

Java Exception Handling

What is an Exception?

**An exception is a class
used to store error
information.**

What is an Exception?

Common Exceptions -

- `java.util.NoSuchElementException`
- `java.lang.NullPointerException`
- `java.lang.StringIndexOutOfBoundsException`
- `java.lang.ArrayIndexOutOfBoundsException`
- `java.lang.IndexOutOfBoundsException`
- `java.lang.NumberFormatException`
- `java.lang.ClassCastException`
- `java.lang.ArithmeticException`

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 have to have throws because you are 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");
```

What is an Exception?

```
try{
//code would go here
}
catch(NullPointerException e){
    System.out.println(e + "Exception");
}
catch(ClassCastException e){
    System.out.println(e + "Exception");
}
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