**Todays’ Topics:**

* Encapsulation : is wrapper of data member and methods(function) in a single unit, or writing the data member and methods together so we can protect the access from outside i.e. called encapsulation

Every class is by default encapsulated

* Abstraction : to hide implementation and definition, and expose the essential features of methods i.e called abstraction

* Constructor :
  + is function which has same name as name of the class ,
  + constructor invokes or call automatically when object will be created
  + constructor cannot have return type
  + constructor cannot be called explicitly
  + There are following types of constructor i. default (without argument), ii. With argument iii. Copy from previous object
* Inheritance : to extend one class features to another class for reusability the code or parent class resources
  + Child class object can access parent class methods and data member
  + Super is keyword which refer to parent class methods and data member

There are following types of inheritance

1. Single level : A -> B
2. Multi level: A ->B -> C … -> M ….
3. Tree : A -> B,C -> M,N …
4. Hybrid (any two or more than two types relationship from above in single program or project): A -> B -> C

M -> X,Y

1. Multiple (which java doesn’t support , but this can be achieve using interface) : A,B,C-> X

* Polymorphism : poly means many , and morphism means forms
  + Multiple function will have same name but different works

There are following types of polymorphism

1. Overloading (compile time, static) : multiple function have same name but different arguments(type of argument, no of arguments)
2. Overriding (run time, dynamic) : multipole function have same name and same argument

* Abstract class: is incomplete class which can have abstract and non-abstract methods
  + Abstract method cannot be implemented in same class
  + Non-abstract method should be implemented in same class
  + Abstract class cannot be initialized
* Interface : is full abstract class, all methods are abstract, and public by default
  + Method cannot be implemented in interfaces
  + Interface cannot be initialized
  + Multiple interface can be implements in single class