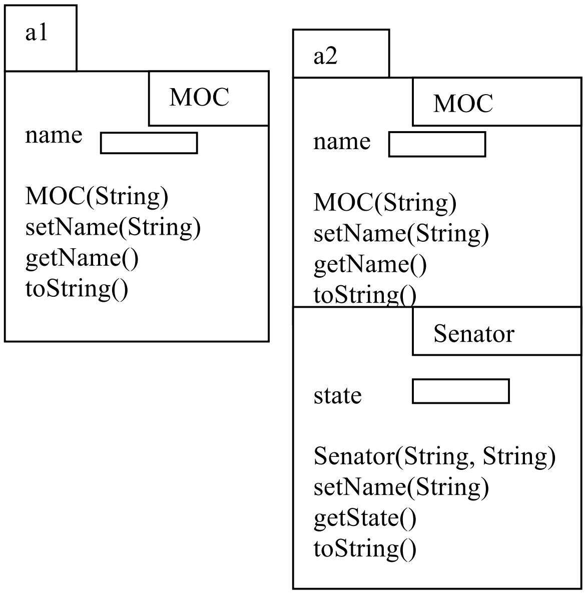
Answers to Prelim 1. CS100J, Fall 2006 David Gries djg17

1. (a) A parameter is a variable declared in the header of a method (within the parentheses). An argument is an expression that occurs in a call of a method.

1. It's alright if you left out the (*but not* ...) parts.
(b) 3. Line 1. Scope 2..14 (but not 6..10)
6. Line 5. Scope 6..12 (but not 8..10)
8. Line 7. Scope 8..10
11. Line 5. Scope 6..12 (but not 8..10)
13. Line 1. Scope 2..14 (but not 6..10)

1. (c) 1. ILLEGAL. Cast **double** to **int** not automatic.
2. d contains 3.**0** **3**. b contains **true**
4. e contains 36.0 **5.** s contains "usa"
6. ILLEGAL. Can't divide a String by an **int**.

2. We abbreviate "MemberOfCongress" by "MOC". We put the types of parameters within parentheses in showing a method; you didn't have to do this.



3. (a) Senator is the subclass.
(b) toString() and setName are overridden.
(c) 1: 2.
2: "Member of Congress John McCain"
3: "Senator Hillary Clinton of NY"
4: ERROR. Field name is private.
5: "Senator Sen. Hillary R. Clinton"
6: 0
(d) 1: create a new instance of class <class name>. 2: execute the constructor call. 3: yield as the value of the new expression the name of the new instance.

4a.
```
/** An instance represents a congressional rep
        -- a member of the House. */
public class Representative extends
                                MemberOfCongress {
  /* District of the representative. Has form "nnxx"
      or "nxx" where n is a digit and xx is the state.*/
  private String district;

  /* Affiliation: "D" or "R" or "I" */
  private String party;

  /** Constructor: a rep named n in district d and
     with party p. Precondition: d and p must conform
    to the rules on fields district and party. */
  public Representative(String n, String d, String p) {
     super(n);
     district= d;
     party= p;
  }

  /** = the district */
  public String getDistrict() { return district; }

  /** = the party of the representative */
  public String getParty() {
     if (party.equals("D"))
        return "Democrat";
     if (party.equals("R"))
        return "Republican";
     return "independent";
  }

  /** = a representation of this representative */
  public String toString() {
     return "Representative " + getName() +
        " (" + party + ") of " + district;
  }
}
```

4 (b).
```
assertEquals("Representative Pelosi (Democrat) of
   8CA", a.toString());
assertEquals("Representative Who-2 (Republican) of
   10NY", b.toString());

assertEquals("Representative Who-3 (independent) of
   6CA", c.toString());
```

5.
```
/** = the district, as specified on Prelim 1 */
  public String formatDistrict() {
    String digits; // The digit(s) of the district
     String state;  // The state
     if (district.length() == 3) {
        digits= district.substring(0, 1);
        state= district.substring(1, 3);
     } else {
        digits= district.substring(0, 2);
        state= district.substring(2, 4);
     }

     if (digits.endsWith("1") && !digits.equals("11"))
        return digits + "st district of " + state;
     if (digits.endsWith("2") && !digits.equals("12"))
        return digits + "nd district of " + state;
     if (digits.endsWith("3") && !digits.equals("13"))
        return digits + "rd district of " + state;
     return digits + "th district of " + state;
 }
```