

Wrapper Classes

A class that wraps a primitive data type into an object is called **wrapper class in java**.

In simple words, wrapper class provides a mechanism to convert primitive data type value into an object and vice-versa.

For example, wrapping int into Integer class, wrapping double into Double class, and wrapping char into Character class.

When we create an object of wrapper class, it contains a variable where we store the primitive data type value. In simple words, we can wrap a primitive type value into a wrapper class object.

able: Primitive Data types and their Corresponding Wrapper classes

Primitive Data type	Corresponding Wrapper class
char	Character
byte	Byte
short	Short
int	Integer
long	Long
float	Float
double	Double
boolean	Boolean

```
public class Wrapping {
    public static void main(String[] args)
    {
        int a = 50; // Primitive data type value.

        Integer i = Integer.valueOf(a); // Here, we are converting int
        //into Integer explicitly.
        Integer j = a; // Here, Autoboxing is happening.
        //java compiler will write Integer.valueOf(a) internally.

        System.out.println(a+" "+i+" "+j);
    }
}
```

```

public class Unwrapping {
public static void main(String[] args)
{
// For converting Integer to int, create an object of Integer class and pass the value
to its constructor.
    Integer a = new Integer(50);

    int i = a.intValue();// Here, we are converting Integer to int explicitly.
    int j = a; // Unboxing is happening. Java compiler will write a.intValue() internal
ly.

    System.out.println(a+" "+i+" "+j);
}
}

```

```

public class WrappingUnwrapping {
public static void main(String[] args)
{
    char ch = 'a'; // char data type.
    Character chobj = new Character(ch); // Wrapping char type value into Character obj
ect.

    byte a = 10; // byte data type value.
    Byte byteobj = new Byte(a); // Wrapping byte type value into Byte object.

    int b = 20; // int type value.
    Integer intobj = new Integer(b); // Wrapping int type value into Integer object.

    float c = 18.6f; // float type value.
    Float floatobj = new Float(c); // Wrapping float type value into Float object.

    double d = 250.5; // double data type value.
    Double doubleobj = new Double(d); // Wrapping double data type value into Double obje
ct.

// Displaying the values from wrapper class objects.
    System.out.println("Displaying values of Wrapper class objects:");
    System.out.println("Character object: " + chobj);

    System.out.println("Byte object: " + byteobj);
    System.out.println("Integer object: " + intobj);

    System.out.println("Float object: " + floatobj);
    System.out.println("Double object: " + doubleobj);

    System.out.println("\n");
// Retrieving primitive data type values from objects.
// Unwrapping objects to primitive data type values.
    char chr = chobj;
    byte by = byteobj;
    int in = intobj;
    float fl = floatobj;
    double db = doubleobj;
}
}

```

```
// Displaying the values of data types.
System.out.println("Displaying unwrapped values: ");

System.out.println("char value: " + chr);
System.out.println("byte value: " + by);

System.out.println("int value: " + in);
System.out.println("float value: " + fl);
System.out.println("double value: " + db);
}
}
```

```
public class Test
{
public static void main(String[] args)
{
// Integer range constants:
System.out.println("Range of Byte: "+Byte.MIN_VALUE+ " to "+ Byte.MAX_VALUE);
System.out.println("Range of Short: " +Short.MIN_VALUE+ " to" + Short.MAX_VALUE);

System.out.println("Range of Integer: " +Integer.MIN_VALUE+ " to" + Integer.MAX_VAL
UE);
System.out.println("Range of Long: " +Long.MIN_VALUE+ " to" + Long.MAX_VALUE);

// Floating-point range constants.
System.out.println("Range of Float: " +Float.MIN_VALUE+ " to" + Float.MAX_VALUE );
System.out.println("Range of Double: " +Double.MIN_VALUE+ " to" + Double.MAX_VALUE
);

// Other useful constants.
System.out.println("Math.PI: " +Math.PI);
System.out.println("Math.E: " +Math.E);
}
}
```

```
public class Test
{
public static void main(String[] args)
{
// Creating a Double Class object having a value "25.10"
Double d = new Double("25.10");

// Converting this Double(Number) object to different primitive data type values.
byte b = d.byteValue();
short s = d.shortValue();

int i = d.intValue();
long l = d.longValue();

float f = d.floatValue();
double d1 = d.doubleValue();

System.out.println("byteValue: " + b);
```

```

        System.out.println("shortValue: " + s);

        System.out.println("intValue: " + i);
        System.out.println("longValue: " + l);

        System.out.println("floatValue: " + f);
        System.out.println("doubleValue: " + d1);
    }
}

```

```

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

public class ByteTest {
    public static void main(String[] args) throws IOException
    {
        // Create an object of InputStreamReader and BufferedReader class to accept data from
        // keyboard.
        InputStreamReader isr = new InputStreamReader(System.in);
        BufferedReader br = new BufferedReader(isr);

        // Take a byte value as string str1.
        System.out.println("Enter first byte number: ");
        String str1 = br.readLine();

        // Create an object of Byte class and pass the str1 as a parameter to its constructor.
        Byte b1 = new Byte(str1);

        // Take another byte value as string str2.
        System.out.println("Enter second byte number: ");
        String str2 = br.readLine();

        // Create another object of Byte class and pass str2 as parameter to its constructor.
        Byte b2 = new Byte(str2);

        // Now compare the content of both Byte objects.
        int num = b1.compareTo(b2);

        if(num == 0)
            System.out.println("Contents of both Bytes are equal");
        else
            if(num < 0)
                System.out.println(+b1 + " is less than " + b2);
            else
                System.out.println(+b1 + " is greater than " + b2);
    }
}

```

```

public class ByteTest {
    public static void main(String[] args)
    {
        String str1 = "10";
    }
}

```

```

String str2 = "20";

byte num1 = Byte.parseByte(str1);
System.out.println("parseByte(String str1) : " +num1);

byte num2 = Byte.parseByte(str2);
System.out.println("parseByte(String str2) : " +num2);

Byte byte1 = Byte.decode(str1);
System.out.println("decode(str1): " +byte1);

Byte value1 = Byte.valueOf(str1);
System.out.println("valueOf(str1): " +value1);

int n1 = Byte.toUnsignedInt(num1);
System.out.println("toUnsignedInt(num1): " +n1);
}
}

```

```

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;

public class IntegerTest {
    public static void main(String[] args) throws IOException
    {
        // Accept an Integer number from keyboard.
        InputStreamReader sr = new InputStreamReader(System.in);
        BufferedReader bf = new BufferedReader(sr);

        System.out.println("Enter an integer number:");
        String str = bf.readLine();
        // Converting string into int type.
        int i = Integer.parseInt(str);
        System.out.println("In decimal format: " +i);

        // Converting into other number systems.
        str = Integer.toBinaryString(i);
        System.out.println("In binary format: " +str);
        str = Integer.toHexString(i);
        System.out.println("In hexadecimal format: " +str);

        str = Integer.toOctalString(i);
        System.out.println("In octal format: " +str);
    }
}

```