Welcome you all

JAVA PROGRAMMING

DAY : 5

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Day 6

- ❑ Abstract Class
- ❑ Abstraction
- ❑ Abstract Method

Abstract class in Java

- A class which is declared with the abstract keyword is known as an abstract class in Java.
- It can have abstract and non-abstract methods (method with the body).
- It needs to be extended and its method implemented. It cannot be instantiated.

Points to Remember

1. An abstract class must be declared with an abstract keyword.
2. It can have abstract and non-abstract methods.
3. It cannot be instantiated.
4. It can have constructors and static methods also.
5. It can have final methods which will force the subclass not to change the body of the method.

Abstraction in Java

Abstraction is a process of hiding the implementation details and showing only functionality to the user.

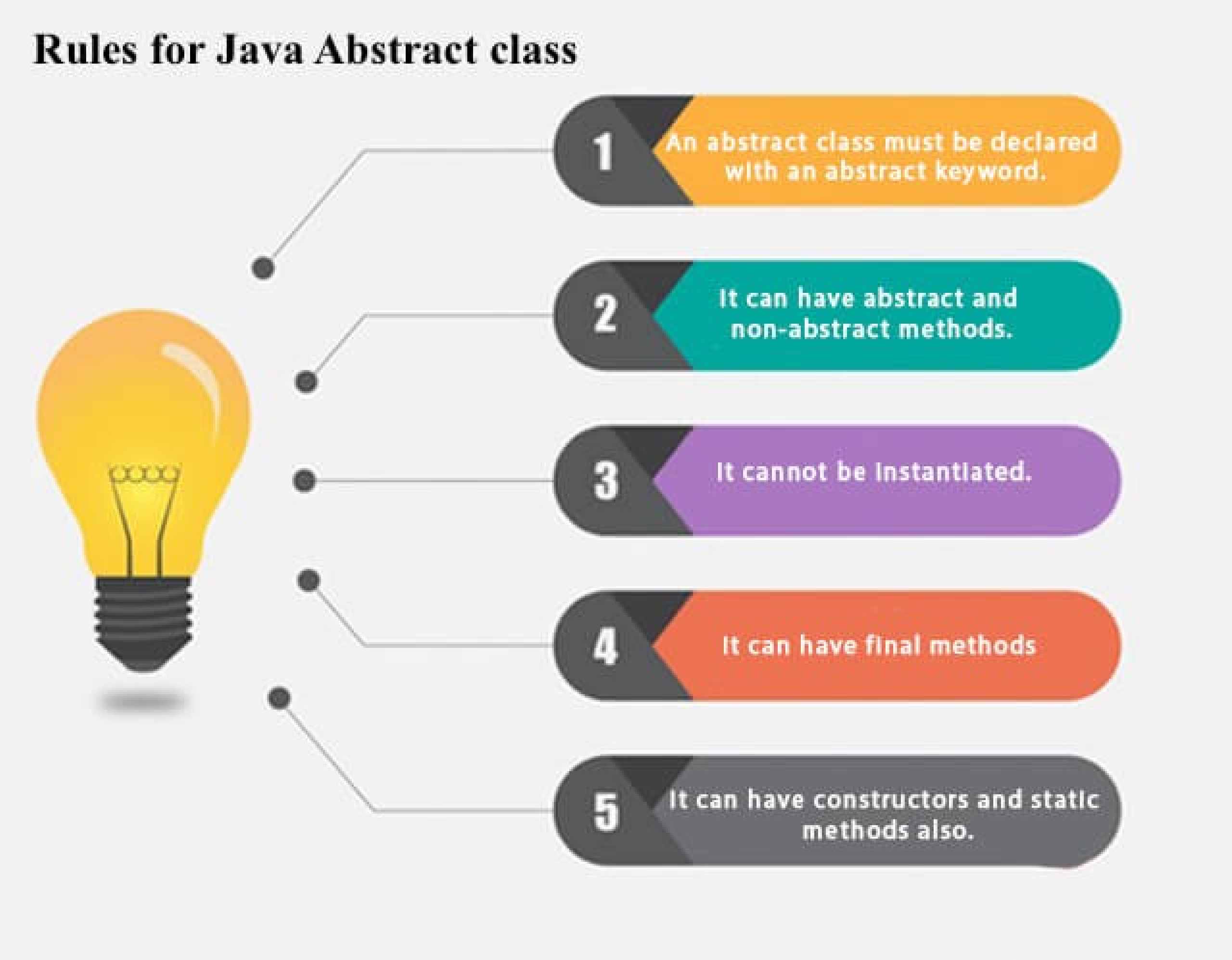
Another way, it shows only essential things to the user and hides the internal details, for example, sending SMS where you type the text and send the message. You don't know the internal processing about the message delivery.

