

For Wednesday

- Read Becker, chapter 9, sections 4, 9-10
- Recommended Practice Problems:
 - Chapter 9, exercises 1-2

Program 6

- Any questions?

Files

- What are files?
- Why are they important?

File Processing Programs

- What needs to be accomplished in a file processing program?

Opening a File

- Creating the File object.
- The FileNotFoundException

```
import java.io.File;
import java.io.FileNotFoundException;
import java.util.Scanner;
/** Read census data, printing all those lines containing the string "AK"
    (Alaska).
 *
 * @author Byron Weber Becker */
public class ReadCountyData
{
    public static void main(String[ ] args)
    {
        // Open the file.
        Scanner in = null;
        try
        {
            File file = new File("2000US_County_data.txt");
            in = new Scanner(file);
        } catch (FileNotFoundException ex)
        {
            System.out.println(ex.getMessage());
            System.out.println("in " + System.getProperty("user.dir"));
            System.exit(1);
        }
    }
}
```

```
// Read and process each record.
    while (in.hasNextLine())
    {
        String record = in.nextLine();
        if (record.indexOf("AK") >= 0)
            // records containing "AK" (Alaska)
            {
                System.out.println(record);
            }
    }

// Close the file.
in.close();
}
}
```

Writing Files

- Use a `PrintWriter`

```
PrintWriter outfile = new PrintWriter(filename);
```

Notes

- Using files always potentially throws `IOExceptions`.
- Sometimes we can handle these gracefully.
- Sometimes we need to allow the program to report an error and end.

File Practice

- Write code to read a file of integers and write a new file with one integer per line of the new file.

File Practice

- The files `input1.txt` and `input2.txt` each contain a list of numbers of type `int` in ascending order. Write a program to create a new file, `output.txt`, that contains all of the numbers from both input files in sorted order. Use a function that will accept as parameters any two open input streams and an open output stream.

Objects and Records

- Approaches to reading objects
- Approaches to writing objects
- Issues to deal with
 - New lines
 - Multiple word fields

The File Class

- Contains a number of methods
- Useful for answering questions about files

Problem 4

- Write a program that finds the smallest of several integers. Assume that input will end when a sentinel value of -999 is read. Do not count -999 as one of the integers to consider.

- Write a **method** to compute the sum of all integers between first and second (including first and second), where first and second are integers and $\text{first} \leq \text{second}$. The method should return the sum. You may not change the value of either first or second.

- Write a method to find the smaller of two integers. The method will accept two integers and return the smaller of the two. If they are the same, then the method returns either one of them.

- A company gives bonuses based on production as follows:
 - 1000 units or fewer, the bonus is \$25
 - 1001 to 3000 units, the bonus is \$50
 - 3001 to 6000 units, the bonus is \$100
 - 6001 units and up, the bonus is \$200
- Write a method that accepts the number of units produced and determines the bonus for the employee. Return the bonus.

- Write a method to determine the purchaser's discount based on a code.
 - If the code is 7, the discount is 10%.
 - If the code is 3, the discount is 15%.
 - If the code is 12, the discount is 4%.
 - If the code is 1, there is no discount.
 - If the code is 8, the discount is 30%.
- The method should return the discount. Use a switch statement.