

Homework 1

EX 10.3

The try statement in the *Propagation* program, as per the code comments "Catches and handles the exception that is thrown in level3." This exception is an *ArithmeticException* produced by instances such as dividing by zero. Without it execution of the program would be disrupted the moment the error occurred and the error message would be generated by the JVM not the programmer.

EX 10.4:

If the try statement were moved to *level2* then *level2* and *level3* would be unreachable code. Level1 would execute and return to main resulting an output of:

```
Program beginning.  
Level 1 ending.  
Program ending.
```

EX 10.5:

If an *Exception* is used in a *catch* clause then if the relevant exception occurs the code in the catch statement will be executed and then the program will exit the entire try catch block and continue operation.

EX 10.6:

- **a) *ArithmeticException*:**

Is an *exception* with the purpose of catching *bad math* such as division by zero. This is to prevent equations that are not mathematically correct or possible.

- **b) *NullPointerException*:**

Is an *exception* that is thrown when an object or variable is invoked that points towards nothing, ie: *null*. This is to prevent typos and incorrect assignments that would interrupt operations.

- **c) *NumberFormatException*:**

Is an *exception* that prevents string to numerator conversion when it is not possible, such as `int i = Integer.parseInt("123a");` . This prevents non-numbers from being typed as numbers.

- **d) *PatternSyntaxException*:**

Is an *exception* that uses a given syntax to check for errors in an input. This is very useful for checking input, ie: email address formats from a user or file names, etc etc