- Abstraction lets you focus on what the object does instead of how it does it.

Ways to achieve Abstraction

There are two ways to achieve abstraction in java

- Abstract class (0 to 100%)
- Interface (100%)



Rules for Java Abstract class

1. An abstract class must be declared with an abstract keyword.
2. It can have abstract and non-abstract methods.
3. It cannot be instantiated.
4. It can have final methods
5. It can have constructors and static methods also.

Example of abstract class

abstract class A{}

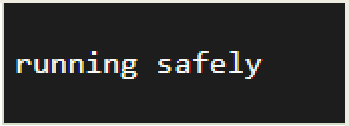
Abstract Method in Java

A method which is declared as abstract and does not have implementation is known as an abstract method.

Example of abstract method

abstract void printStatus();//
no method body and abstract

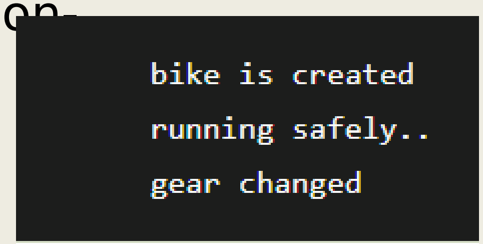
```
abstract class Bike{
  abstract void run();
}
class Honda4 extends Bike
{
    void run()
    {
    System.out.println("running safely");
    }
    public static void main(String args[])
    {
    Bike obj = new Honda4();
    obj.run();
    }
}
```



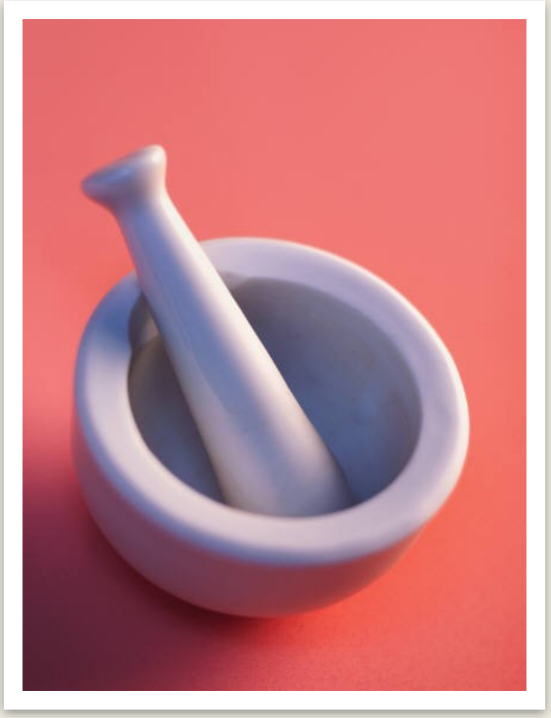
```
running safely
```

Abstract class having constructor, data member and methods

```
//Example of an abstract class that has abstract and non-abstract methods
 abstract class Bike{
   Bike(){System.out.println("bike is created");}
   abstract void run();
   void changeGear(){System.out.println("gear changed");}
 }
//Creating a Child class which inherits Abstract class
 class Honda extends Bike{
 void run(){System.out.println("running safely..");}
 }
//Creating a Test class which calls abstract and non-abstract methods
 class TestAbstraction2{
 public static void main(String args[]){
  Bike obj = new Honda();
  obj.run();
  obj.changeGear();
 }
}
```



```
bike is created
running safely..
gear changed
```



Thank You