In this problem we were given an Ada program that takes in any number between [0, 100] and updates a frequency array of grade buckets in intervals of 10. If the number was above 100 it does not input anything, and if any number was given below 0 it breaks out of the loop and prints out the frequency of each bucket. We were supposed to translate the program into Ada, but only update the Frequency bucket array in an exception catch block.

```
/*
 *Name: Marco Salazar
 *Date: 10/6/2020
 *Class: CS 471 Java Exception problem
 *
 *Purpose: The purpose of this program is to translate an Ada program in Java, but make sure that the
 *	updates the the frequency array only happen within a catch block.
 *
 */
import java.util.*;

public class GradeDistribution {
	public static Scanner in = new Scanner(System.in);

	public static void main(String[] args) {
		// All necessary variables.
		int[] Freq = new int[10];
		int New_Grade, Index, Limit_1, Limit_2;

		// This while loop just gathers grades, and increments the correct Freq bucket.
		while(true) {
			try {
				New_Grade = in.nextInt();
				// Since Java does not have an unsigned int, I will just have to bound check the inputs.
				if (New_Grade < 0) throw new IllegalArgumentException();
			} catch(IllegalArgumentException e) {
				break;
			}

			// Unlike ada, this array starts at 0
			Index = New_Grade/10;

			// second half of first loop
			try {
```

```
                                throw new Exception();
                        }catch(Exception e) {
                                // Freq is only updated in exception catch block.
                                if(New_Grade == 100) {
                                        Freq[9] = Freq[9] + 1;
                                } else if(New_Grade >= 0 && New_Grade < 100) {
                                        Freq[Index] = Freq[Index] + 1;
                                } else {
                                        System.out.println("Error -- new grade: " + New_Grade
+ " is out of range");
                                }
                        }
                }

                // Print out all the rest of the frequency
                System.out.println("Limits\tFrequency");
                System.out.println();
                // Like the ada code originally had, I will not print out 90-100 just like the
original code.
                for(Index = 0; Index < 9; Index++) {
                        Limit_1 = 10 *Index;
                        Limit_2 = Limit_1 + 9;
                        if(Index == 9) {
                                Limit_2 = 100;
                        }
                        System.out.print("\t" + Limit_1);
                        System.out.print("\t" + Limit_2);
                        System.out.println("\t" + Freq[Index]);
                }
        }

}
```

Original Ada Output	My codes Output