



CO_IF_22412_U01

Chetashri Bhusari, Lecturer, Vidyalankar Polytechnic

Date: 02 February 2021

MSBTE LEAD: Learning at your Doorstep





Unit 03 : Inheritance ,Interface and package

Written by

Chetashri Sachin Bhusari
Lecturer, Department of Information Technology[NBA Accredited],Vidyalankar Polytechnic,
Mumbai



Unit Outcome 1 :

Apply the identified type of inheritance for the given programming problem

Written by



Chetashri Sachin Bhusari
Lecturer, Department of Information Technology[NBA Accredited],Vidyalankar Polytechnic,
Mumbai



Learning Outcome 1a : Students should understand concept of inheritance and its type(brief)

Written by

What we will learn today



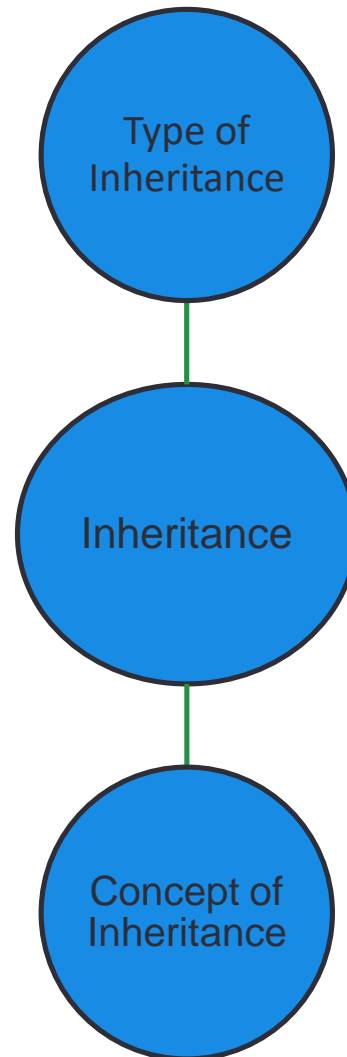
1. Concept of inheritance
2. Type of Inheritance
3. Examples

Key takeaways

Concept of Inheritance

Chetashri Sachin Bhusari

Lecturer, Department of Information Technology[NBA Accredited],Vidyalankar Polytechnic,
Mumbai



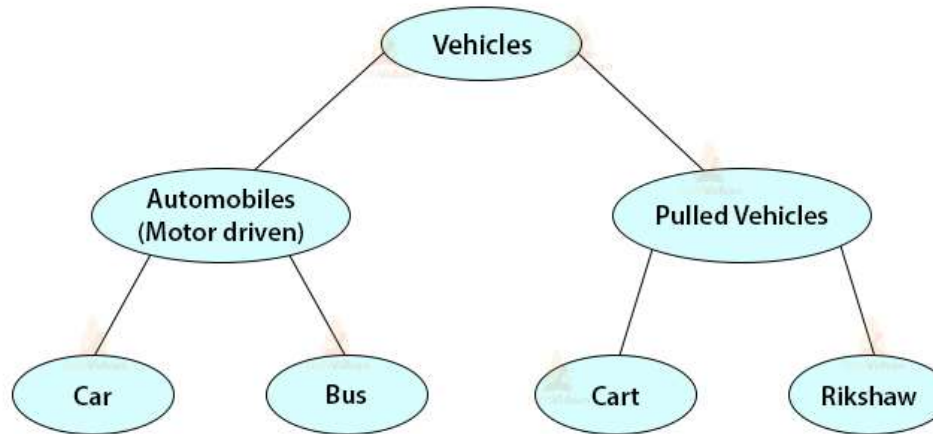


- ▶ **Understand concept of Inheritance**
- ▶ **Example**
- ▶ **Types of Inheritance**

Concept Explanation: Inheritance

- ▶ Inheritance can be defined as the process where one class acquires the properties (methods and fields) of another
- ▶ The class which inherits the properties of other is known as subclass (derived class, child class) and the class whose properties are inherited is known as superclass (base class, parent class).
- ▶ It is an important part of [OOP](#) (Object Oriented programming system).

Inheritance in Java



► extends Keyword

- extends is the keyword used to inherit the properties of a class. Following is the syntax of extends keyword.
- Syntax

```
class super_class_name
```

```
{
```

```
_____
```

```
_____
```

```
_____
```

```
}
```

```
class Sub_class_name extends super_class_name
```

```
{
```

```
_____
```

```
_____
```

```
_____
```

```
}
```

Why use inheritance in java

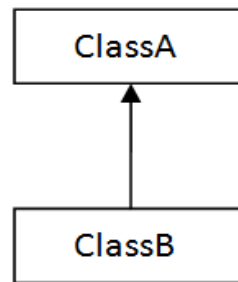
- For method overriding (so runtime polymorphism be achieved).
- For Code Reusability.
- ▶ Terms used in Inheritance
 - Class: A class is a group of objects which have common properties. It is a template or blueprint from which objects are created.
 - Sub Class/Child Class: Subclass is a class which inherits the other class. It is also called a derived class, extended class, or child class.
 - Super Class/Parent Class: Superclass is the class from where a subclass inherits the features. It is also called a base class or a parent class.
 - Reusability: As the name specifies, reusability is a mechanism which facilitates you to reuse the fields and methods of the existing class when you create a new class. You can use the same fields and methods already defined in the previous class.



