Program #5 Exception Handling in JAVA

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Problem Description:

We have been given a program in the language ADA which takes in grade numbers and prints out the frequency of each grade range. We were tasked to rewrite the ADA program into Java and then edit the program so that when the counting of the Array "Freq()" is updated in the Exception portion of the code.

Code:

```
/*
 * Name           : Keller Sedillo-Garrido
 * Date           : 10/03/22
 * Input          : Takes in Grade numbers.
 * Output         : The frequency of the grades.
 * PreCondition   : Integers are Grade numbers and
 *                : is expected to be with the range
 *                : of [0, 100].
 * PostCondition  : Will print out the frequencies of
 *                : the grades that has been imported.
 */
```

CS 471 - Prog Lang Structure > Programming #5 > grade_distribution.java > grade_distribution > main(String[])

```
1   // Libaries
2   import java.util.Scanner;
3
4   public class grade_distribution {
        Run | Debug
5       public static void main(String[] args) {
6           // Setting Variables
7           int Freq[] = new int[10];                // Create Array
8           int New_Grade, Index, Limit_1, Limit_2;  // Create Intergers
9           Scanner scanner = new Scanner(System.in); // Create Scanner
10
11          while (true){                                    // Loop till break
12              try{                                         // Check the Input of the User
13                  System.out.println("Input Grade:");     // Ask for input
14                  if(!scanner.hasNextInt()) break;         // Check if next input is int
15                  New_Grade = scanner.nextInt();           // Set New Grade
16              }catch(java.util.InputMismatchException e){ // Throw invalid input
17                  break;                                   // Break whileLoop
18              }                                            // End tryCatch
19
20              try{                                                                    // Update Frequency
21                  if(100 >= New_Grade && New_Grade >= 0) throw new Exception("Valid"); // Check if input is VALID
22                  System.err.print("Error -- new grade: ");                         // PRINT ERROR
23                  System.err.print(New_Grade);                                      // PRINT ERROR
24                  System.err.print(" is out of range");                             // PRINT ERROR
25              }catch(Exception e){                                                  // Catch Expection
26                  Index = New_Grade/10;                                             // Find Index
27                  if (New_Grade == 100) Freq[9] = Freq[9] + 1;                      // Check if grade is 100
28                  else Freq[Index] = Freq[Index] + 1;                               // Update Frequency
29              }                                                                     // End tryCatch
30          }                                                                         // End while
31
```

```
32
33          /* Print Out Frequency */
34          scanner.close();                                        // Close scanner.
35          System.out.println("\n  Limits          Frequency\n\n"); // Print headers
36          for(Index = 0; Index <= 9; Index++){                    // Loop Through Frequency Array
37              Limit_1 = 10 * Index;                               // Set Limit_1
38              Limit_2 = Limit_1 + 9;                              // Set Limit_2
39              if (Index == 9) Limit_2 = 100;                      // Edit Last Upper Limit to 100
40              System.out.printf("%3d - ",     Limit_1);          // Print Lower Limit
41              System.out.printf("%-3d     ", Limit_2);          // Print Upper Limit
42              System.out.printf("%10d\n",   Freq[Index]);        // Print Frequency
43          }                                                       // End for
44      }                                                           // End main
45  }                                                               // End grade_distribution
```

Result:

```
Input Grade:
10
Input Grade:
20
Input Grade:
30
Input Grade:
40
Input Grade:
50
Input Grade:
60
Input Grade:
70
Input Grade:

80
Input Grade:
90
Input Grade:
100
Input Grade:

  Limits            Frequency


  0 - 9                     0
 10 - 19                    1
 20 - 29                    1
 30 - 39                    1
 40 - 49                    1
 50 - 59                    1
 60 - 69                    1
 70 - 79                    1
 80 - 89                    1
 90 - 100                   2
```