



Aim: To implement the concept of single inheritance.

Objective: Ability to design a base and child class relationship to increase reusability.

Theory: Single inheritance can be defined as a derived class to inherit the basic methods (data members and variables) and behaviour from a superclass. It's a basic is-a relationship concept exists here. Basically, java only uses a single inheritance as a subclass cannot extend more superclass.

Inheritance is the basic properties of object-oriented programming. Inheritance tends to make use of the properties of a class object into another object. Java uses inheritance for the purpose of code-reusability to reduce time by then enhancing reliability and to achieve run time polymorphism. As the codes are reused it makes less development cost and maintenance. Java has different types of inheritance namely single inheritance, multilevel, multiple, hybrid. In this article, we shall go through on basic understanding of single inheritance concept briefly in java with a programming example. Here we shall have a complete implementation in java.

Syntax: The general syntax for this is given below. The inheritance concepts use the keyword 'extend' to inherit a specific class. Here you will learn how to make use of extending keyword to derive a class. An extend keyword is declared after the class name followed by another class name. Syntax is,

class			base			class
{....						methods
}						
class	derived	class	name	extends	base	class
{						
methods	...	along	with	this	additional	feature
}						

Java uses a keyword 'extends' to make a new class that is derived from the existing class. The inherited class is termed as a base class or superclass, and the newly created class is called derived or subclass. The class which gives data members and methods known as the base class and the class which takes the methods is known as child class.

Code:

```
1} class Animal{
    void eat(){System.out.println("eating...");}
}
class Dog extends Animal{
    void bark(){System.out.println("barking...");}
}
```



```
class TestInheritance{  
    public static void main(String args[]){  
        Dog d=new Dog();  
        d.bark();  
        d.eat();  
    }  
}
```

A screenshot of a Windows Command Prompt window. The title bar reads 'Command Prompt'. The text inside the window shows the following commands and output:
Microsoft Windows [Version 10.0.22621.2428]
(c) Microsoft Corporation. All rights reserved.
C:\Users\HP>cd C:\Users\HP\OneDrive\Desktop\Charmi
C:\Users\HP\OneDrive\Desktop\Charmi>javac Animal.java
C:\Users\HP\OneDrive\Desktop\Charmi>java Animal.java
barking...
eating...
C:\Users\HP\OneDrive\Desktop\Charmi>
The taskbar at the bottom shows the system clock as 11:08 PM on 16-10-2023, with a temperature of 29°C and 'Haze' weather.

Conclusion: Single inheritance in Java refers to the concept where a class can inherit the properties and behaviors of only one superclass. In other words, a Java class can have at most one direct parent class. This is a key aspect of Java's class inheritance hierarchy. In a single inheritance scenario, a Java class (subclass or derived class) can extend only one other class (superclass or base class). This means that it can inherit the fields and methods of that specific superclass.