

What is Inheritance?

Inheritance is a mechanism in which one class can inherit the attributes and methods of another class. The class that is being inherited from is called the superclass or parent class, and the class that is doing the inheriting is called the subclass or child class.

Types of Inheritance in Java:

1. **Single Inheritance:** A subclass inherits from a single superclass.
2. **Multilevel Inheritance:** A subclass inherits from a superclass that itself inherits from another superclass.
3. **Hierarchical Inheritance:** A superclass has multiple subclasses that inherit from it.
4. **Multiple Inheritance:** A subclass inherits from multiple superclasses (not supported in Java).

CODE:

```
class Vehicle{
    double price;
    double mileage;
    String colour;
    void display()
    {
        System.out.println(price);
        System.out.println(mileage);
        System.out.println(colour);
    }
}
class Car extends Vehicle {
    public String fueltype;
    public boolean sunroof;
    public String carbrand;
}
public class Inheritance {
    public static void main(String[] args) {
        Car c1=new Car();
    }
}
```

```
c1.carbrand="toyota";  
c1.fueltype="petrol";  
c1.sunroof=true;  
c1.mileage=200000;  
c1.price=10000000;  
c1.colour="red";  
c1.display();  
  
}  
}
```

OUTPUT:

The output of this code will be:

```
10000000.0  
200000.0  
red
```

EXPLANATION OF CODE:

Class Vehicle

This class represents a vehicle with the following attributes:

- price: a double representing the price of the vehicle
- mileage: a double representing the mileage of the vehicle
- colour: a string representing the color of the vehicle

The class also has a method:

- display(): a method that prints the values of price, mileage, and colour to the console.

Class Car

This class extends the Vehicle class and adds the following attributes:

- fueltype: a string representing the fuel type of the car
- sunroof: a boolean representing whether the car has a sunroof or not
- carbrand: a string representing the brand of the car

Note that the Car class does not override the display() method of the Vehicle class.

Class Inheritance

This class contains the main() method, which is the entry point of the program.

In the main() method:

1. An instance of the Car class, c1, is created.
2. The attributes of c1 are set, including carbrand, fueltype, sunroof, mileage, price, and colour.
3. The display() method is called on c1, which prints the values of price, mileage, and colour to the console.