Assignment NO-06.

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Title :

Implement a program to handle Arithmetic exception, Array index out of Bounds. The user enters two numbers Num1 and Num2. The division of Num1 and Num2 is displayed. If Num1 and Num2 are not integers, the program would throw a Number Format Exception. If Num2 were zero, the program would thrown an Arithmetic Exception. Display the exception.

Theory

Exception Handling

The exception handling in Java is one of the powerful mechanism to handle the runtime errors so that the normal flow of the application can be maintained.

Exception is an abnormal condition

In Java, an exception is an event that disrupts the normal flow of the program. It is an object which is throw at runtime.

The core advantage of exception handling is maitain the normal flow of the application. An exception normally disrupts the normal flow of the application; that is why we need to handle exception

Example :

```
public class ArrayIndexOutOfBoundsException {
 public static void main (String [] args) {
 String [] arr = {"Rohit", "Shikar", "Virat", "Dhoni"};

 for (int i = 0 ; i <= arr.length; i++) {
  System.out.println (arr[i]);
}
 }
 }
```

- NumberFormatException

The NumberFormatException is throw when we try to convert a string into a numeric value such as float or integer, but the format of the input string is not appropriate or illegal.

Constructor

i) NumberFormatException ()

ii) NumberFormalException (String s)

Example :

```
public class Sample {
public static void main (String [] args) {
   String str = "ram";
 System.out.println ("Start");
```

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```
successfully");
System.out.println("Result came after division is:"
                    +res);
}
public static void main(String args[])
{
ArithmeticException obj = new ArithmeticException();
obj.divide(1,0);
}
}
```

ArrayIndexOutofBoundsException

The ArrayIndexOutOfBoundsException occur whenever we are trying to access any item of an array at an index which is not present in the array. In other word, the index may be negative or exceed the size of an array.

Constructors.

i) ArrayIndexOutOfBoundsException()
ii) ArrayIndexOutOfBoundsException(int index)
iii) ArrayIndexOutOfBoundsException(String s).

Arithmetic Exception

A arithmetic exception is a type of unusual outcome or unchecked error of the code, which is thrown or raised whenever a wrong mathematical or arithmetic operation appears in the code during run time

Arithmetic Exception Structure :-

The arithmetic exception base class is java.lang.ArithmeticException, which is the child class of java.lang.RuntimeException, which in turn is the child class of java.lang.Exception.

Arithmetic Exception Constructor :

1. ArithmeticException ()
2. ArithmeticException(String s)

Example :

```
public class ArithmeticException
{
  void divide ( int a, int b)
  {
    int res = a/b ;
System.out.println ("Division process has been done
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```
int a = Integer.parseInt (str);
System.out.println (" End");
}
}.
```

conclusion :

Hence we have successfully implement the program to handle ArithmeticException, ArrayIndexoutOfBoundsException and NormalFormat Exception.