

## Exploring java.lang

java.lang package is the default package in Java and it is automatically imported into all Java programs.

There are many classes available in java.lang package.

Some of the important classes are :

Number

Math

Object

Runtime

String

StringBuffer

System

Thread

ThreadGroup

Throwable

Some of the important interfaces are :

Cloneable

Comparable

Runnable

### **Simple Type Wrappers :**

Java uses simple data types like int,float,double,char etc...But these simple types are not objects. Java provides Wrapper classes to convert simple types to objects.

Wrapper classes:In java all are objects except the primitive data types.If we want to access primitive data types as objects we should wrap the primitive data types within a class.

There are 6 Wrapper classes.They are the sub classes of Number.They are...

Double,Float,Byte,Short,Integer and Long.

```
Double d=12.33;
```

```
Double dd=new Double(d);
```

```
Int i=555;
```

```
Integer ii=new Integer(i);
```

```
float f=12.33f;
```

```
Float ff=new Float(f);
```

### **Runtime :**

The Runtime class encapsulates the run-time environment. We cannot instantiate a Runtime object. We can get an object of Runtime class by calling method `Runtime.getRuntime();`

### **Memory Management:**

Even though Java provides automatic garbage collection, sometimes you will want to know how large the object heap is and how much of it is left. To obtain these values, use `totalMemory()` and `freeMemory()` methods defined in Runtime class.

### **Object :**

Object is the super class of all Java classes.

There are many methods available in Object class.

**clone()** method is used to create a duplicate copy of the object on which it is called. Only classes that implement the Cloneable interface can be cloned. **Cloneable** interface defines no members and it is a marker interface.

### **Thread :**

A Thread is a predefined class in java.lang package. It is a separate path of execution in a program.

Java uses Threads for implementing Multi Threading in Java. By using a Thread we can create our own threads.

### **Runnable :**

This is an interface that must be implemented by any class that will initiate a separate thread of execution. Runnable defines one abstract method called, run(), which is the entry point to the thread.

### **ThreadGroup :**

A ThreadGroup is a class, which creates a group of threads. This offers a convenient way to manage groups of threads as a unit.

