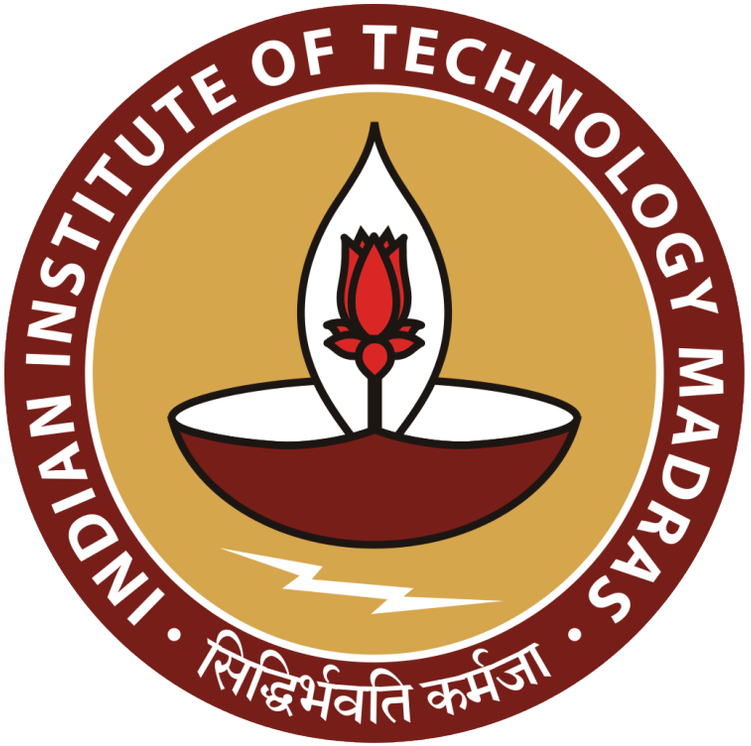
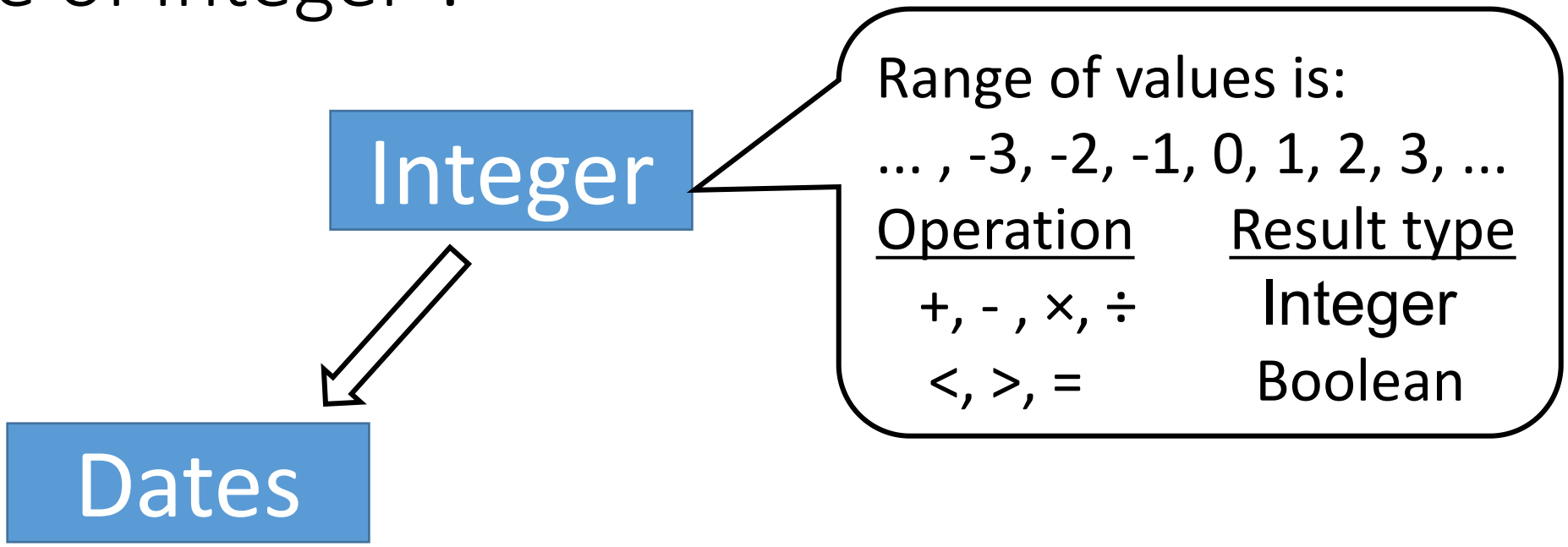


