

Agenda-

Association
Inheritance
Diamond Problem
Virtual Base Class
Virtual Keyword
Virtual Function
Abstract Class
Exception Handling

Association

If between two classes has-a relation ship exists
Human has a heart
Car has a engine
Deptment has a faculty

Dependent --> Human
Dependency --> Heart

Types of Association-

1. Composition - Tightly Coupled
2. Aggregation - Loosely Coupled

Inheritance

If between two classes is-a relatioinship exists
Employee is a person
Bike is a vehicle
Circle is a shape
Parent -> child
Base -> Derived

Types of Inheritance

1. Single
2. Multiple
3. Multilevel
4. Hirerachical
5. Hybrid

Mode of Inheritance

private, public and protected keywords are used during extension of class they are called as mode of inheritance

Virtual

If you want to avoid the diamond problem then we must be doing base class as virtual during extension.
Virtual functions can be written in base class for doing late binding.
If the implementation of functions in base class is unknown we can make them as pure virtual functions.

Function Overriding

If the derived class implements the same function as that of base class with same signature then this is called as function overriding

Abstract Class

If pure virtual functions exist in any class then that class is called as abstract class.

Exception handling

```
try  
catch  
throw
```