CSSE 220 Day 7

Iteration and Debugging

Check out *Iteration* from SVN

Questions?

Today

- Loop review
- Debugging Java programs using Eclipse

Arc2D Example

>> If you had trouble with Arc2D on Faces, take a look at ArcExample.java and ArcDrawer.java after class.

Review Loops: while & for Loops

- While loop syntax: **Same as C**

```
while (condition) {
    statements
}
```

- For loop syntax: **Similar to C**

```
for (initialization ; condition ; update) {
    statements
}
```

In both cases, curly braces optional if only one statement in body; but be careful!

Java Loop Examples

- Look at `Investment.java`, `InvestmentTest.java` and `InvestmentRunner.java`
  - Practice using a single **while** loop
  - Study and run the code, then answer quiz questions

- Do the **Rates** exercise in today's homework
  - You'll practice using a single **for** loop in that exercise
  - **Hint**: in printf's format string, use %% to display a single %

- If you finish the **Rates** exercise, start on the **Pyramid Scheme** exercise described in homework
  - You'll practice **nested loops** in that exercise

Q1–Q2

Sentinel Values: A Loop and a Half

▸ *Sentinel value*—a special input value not part of the data, used to indicate end of data set
  ◦ `Enter a quiz score, or Q to quit:`

▸ *A loop and a half*—a loop where the test for termination comes in the **middle** of the loop

▸ Examples… (on next slide)

Q3-Q4

Two Loop-and-a-half Patterns

```
// Pattern 1

boolean done = false;
while (!done) {
    // do some work

    if (condition) {
        done = true;
    } else {
        // do more work
    }
}
```

The variable *done* here is called a *flag*

```
// Pattern 2

while (true) {
    // do some work

    if (condition) {
        break;
    }

    // do more work
}
```

Q5

Debugging—Key Concepts

▸ Breakpoint

▸ Single stepping

▸ Inspecting variables

Q6

Debugging—Demo

- Debugging Java programs in Eclipse:
  - Launch using the debugger

  - Setting a breakpoint

  - Single stepping: *step over* and *step into*

  - Inspecting variables

- Complete WhackABug exercise

Q7

Work Time

>> Wrap up **Rates and PyramidScheme** if you haven't already, then continue working on homework

Q8–Q9, turn in quiz now