IIT Madras

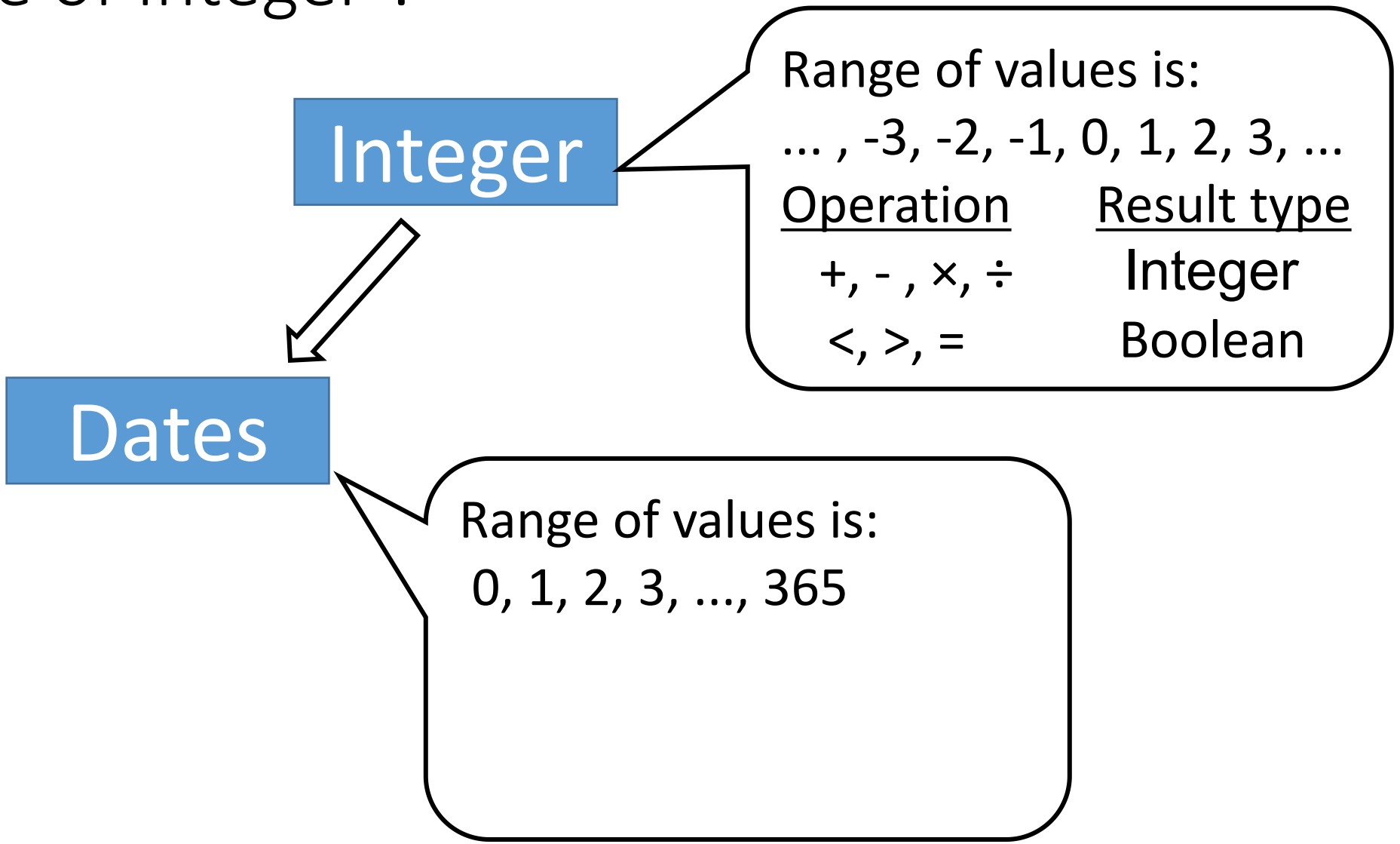
ONLINE DEGREE

Subtypes: transforming values

Date: Subtype of Integer ?

