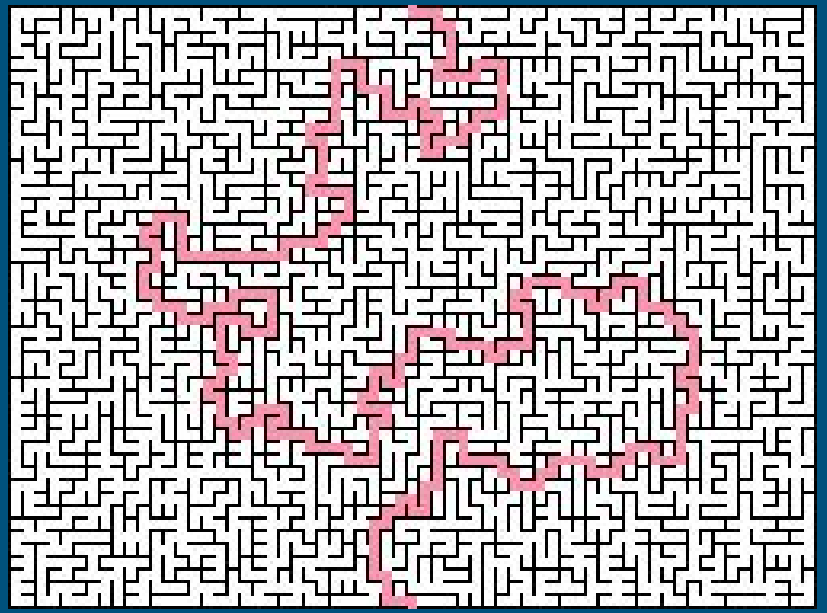
Algorithms

Programming

What is an Algorithm?

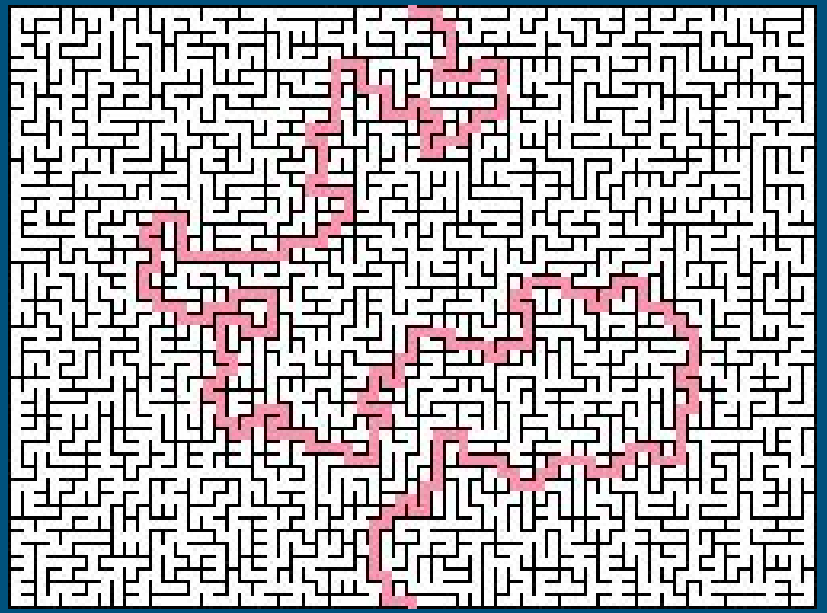
- Version 1 (V1): A *written* step-by-step solution to a problem



What is an Algorithm?

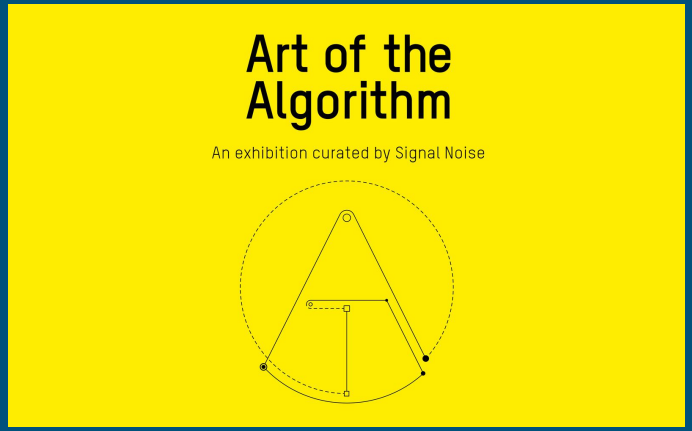
- V1: A *written* step-by-step solution to a problem

- What are the issues with this definition?



What is an Algorithm?

- Problems
  - Should an algorithm end?
  - Is there an order to the steps?
  - Can you ever skip steps?



What is an Algorithm?

- V2: An algorithm is a finite set of executable, conditional instructions that directs a terminating activity

- *4 Qualities*
  - *Finite, executable, conditional and terminating*

What is an Algorithm?

