OOP ->

Abstraction
Encapsulation
Modularity
Hirerachy

employee.h	employee.cpp	main.cpp
class declaration	class defination	employee obj creation

has-a
is-a

has-a relationship
- Association

Human has-a Heart
Car has-a Engine
Room has-a Wall

Customer has-a Dob
Employee has-a Doj

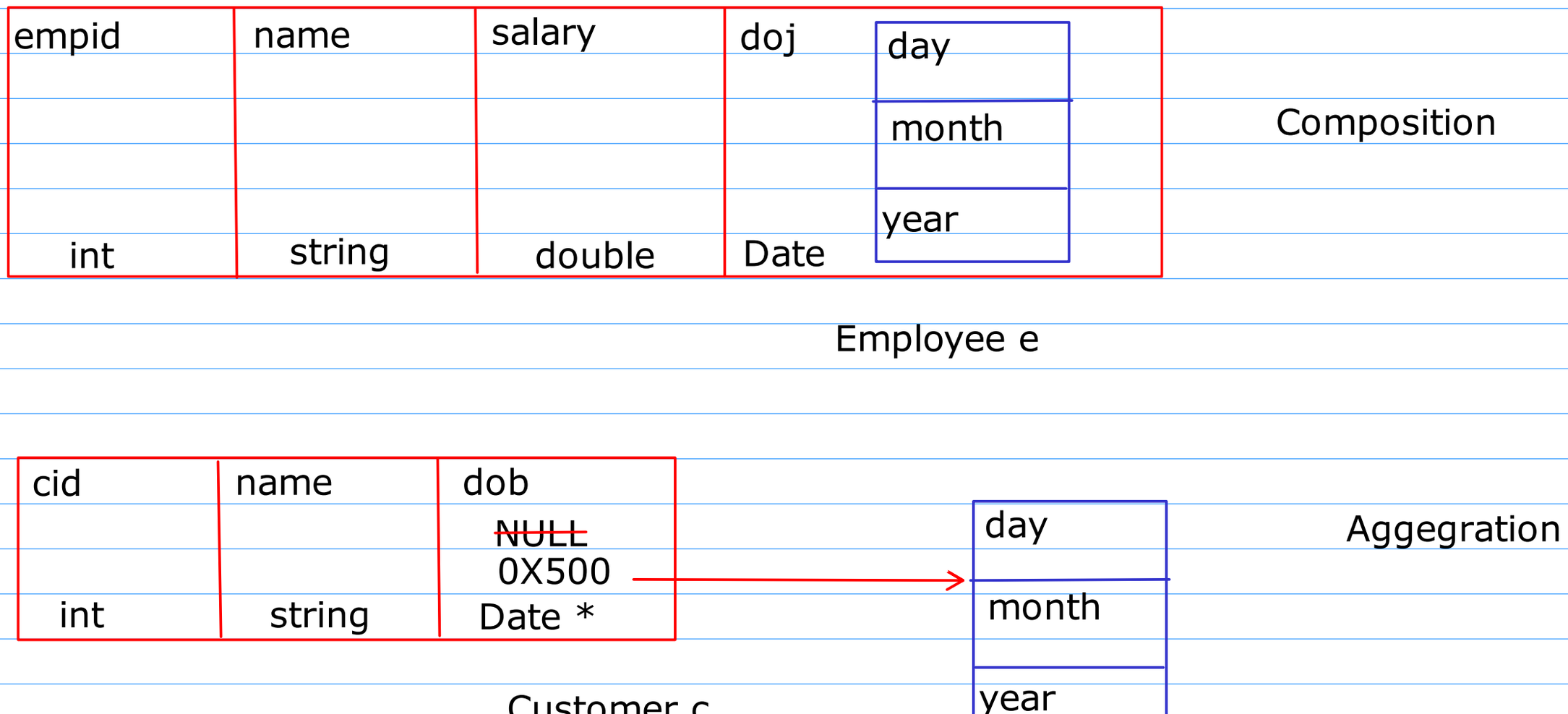
Types of Association
1. Composition
- It represents tight coupling between entities

