PA8 Exception handling

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Problem Description

Chapter 14 discusses exception handling. Although it will be some time before we approach the topic, the concepts are straightforward. This assignment is being posted early so that you can make efforts towards it.

Your task is to rewrite the grade distribution ADA program in JAVA. You can download the program here or here.

In your JAVA version, change the second half of the first loop so that all assignments to the counting Array "Freq()" are updated in the Exception portion of the code. There should be no valid updates to "Freq()" anywhere else in the loop.

Ada code to start with :

```
with Ada.Text_IO , Ada.Integer_Text_IO ;
use Ada.Text_IO, Ada.Integer_Text_IO;
procedure Grade_Distribution is
Freq: array (1..10) of Integer := (others => 0);
New_Grade : Natural;
Index,
Limit_1,
Limit_2 : Integer;
begin
Grade_Loop:
loop
begin
Get(New_Grade);
exception
when Constraint_Error =>
exit Grade_Loop;
end;
Index := New_Grade/10 + 1;
begin
Freq(Index) := Freq(Index) +1 ;
exception
when Constraint_Error =>
if New_Grade = 100 then
```

```
Freq(10) := Freq(10) + 1;
else
Put("Error -- new grade: ");
Put(New_Grade);
Put(" is out of range");
New_Line;
end if;
end;
end loop Grade_Loop;
Put("Limits Frequency");
New_Line; New_Line;
for Index in 0..8 loop
Limit_1 := 10 * Index;
Limit_2 := Limit_1 + 9;
if Index = 9 then
Limit_2 := 100;
end if;
Put(Limit_1);
Put(Limit_2);
Put(Freq(Index +1));
New_Line;
end loop;
end Grade_Distribution;
```

My java code :

```
import java.util.*;

class pa8 {
    public static void main (String[] args) {
        Scanner s = new Scanner(System.in);
        int[] freq = new int[11];
        int limit_1, limit_2, index;
        int new_grade;

        for (;;) {
            new_grade = s.nextInt();
            try {
                if (new_grade < 0) {
                    throw new ArithmeticException();
                }
            } catch (ArithmeticException e) {
                break;
            }
            index = new_grade / 10 + 1;
            try {
                if (new_grade >= 0) {
                    throw new ArithmeticException();
                }
            } catch (ArithmeticException e) {
                if (new_grade < 100) {
```

```
                    freq[index] = freq[index] + 1;
                }
                if (new_grade == 100) {
                    freq[10] = freq[10] + 1;
                }
                if (new_grade > 100) {
                    System.out.println("Error -- new grade: " + new_grade + " is out of range");
                }
            }
        }
        System.out.println("Limits Frequency");
        System.out.println("");

        for (index = 0; index < 10; index++) {
            limit_1 = 10 * index;
            limit_2 = limit_1 + 9;
            if (index == 9) {
                limit_2 = 100;
            }
            System.out.print(limit_1 + " ");
            System.out.print(limit_2 + " ");
            System.out.print(freq[index + 1]);
            System.out.println("");
        }
        s.close();
    }
}
```

output:

```
caliciaperea@Calicias-MacBook-Pro PA8_CPEREA % javac pa8.java
caliciaperea@Calicias-MacBook-Pro PA8_CPEREA % java pa8
10
11
111
Error -- new grade: 111 is out of range
50
70
80
200
Error -- new grade: 200 is out of range
0
-1
Limits Frequency

0 9 1
10 19 2
20 29 0
30 39 0
40 49 0
50 59 1
60 69 0
70 79 1
80 89 1
90 100 0
caliciaperea@Calicias-MacBook-Pro PA8_CPEREA %
```