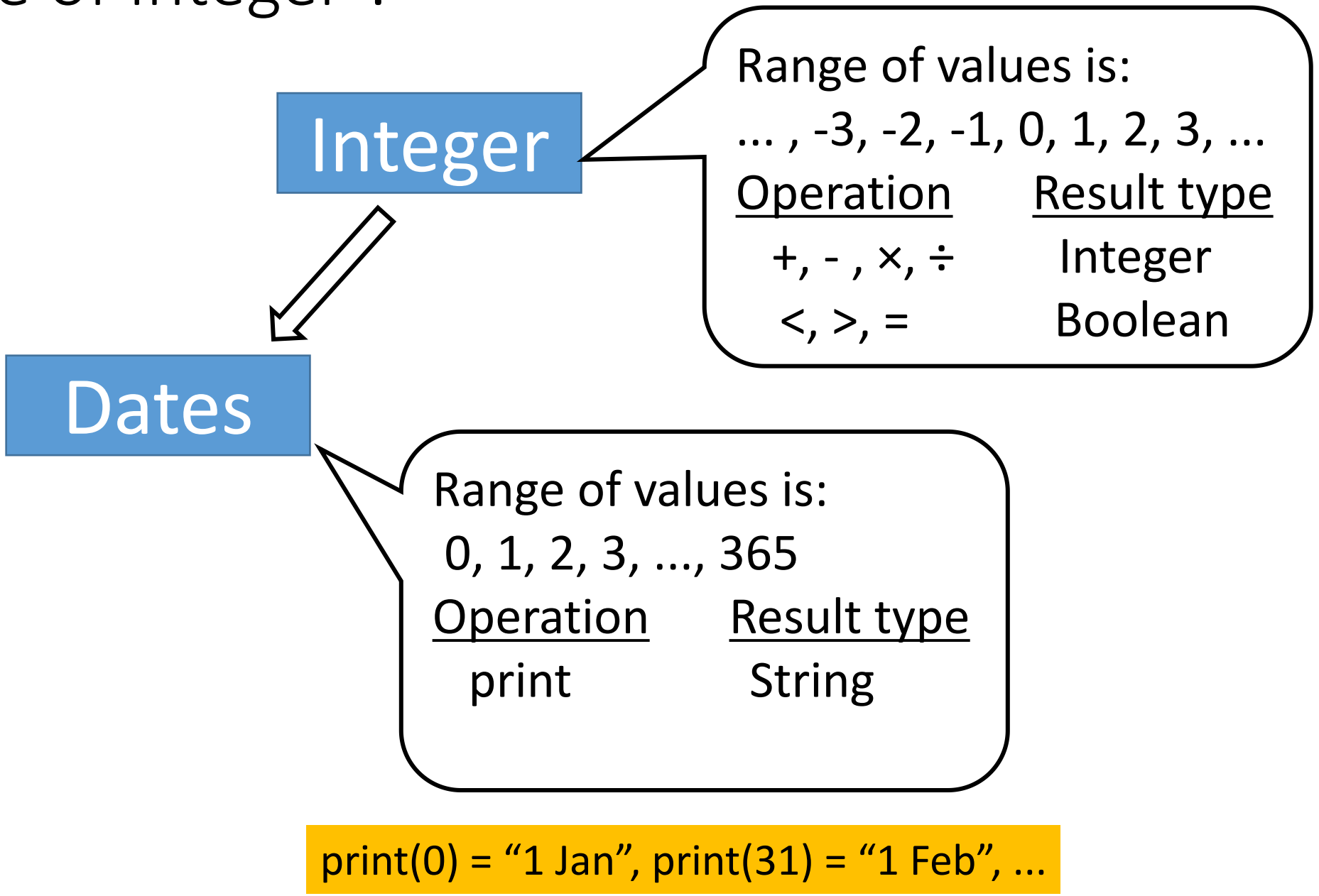


Date: Subtype of Integer ?

