**Name:**

**Java Programming**

**Exception Handling**

**Lab Exercise 11/30/2023**

An exception is simply an error. Instead of saying an error occurred, we say that an

**exception is thrown**.

**Two types of exceptions:**

1. Checked
2. Unchecked

**Two choices for handling checked exceptions:**

1. Handle the exception with ***try*, *catch*, *finally***.
2. Put a *throws IOException* (or some other appropriate checked exception) tag on the method signature as in the following example:

public void readTheDisk( ) **throws IOException**

{

… code that uses a file reader…might encounter a corrupt file…

}

**Try, Catch, Finally Example:**

public void myMethod(double d)

{

try

{

String s = in.nextLine( ); //**might produce an IOException**

int x = Integer.parseInt(s); //**bad s might produce a NumberFormatException**

}

catch (IOException e)

{

System.out.println(“Input/output error ” + e);

}

catch (NumberFormatException e)

{

System.out.println(“Input was not a num ” + e);

}

finally

{

//optional but code will always execute

}

}

**Project… Keep Trying**

Create a new project called *KeepTrying* that will contain two classes, *KeepTrying* and

*FileInput*. Create the *FileInput* class by modifying your *BaseClass* project as

follows:

import java.io.\*; //necessary for File and IOException

import java.util.\*; //necessary for Scanner

public class **FileInput**

{

public static void readTheFile(String fileName) throws IOException

{

Scanner sf = new Scanner(new File(fileName));

int maxIndx = -1; //-1 so when we increment below, the first index is 0

String text[] = new String[100]; //declare more than we need

while(sf.hasNext( ))

{

maxIndx++;

text[maxIndx] = sf.nextLine( );

}

//maxIndx is now the highest index of text[], = -1 if no lines of text.

sf.close( ); //we opened file so we must close it

for (int j = 0; j <= maxIndx; j++)

{

System.out.println(text[j]);

}

} //end of FileInput

} //end of class

Now create a *KeepTrying* class with a *main* method in which you repeatedly loop while inputting a file

name from the keyboard. Also, inside the loop call the *readTheFile* method of the *FileInput* class

and pass the file name input from the keyboard as a parameter. Set up a *try-catch* pair in *main* so

as to keep looping if *readTheFile* passes an *IOException* up the calling chain. If everything in

*readTheFile* completes successfully, then in *main* release from the loop and output “It worked.”

Provide for an escape from the loop by informing the user that he can enter the word “exit”. This

should provide a release from the loop and print “It did not work”.

**Project… Metric Conversion**

The following formulas can be used to convert English units measurements to metric units:

inches \* 2.54 = centimeters

feet \* 30 = centimeters

yards \* 0.91 = meters

miles \* 1.6 = kilometers

Create a MetricConversion application that displays a menu of conversion choices and then prompts the user to choose a conversion. Conversion choices should include inches to centimeters, feet to centimeters, yards to meters, miles to kilometers, and vice versa. The application should include separate methods for doing each of these conversions. Application output should look similar to:

Enter a number: 10

Convert:

1. Inches to Centimeters 5. Centimeters to Inches
2. Feet to Centimeters 6. Centimeters to Feet
3. Yards to Meters 7. Meters to Yards
4. Miles to Kilometers 8. Kilometers to Miles

Enter a choice: 1

10 inches equals 25.4 centimeters

**Product maximizer**

For a given input array of numbers, find the two that result in the largest product. The output should include the two numbers in the array along with their product.