

This is CS50 AP.

Binary Warm-Up

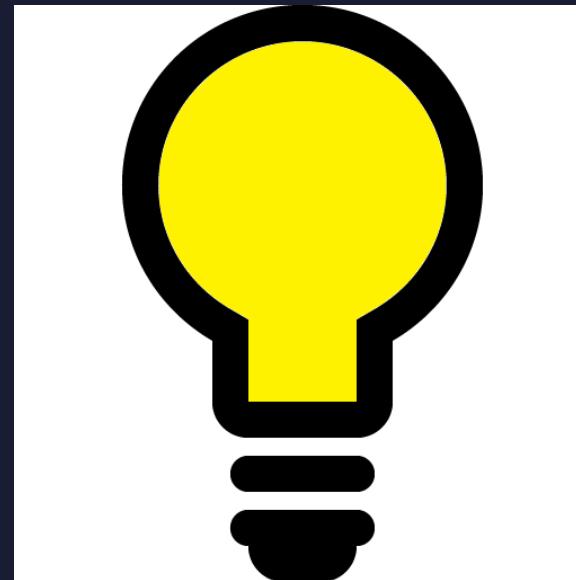
bits and bytes

bit

Binary digit

bit

0, 1
true, false
on, off
yes, no



ASCII

8-bit characters

ASCII

A	B	C	D	E	F	G	H	I	...
65	66	67	68	69	70	71	72	73	

ASCII

a	b	c	d	e	f	g	h	i	...
97	98	99	100	101	102	103	104	105	

ASCII

— — —
72 73 33

ASCII

H — —
72 73 33

ASCII

H I
72 73 33

ASCII

H I !
72 73 33

RGB



72 73 33

RGB



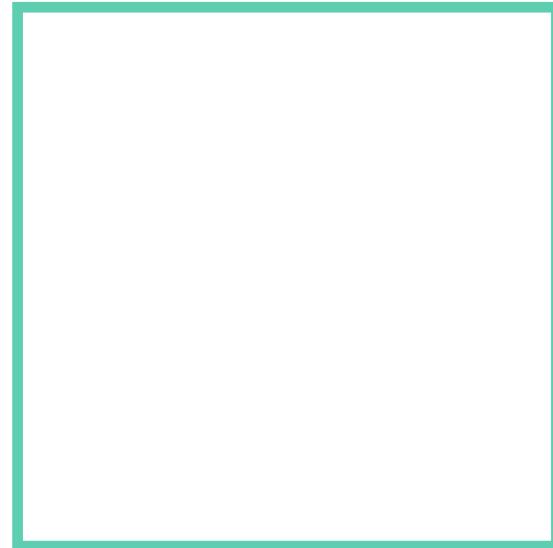
Input →



→ **Output**

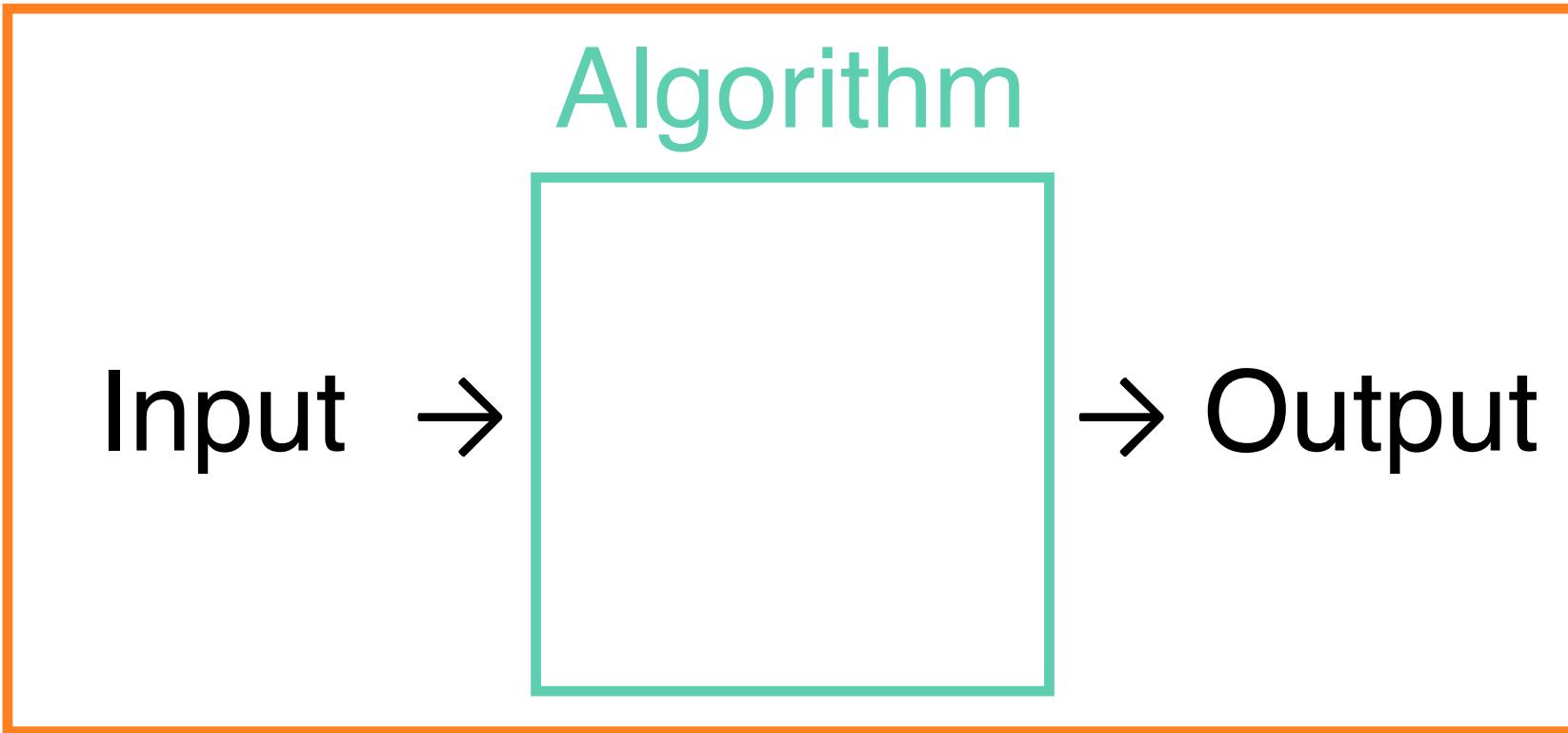
Algorithm

Input →



→ Output

Abstraction



Measurements of memory

byte

8 bits

kilobyte

1000 bytes

8000 bits

kilobyte

1000 1024 bytes

8000 8192 bits

kilobyte

2^{10} bytes



megabyte

2^{10} kilobytes

2^{20} bytes



gigabyte

2^{10} megabytes

2^{20} kilobytes

2^{30} bytes



terabyte

2^{10} gigabytes

2^{20} megabytes

2^{30} kilobytes

2^{40} bytes



memory

CPU

1-4 megabytes



L1, L2, L3 cache

2-16 megabytes



RAM

2-16 gigabytes



HDD

500-4,000 gigabytes



