CT-1.5

Algorithms

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Algorithms

- Step-by-step instructions of how to solve a problem
- Identifies what is to be done (the instructions), and the order in which they should be done.

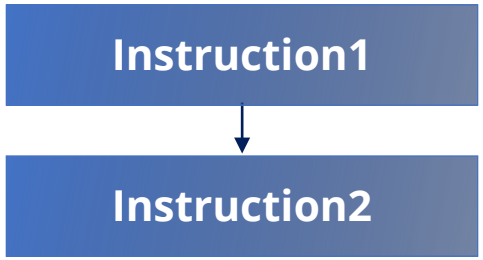
Making a Cup of Tea

- Fill electric tea kettle
- Bring it to a boil
- Pour hot water in cup
- Put teabag in cup
- Steep for 4 minutes
- Remove teabag

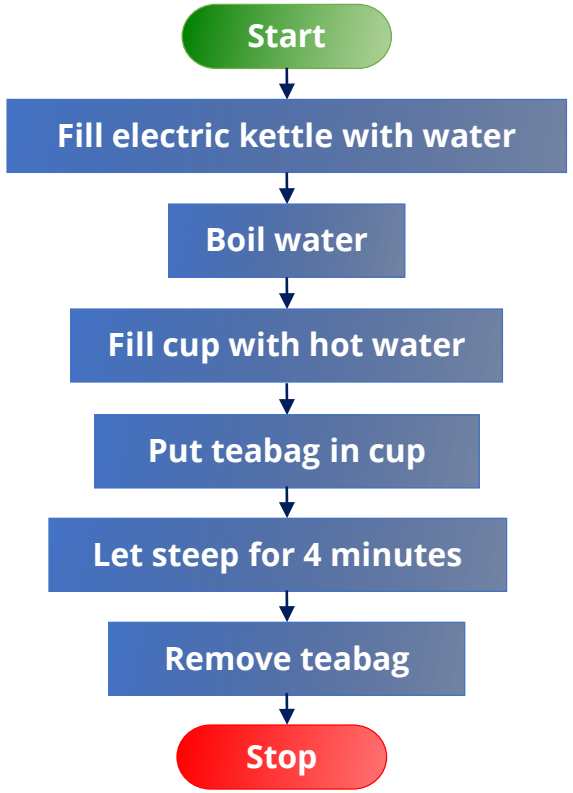
What is an Instruction?

- Often expressed as something humans understand
- Eventually translated into sequences of computer instructions
- For example, we will discuss “coding” algorithms using Python

