

OOSD: Practice Problems 5

1. Show what is printed by this Java program.

```
class Up extends Exception
{
    private int value;
    Up(int val)
    {
        super("Upcoming Upheaval"); value = val;
    }
    public String toString ()
    {
        return "Exception Up[" + value + "]";
    }
}

public class ExceptUp
{
    public static void main (String [] args)
    {
        int n = 4;
        System.out.println ("\nIn main with n = 4");
        one(n);
        System.out.println ("Back from one");
        System.out.println ("Quitting main");
    }

    static void one (int m)
    {
        try
        {
            System.out.println (" In one with m = " + m);
            two(m);
            System.out.println (" Back from two");
            System.out.println (" Finishing try in one");
        }
        catch (Exception e)
        {
            System.out.println(" Exception: " + e);
            System.out.println(" Message: " + e.getMessage());
        }
        System.out.println (" After catch in one");
    }
}
```

```

static void two (int d)
{
    for (int a=2; a<=2*d; a=a+2)
    {
        System.out.println ("  In two with a = " + a);
        three(a);
        System.out.println ("  Back from three");
        if (a==8)
            throw new ArithmeticException("Oops");
    }
    System.out.println ("  Finishing two");
}

static void three (int k)
{
    try
    {
        System.out.println("  In three with k = " + k);
        if (k%3==0) four(10*k);
        System.out.println("  Leaving three " + " with k = " + k);
    }
    catch (Up ue)
    {
        System.out.println("  Exception: " + ue);
        System.out.println("  Message: " + ue.getMessage());
    }
    System.out.println ("  After catch in three");
}

static void four (int x) throws Up
{
    throw new Up(x);
}
}

```

- Write small Java programs that cause each of these exceptions to be thrown. Do not catch the exceptions, but observe what the operating system reports when your program terminates abnormally.

ArithmeticException

ClassCastException

NumberFormatException

ArrayIndexOutOfBoundsException

StringIndexOutOfBoundsException

NegativeArraySizeException

NullPointerException