2. Aggegration
- It represents loose coupling between entities

```
//Dependent
class Human{

//Data member
Heart h; // Association
}
```

```
//Dependency
class Heart{

}
```

```
// Dependency
class Date{

}

//Dependent
class Employee{
Date doj; // Association -> Composition
Date *dob; // Association -> Aggegration
}
```



is-a relationship - Inheritance

Laptop is-a ElectronicDevice

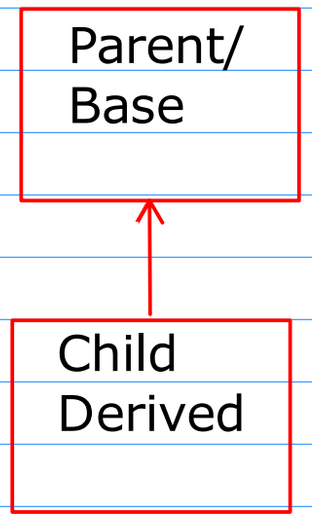
```
//Parent / Base
class Person
{
string name;
string mobile;
string email;
}
```

```
Employee is-a Person
// child / Derived
class Employee : Person{

}
```

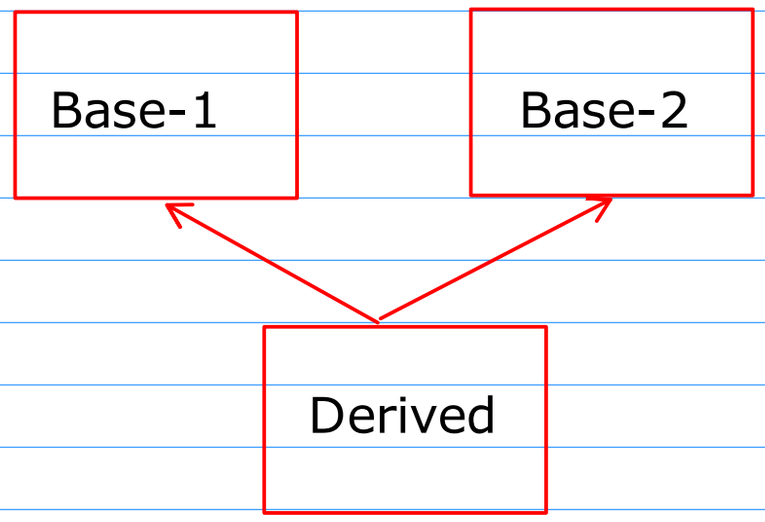
```
Student is-a Person
// Child/Dervied
class Student : Person{

}
```

