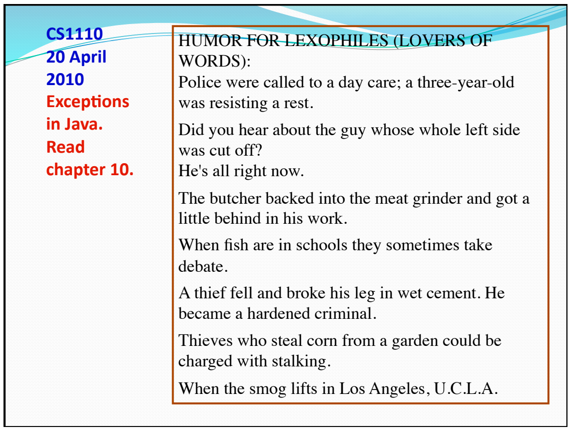


CS1110
20 April
2010
Exceptions
in Java.
Read
chapter 10.

HUMOR FOR LEXOPHILES (LOVERS OF WORDS):

Police were called to a day care; a three-year-old was resisting a rest.

Did you hear about the guy whose whole left side was cut off?
He's all right now.

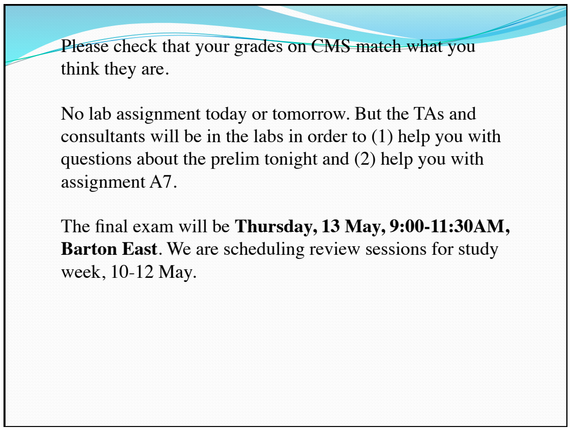
The butcher backed into the meat grinder and got a little behind in his work.

When fish are in schools they sometimes take debate.

A thief fell and broke his leg in wet cement. He became a hardened criminal.

Thieves who steal corn from a garden could be charged with stalking.

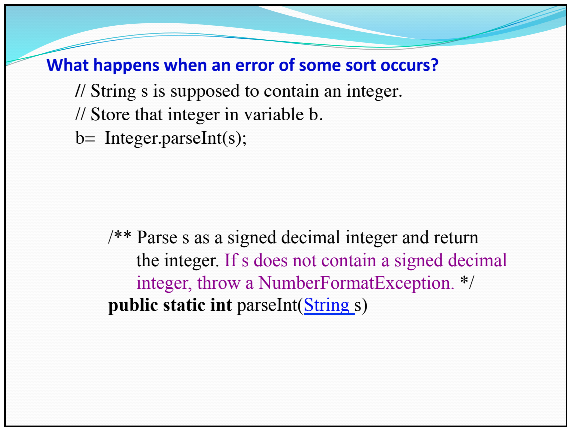
When the smog lifts in Los Angeles, U.C.L.A.



Please check that your grades on CMS match what you think they are.

No lab assignment today or tomorrow. But the TAs and consultants will be in the labs in order to (1) help you with questions about the prelim tonight and (2) help you with assignment A7.

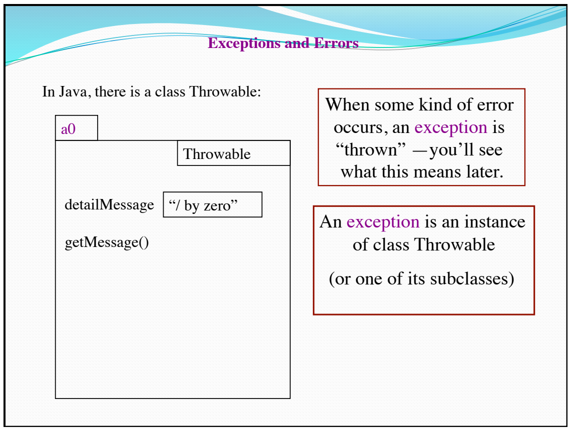
The final exam will be **Thursday, 13 May, 9:00-11:30AM, Barton East**. We are scheduling review sessions for study week, 10-12 May.