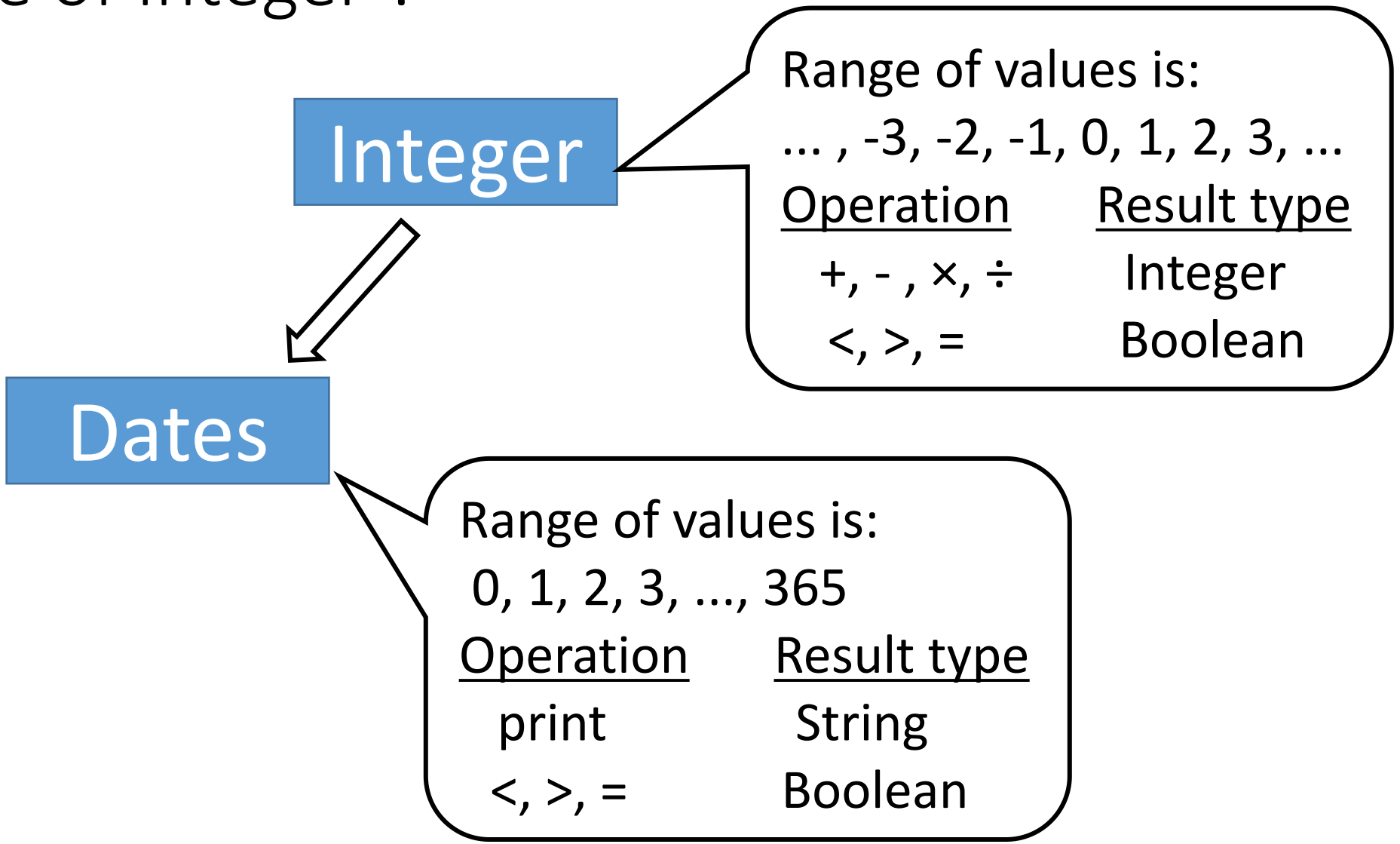


Date value is 0 for 1 Jan, 1 for 2 Jan, ..., 30 for 31 Jan, 31 for 1 Feb, ...