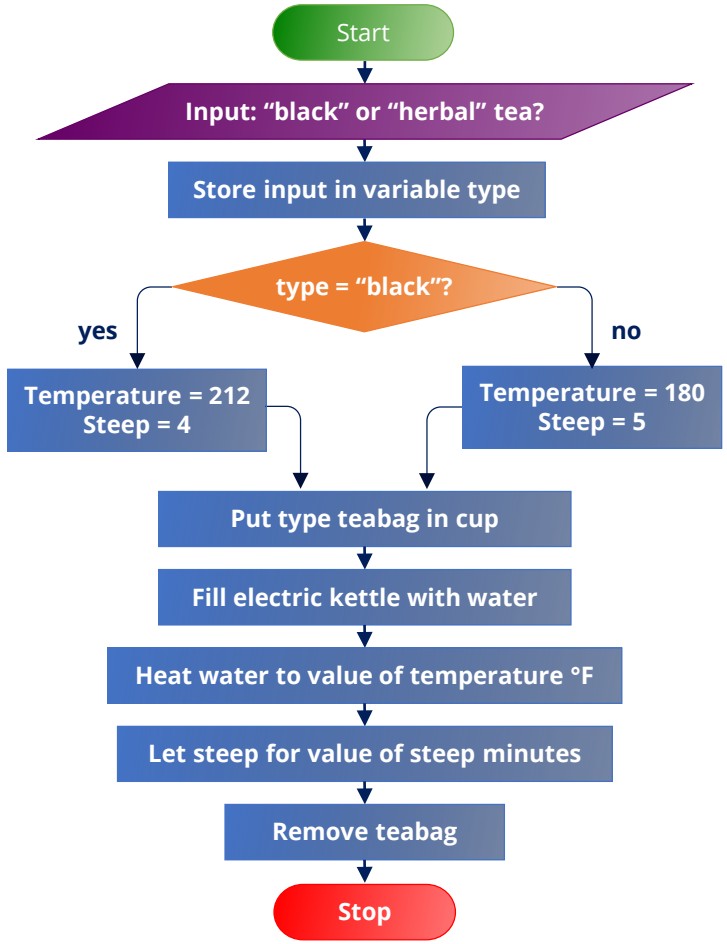
Simple Flowchart



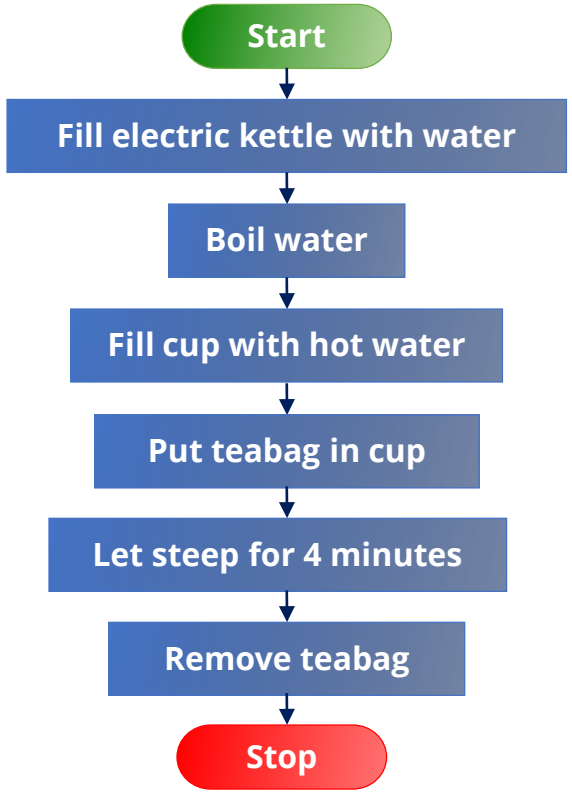
Flowchart: Making a Cup of Tea



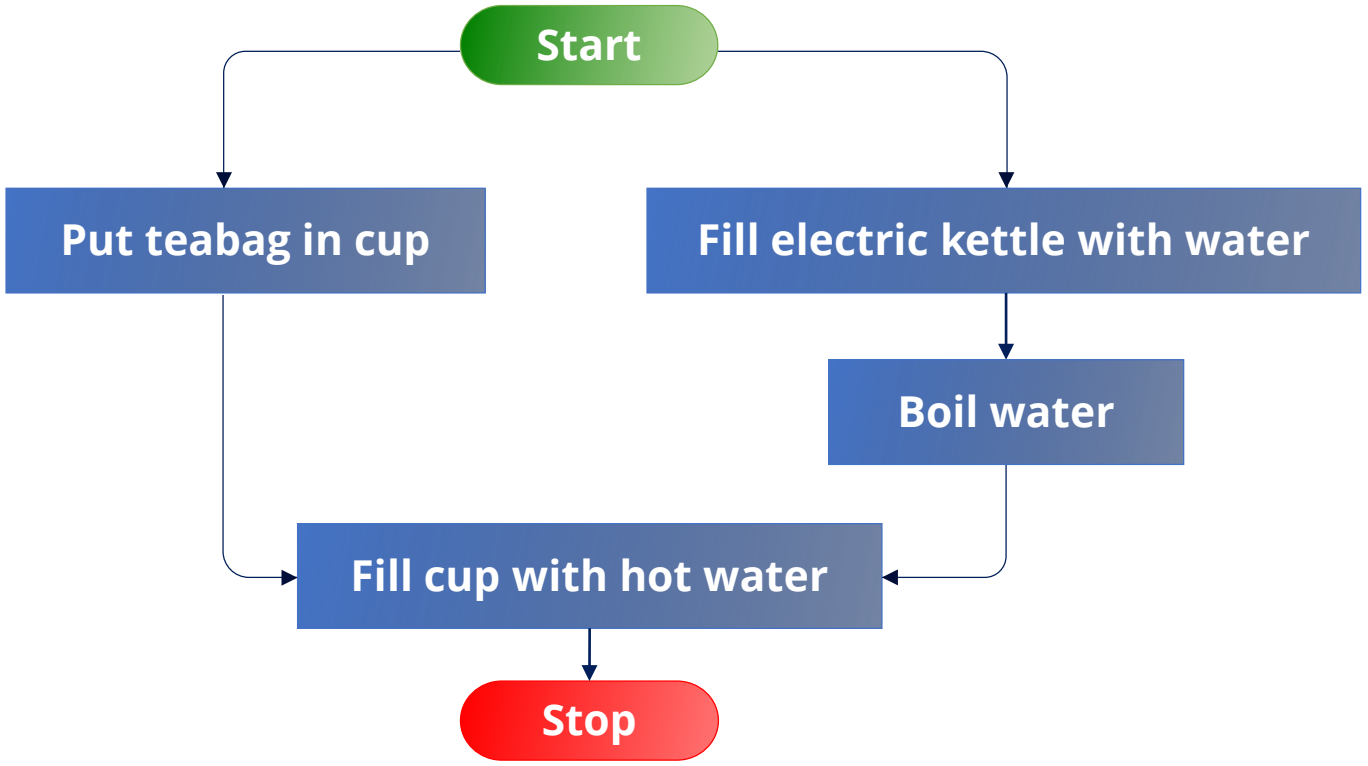
Flowchart: Making a Cup of Herbal or Black Tea



