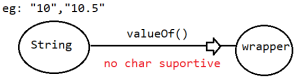
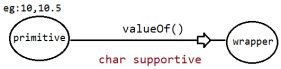
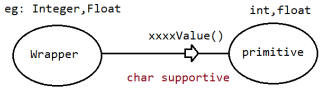
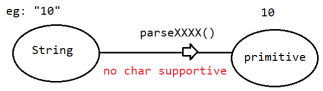
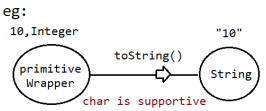
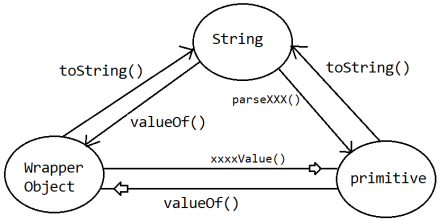






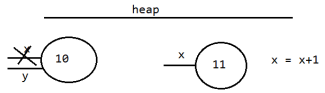




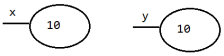



```
Integer x=10;
Integer y=x;

x++;
System.out.println(x);  //11
System.out.println(y); //10
System.out.println(x==y); //false
```

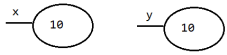



```
Integer x=new Integer(10);
Integer y=new Integer(10);
System.out.println(x==y);//false
```

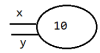


== -> compares the reference

```
Integer x=new Integer(10);
Integer y=10; //Integer.valueOf(10);
System.out.println(x==y); //false
```



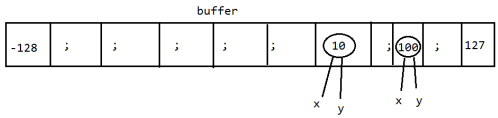

```
Integer x=new Integer(10);
Integer y=x;
System.out.println(x==y);// true
```

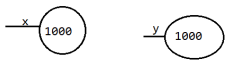



```
Integer x=10;
Integer y=10;
System.out.println(x==y);//true

Integer x=100;
Integer y=100;
System.out.println(x==y);//true

Integer x=1000;
Integer y=1000;
System.out.println(x==y);//false
```





Wrapper class
==========
  The need of wrapper class is to wrap primtives into objects,so that we can handle primitives also
  just like Objects.

Constructor summary
===============
byte -> Byte(byte,String)
short-> Short(short,String)
int   -> Integer(int,String)
long -> Long(long,String)
float -> Float(float,String,Double)
double->Double(double,String)
----
char-> Character(char)
boolean->Boolean(boolean,String)

Note: In all wrapper class toString() is overriden to return the content

Object class method
===============
```
public class Object{
      public String toString(){
            //return the reference of the Object
      }
      public boolean equals(Object o){
            //compares the reference
      }
}

public final class String{

      @Override
     public String toString(){
            //returns the content of the Object
      }

      @Override
      public boolean equals(Object o){
            //compares the content of the String
      }
}
```

Note: equals() method is also overriden in all Wrapper class to compare the content.

```
public final class Integer{

      @Override
     public String toString(){
            //returns the content of the Object
      }

      @Override
      public boolean equals(Object o){
            //compares the content.
      }
}
```

```
eg#1.
Integer i1=new Integer(10);
Integer i2=new Integer(10);
System.out.println(i1); //i1.toString() -> 10
System.out.println(i1.equals(i2));//true


Setter methods and Getter Methods
==========================
public void setXXXX(XXXX data){

}
public XXXX getXXXX(){

}

Usage of Wrapper class
--------------------------
 utility method(helper methods/static methods)
1.valueOf()
2.XXXXValue()
3.parseXXX()
4.toString()

1.valueOf()
            signature: public static wrapper valueOf(primtive data)
                              public static wrapper valueOf(String data)
       It is used to create wrapper object for the given primtive or String type of
data.
       It is alternative to constructor,but good practise is to use valueOf() only.

eg#1.
//constructor usage of Wrapper class to create Wrapper Object
Integer i1= new Integer(10);
Integer i2= new Integer("10");

//usage of utility methods to create Wrapper Objet
Integer i3= Integer.valueOf(10);
Integer i4= Integer.valueOf("10");

      System.out.println(i1);
      System.out.println(i2);

      System.out.println();

      System.out.println(i3);
      System.out.println(i4);

output
10
10

10
10

Note: valueOf() is also a part of Character class.

eg#2.
Integer i1=Integer.valueOf(10);
```

```
Double d1= Double.valueOf(10.5);
Boolean b1=Boolean.valueOf("Nitin");
Character c1=Character.valueOf('a');

System.out.println(i1);//10
System.out.println(d1);//10.5
System.out.println(b1);//false
System.out.println(c1);//a
```

2.xxxxValue()

We can use xxxxValue() to convert wrapper to prmitive type.

