

## Interactive Programs with Scanner

reading: 3.3 - 3.4

## Interactive programs interactive program: Reads input from the console. • While the program runs, it asks the user to type input.

- The input typed by the user is stored in variables in the code.
- Can be tricky; users are unpredictable and misbehave.
- But interactive programs have more interesting behavior.

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## Scanner

- scanner: An object that can read input from many sources.
  - Communicates with System.in

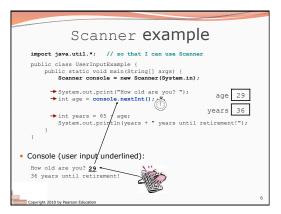
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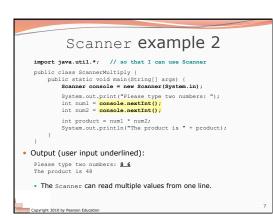
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- Can also read from files (Ch. 6), web sites, databases, ...
- The Scanner class is found in the java.util package. import java.util.\*; // so you can use Scanner
- Constructing a Scanner object to read console input: Scanner name = new Scanner(System.in);

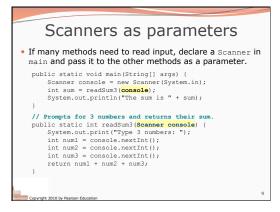
• Example: Scanner console = new Scanner(System.in);

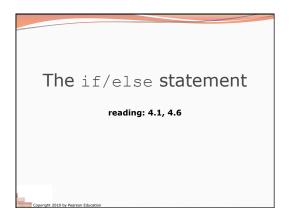
Scanner methods Method Description reads an  $\operatorname{int}$  from the user and returns it nextInt() nextDouble() reads a double from the user reads a one-word String from the user next() reads a one-line String from the user extLine( · Each method waits until the user presses Enter. . The value typed by the user is returned. System.out.print("How old are you? "); // prompt
int age = console.nextInt();
System.out.println("You typed " + age); prompt: A message telling the user what input to type. Copyright 2010 by Pearson Education

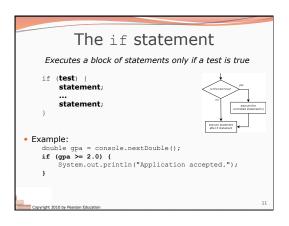


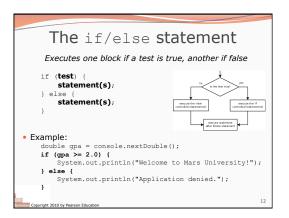




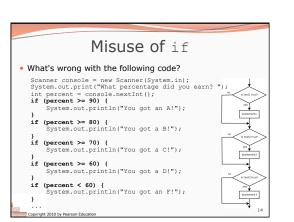


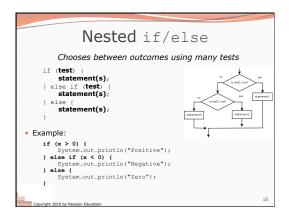


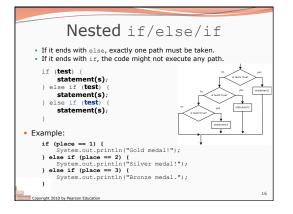


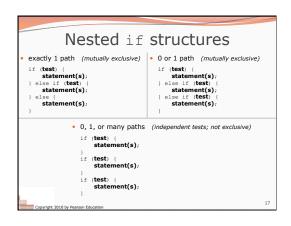


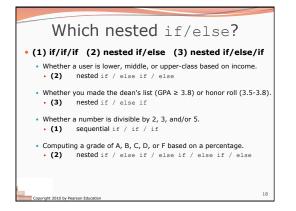
Rel	lational expr	essions	5
stateme	nts and for loops both	use logical te	ests.
	i = 1; i <= 10; i++) { 10) {		
These are	boolean expressions, seen	n in Ch. 5.	
	boolean expressions, seen	n in Ch. 5.	
		Example	Value
ests use <i>re</i>	elational operators:	1	Value
ests use <i>re</i> Operator	elational operators:	Example	
ests use re Operator ==	elational operators: Meaning equals	<b>Example</b> 1 + 1 == 2	true
ests use re Operator == !=	elational operators: Meaning equals does not equal	Example 1 + 1 == 2 3.2 != 2.5	true true
ests use re Operator == != <	elational operators: Meaning equals does not equal less than	Example           1 + 1 == 2           3.2 != 2.5           10 < 5	true true false

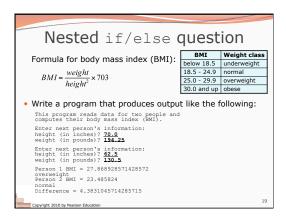


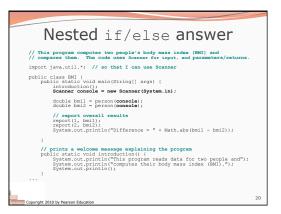












_	Nested if/else, cont'd.
	<pre>// reads information for one person, computes their BMI, and returns it public static double person(Scanner console) {     System.out.print("Roter next person's information:");     System.out.print("Reight (in inches)? ");     double height = console.nextDouble(); }</pre>
	<pre>System.out.print("weight (in pounds)? "); double weight = console.nextDouble(); System.out.println();</pre>
	<pre>double bodyMass = bmi(height, weight); return bodyMass; }</pre>
	<pre>// Computes/returns a person's IMMI based on their height and weight. public static double bmi(double height, double weight) { return (weight * 703 / height / height); }</pre>
	<pre>// Outputs information about a person's BMT and weight status. public static void report (int number, double bml) { System.out.println("Person " + number + " EMI = " + bml); if (bmi &lt; 18.5) {</pre>
	<pre>System.out.println("underweight"); } else if (bmi &lt;25) {    System.out.println("normal"); } else if (bmi &lt;30) { </pre>
	System.out.println("overweight"); } else { System.out.println("obese"); }
.}	}