Inheritance

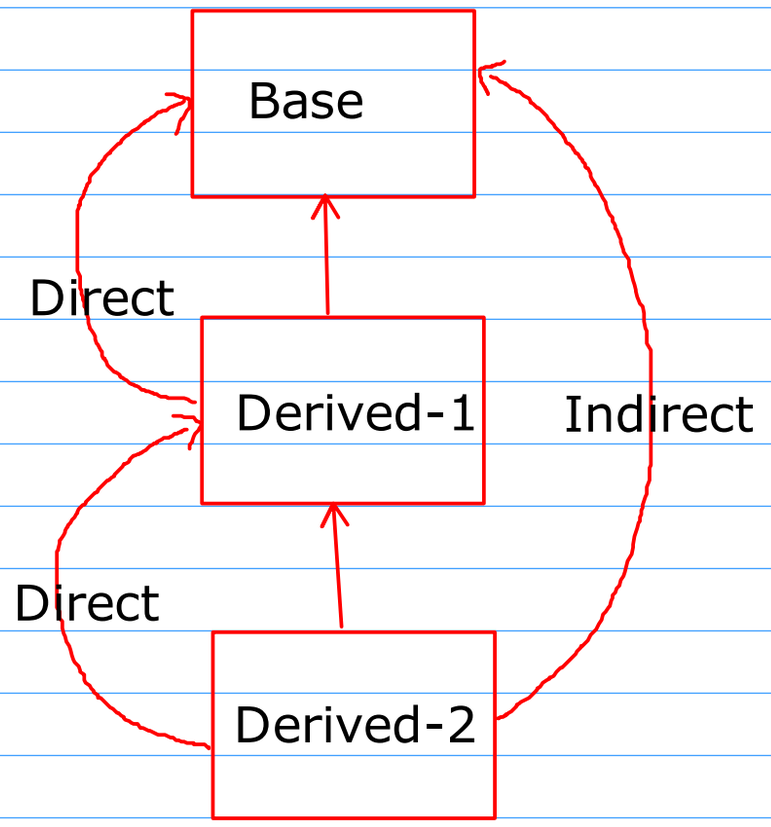
Types of inheritance



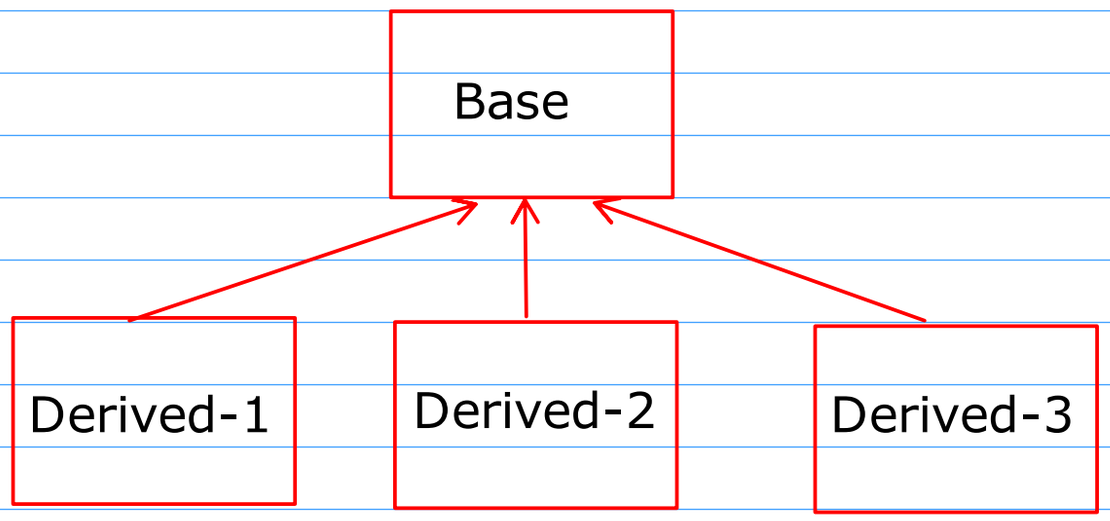
1. Single Inheritance



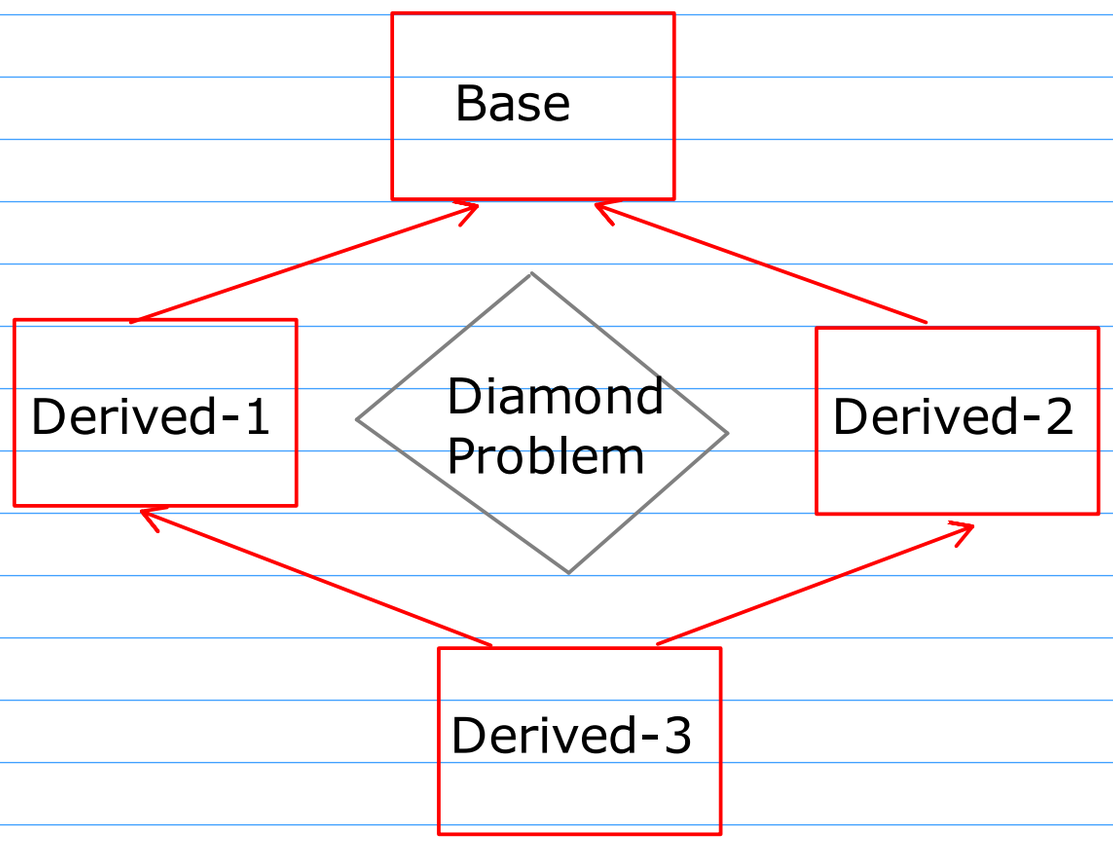
2. Multiple Inheritance



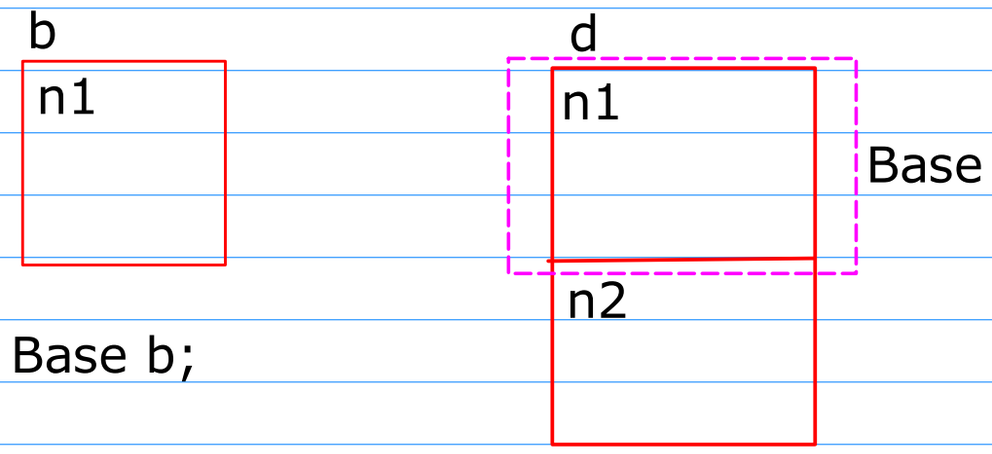
3. Multilevel Inheritance



