**Assignment #7: Exception Handing**

Rowan Pilon

041049454

For CST8284

Due Oct 31, 2023

**Task #1:** Write a java program code to solve dividebyzero error with exception handling.

Here is my program:A screen shot of a computer program

Description automatically generated

In this simple program I print out some numbers and then print out “end of numbers!” at the end of the program, but one of the print statements contains the integer equation 390/0, which results in an error called ArithmeticException: / by zero. So, I used the try and catch to contain the error, printing the statement “you tried to divide by zero!” and then ending the catch, allowing the rest of the program to run without an issue.

**Task #2:** Write a program to illustrate the concept of multiple catch statements.

This is my program.

A screen shot of a computer program

Description automatically generated

^A successful run of the program.

In this program, I create an array and then take two numbers from the user by using the scanner util. These numbers are then divided x =a/b, and then the resulting is used for indexing an array, like so: array[x]. There are several different issues that can arise in this program, and I have attempting to create catch statements for them all. The first exception is when something other than an integer is entered into one of the scanners, and I have created the catch InputMismatchException to deal with that, printing that the entered value was invalid. Another error is when the second integer is zero, resulting in a divide by zero clause, which I have addressed with the ArithmeticException catch. And the final catch is for when the result is a number greater than 2, which results in a ArrayIndexOutOfBoundsException, since there are only three values in the array. This has also been addressed with a catch.

**Task #3:** Write a sample code using Finally keyword in Java.

For this task, I simply added onto my program for task#2, and the finally statement and output is visible in the image above. The finally statement is there to let the user know that the program has either finished running or an exception occurred, and that the program will be terminated.

Here are outputs for the various errors that can occur in my task#2 program.

A screen shot of a computer

Description automatically generated

^InputMismatchException catch called, and finally statement printed.

A screen shot of a computer

Description automatically generated

^ArithmeticException catch called, and finally statement printed.

A screenshot of a computer screen

Description automatically generated

^ArrayIndexOutOfBounds catch called, and finally statement printed.