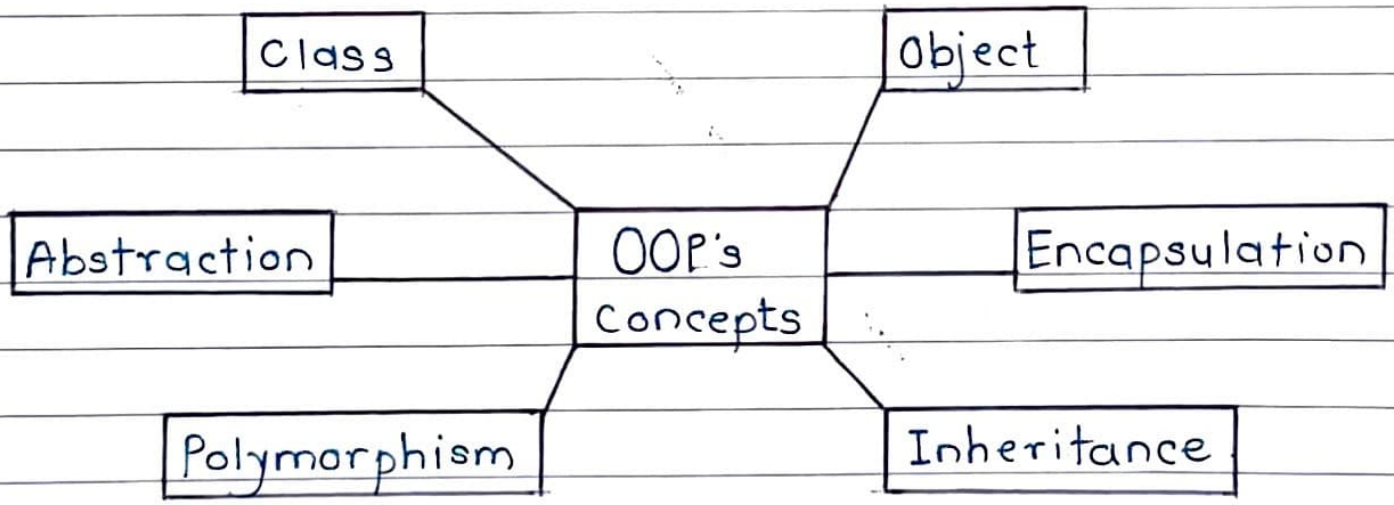
Object Oriented Programming Concept...

By : @curious_.programmer

★ . OOP's (Object Oriented Programming System)

- OOP's is a programming paradigm based on the concept of "objects" and that contain code and data.
- Object Oriented Programming is a method that arrange software design around data or object.
- There are many object oriented programming languages includes Java, C++, Python and Javascript.
- In OOP computer program are designed to to make them objects are interact with each other.

- First step in OOP is to collect all objects to manipulate and identify how they related with each other.
- Programming is well suited for programs that are large, complex & actively updated and maintained.
- OOP is beneficial for collaborative developement. Where projects are saperated into groups.
- Once object is known then then it label as class of object.



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1] Class :

- Classes are defined by the user.
- Classes acts as blueprint for object, attribute and methods.
- A class is consist of ~~del~~ declaration and defination.
- Class is created using the class keyword.
- Classes are used to create & manage new object and support . inheritance.

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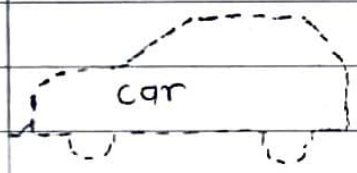
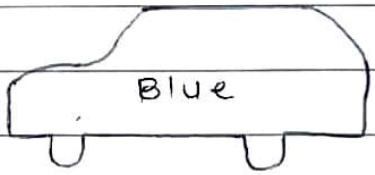
Class	Objects
	 

- Here class is car. and Objects are Baleno, Blue are the instances of car
- Class defines operation on car object ~~ex~~ contain car colour, speed, features etc.

