BREAKING SINGLTON WITH REFLECTION API

Api means package of java:-

- ⇨ Java.lang.reflect and its sub packges togather is called reflection API

Q:- what is the rule of this reflection api?

Ans:- reflection is useful to gather internals of given java class dynamically at runtime.

"generally we can get details of java class by reading api documentation or reading the source code but this is a non-programmatically approach so that whatever results comes we can not as input value in same program for some other purpose but if get same details by programmatic approach we can use this also in our class."

So Reflection API application are like mirror device which gives inter details fiven java class/interface/enum/annotation dynamically and programmatically and they can be used as input in the same application.

Limitation of new operator :-

Test t=new Test();

It create objects of java class at runtime but its expects the presence of this class from compile time onwards mean if class name comes to dynamically to application at runtime it cannot be used the create the object.

Ex:- servlet container /spring IOC container and etc are creating their component classes obects not by using new Operator because they get their component classes dynakically at runtime they use newInstance() of java.lang.class for creating object..

New operator is use in only core java and its waste

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Ex:- creating test class

Class c=Class.ForName("test");

Class.ForName means this method takes the test class and load that class dynamically at runtime it never create the object of test class its only load the class and this is the static method of java,lang,class loads the given test class at runtime and return object of java.lang.class having loaded class name as the data of the object

"forname() is static factory method of java.lang.Class which makes the JVM to load fiven java class dynamically at runtime and return the object of java.lang.Class having the loaded name as data of the object"

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"any method that return object that is called static factory method "

//creating object of loaded class

Object obj=c.newInstance();

Test t=(test)obj;

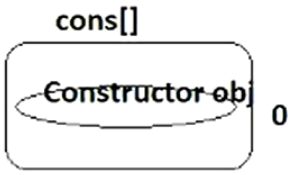
Q:- how can you say it is loading class at runtime?

Instead of loading the class of test we can write args[0] this is cmd line argument which is excuted runtime only so class is loaded runtime and object is created at runtime

- ⇨ The important point is we cannot create object outside the class when constructor declared as private constructor using new keyword or newInstance
- ⇨ But reflection api provide that functionality to create object which is declared as private inside the class because we can access that constructor outside the class so we are breaking the functionaly of encapsulation and also break singleton behavior.

```
//Load the class
 Class  c=Class.forName("com.nt.sdp.Printer");
// get Constructors of the loaded class
  Constructor cons[]=c.getDeclaredConstructors();
//get Access to private constructor
 cons[0].setAccessible(true);  // breaking encapsulation...

 //create the object
  Printer p1=(Printer) cons[0].newInstance();
```



Each object of Constructor class represents one constructor of java class.

***getDeclaredConstructors() method is predefine method that is return constructor class ***