What happens when an error of some sort occurs?

```
// String s is supposed to contain an integer.
// Store that integer in variable b.
b= Integer.parseInt(s);
```

```
/** Parse s as a signed decimal integer and return
    the integer. If s does not contain a signed decimal
    integer, throw a NumberFormatException. */
public static int parseInt(String s)
```



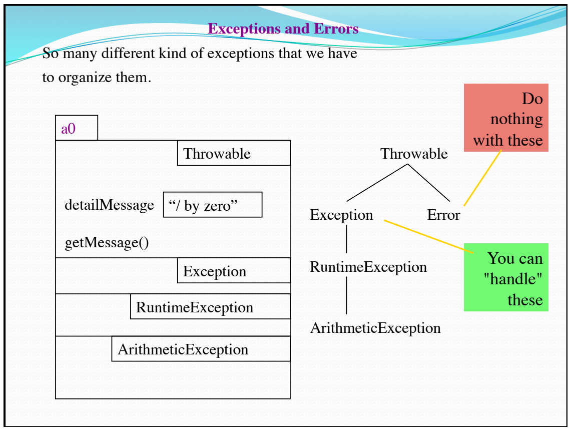
Exceptions and Errors

In Java, there is a class Throwable:

When some kind of error occurs, an exception is "thrown" —you'll see what this means later.

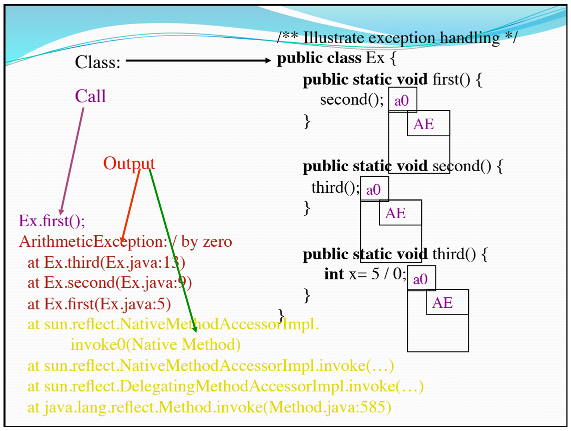
An exception is an instance of class Throwable

(or one of its subclasses)



Exceptions and Errors

So many different kind of exceptions that we have to organize them.

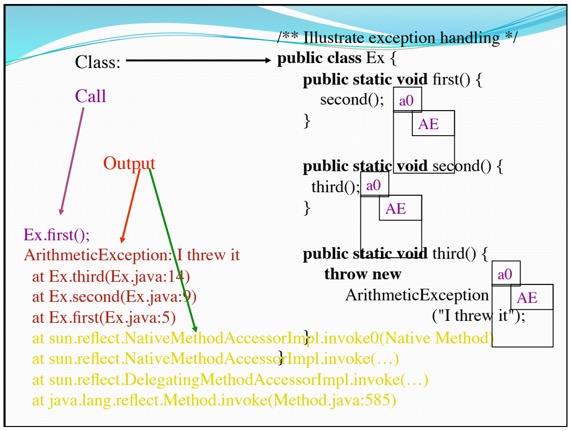


```
/** Illustrate exception handling */
public class Ex {
    public static void first() {
      second();
    }

    public static void second() {
     third();
    }

    public static void third() {
      int x= 5 / 0;
    }
}
```

```
Ex.first();
ArithmeticException: / by zero
  at Ex.third(Ex.java:13)
  at Ex.second(Ex.java:9)
  at Ex.first(Ex.java:5)
  at sun.reflect.NativeMethodAccessorImpl.
        invoke0(Native Method)
  at sun.reflect.NativeMethodAccessorImpl.invoke(…)
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(…)
  at java.lang.reflect.Method.invoke(Method.java:585)
```