2) Object:

- Objects are instances of a class.
- Objects are created with specific data.
- Objects provides a structured approach to programming.
- ~~Dev~~ We can easily create multiple similar object and modify existing object.
- Object in OOP's can include a data structure, a variable or function

Class	Object
Animal	Elephant Dog Cat Cow.

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- Here in this example class is Animal And objects are Elephant, Dog, eat, Cow etc
- Each object has its own identity, attribute and behaviour.
- Every object contain real-life entities.
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Abstraction:

- Abstraction in object oriented programming that "shows" only essential attribute and hide information from user.
- Abstraction increases security and confidentially.
- It avoids structure.
- Abstraction reduces complexity in program.

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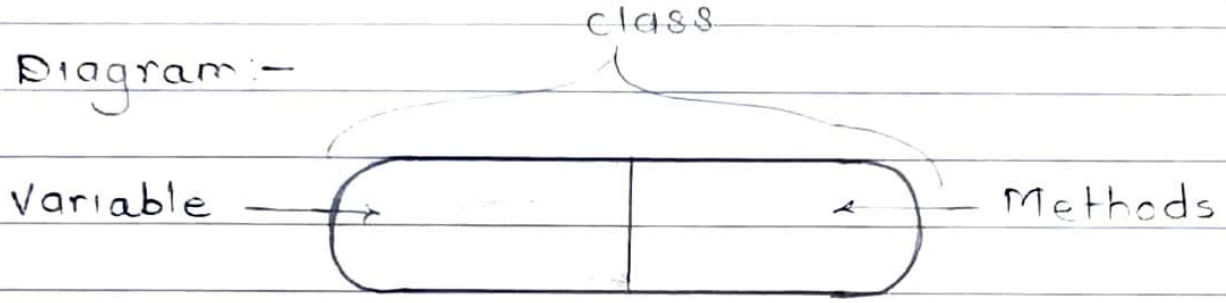
- In Air Conditioner we only press Remote button to cool room only this we know.
- But what operations are performed in that Air conditioner and exhaust system.
- So that thing is hidden from us i.e. user. This is example of Abstraction.

- Abstraction is found in every real-life objects.
- Using interfaces and abstract classes we can implement Abstraction.

★ Encapsulation

- Encapsulation is idea of binding data and methods that work on data within one unit like class In Java.
- Encapsulation is wrapping data and method into single class.
- Encapsulation provides a security.

Diagram :-



- Take a example of Medical capsule, where drug is always safe inside the capsule.
- Similarly, through encapsulation methods and variables are well hidden & safe.

- Encapsulated code is very flexible.
- Encapsulation improves the maintainability of the application.
- Encapsulation allows modifying implemented code without breaking other code.

Polymorphism :

- Polymorphism word composed of two words i.e poly & morphs.
- Poly means many and morph means forms.
- polymorphism is occur when a parent class is reference is used to refer to child class.
- Polymorphism has same name but diff. methods.
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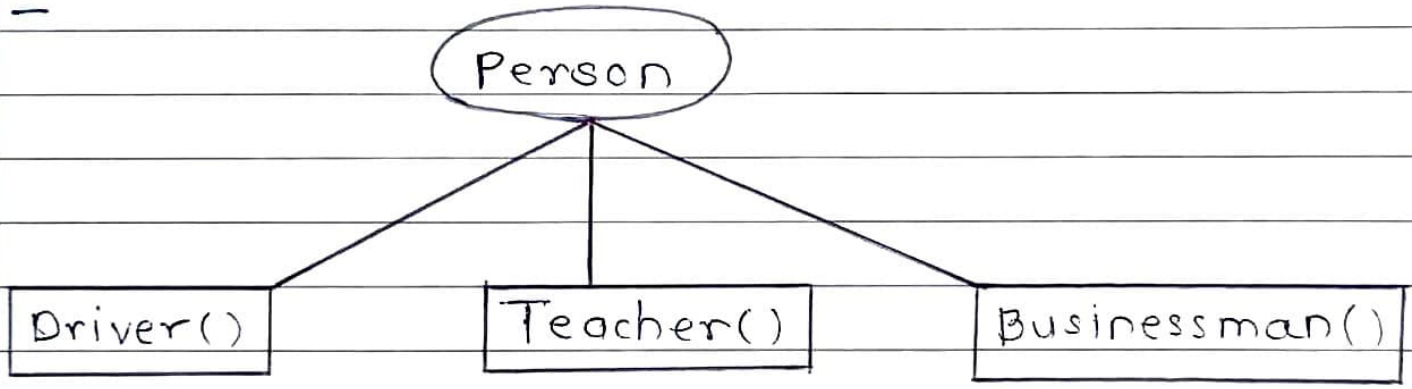

