Selections

(a.k.a. ”If Statements”)

EECS1021:
Object Oriented Programming:
from Sensors to Actuators
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Topics in “Selections” series

- Intro
- If semantics
- One vs. multiple statements
- Scope of variables
- *Primitive vs. Compound*
- Logic: Intro
- Logic: Laws
- Operators
- Common Errors: 1, 2, 3, 4, 5, 6

References

- Chapter 4 (Operators) in Java 8 Fundamentals
  `https://tinyurl.com/y8dpcskq` or
  `https://bit.ly/3oaNAoZ`
  - Boolean Logical Operators
- Chapter 5 (Statements) in
  `https://tinyurl.com/y8dpcskq` or
  `https://bit.ly/3oaNAoZ`
  - The if-else statement
- Scanner Class in Java at Geeks for Geeks:
  `https://tinyurl.com/wbqx6bw` or
  `https://bit.ly/2MxcAcd`

Primitive Statement vs. Compound Statement

- A *statement* is a block of Java code that modifies value(s) of some variable(s).
- An assignment (=) statement is a *primitive statement*:

  It only modifies its left-hand-side (LHS) variable.
- An `if` statement is a *compound statement*:

  Each of its branches may modify more than one variables via other statements (e.g., assignments, `if` statements).

Compound `if` Statement: Example

```
1  int x = input.nextInt();
2  int y = 0;
3  if (x >= 0) {
4    System.out.println("x is positive");
5    if (x > 10) { y = x * 2; }
6    else if (x < 10) { y = x % 2; }
7    else { y = x * x; }
8  }
9  else { /* x < 0 */
10   System.out.println("x is negative");
11   if(x < -5) { y = -x; }
12 }
```

Exercise: Draw the flow chart.