Numbers Class

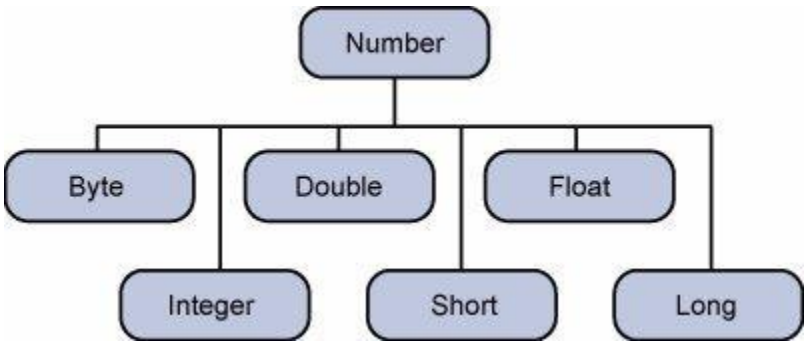
Normally, when we work with Numbers, we use primitive data types such as byte, int, long, double, etc.

Example:

```
int i = 5000;
float gpa = 13.65;
byte mask = 0xaf;
```

However, in development, we come across situations where we need to use objects instead of primitive data types. In-order to achieve this Java provides wrapper classes for each primitive data type.

All the wrapper classes (Integer, Long, Byte, Double, Float, Short) are subclasses of the abstract class Number.



This wrapping is taken care of by the compiler, the process is called boxing. So when a primitive is used when an object is required, the compiler boxes the primitive type in its wrapper class. Similarly, the compiler unboxes the object to a primitive as well. The **Number** is part of the java.lang package.

Here is an example of boxing and unboxing:

```
public class Test{

   public static void main(String args[]){
      Integer x = 5; // boxes int to an Integer object
      x =  x + 10;   // unboxes the Integer to a int
      System.out.println(x);
   }
}
```

This would produce the following result:

```
15
```

When x is assigned integer values, the compiler boxes the integer because x is integer objects. Later, x is unboxed so that they can be added as integers.

Number Methods:

Here is the list of the instance methods that all the subclasses of the Number class implement:

SN	Methods with Description
1	xxxValue() Converts the value of *this* Number object to the xxx data type and returned it.
2	compareTo() Compares *this* Number object to the argument.

3	equals() Determines whether *this* number object is equal to the argument.
4	valueOf() Returns an Integer object holding the value of the specified primitive.
5	toString() Returns a String object representing the value of specified int or Integer.
6	parseInt() This method is used to get the primitive data type of a certain String.
7	abs() Returns the absolute value of the argument.
8	ceil() Returns the smallest integer that is greater than or equal to the argument. Returned as a double.
9	floor() Returns the largest integer that is less than or equal to the argument. Returned as a double.
10	rint() Returns the integer that is closest in value to the argument. Returned as a double.
11	round() Returns the closest long or int, as indicated by the method's return type, to the argument.
12	min() Returns the smaller of the two arguments.
13	max() Returns the larger of the two arguments.
14	exp() Returns the base of the natural logarithms, e, to the power of the argument.
15	log() Returns the natural logarithm of the argument.
16	pow() Returns the value of the first argument raised to the power of the second argument.
17	sqrt() Returns the square root of the argument.
18	sin() Returns the sine of the specified double value.
19	cos() Returns the cosine of the specified double value.
20	tan() Returns the tangent of the specified double value.
21	asin() Returns the arcsine of the specified double value.
22	acos() Returns the arccosine of the specified double value.
23	atan() Returns the arctangent of the specified double value.
24	atan2() Converts rectangular coordinates (x, y) to polar coordinate (r, theta) and returns theta.
25	toDegrees() Converts the argument to degrees
26	toRadians() Converts the argument to radians.

27	random() Returns a random number.