

Java Exception

Handling

Lab 07

What is an Exception?

An exception is a class used to store error information.

What is an Exception?

Common Exceptions -

`java.lang.NullPointerException`

`java.lang.StringIndexOutOfBoundsException`

`java.lang.ArrayIndexOutOfBoundsException`

`java.lang.IndexOutOfBoundsException`

`java.lang.NumberFormatException`

`java.lang.ClassCastException`

`java.lang.ArithmeticException`

`java.util.NoSuchElementException`

`java.io.FileNotFoundException`

What is an Exception?

Reserved words that you need to know to use exception handling ::

try - try this section and see what happens

catch - if the try blew up catch the exception thrown

finally - this section always happens no matter what

What is an Exception?

```
public static void main(String args[ ])
{
    int num=32;
    if(num==32)
        throw new Exception("num==32");
}
```

This code will not compile. Why not?

What is an Exception?

**RuntimeExceptions are unchecked exceptions.
Exception and IOException are checked exceptions.**

Parent - *Exception*

Child - *RuntimeException* extends Exception

Child – *IndexOutOfBoundsException*

Child – *ArrayIndexOutOfBoundsException*

Child – *ArithmeticException*

Child – *ClassCastException*

Child – *NullPointerException*

// several more

Child – *IOException* extends Exception

Child – *FileNotFoundException*

Open

exceptionone.java

exceptiontwo.java

What is an Exception?

```
public static void main(String args[ ]) throws Exception
{
    int num=32;
    if(num==32)
        throw new Exception("num==32");
}
```

You have to have throws because you are throwing a checked Exception.

What is an Exception?

```
public static void main(String args[ ])
{
    int num=32;
    if(num==32)
        throw new RuntimeException("num==32");
}
```

You DO NOT have to have throws because you are NOT throwing a checked Exception.

Open

exceptionthree.java

exceptionfour.java

What is an Exception?

```
try{  
    int num= 3/0;  
}
```

//must have a catch or finally block

System.out.println("compsci");

This will not compile!!!!

What is an Exception?

```
try{  
    int num=3/0;  
}
```

//catch is optional

```
finally{  
    System.out.println("divby0");  
}  
System.out.println("compsci");
```

Multiples Catch Blocks

```
try{  
    //code would go here  
}  
catch(FileNotFoundException e){  
    // Code to handle not finding the specified file.  
}  
catch(IOException e){  
    // Code to handle any other IO Exception  
}  
catch(Exception e){  
    // Code to handle all other Exceptions  
}  
finally{  
    System.out.println("this always happens");  
}
```

Multiples Catch Blocks

```
try{
//code would go here
}
catch(Exception e){
    // Code to handle all other Exceptions
}
catch(IOException e){
    // Code to handle any other IO Exception
}
catch(FileNotFoundException e){
    // Code to handle not finding the specified file.
}
finally{
    System.out.println("this always happens");
}
```

What is an Exception?

```
try{  
    //code would go here  
}  
catch(NullPointerException e){  
    // Code to handle the lack of a constructor  
    // being called.  
}  
catch(ClassCastException e){  
    // Code to handle the fact that your object  
    // is the wrong type.  
}  
finally{  
    System.out.println("this always happens");  
}
```

What is an Exception?

Why use exception handling?

What do you gain?

What do you lose?

Open

exceptionfive.java

exceptionsix.java