


CSSE 220 Day 7

Iteration and Debugging

Check out *Iteration* from SVN

Questions?

Today

- ▶ Review Arc2D geometry
 - ▶ Loop review
 - ▶ Debugging Java programs using Eclipse
- 

Review: Arcs2D Revisited

- »» Review Geometry of arcs using `TheProblemWithArcs.java` and `ArcDrawer.java`

Review Loops: while & for Loops

- ▶ While loop syntax:

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

- ▶ For loop syntax:

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



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

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)

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
}
```


Debugging—Key Concepts

- ▶ Breakpoint
- ▶ Single stepping
- ▶ Inspecting variables

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

Work Time

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