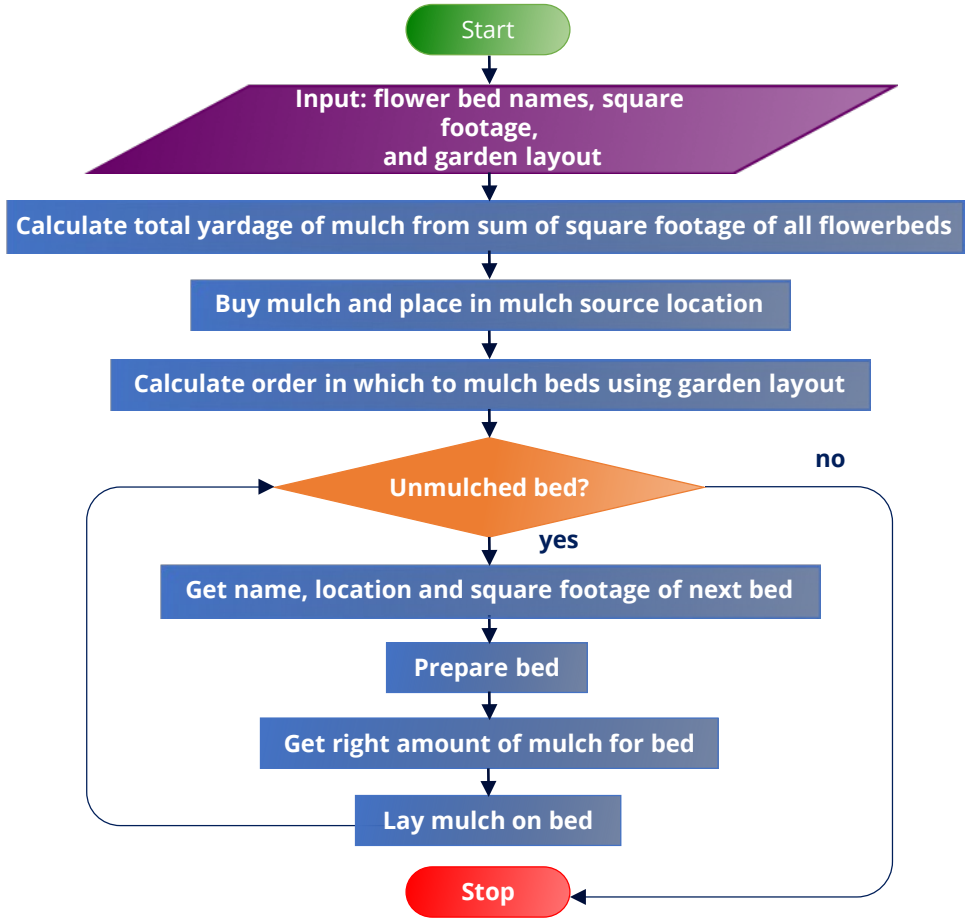
Flowchart: Making a Cup of Tea, Revisited



Flowchart: Making a Cup of Tea Efficiently



Flowchart: Mulching the Yard



Summary

- An **algorithm** is a set of step-by-step instructions of how to solve a problem
- Identifies what is to be done (the instructions), and the order in which they should be done.
- Can be described in English, as a **flowchart**, or by using pseudocode.

Summary: Flowchart Building Blocks

Name	Symbol
Start or Stop	
Process	
Decision	
Input or Output	
Next Instruction	

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