4. Hirerachical Inheritance

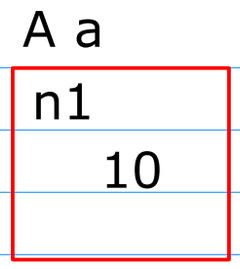


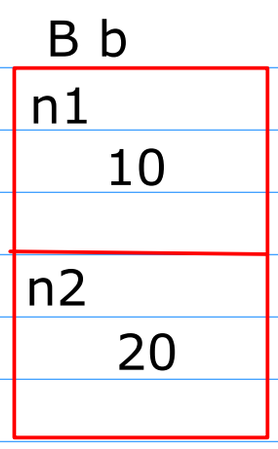
5. Hybrid Inheritance

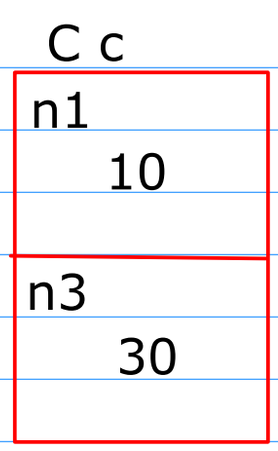


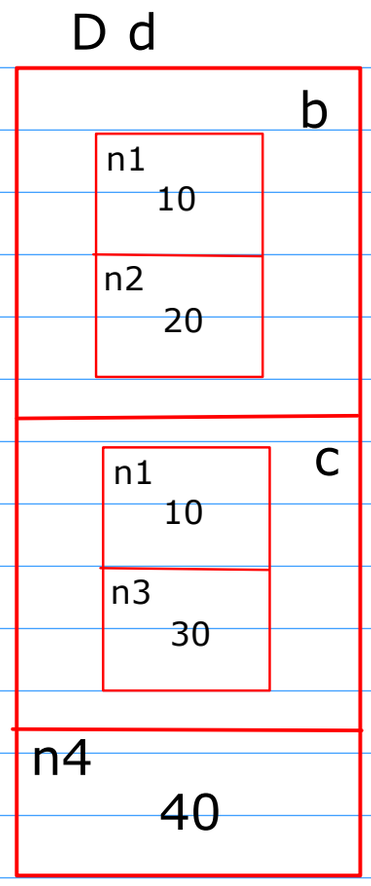
Mode of Inheritance

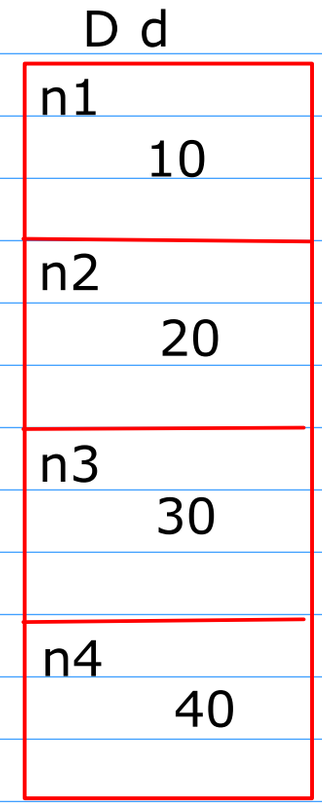