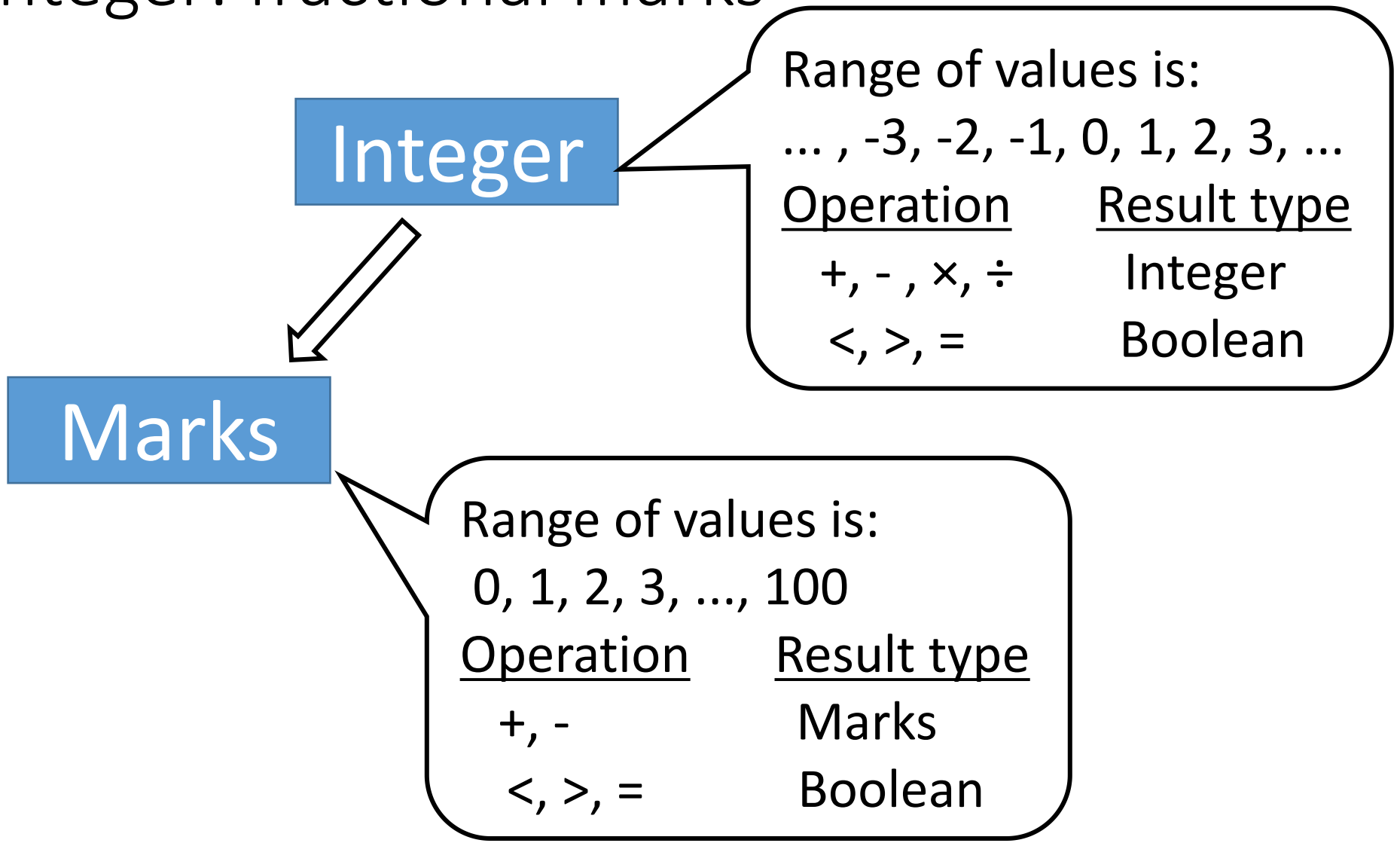
Date: Subtype of Integer ?



Date: Subtype of Integer ?



Subtypes of Integer: fractional marks



What about fractional marks, e.g. 62.5 ?

Dealing with fractional values

- Can use another basic type for real numbers - called Float
  - But our values are going to typically be only up to 2 decimal places (e.g. 75.25). So, we have to write constraints for the float values.
- What if we just multiply the fractional number by 100?
  - Then the fractional value with at most 2 decimal places will become an integer !
  - We can do corresponding operations on the integer values (remembering that they have been scaled by 100)
  - And when we finally print the output, we scale the number down and print it

Subtypes of Integer: Fractional marks

Integer

Range of values is:
... , -3, -2, -1, 0, 1, 2, 3, ...

Operation	Result type
+, - , ×, ÷	Integer
<, >, =	Boolean

Marks

Range of values is:
0, 1, 2, 3, ..., 10000

Operation	Result type
print	String
+, -	Marks
<, >, =	Boolean

Store 62.5 as 6250
and let print(6250) = “62.5”

Note - Change from video: Range corrected to 10000

Subtypes of Integer: shopping bill price/total

Integer

Range of values is:
... , -3, -2, -1, 0, 1, 2, 3, ...

