SESSION 10 PROGRAMS(Exception Handling)

Program 1 TryCatchExample

```
public class TryCatchExample2 {

    public static void main(String[] args) {
        try
        {
        int data=50/0; //may throw exception
        }
            //handling the exception
        catch(ArithmeticException e)
        {
            System.out.println(e);
        } finally
        {
         System.out.println("Inside finally");
        }
        System.out.println("rest of the code");
    }

}
```

Program2 Exception handling code on the call stack :

```
// Java program to demonstrate exception is thrown
// how the runTime system searches the call stack
// to find appropriate exception handler.

class ExceptionThrown
{
   // It throws the Exception(ArithmeticException).
   // Appropriate Exception handler is not found within this method.
   static int divideByZero(int a, int b){

      // this statement will cause ArithmeticException(/ by zero)
      int i = a/b;

      return i;
   }

   // The runTime System searches the appropriate Exception handler
   // in this method also but couldn't have found. So looking forward
   // on the call stack.
   static int computeDivision(int a, int b) {

      int res =0;

      try
      {
      res = divideByZero(a,b);
      }
      // doesn't matches with ArithmeticException
      catch(NumberFormatException ex)
      {
      System.out.println("NumberFormatException is occurred");
      }
      return res;
   }

   // In this method found appropriate Exception handler.
   // i.e. matching catch block.
   public static void main(String args[]){

      int a = 1;
```

```
        int b = 0;

        try
        {
            int i = computeDivision(a,b);

        }

        // matching ArithmeticException
        catch(ArithmeticException ex)
        {
            // getMessage will print description of exception(here / by zero)
            System.out.println(ex.getMessage());
        }
    }
}
```

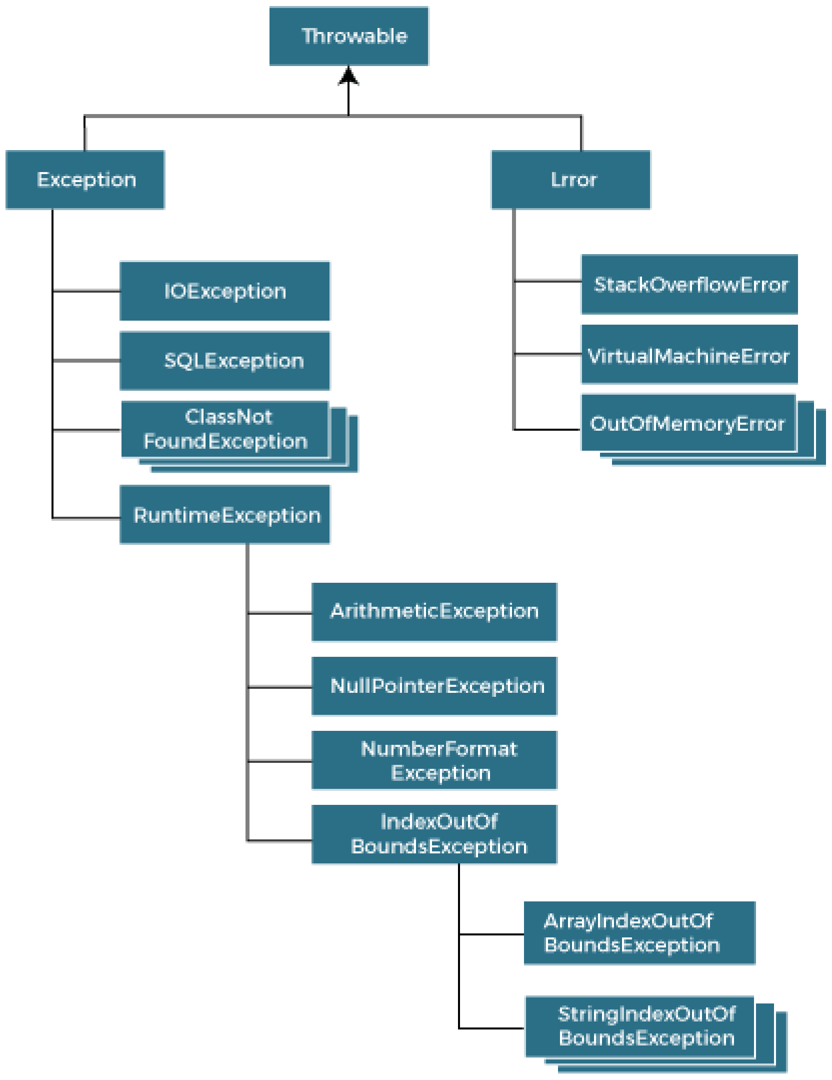
Program3 MultipleCatchBlock

```
public class MultipleCatchBlock1 {

   public static void main(String[] args) {

           try{
               int a[]=new int[5];
               a[5]=30/0;
              }
              catch(ArithmeticException e)
                {
                 System.out.println("Arithmetic Exception occurs");
                }
              catch(ArrayIndexOutOfBoundsException e)
                {
                 System.out.println("ArrayIndexOutOfBounds Exception occurs");
                }
              catch(Exception e)
                {
                 System.out.println("Parent Exception occurs");
                }
              System.out.println("rest of the code");
   }
}
```

Hierarchy of Java Exception classes



Program4 Java throws Example

```
public class TestThrows {
    //defining a method
    public static int divideNum(int m, int n) throws ArithmeticException {
        int div = m / n;
        return div;
    }
    //main method
    public static void main(String[] args) {
        TestThrows obj = new TestThrows();
        try {
            System.out.println(obj.divideNum(45, 0));
        }
        catch (ArithmeticException e){
            System.out.println("\nNumber cannot be divided by 0");
        }

        System.out.println("Rest of the code..");
    }
}
```

Program5 Java throw Example

```java
public class TestThrow {
    //defining a method
    public static void checkNum(int num) {
        if (num < 1) {
            throw new ArithmeticException("\nNumber is negative, cannot calculate square");
        }
        else {
            System.out.println("Square of " + num + " is " + (num*num));
        }
    }
    //main method
    public static void main(String[] args) {
            TestThrow obj = new TestThrow();
            obj.checkNum(-3);
            System.out.println("Rest of the code..");
    }
}
```

SESSION 10 ASSIGNMENTS

1. **Write a Program to create a class ArrayProgram**
   Create main method
   Create an array of int values .
   Write claasical for loop to read array values
   Generate Array Index out of Bounds Exception
   Handle above exception with try catch block

2. **Create a parent class Company**
   Create a method displayCompanySize()
   Throw Arithmetic Exception in the method body

   Create main method
   Create object of Company class in the main method.
   Call displayCompanySize() thru above Object
   Handle exception using try catch

3. **Repeat above Example .**
   Replace Throw Arithmetic Exception
   with throws keyword