Name: _____

Practice Exercise 05a
Exceptions

Introduction:

In this exercise, we will use the command line to input some integer values for use in a calculation. Unfortunately, the command line passes in all values as Strings, so we will need to do a conversion to get integer and double values. Wrappers!

In this lab we will be calculating the amount of tip to leave when purchasing a dinner in a restaurant. (The usually accepted amount is 15% of the total bill for the meal.)

Part 1: Get data from the command line

Data from the command line comes into Java programs via the argument array in the main method. We need start by verifying that there is data in the array.

You may assume that there are two values being passed in. The first value is the total bill for dinner. The second value is the percent tip to leave. Verify that there is sufficient data passed over. Print a message and exit the program if there is too little data. (If there are too many values, ignore the extra data.)

Part 2: Convert the values to numerics

We need to use the wrapper classes for integers and double to perform the conversions from String to integer or double. Perform the following steps to convert the integer data:

1. Create an ***Integer*** object reference.
2. Create an integer (primitive) variable.
3. Start a "try" block. Inside the block do the following:
   - Create an Integer object, passing the percent tip argument in as an argument to the constructor.
   - Get the integer value from the ***Integer*** object using the intValue() method and assign it to the integer primitive variable.
4. Create a "catch" block to handle the NumberFormatException. If there is a problem with the value entered, print a message and exit the program.

The calculation for the double is similar. The exception being caught is the same.

Part 3: Perform the calculation.

Once the values have been assigned correctly, calculate the tip amount and print it out.

What happens when you do not enter any values on the command line?

Program catches it and outputs "Please input more data."

What happens when you enter 37.45 and 15 as the two values?

The tip is calculated as $5.62

What happens when you enter abc and 15 as the two values?

Program throws NumberFormatException and prints "Invalid value entered."

Part 4: Catch the exception.

Rather than allow the program to fail with a system error message as it does when we enter abc and 15 as the two values, we want to catch the exception and print out our own error message. Add the appropriate try and catch blocks. Your error message should remind the user to enter valid numeric values.

What exception did you catch? NumberFormatException

What happens now when you enter 37.45 and 15 as the two values?

The tip is calculated as $5.62

What happens now when you enter abc and 15 as the two values?

Program throws NumberFormatException and prints "Invalid value entered."

Instructor/TA: _____