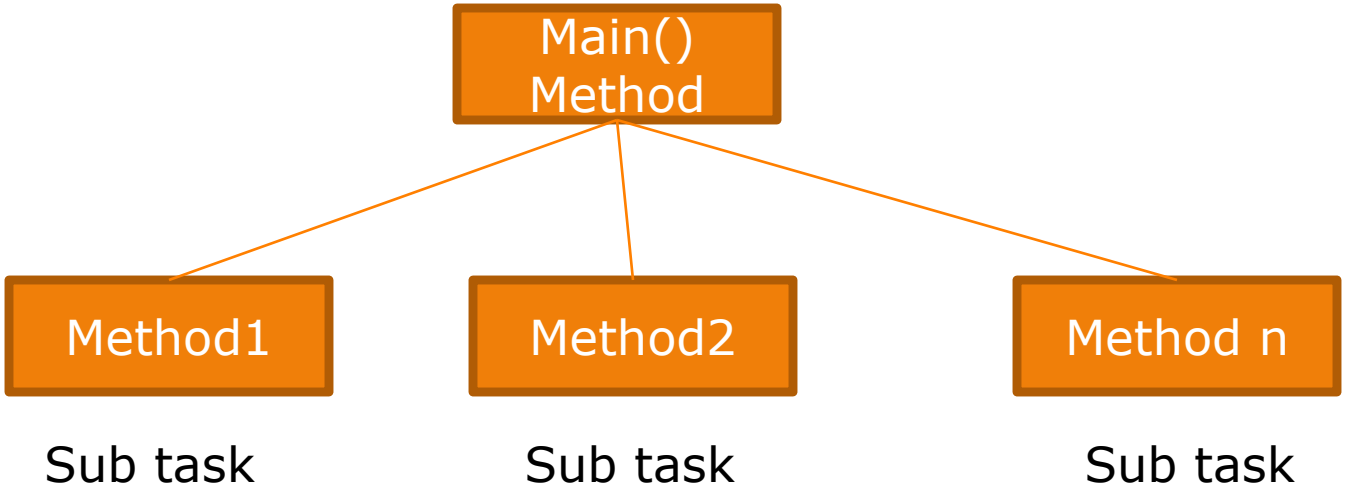
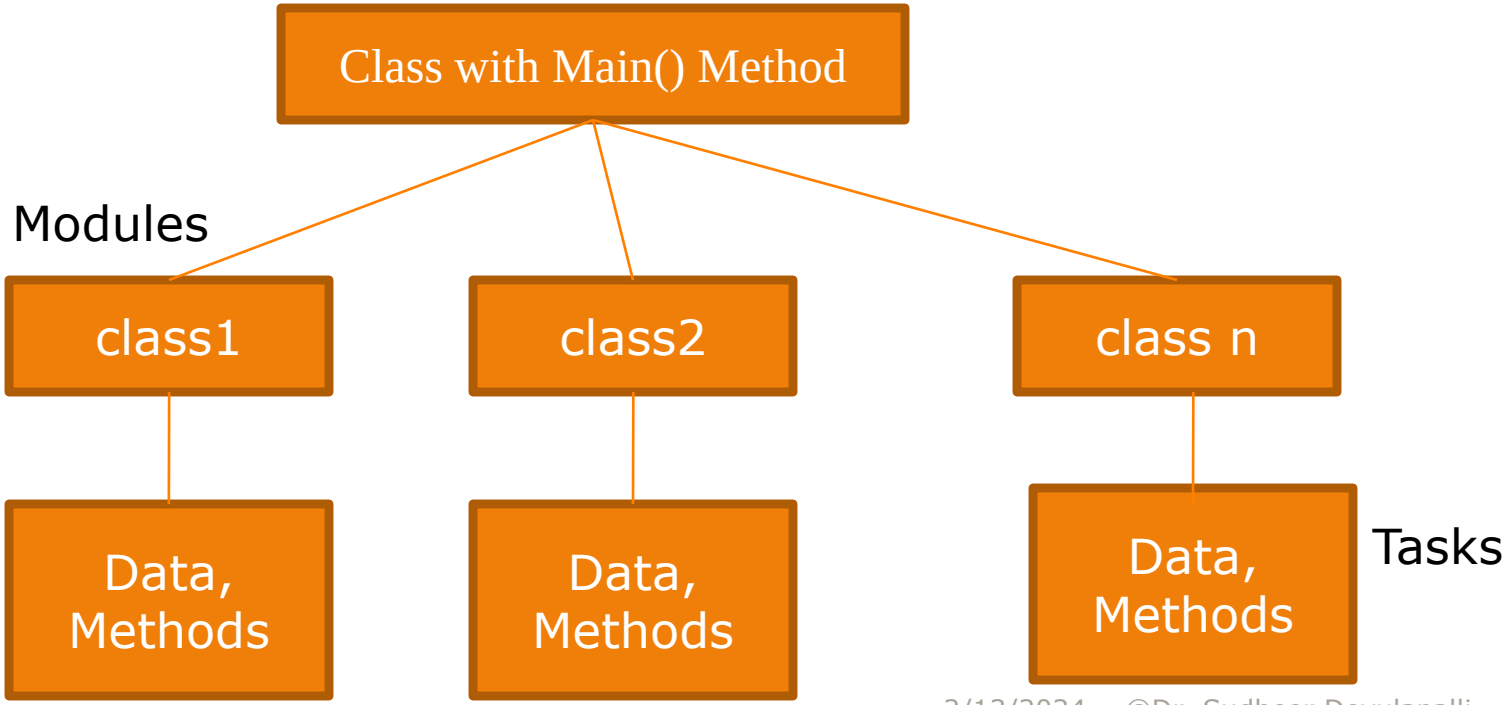
Introduction to OOPS

