Programming language

A language used to write instructions for the computer.

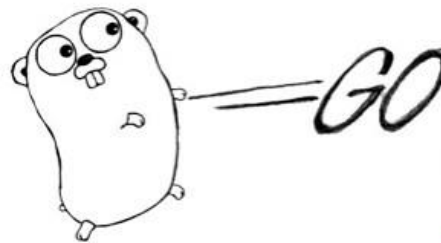English — Hello → Translator English -> Spanish → Hola — Spanish

Python — x=1 Print(x+2) → Compiler Python -> 1/0 → IOIO IOIO → 10101
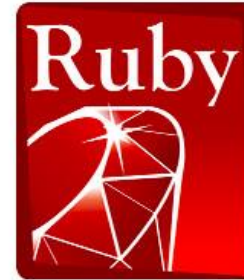
Vocabulary(Keywords)

English	Python
Hello	If
Open	Switch
Write	For

Grammar(Syntax)

English	Python
Cat is.	Print ( )
Cats is.	Print { }

Variables(named values)

- Placeholder of information for later use.

- Value stored is changeable.

- We store values inside variables using the "=" sign (x=2, z="Hello").

X
Integer

2

↓

X

46

Y
Float

3.62

H
Float

Y +2 -> 5.62

Z
String

"Hello"

D
Boolean

False
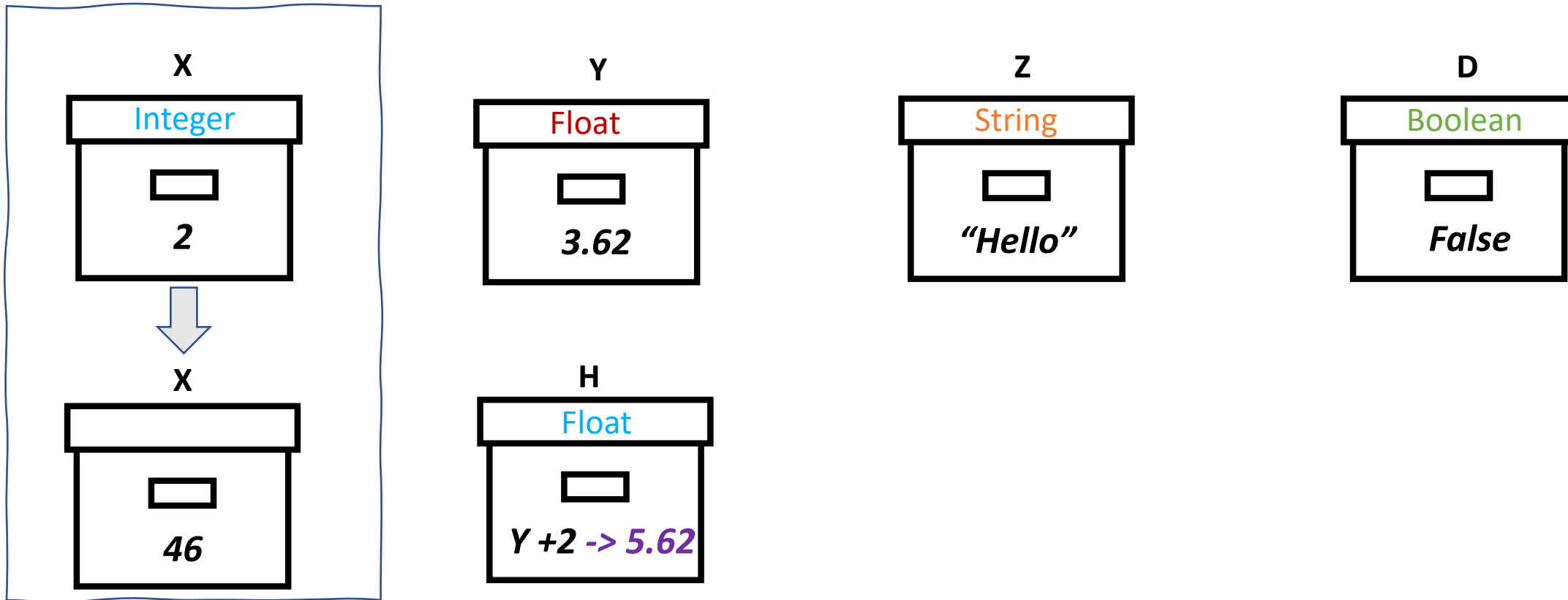
Variable name rules

- Must **start** with a letter(A-z) or underscore(_)
- can only **contain** alpha-numeric characters and underscores (a-Z 0-9, and _)
- names are case-sensitive (address vs ADDRESS)

Valid	Invalid
address	3address
_address	*address
address99	my address
my_full_address	my-full-address

Operators

Left | Operator | Right

Symbol used to perform operations on variables and other values

Operator	Description	Examples
=	Assignment(bind name to value)	x=2 z = 15 name="Alex"
+, -, x, /	Arithmetic	2+5 Y-3 number**/**2
==, !=, <, <=, >, >=	Comparison. Output is either true or false	3==5 -> false 5<10 -> true 9<=9 -> true
And(true if both sides are true) **Or**(true if either side is true) **Not**(reverse value)	Logical. Output is either true or false	9<5 **AND** 2<8 -> false 9<5 **OR** 2<8 -> true **NOT** 7==4 -> true

Statement vs expression

- **Statement**: a line of code that does something.
- Examples:
  1) **Import statement:**
     Import pandas

  2) **If statement:**
     If x<3

- **Expression**: a combination of variables, operators, and values that's evaluated to *one single value*
- Examples:

X=3

Y=6

Z=2

1) X * 2 + Y / Z   -> 9
2) X * Y * Z + 5   -> 41
3) X > 9   -> false
4) Y + 6 == 12   -> true