Operation	Result type
+, - , ×, ÷	Integer
<, >, =	Boolean

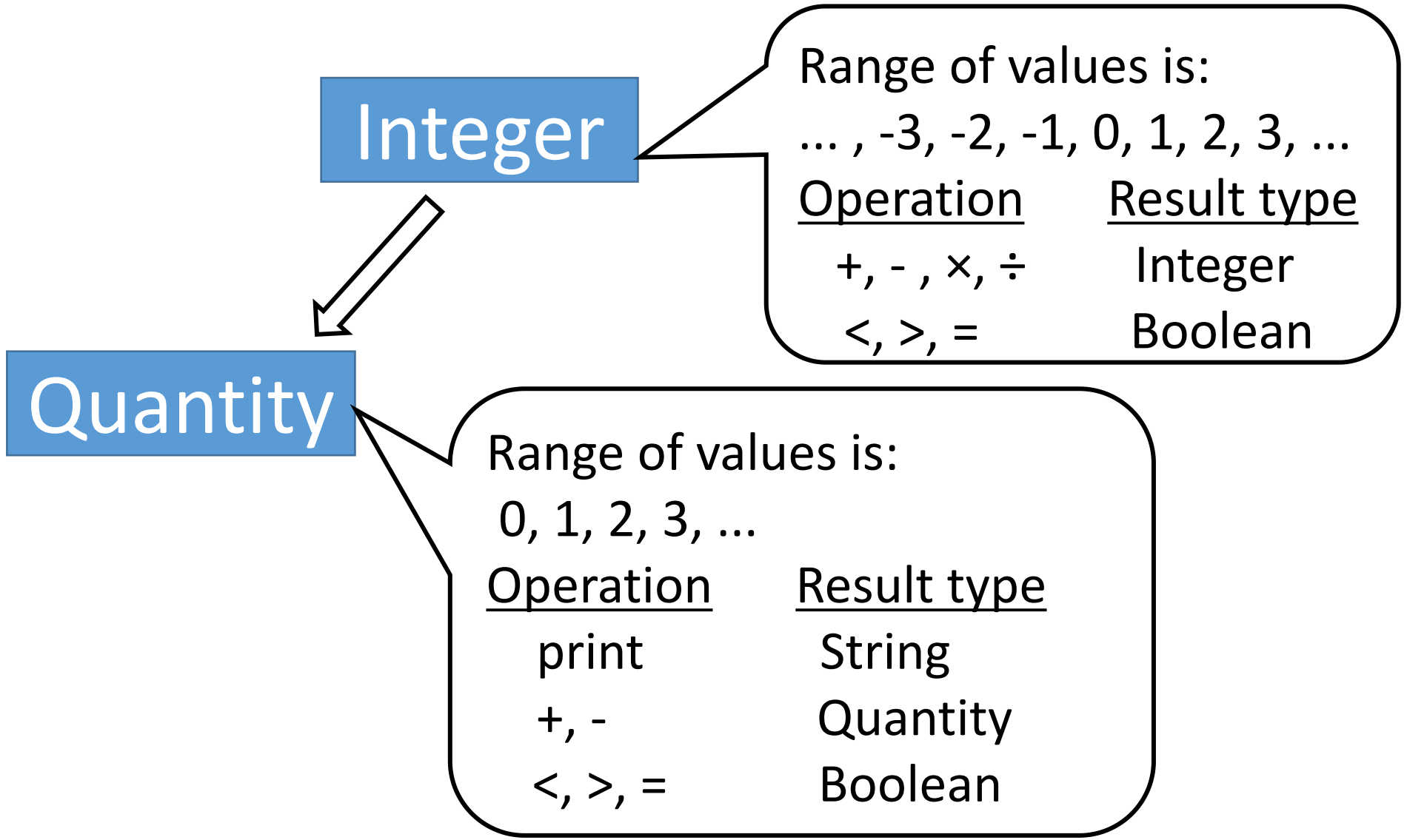
Amount

Range of values is:
0, 1, 2, 3, ...

Operation	Result type
print	String
+, -	Amount
<, >, =	Boolean

Store 27.50 as 2750 and let print(2750) = “Rs. 27.50”

Subtypes of Integer: shopping bill quantity



Store 1.25 as 125 and let print(125) = “1.25”