

Integer and Double Wrapper classes

- Why they are needed?
 - Overview
 - Example



The Integer class – A class that is used to “wrap up” an `int` into an Object so that it can be used in data structures that work only with Objects, such as the `ArrayList`.

The Double class – Similar to the Integer class, only that it “wraps up” `double` data.



Overview of the class methods

(in “Mama Gold Sheet”)

```
class java.lang.Integer implements  
                                java.lang.Comparable
```

- Integer(int value) // constructor
- int intValue()
- Integer.MIN_VALUE // min value represented
- Integer.MAX_VALUE // max value represented

```
class java.lang.Double implements  
                                java.lang.Comparable
```

- Double(double value) // constructor
- double doubleValue()

How to use these classes?

```
import java.lang.Integer;
import java.lang.Double;

public static void main(String [] args)
{
    Integer x1 = new Integer(5);
    Integer x2 = new Integer(-12);

    if(x1.compareTo(x2) > 0)
    {
        System.out.println("Sum: " + (x1.intValue()+ x2.intValue()));
    }
}
```



Example: Write a method to find the index of an Integer object `x` in a sorted array `a`.

```
public int find(Integer [] a, Integer x)
{
```

Example: Write a method to insert an `Integer` object `x` into a sorted `ArrayList` `a`.

```
public void insert(ArrayList <Integer> a, Integer x)
{
```


Exceptions

Purpose

An exception is a run-time event that signals an abnormal condition in the program.

You all have seen the little messages that come up on the little black screen... Caused by an exception!!



Exceptions: the 4 you need to know

1. ArithmeticException

Purpose

Thrown in case of an arithmetic error
(example, division by 0)

2. ArrayIndexOutOfBoundsException

Purpose

Thrown when an array index is negative
or greater than `array.length-1`



Exceptions: the 4 you need to know

3. NullPointerException

Purpose

Thrown when you forget to initialize an object-type variable and try to call its method.

4. ClassCastException

Purpose

Thrown when you are trying to cast an object into a class that it does not belong.

