一、 实验名称

Exceptions and I/O Streams

二、 实验目的

- Be able to write code that handles an exception
- Be able to write code that throws an exception
- Be able to write a custom exception class

三、 实验内容

Task #1 Writing a Custom Exception Class
Task #2 Writing Code to Handle an Exception

四、 实验方法(原理、流程图)

1. Written by Intellij IDEA Community edition 2020.3

2.

Task 1:

（1）Create an exception class called SocSecException.It will set the message associated with the exception to “Invalid social security number” concatenated with the error string.

（2）Create a driver program called SocSecProcessor.java. This program will have a main method and a static method called isValid that will check if the social security number is valid.

Task 2:

（1）The main method should read a name and social security number from the user as Strings.

（2）The main method should contain a try-catch statement. This statement tries to check if the social security number is valid by using the method isValid. If the social security number is valid, it prints the name and social security number. If a SocSecException is thrown, it should catch it and print out the name, social security number entered, and an associated error message indicating why the social security number is invalid.

（3）Create a loop which is used to allow the user to continue until the user indicates that they do not want to continue.

（4）The static isValid method:

a. This method throws a SocSecException.

b. True is returned if the social security number is valid, false otherwise.

c. The method checks for the following errors and throws a SocSecException with the appropriate message.

i) Number of characters not equal to 11. (Just check the length of the string)

ii) Dashes in the wrong spots.

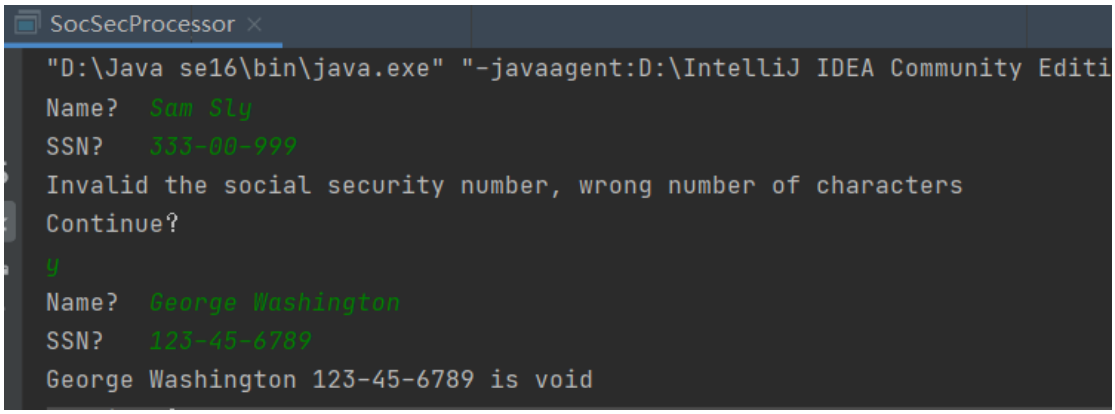
iii) Any non-digits in the SSN.

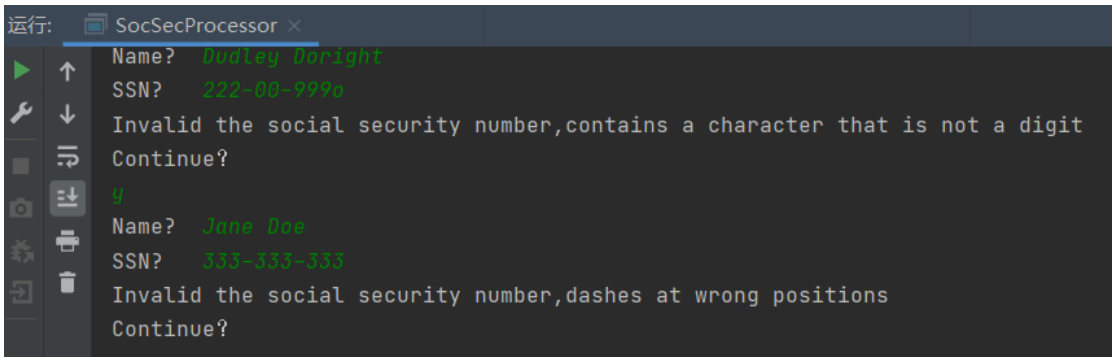
iv) Hint: Use a loop to step through each character of the string, checking for a digit or hyphen in the appropriate spots.

五、 实验结论

The experimental requirements have been successfully realized.

The given results are same as those calculated by my codes.





六、实验体会和收获

1. By writing these code,I have a deeper realize about the exceptions in java.

2. By finishing this task,I become more familiar with how to catch and throw exceptions.

3. When writing these codes,i meet some difficults in how to creat user-defined exceptions.But I solve these problemss by searching relevant information on the Internet and reviewing PPT.

4. By writing this task I am more interested in Java.

七、程序代码

(1) SocSecException.java

```
public class SocSecException extends Exception
```

```
{
```

```
    public SocSecException(String error)
    {
        super(error);
        System.out.println("Invalid the social security number,"+error);
    }
}
```

(2) SocSecProcessor. java

```
import java.util.Scanner;
public class SocSecProcessor
{
    public static void main(String[] args)
    {
        String i = "y";
        while (i.equalsIgnoreCase("y"))
        {
            System.out.print("Name?    ");
            Scanner n = new Scanner(System.in);
            String name = n.nextLine();
            System.out.print("SSN?     ");
            String SSN = n.nextLine();
            try
            {
```

```
                    if (isValid(SSN))
                    {
                        System.out.println(name + " " + SSN + " " + "is void");
                    }
                }
                    catch(SocSecException ignored)
                    {

                    }

                System.out.println("Continue? ");
                i = n.nextLine();
            }
        }
        public static boolean isValid(String ssn) throws SocSecException
        {
            char [] s = ssn.toCharArray();
            int length = ssn.length();
            if (length != 11)
            {
                throw new SocSecException(" wrong number of characters");
            }
```

```
                if (s[3] != s[6] || s[3]!='-')
                {
                    throw new SocSecException("dashes at wrong positions");
                }
                for(int i = 0;i < 11;i++ )
                {
                    if(s[i]=='-' && i!=3 && i!=6)
                    {
                        throw new SocSecException("dashes at wrong positions");
                    }
                }
                for(int i = 0;i < 11;i++)
                {
                    if (s[i] != '-' && !Character.isDigit(ssn.charAt(i)))
                    {
                        throw new SocSecException("contains a character that is not
a digit");
                    }
                }
                return true;
            }
        }
```