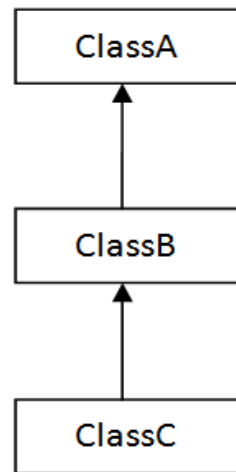
Member Access and Inheritance

- ▶ Although a subclass includes all of the members of its superclass, it cannot access those members of the superclass that have been declared as **private**.
- ▶ A class member that has been declared as private will remain private to its class. It is not accessible by any code outside its class, including subclasses.

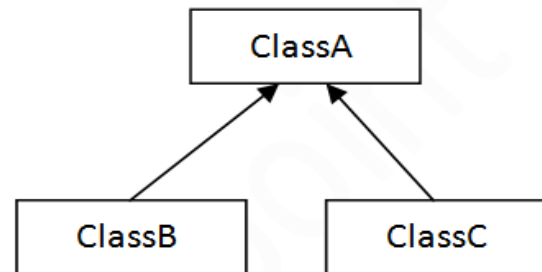
- ▶ Single Inheritance
- ▶ Multilevel Inheritance
- ▶ Hierarchical Inheritance



1) Single



2) Multilevel

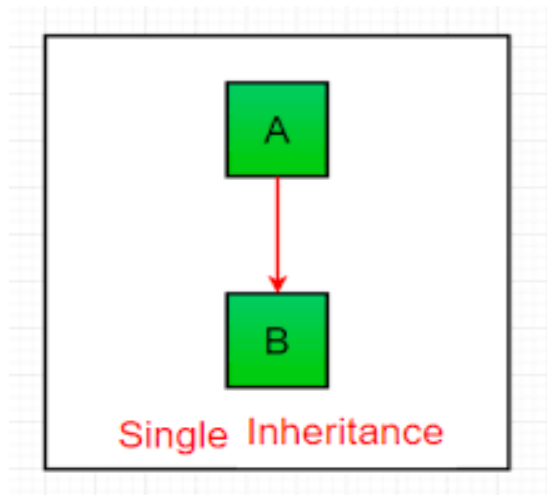


3) Hierarchical

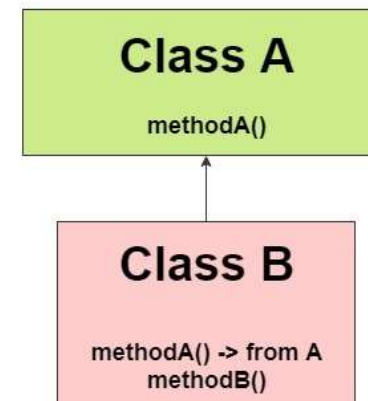
Single Inheritance



- When a subclass is derived simply from its parent's class then this mechanism is known as single inheritance.
- In this type there is only one child class and one parent class.



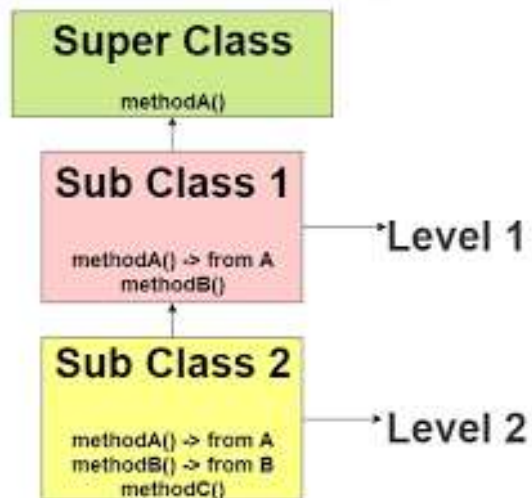
Single Inheritance



Multilevel Inheritance

- When a class is derived from already derived class then this mechanism is known as multilevel inheritance.
- The derived class is called as subclass or child class for its parents class and this parent class work as child class for its just above parent class.
- Multilevel inheritance can go up to any level.

Multi-Level Inheritance



Hierarchical inheritance

- ▶ In hierarchical inheritance one class is extended by many subclasses.
- ▶ It is one to many relationships.
- ▶ Many programming problems can be tasked into a hierarchy where certain features of one level are shared by many others below the level