- V2: An algorithm is a finite set of executable, conditional instructions that directs a terminating activity

- Again...are there any issues with this definition?

What is an Algorithm?

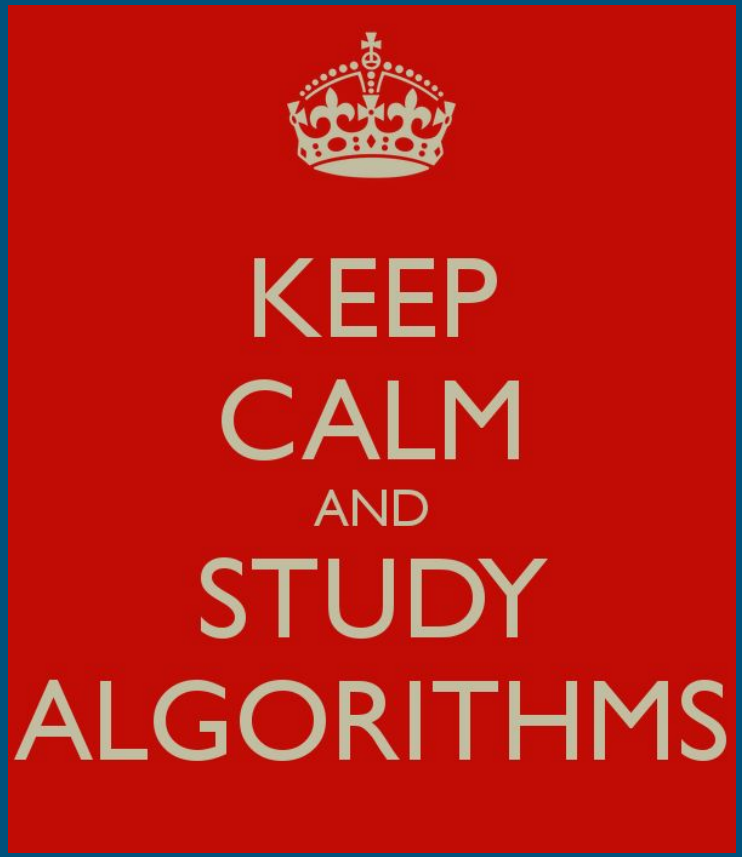
- V2: An algorithm is a finite set of executable, conditional instructions that directs a terminating activity

What is an Algorithm?

- V3: An algorithm is a finite set of unambiguous executable, conditional instructions that directs a terminating activity

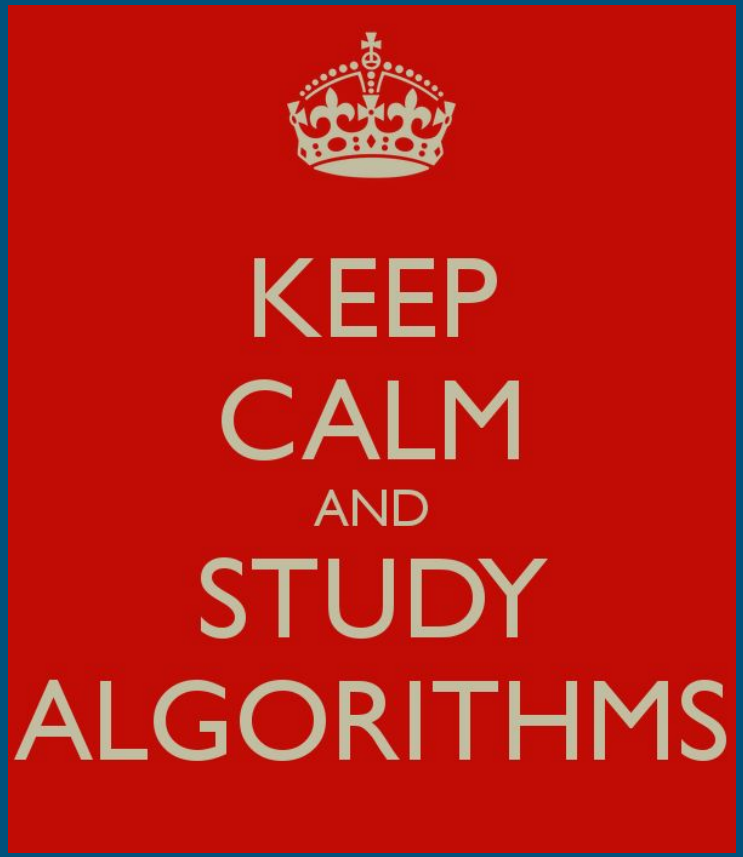
- *5 Qualities*
  - *Finite, executable, conditional, terminating, and **clear***

Why Use Algorithms?



Why Use Algorithms?

- So a computer can understand what you want it to do
- ALSO...so people can repeat the same action in the same manner



Why Use Algorithms

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Why Use Algorithms

- Computer Science uses algorithms consistently
  - Meant to maximize the efficiency of hard problems