Agenda

- Inheritance
- Types of Inheritance
- Mode of Inheritance
- Diamond Problem
- Virtual Base Class

Inheritance (demo01)

- If is-a relationship exists between 2 entities/classes we use inheritance
- eg -> Book is a Product Circle is a Shape Employee is a Person
- In inheritance, parent class members gets inherited into child class.
- The parent class is also called as Base class
- The child class is also called as Derived class.
- The size of derived class object is equal to the sum of all the non static members of dervied class + non static members of base class

Types of Inheritance (demo02)

- Their are 5 types of inheritance

1. Single Inheritance
2. multilevel inheritance
3. multiple inheritance
4. hirerachical inheritance
5. Hybrid Inheritance

Mode of Inheritance (demo03)

- If we use private,protected or public keywords at the time of inheritance then we call it as mode of inheritance
- Default mode of inheritance is private.

Diamond Problem (demo04 and demo05)

- When hirerical and multiple inheritance is mixed then hybrid inheritance is formed.
- in hybrid inheritance the members of the indirect base class gets inherited multiple times into indirect derived classes.
- this creates the problem of ambugity inside the indirect dervied classes.
- this is called as diamond problem.

Virtual Base Class

- to avoid the multiple inclusions of the members of indirect base class into the indirect dervied classes i.e to avoid the diamond problem we should make the base class as virtual.
- The base class should be declared as virtual at the time of inheritance
- virtual base class inherits the members virtually inside the direct derived classes