**Exception Handling Lab**

**Instructions:** Answer the following questions one at a time.

1. Implement the following method.

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\* Calculates an array of percentages from an array of values.

\*

\* Specifically, this method calculates the total of all of the

\* elements in the given array and divides each element by the

\* total to determine the percentages.

\*

\* @param values The array of non-negative values

\* @return The array of percentages.

\*/

public static double[] toPercentages(double[] values)

{

}

1. Desk check the toPercentages() method, looking for trigger conditions that will cause it to fail. What are the four obvious trigger conditions?

If the input is null. If the array adds to 0. If any number is a negative. If the length of the array is 0.

1. What exception will be thrown when the following application is executed? What line will cause the exception to be thrown? Why?

private static double[] sales;

public static void main(String[] args)

{

double[] percentages;

percentages = toPercentages(sales);

}

A NullPointerException

1. Modify the declaration of the toPercentages() method so that it specifies the NullPointerException. What is the declaration now?

public static double[] toPercentages(double[] values) throws NullPointerException

1. Modify the first for loop in the toPercentages() method so that it throws an IllegalArgumentException if any element of values is negative. What statements are in the body of the loop now?

The exception handling and counter for the sum

1. Why don't you need to include an else clause in the if statement?

The if statement covers everything necessary and it only activates if needed so an else is unnecessary.

1. What will happen if more than one element is negative? In particular, how many exceptions will be thrown?

The exception will be thrown once it reaches the first negative.

1. Modify the declaration of the toPercentages() method so that it now also includes IllegalArgumentException. What is the declaration now?

public static double[] toPercentages(double[] values) throws NullPointerException, IllegalArgumentException

1. Add a statement after the first for loop, but before the statement that allocates memory for result, that throws an IllegalArgumentException if total is 0. What statement did you add?

if (sum == 0) {

throw new IllegalArgumentException("Total can not be 0.");

}