• The languages like C, Pascal, Fortran are procedure oriented languages.
• In this programmers use functions to perform a task.



Problems with procedure oriented approach

- No reusability of previous functions.
- Difficult to debug the code and behavior for complex applications



What is Object Oriented approach?

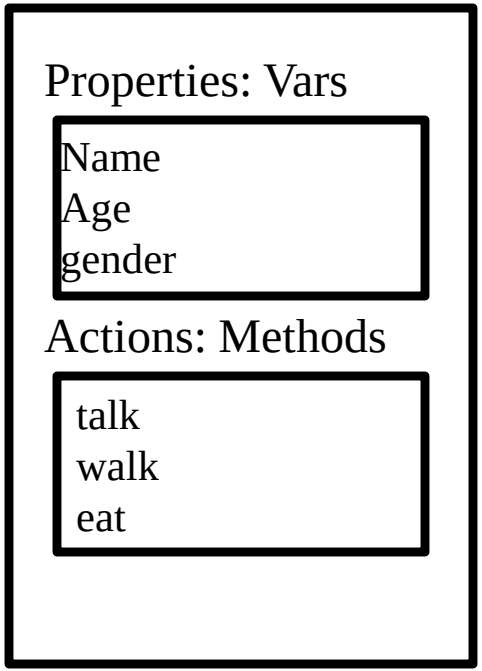
OOP approach is a programming methodology to design computer programs using classes and objects.

Object: Entire OOP concept is designed under single root called Object. An object is anything that really exist in the world and can be distinguishable from others.

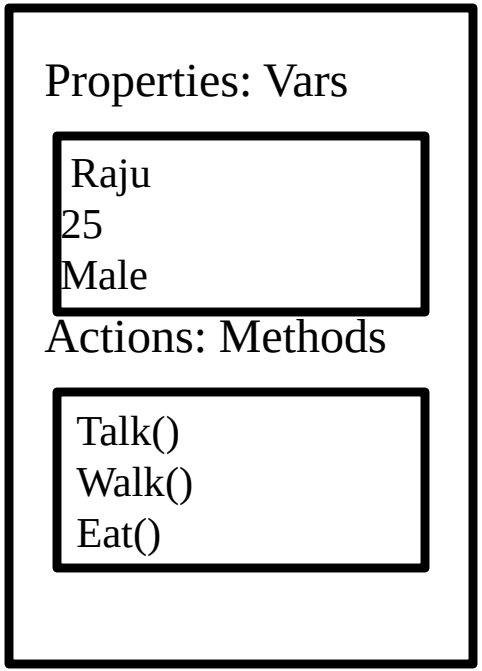
Ex: Table, car, dog, etc.