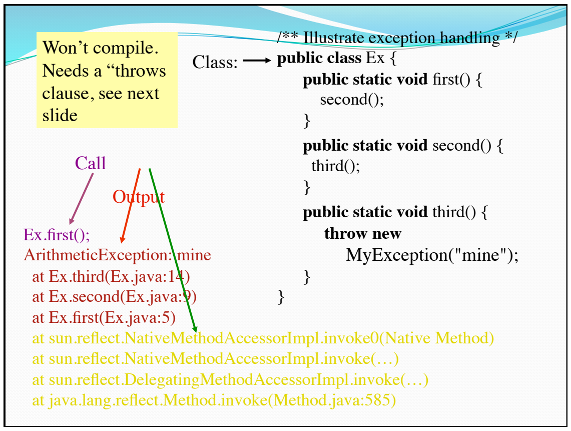


```
/** Illustrate exception handling */
public class Ex {
    public static void first() {
        second();
    }

    public static void second() {
        third();
    }

    public static void third() {
        throw new
            ArithmeticException
                ("I threw it");
    }
}
```

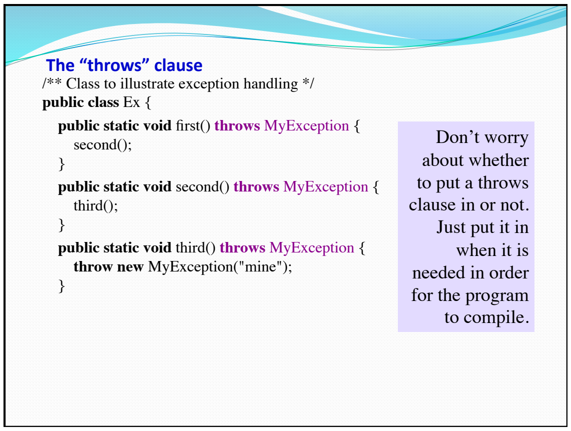
```
Ex.first();
ArithmeticException: I threw it
  at Ex.third(Ex.java:14)
  at Ex.second(Ex.java:9)
  at Ex.first(Ex.java:5)
  at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
  at sun.reflect.NativeMethodAccessorImpl.invoke(…)
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(…)
  at java.lang.reflect.Method.invoke(Method.java:585)
```



Won't compile. Needs a "throws clause, see next slide

```
/** Illustrate exception handling */
public class Ex {
    public static void first() {
        second();
    }
    public static void second() {
      third();
    }
    public static void third() {
        throw new
            MyException("mine");
    }
}
```

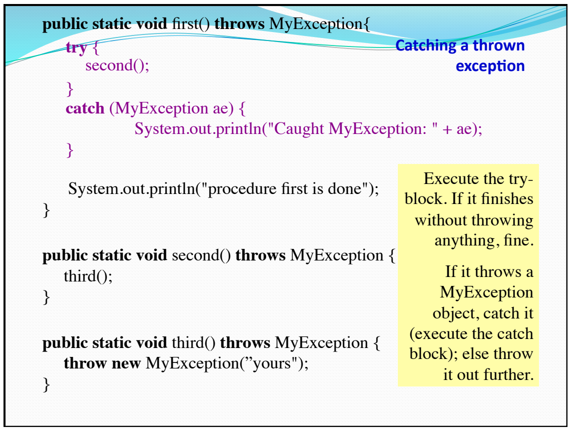
```
Ex.first();
ArithmeticException: mine
  at Ex.third(Ex.java:14)
  at Ex.second(Ex.java:9)
  at Ex.first(Ex.java:5)
  at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
  at sun.reflect.NativeMethodAccessorImpl.invoke(…)
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(…)
  at java.lang.reflect.Method.invoke(Method.java:585)
```



The "throws" clause

```
/** Class to illustrate exception handling */
public class Ex {
    public static void first() throws MyException {
        second();
    }
    public static void second() throws MyException {
        third();
    }
    public static void third() throws MyException {
        throw new MyException("mine");
    }
```

Don't worry about whether to put a throws clause in or not. Just put it in when it is needed in order for the program to compile.



Catching a thrown exception

```
public static void first() throws MyException{
    try {
        second();
    }
    catch (MyException ae) {
            System.out.println("Caught MyException: " + ae);
    }

    System.out.println("procedure first is done");
}

public static void second() throws MyException {
    third();
}

public static void third() throws MyException {
    throw new MyException(”yours");
}
```

Execute the try-block. If it finishes without throwing anything, fine.

If it throws a MyException object, catch it (execute the catch block); else throw it out further.