

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 are optional if only one statement in the loop's 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