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).

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.

Abstract class in Java

A class which is declared as abstract is known as an **abstract class**. It can have abstract and non-abstract methods. It needs to be extended and its method implemented. It cannot be instantiated.

Points to Remember

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

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 class that has an abstract method

```
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();
}
}
```

Another example of Abstract class in java

Save File: TestBank.java

```
abstract class Bank
{
abstract int getRateOfInterest();
}
class SBI extends Bank
{
int getRateOfInterest()
{
return 7;
}
}
class PNB extends Bank
{
int getRateOfInterest()
{
return 8;
}
}

class TestBank
{
```

```
public static void main(String args[])
{
Bank b;
b=new SBI();
System.out.println("Rate of Interest is: "+b.getRateOfInterest()+" %");
b=new PNB();
System.out.println("Rate of Interest is: "+b.getRateOfInterest()+" %");
}
}
```

Abstract class having constructor, data member and methods

An abstract class can have a data member, abstract method, method body (non-abstract method), constructor, and even main() method.

Save File: TestAbstraction2.java

```
//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");
}
 }
 class Honda extends Bike
{
 void run()
{
System.out.println("running safely..);
}
 }
 class TestAbstraction2
{
```

```
 public static void main(String args[])
{
  Bike obj = new Honda();
  obj.run();
  obj.changeGear();
 }
}
```