Static Methods, Conditionals

Lecture 15, Mon Feb 8 2010

borrowing from slides by Kurt Eiselt

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Static Methods

■ Static method "belongs" to the class itself
■ not to objects that are instances of class
■ aka class method
■ Do not have to instantiate object of class in order to invoke static method of that class
■ Can use class name instead of object name to invoke static method

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Static Variables

public class Giraffe {
    private static int numGiraffes;
    private double neckLength;
    public Giraffe(double neckLength) {
        this.neckLength = neckLength;
    }
    public void sayHowTall() {
        System.out.println("Neck is "+ neckLength);
    }
}

■ updating static variable is straightforward
■ increment in constructor

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Calling Static Method Example

public class UseGiraffes {
    public static void main (String[] args) {
        System.out.println("Total Giraffes: "+ Giraffe.getNumGiraffes());
        Giraffe fred = new Giraffe(200);
        Giraffe bobby = new Giraffe(220);
        Giraffe horstens = new Giraffe(250);
        System.out.println("Total Giraffes: "+ Giraffe.getNumGiraffes());
    }
}

■ Note that Giraffe is class name, not object name!
■ all first line haven't created any Giraffe objects yet
Static Methods

```java
public class UseGiraffes {
    public static void main(String[] args) {
        System.out.println("Total Giraffes: " + Giraffe.giraffeCount());
    }
}
```

### Logical OR

- Logical OR of values a and b evaluates to
  - true if either a or b are true
  - false if both are false
- **Examples**
  - a = true, b = true -> true
  - a = true, b = false -> true
  - a = false, b = true -> true
  - a = false, b = false -> false

### Equality Example

```java
import java.util.Scanner;
public class Feelgood {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        int age = scan.nextInt();
        if (age >= 20) {
            System.out.println("You don't look a day over " + (age - 10) + "!");
        } else {
            System.out.println("You don't look a day over " + (age + 5) + "!");
        }
    }
}
```

### Logical Expressions

- Boolean expression: test which returns true or false when evaluated
  - **Examples**
    - if (age > 20) System.out.println("You look like you are " + (age + 5) + ");
    - if (age <= 20) System.out.println("You don't look a day over " + (age - 10) + ");

### Logical Operators

- Logical operators: combining two or more boolean expressions
  - **AND** (a && b)
  - **OR** (a || b)
  - **NOT** (!a)

### Logical AND

- Logical AND of values a and b evaluates to
  - true if both a and b are true
  - false otherwise
  - **Examples**
    - if (a && b) System.out.println("true");
    - if (!a || b) System.out.println("false");
    - if (!a && !b) System.out.println("false");
    - if (a || b) System.out.println("true");

### Logical OR

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  - **Examples**
    - if (a || b) System.out.println("true");
    - if (!a && !b) System.out.println("false");