- Default mode of inheritace is private

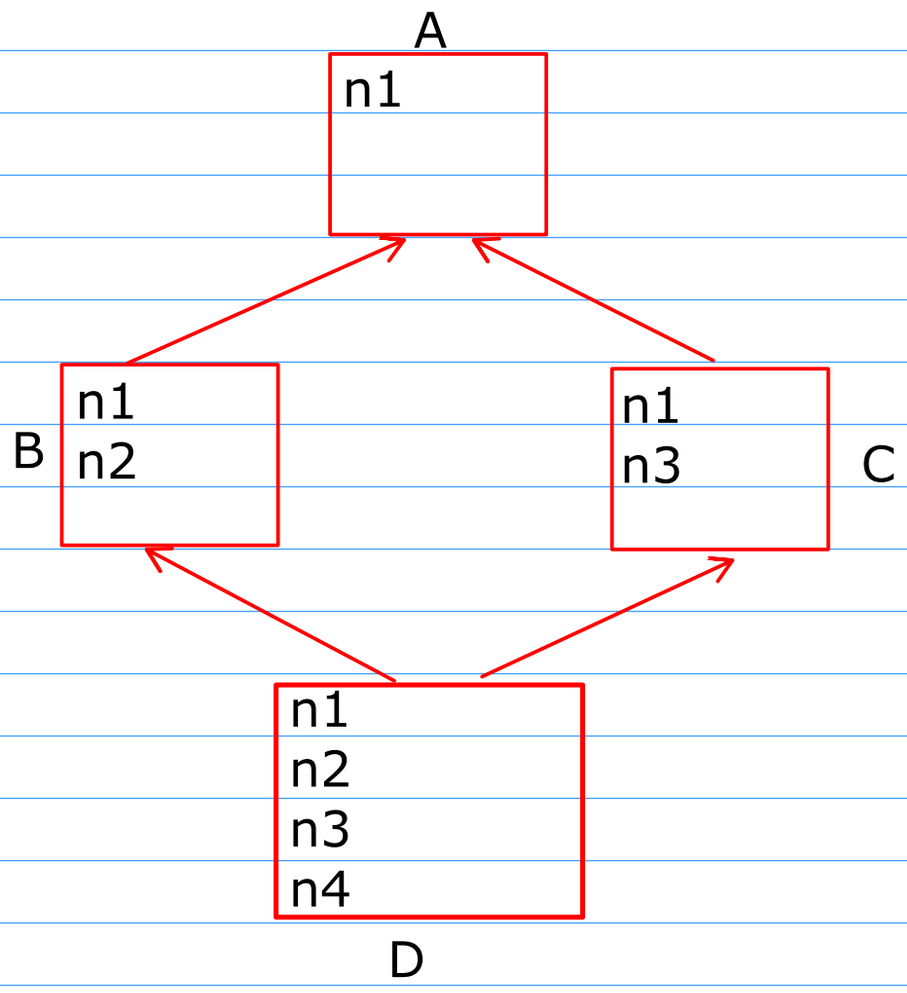












Diamond Problem

- The Indirect base class members inheriting multiple times inside indirect derived class

Solution to Diamond Problem

- To make the base class as virtual