

# 1 Introduction

Monday, January 22, 2024 1:51 PM

## • Computer Science.

¿What is Computer Science?

The subject of study is problems.

Fundamental Question:

¿What problems can be solved  
in an automated way, and how?

Dijkstra: "Computer science is no more  
about computers, as astronomy is about  
telescopes".

"automated way"  $\leftrightarrow$  "Algorithm"

Algorithm.- a sequence of unambiguous instructions  
to solve a problem.

Algorithms produce an output  
from a legitimate input

E.G. "Recipe" = human ~~cooking~~ algorithm.

E.G.

$$7 \times 3 = 21$$
$$736 * 52 \Rightarrow \begin{array}{r} 736 \\ * 52 \\ \hline 1472 \\ \dots 0 \\ \hline 38272 \end{array}$$

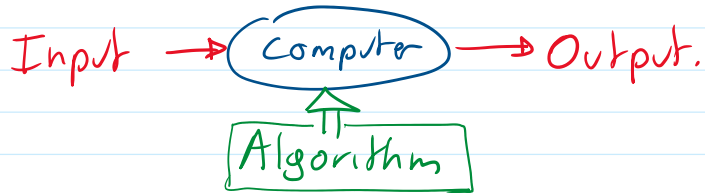
↑      ↑  
Inputs.

← output.





[https://en.wikipedia.org/wiki/Computer\\_\(occupation\)](https://en.wikipedia.org/wiki/Computer_(occupation))

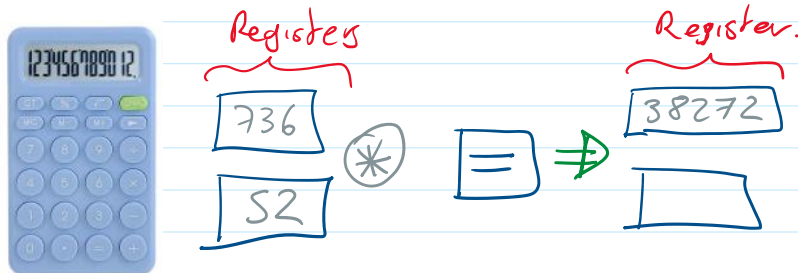


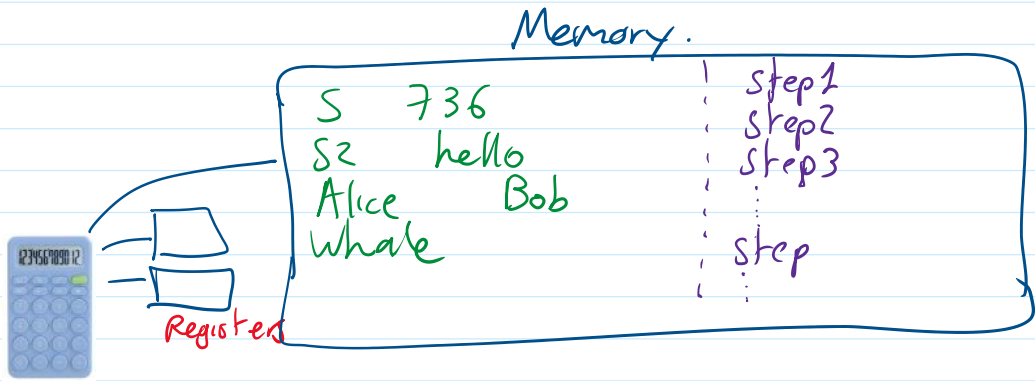
• Digital Computers.

Screen clipping taken: 1/22/2024 2:26 PM



- Mental Model.





↪ gets one step from memory  
 - execute it  
 - move to next step

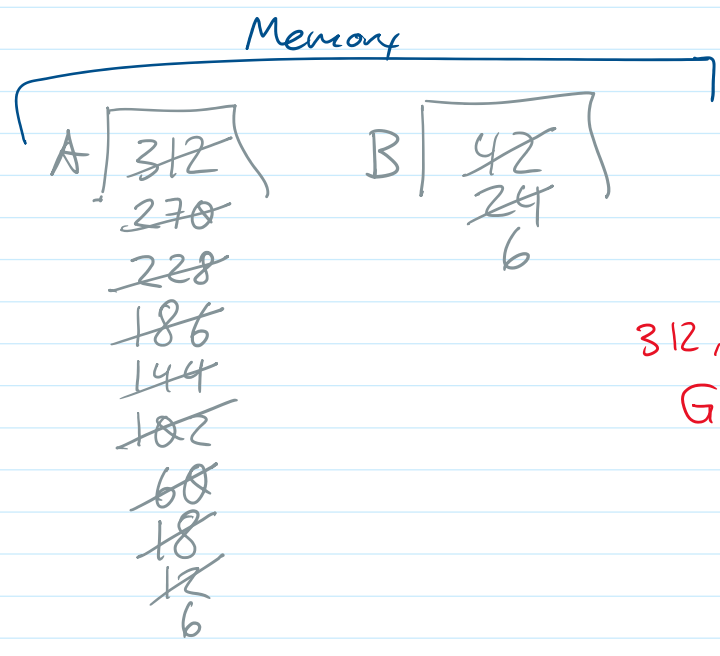
Memory is Digital.

000000101

01111001011  
01000110110

E.G. An algorithm:  
G.C.D.

- 1.- Create 2 boxes, A and B, and put a number in each of them.
- Repeat:
- 2.- If A is equal to B, STOP.
- 3.- If A is greater than B, then put A-B into A,
- 4.- If B is greater than A, then put B-A into B.



312, 42  
GCD = 6

— EOF —