Every Number type wrapper class(Byte,Short,Integer,Long,Float,Double) contains the following 6 xxxxValue() method to convert the wrapper object to primitive type.

Number
- Byte
- Short
- Integer
- Long
- Float
- Double

- Character
- Boolean

eg#1.

```
Integer i=new Integer(130);
System.out.println(i.byteValue());//-126
System.out.println(i.shortValue());//130
System.out.println(i.intValue());//130
System.out.println(i.longValue());//130
System.out.println(i.floatValue());//130.0
System.out.println(i.doubleValue());//130.0
```

Note: 130 is not in the range of byte so jvm will perform operation in the following manner

```
range = -128 to 127
result =  -128,-127,-126
                last value will be stored.
```

eg#2.

```
Character c1=new Character('c');
char c2= c1.charValue();
System.out.println(c2);//c

Boolean b1=new Boolean("nitin");
Boolean b2=b1.booleanValue();
System.out.println(b2);//false
```

3.parseXXX()

Every wrapper class except Character class Contains parseXXXX() to convert String to Corresponding primtive type.

```
signature: public static xxxx parseXXX(String data)
```

eg#1.

```
int i1= Integer.parseInt("10");
```

```
            System.out.println(i1);//10

            boolean b1=Boolean.parseBoolean("TrUE");
            System.out.println(b1);//true

            short s1=Short.parseShort("Ten");
            System.out.println(s1);//NumberFormatException

4. toString()
            We can use toString() to convert wrapper object/primitve data to
String.
            signature:   public static String toString(XXXX data)
                               public static String toString(xxxx data)

eg#1.
            Integer i=Integer.valueOf("10");
            System.out.println(i);//10(in String format)
            System.out.println(i.toString());//10(in String format)

            System.out.println();


            String s1=Integer.toString(10);
            String s2= Boolean.toString(true);
            String s3= Character.toString('a');

            System.out.println(s1);//10(in string format)
            System.out.println(s2);//true(in string format)
            System.out.println(s3);//a(in string format)

                  refer :diagram for conversion chart


AutoBoxing and AutoUnBoxing(JDK1.5V)
================================
     valueOf()      -> To convert String/primitive to Wrapper Object
     xxxxValue() -> To convert Wrapper to primitive type.

Integer i = 10;
            |
            |compiler will  make the following change
            |
Integer i = Integer.valueOf(10);

Automatic conversion of primitive type to wrapper type done by the compiler is
called "AutoBoxing".


Integer i1= new Integer(10);
int  i2 = i1;
      |
      |Compiler will do the following change
      |
int i2= i1.intValue();
Automatic conversion of  wrapper type to primtive type done by the compiler is
called "AutoUnBoxing".

Autoboxing and UnBoxing
===================
```

eg#1.

```
class TestApp
{
      static Integer I=10;//AutoBoxing(valueOf())
      public static void main(String[] args)
      {
            int i=I;//AutoUnBoxing(intValue())
            System.out.println(i);//10
      }
}
```

eg#2.

```
class TestApp
{
      static Integer I=0;//AutoBoxing(valueOf())
      public static void main(String[] args)
      {
            int i=I;//AutoUnBoxing(intValue())
            System.out.println(i);//0
      }
}
```

eg#3.

```
class TestApp
{
      static Integer I=null;//AutoBoxing(valueOf())
      public static void main(String[] args)
      {
            int i=I;//AutoUnBoxing(intValue())//NullPointer Exception
            System.out.println(i);//
      }
}
```

a. null
b. 0
c. CE
d. NumberFormatException
e. NullPointerException
f. None of the above

Note:
  Immutable Object -> String,all wrapper classes
(if we try to make a change, then with the change new object will be created)

```
            Integer x=10;
            Integer y=x;
            x++;
            System.out.println(x);//11
            System.out.println(y);//10
            System.out.println(x==y);//false
```

Snippets
======

```
Integer x=new Integer(10);//new object
Integer y=new Integer(10);//new object
System.out.println(x==y);//false
```

```
Integer x=new Integer(10);
Integer y=10;
System.out.println(x==y);//false

Integer x=new Integer(10);
Integer y=x;
System.out.println(x==y);//true

Integer x=10;
Integer y=10;
System.out.println(x==y);//true

Integer x=100;
Integer y=100;
System.out.println(x==y);//true

Integer x=1000;
Integer y=1000;
System.out.println(x==y);//false

Note:
   byte,short,int,long,float,double the buffer concpet which internally jvm
maintains  is "byte range only".
   character  -> 0 to 127
   Boolean   -> always(true or false)
```