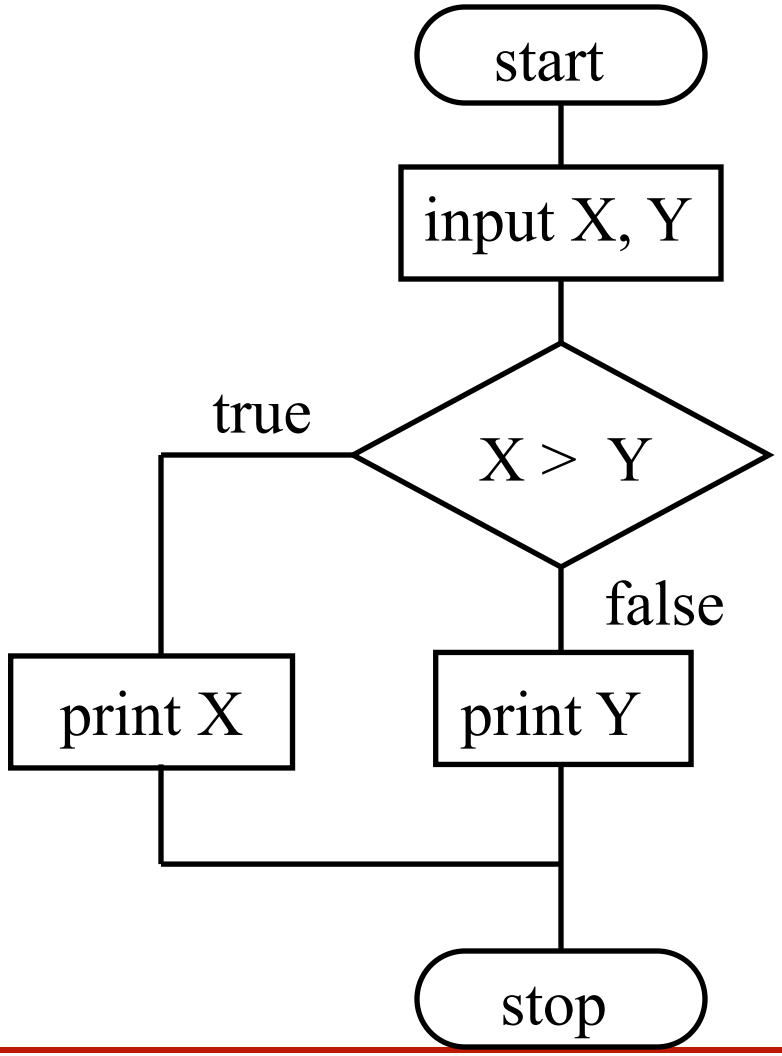
Decision

- Choice of two
- If statement



Example – Largest Value

- Input two numbers
- Output largest

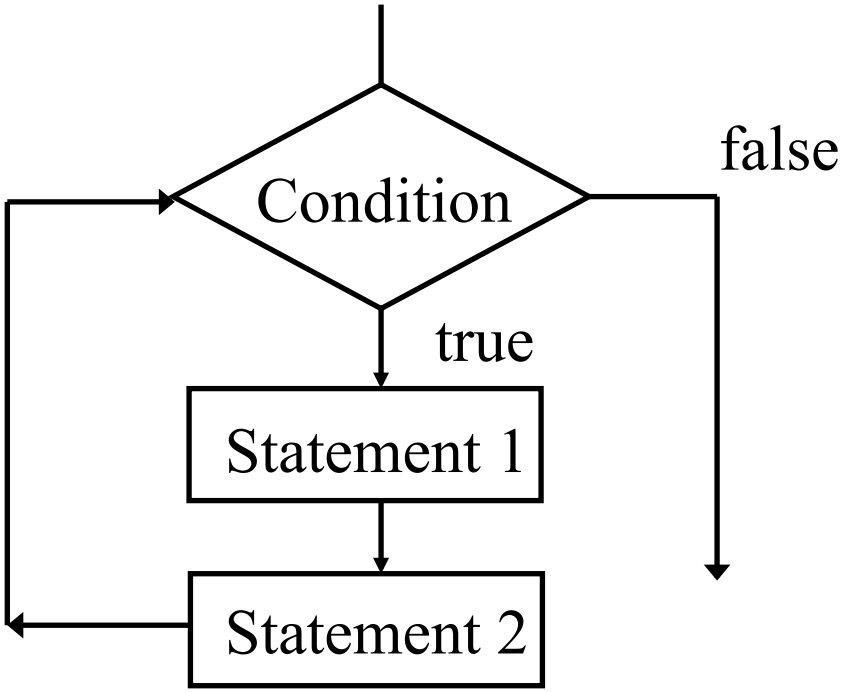


Quiz – Flowchart for A Loop

- Pseudo code

```
While condition
    statement 1
    statement 2
```

- Equivalent flowchart



SYLLABUS

Specification – Algorithms

Candidates should be able to:

(a) understand algorithms (written in pseudocode or flow diagram), explain what they do, and correct or complete them

(b) produce algorithms in pseudocode or flow diagrams to solve problems.

- Also relevant to design in the practical programming activity

Summary

- Flowcharts may be useful for *understanding* programs
- Pseudo code like code without the syntax errors