Accessor, Mutator, and Static Methods

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Accessor Methods

• Accessor Methods: “return the property of an object” [Wu]
  – Without altering the contents
  – Getter methods
• Serially reusable – multiple methods calls will return the same result
  – Since info is retrieved with no change to the object
Accessor Methods (2)

- Accessor methods return the property they are accessing as the return value
- Immutable (unchangeable) classes only have accessor methods
- Example:
  ```java
  public double getBalance() {
    return balance;
  }
  ```

Mutator Methods

- Mutator Methods: “changes the property of an object” [Wu]
  - Setter methods
- Mutator methods are not serially reusable since they change the property of an object each time they are called.
- The set mutator method tends to take the new value as a parameter to the method
Mutator Methods (2)

• Example:
  public void setBalance(double newBal) {
    balance = newBal;
  }

Static Methods

• Class methods
  – Belong to the class not the object just like static variables
• Have no implicit parameter (no object)
• Use the form Class.method to call
  – Instead of object.method
• Cannot access non-static instance variables of the class
  – Can access class variables and constants
• Main method is a static method
Static Methods (2)

• Used to represent classes that it doesn’t make sense to have an object of
• Class is an abstract concept of a set of actions
• Example:
  – Library of general math functions like add(int x, int y), subtract(int x, int y)
  – You don’t need multiple MathLibrary objects
  – It just makes more sense to reference the methods you need from the MathLibrary

Static Methods (3)

• We’ve already covered several static methods
  – Integer.parseInt()
  – Double.parseDouble()
  – Math.pow(double a, double b)
  – Math.sqrt(double a)
Static Methods (4)

- Example:
  ```java
  public class MathLibrary {
      public static int add(int x, int y) {
          return x + y;
      }
  }
  ```
  - You would call this method as
  MathLibrary.add(3,5);
  - A specific object of MathLibrary is not referenced

References

- Jason Schwarz’s Lecture 18 slides: [http://courses.ncsu.edu/csc116/](http://courses.ncsu.edu/csc116/)
- Wu – Chapter 4.5