What is not an objects: thoughts, imagination, plan, etc. because they don’t exist really.

Class: class is a model or blueprint to create an object. So whatever existing in class, will be seen in its objects.



Person Class



Person object

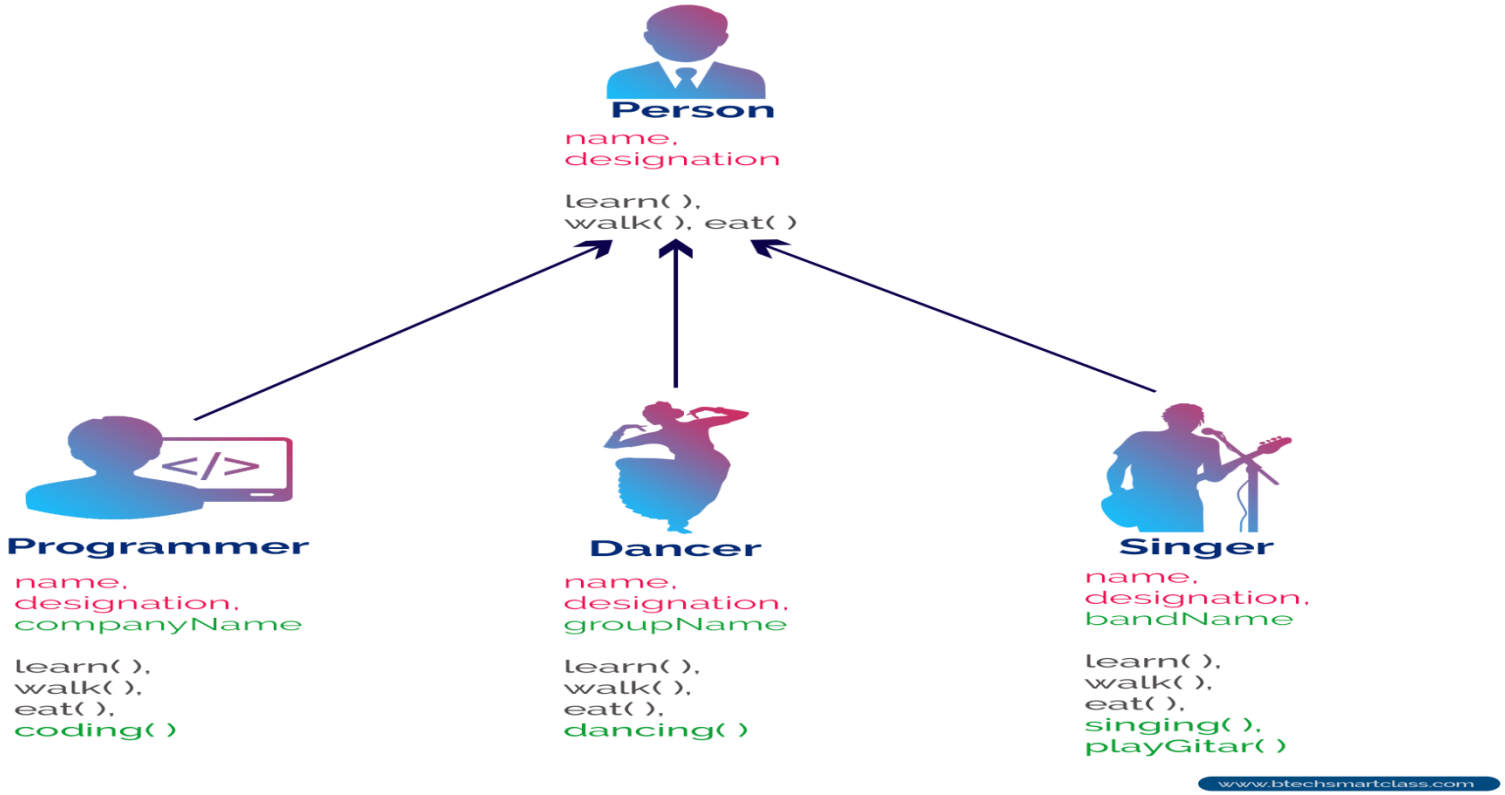
Important concepts of OOPS or Features of OOPS

