

22/08/2023 Object Model

- With the problem is very small, design is not required.
- With the problem is small, then Object oriented may not be required.
- UML has been standardized by the ISO. It has code 19501.

Objects

- Object has two things - Data (also called attributes) and functions (also called methods).
- Object is a unit of data abstraction in OOPS.
- In case of object data abstraction, we call it data hiding. (Note that only in case of objects, both the data hiding and abstraction are same, due to followings)
 - Data will be private to object.
 - Each object will hide its data from other objects.
 - Indirectly access will be given through function call only.
 - Data hiding / abstraction



Important : Whenever somebody is referring to an entity, then he/she will be referring to its attributes or data.

Classes

- ***Class is a set of objects that share a common structure, behavior and semantics (meanings).***
- Class is an ADT (Abstract datatype)
- Class is also called type (Important!)
- ADT :

- ADT means data contained in each instantiated entity is hidden (abstracted out) from other entities
- Type - Identifies a group of entities
 - Example : `int x`; “int” will be the type and “x” will be its instance.
- Data of an object can only be accessed via function call or its methods. The way data is stored internally in the object is hidden and is not known to other objects or outside.



ADT is the property of all classes but not all classes are abstract classes. Note that ADT and abstract class are totally different concepts.

Note: Inheritance is actually reducing redundancy and is a way of abstraction.

Three elements of OOPS

- part of
- Every object must be an instance of a class
- is a

Message Passing

- Transfer of data from one procedure to another
- Message = Parameters are called message of a function/procedure/method
 - Procedure is actually implementation of a function or method



Operation is the responsibility of class and method is the implementation of that responsibility. Services of objects are called operations. If there is multiple ways of implementing that responsibility, then overloading comes into picture.

Fancy terms:

Method invocation : Function call or procedure call

Below both are procedure calls only :

- RMI = Remote method invocation
- RPC = Remote procedure call

Remote is based : “Where body of function reside”.
