PART-4

Exception Handling

GitHub Repository Link: https://github.com/21ce114/JAVA-Practicals.git

Question 1:	WAP to show the try - catch block to catch the different types of exception.
Answer:	

```java
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM :WAP to show the try - catch block to catch
    the different types of exception.*/

public class Practical4_1 {
    public static void main(String[] args) {
        //ArithmeticException Example
        try{
            int a = 114;
            int result = a/0;
        }
        catch(ArithmeticException e){
            System.out.println(e);
        }

        //NullPointer Exception
        try{
            String a = null;
            System.out.println(a.charAt(0));
        }
        catch(NullPointerException e1){
            System.out.println(e1);
        }

        //StringIndexOutOfBound Exception
        try{
            String s = "Harsh";
            char c = s.charAt(10);
        }
        catch(StringIndexOutOfBoundsException e2){
            System.out.println(e2);
        }
```

```
            //ArrayIndexOutOfBounds Exception
            try{
                int a[] = new int[5];
                a[6] = 114;
            }
            catch(ArrayIndexOutOfBoundsException e3){
                System.out.println (e3);
            }
        }
}
```

OutPut:

```
PS C:\Users\HARSH>  & 'C:\Program Files\Java\jdk-11.0.12\bin\java.exe' '-cp' 'C:
ppData\Local\Temp\vscodesws_7880c\jdt_ws\jdt.ls-java-project\bin' 'Practical4_1'
java.lang.ArithmeticException: / by zero
java.lang.NullPointerException
java.lang.StringIndexOutOfBoundsException: String index out of range: 10
java.lang.ArrayIndexOutOfBoundsException: Index 6 out of bounds for length 5
PS C:\Users\HARSH>
```

Question 2:	WAP to generate user defined exception using "throw" and "throws" keyword.

Answer:	

```
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM :WAP to generate user defined exception
     using "throw" and "throws" keyword.*/

class NegativeNumber extends Exception{
    public NegativeNumber(String s){
        super(s);
    }
}
public class Practical4_2 {

    public static void main(String[] args) {
        int a = -2;
        try{
                if (a<0){
                    throw new NegativeNumber("The number cannot be
negative.");
                }
        }
        catch (NegativeNumber e){
            System.out.println(e);
        }
```

	```\n }\n}\n```\n**Output:**\n```\nPS C:\Users\HARSH> & 'C:\Program Files\Java\jdk-11.0.12\bin\java.exe' '-cp'\n'C:\Users\HARSH\AppData\Local\Temp\vscodesws_7880c\jdt_ws\jdt.ls-java-project\bin' 'Practical4_2'\nNegativeNumber: The number cannot be negative.\nPS C:\Users\HARSH>\n```
Question 3:	Write a program that raises two exceptions. Specify two 'catch' clauses for the two exceptions. Each 'catch' block handles a different type of exception. For example the exception could be 'ArithmeticException' and 'ArrayIndexOutOfBoundsException'. Display a message in the 'finally' block.
Answer:	(code below)

```java
/*ID: 21CE114
Name: Harsh Rana
Git Repository Link:
https://github.com/21ce114/JAVA-Practicals.git
AIM :Write a program that raises two exceptions.
Specify two 'catch' clauses for the two exceptions.
Each 'catch' block handles a different type of exception.
For example the exception could be 'ArithmeticException'
and 'ArrayIndexOutOfBoundsException'. Display a message
in the 'finally' block.*/

public class Practical4_3 {

    public static void main(String[] args) {

            try{
                    int a[]=new int[5];
                    //Only the arithmeticexception is handled.
                    //After first exception is encountered catch block
                    //is execuated. Remaining statements in try block
are not executed.
                     a[5]=114/0;
                     a[6]=6;
                    }
                    catch(ArithmeticException e)
                      {
                         System.out.println("Arithmetic Exception
occurs");
                      }
                    catch(ArrayIndexOutOfBoundsException e)
                      {
                         System.out.println("ArrayIndexOutOfBounds
Exception occurs");
                      }
```

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```java
            finally{
                System.out.println("Message in finally: There are multpile catch blocks.");
            }
    }
}
```

Output:

```
PS C:\Users\HARSH>  & 'C:\Program Files\Java\jdk-11.0.12\bin\java.exe' '-cp'
 'C:\Users\HARSH\AppData\Local\Temp\vscodesws_7880c\jdt_ws\jdt.ls-java-project
\bin' 'Practical4_3'
Arithmetic Exception occurs
Message in finally: There are multpile catch blocks.
PS C:\Users\HARSH>
```