

COMS W1114 - Java Lab

Lab 6
Wednesday, March 3, 2004
&
Thursday, March 4, 2004

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Note

- See me if you haven't picked up your graded HW1
- Midterm on March 9 (<1 weeks!)

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What we are covering today

- Review from Lab 5
 - Interactive Input
 - File Input
- File Output
- Debugging Strategies
- Concept Review

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Interactive Input try-catch

```
import java.io.*;

public class Lab5Example{
    public static void main(String[] args){
        System.out.print("Please enter your name: ");
        try{
            InputStreamReader iReader = new
InputStreamReader(System.in);
            BufferedReader stream = new BufferedReader(iReader);
            String input = stream.readLine();
            System.out.println("Hello "+input);
        }
        catch (IOException e){
            System.out.println("error!!");
        }
    }
}
```

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File Input try-catch

```
import java.io.*;

public class Lab5Example{
    public static void main(String[] args){
        System.out.print("The first line in file inputFile.txt is: ");
        try{
            File f = new File("inputFile.txt");
            FileReader fReader = new FileReader(f);
            String input = fReader.readLine();
            System.out.println(input);
            fReader.close();
        }
        catch (IOException e){
            System.out.println("error!!");
        }
        catch (FileNotFoundException e){
            System.out.println("file not found!");
        }
    }
}
```

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Interactive Input methods that throw an exception

```
import java.io.*;

public class Lab5Example{
    public static void main(String[] args) throws IOException{
        System.out.print("Please enter your name: ");
        BufferedReader stream = new BufferedReader(new
InputStreamReader(System.in));
        String input = stream.readLine();
        System.out.println("Hello "+input);
    }
}
```

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File Input methods that throw an exception

```
import java.io.*

public class Lab5Example{
    public static void main(String[] args) throws FileNotFoundException, IOException{
        System.out.println("The first line in file inputFile.txt is: ");
        FileReader fReader = new FileReader(new File("inputFile.txt"));
        String input = fReader.readLine();
        System.out.println(input);
        fReader.close();
    }
}
```

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File Output

- Instead of printing to the console (using System.out) we want to print to a file
- We need to create our own output object to redirect the output

```
import java.io.*;

public class Lab5Example{
    public static void main(String[] args) throws IOException{
        System.out.println("Please enter your name: ");
        FileWriter writer = new FileWriter("output.txt");
        writer.write("this sentence will get written to a file\n");
        writer.close();
    }
}

OR

import java.io.*;

public class Lab5Example{
    public static void main(String[] args) throws IOException{
        System.out.println("Please enter your name: ");
        File f = new File("output.txt");
        FileWriter writer = new FileWriter(f);
        writer.write("this sentence will get written to a file\n");
        writer.close();
    }
}
```

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Coding Practices

- Style
 - Class names are capitalized and match the filename
 - Variable names and Method names have a lowercase first letter and should be descriptive
 - Indentation – keep it structured! Tab every line in emacs for proper indentation setup
 - Usually main method is the last method in your class
 - Usually, constructors are the first method in your class
 - (the only thing that would be before your constructor are global (member) variables)

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Debugging with print statements

Prelab activities

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Fill in the blank

- A(n) _____ can store exactly one value at a time, whereas one _____ can contain individual data members
- Importing the _____ *class* allows the program to use Java's File Reading capabilities
- Importing the _____ *package* allows the program to use Java's File Reading capabilities
- _____ converts its String argument to an integer value
- A _____ variable is declared in the body of the class, but not within the body of a method
- A _____ variable is declared in the body of a method
- An if statement's condition is enclosed in _____
- If a method does not return a value, the return value type is ____

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Fill in the blank

- Conditional AND is _____
- Conditional OR is _____
- Logical Negation is _____
- ALL of the above are _____ operators
- Name these structures:
 - Repetition statement that tests the loop-continuation condition at the end of the loop, so that the body of the loop will be executed at least once.
 - Handles a series of decisions, in which a particular variable or expression is tested for values it can assume and different actions are taken
 - Handles all the details of counter-controlled repetition

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Open-ended questions

- When will an infinite loop occur?
- Method Calls vs. Method Declarations
- What is variable scope?

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