Workshop #2: Exceptions

Learning Outcomes:

Upon successful completion of this workshop, you will have demonstrated the abilities to:

- Practice handling errors in your program.
- Describe to your instructor what you have learned in completing this workshop.

Requirements:

Part1: [5 points]

Write a Java program to accept a number and print out it. If the number is below 1 then a message "the number is invalid" is printed out. Using do..while to input again, try-catch block to handle errors.

The user interface may be: Enter the number: - 2 The number is invalid"

Enter the number: world The number is invalid"

Enter the number: 2 The number is 2

Step by step workshop instructions:

- Create a new project named "workshop2"
- In the project, create a new file named "Part1.java"
- In the method main, you type:

```
1
   ☐ import java.util.Scanner;
 3
     public class test {
 4
          public static void main(String[] args) {
 5
              boolean cont=false;
 6
              do{
 7
                  try{
 8
                      int num;
                      Scanner sc=new ...
10
                      System.out.println("enter the number:");
                      num=sc....
12
                      if ( num<1)
13
                           throw new Exception();
                      System.out.println("The number is "+ num);
14
15
                      cont=false;
16
                  }catch(Exception e) {
17
                      System.out.println("The number is invalid");
18
                      cont=true;
19
20
              }while(cont);
21
22
```

Part 2: [5 points]

Write a Java program to accept a string and print out it. If the string does not match SExxx(x is digit) then a message "the string is invalid" is printed out. Using do..while to input again.

Hint: In library class String, you should use the method matches() to do this, use trycatch block and use throws to handle errors.

The user interface may be: Input the string 1: I love u the string is invalid

Input the string 1: SE123 the string is SE123

Step by step workshop instructions:

<u>Background:</u> In this workshop, you will use the pattern string(also called regular expression, see more <u>What is a Regular Expression? - Definition from Techopedia</u>). You should read the document to complete the exercise.

Task 1: use try-catch

- In the project "Workshop2", create a new file named "Part2.java"
- In the method main, you type:

```
☐ import java.util.Scanner;
 3
      public class test {
 4
          public static void main(String[] args) {
 5
              boolean cont=false;
 6
 7
                  try{
 <u>Q</u>
                      String s="";
                      String pattern=....
                      Scanner sc=new ...
11
                      System.out.println("enter the string:");
                      s=sc....
13
                      if( ! s.matches( pattern))
14
                           throw new Exception();
15
                      System.out.println("The string is "+ s);
16
                       cont=false;
17
                   }catch(Exception e) {
                       System.out.println("The string is invalid");
18
19
                      cont=true;
20
21
              }while(cont);
22
23
```

At the row 9, use rules of the regular expression to create a pattern string "SExxx", x is digit

Task 2: use throws keyword

- create a new file named "Part2_2.java"
- in the method main, type:

```
☐ import java.util.Scanner;
3
     public class Part2_2 {
4
         public String inputString() throws Exception
 5
 6
              String pattern="";//use rules of regular expression to c
 <u>Q</u>
              String s="";
8
              Scanner sc=new Scanner(System.in);
9
              System.out.println("input the string:");
10
              s=sc.nextLine();
11
              if(!s.matches(pattern))
12
                  throw new Exception();
13
              return s;
14
15
         public static void main(String[] args) {
  戸
16
              Part2 2 obj=new Part2 2();
              boolean cont=false;
18
              do{
19
                  try{
20
                      String s=obj.inputString();
21
                      System.out.println("the string is " +s);
22
                      cont=false;
23
                  }catch(Exception e) {
24
                      System.out.println("The string is invalid");
25
                      cont=true;
26
                  }
27
              }while(cont);
28
29
      }
```