Classes
Objects
Encapsulation
Abstraction
Polymorphism
Inheritance

Encapsulation

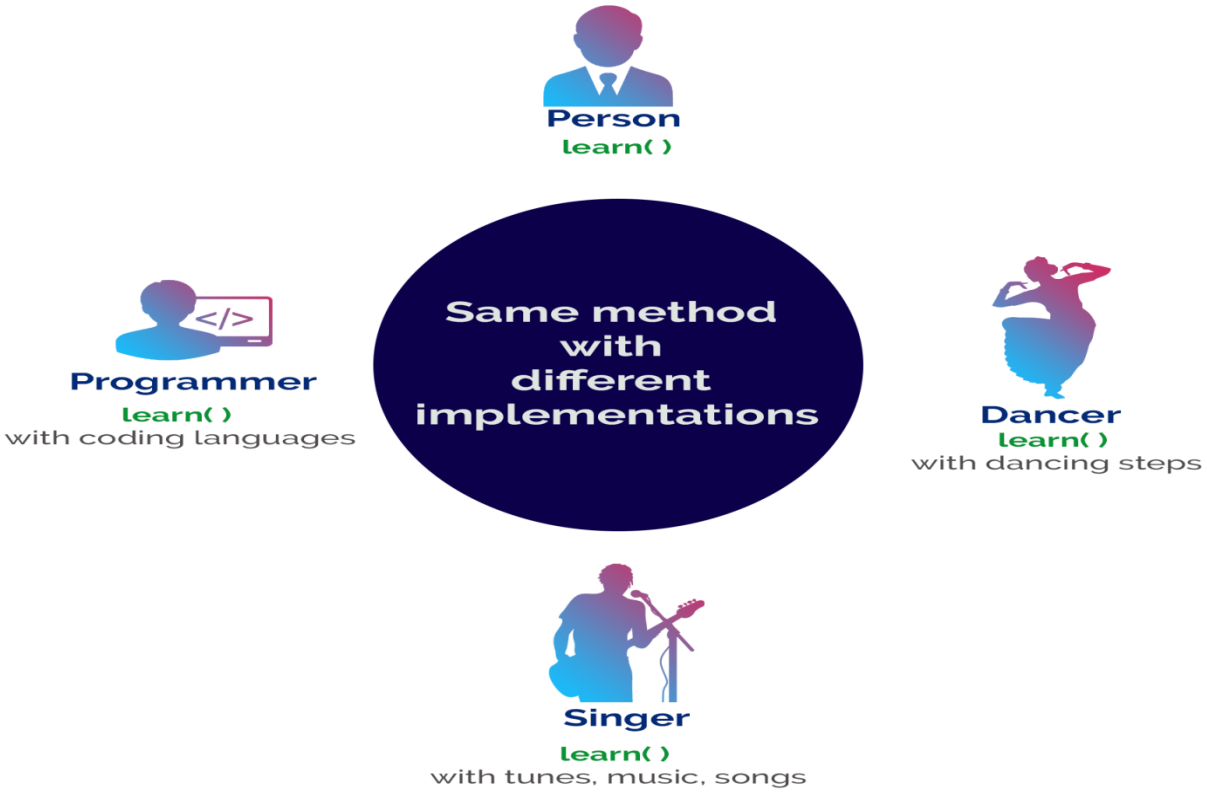
- Encapsulation is the process of combining data and code into a single unit (object / class)
- In OOP, every object is associated with its data and code.
- In programming, data is defined as variables and code is defined as methods.
- The java programming language uses the class concept to implement encapsulation.

Inheritance



- Inheritance is the process of acquiring properties and behaviors from one object to another object or one class to another class.
- In the inheritance concept, the class which provides properties is called as parent class and the class which receives the properties is called as child class.
- The parent class is also known as base class or super class. The child class is also known as derived class or sub class.
- The properties and behaviors of base class extended to its derived class, but the base class never receive properties or behaviors from its derived class.

Polymorphism



- Polymorphism is the process of defining same method with different implementation.
- That means creating multiple methods with different behaviors.
- The java uses method overloading and method overriding to implement polymorphism.
- Method overloading - multiple methods with same name but different parameters.
- Method overriding - multiple methods with same name and same parameters.

Abstraction