- In this diagram we see one Person can play different roles in real life.
- That is Driver, Teacher, Businessman.

- In polymorphism behavior of method depend on data provided.
- Easy to debug the code in polymorphism.

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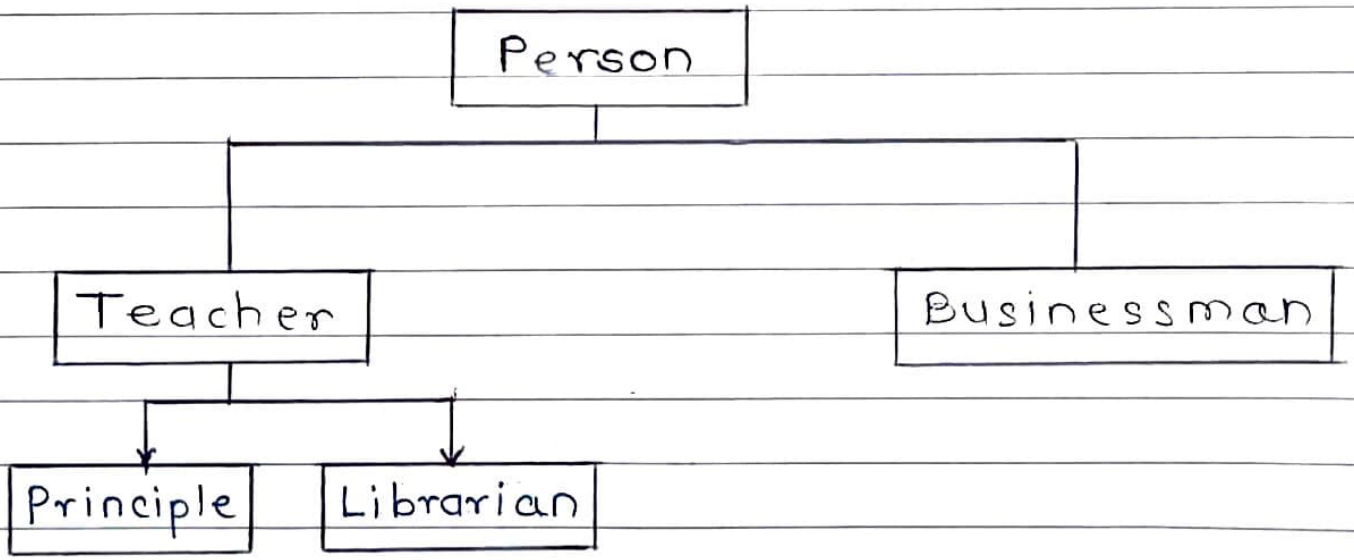
★ Inheritance :

- Inheritance is a mechanism where we can derieve one class from another class.
- In inheritance one ~~ca~~ class aquire property of another class.
- Inheritance provides a Reusability.
- Inheritance builds a relationship in the classes.
- To relating two or more classes rather than writing code many time so programmer use already created inherited code.



- Here properties of parent class is transfer to child class.

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