

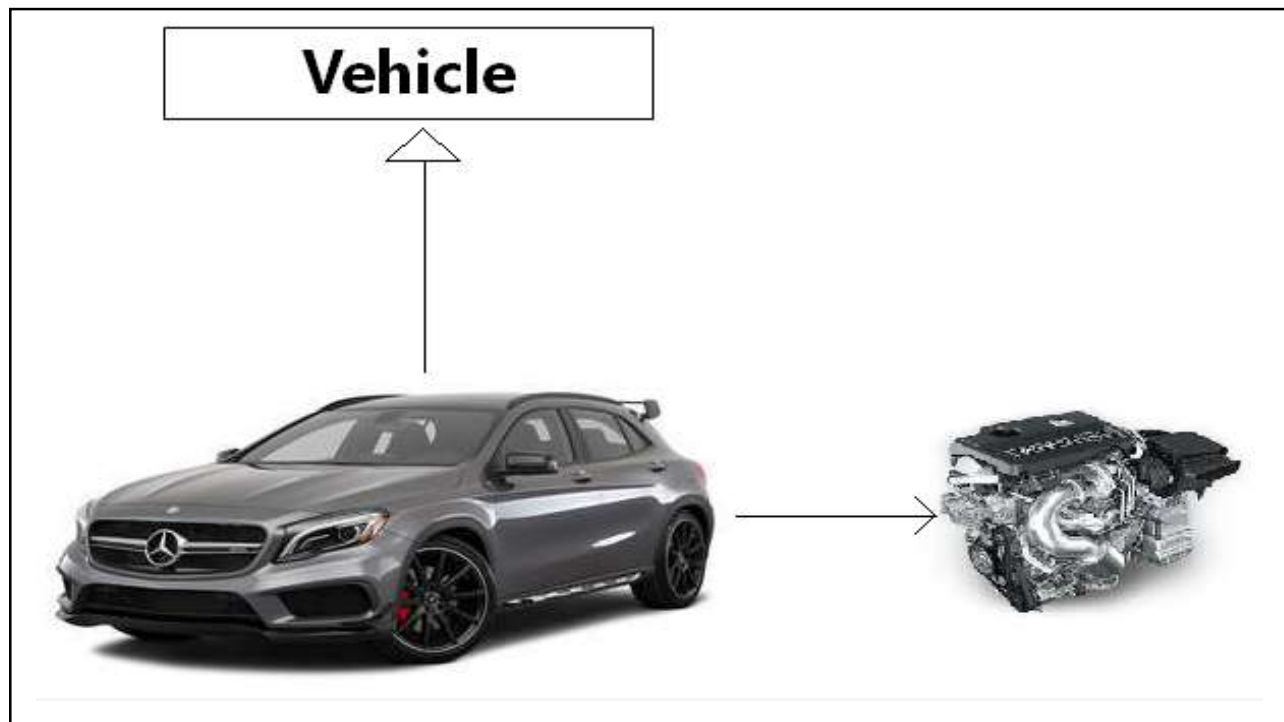
Classes and Inheritance

- Inheritance and Is-A vs Has-A
- Python Inheritance
- Overriding Methods
- MRO
- Super

Inheritance

- Inheritance is the ability of a class to inherit the properties and operations of another class.
- Removes of code redundancy or duplication
- Representing real world relationship between entities into the code.
- Allows code re-usage.

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Is-A vs Has-A

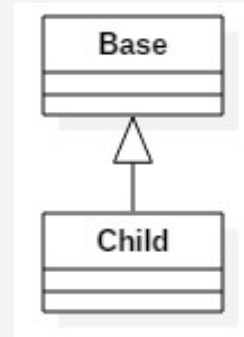
- **Is-A** : Is-A relationship means the concept of Inheritance.
- **Has-A** : Represents the concept of association, containership and aggregation.
- Car **Is-A** Vehicle
Car **Has-A** Engine

But if we say *Car Is-A Engine*... Doesn't sound good.

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Inheritance Terminology

- **Base, Parent, Super Class** : The class from which other classes inherit
- **Derived, Child, Sub Class** : The class which is going to inherit from a Base class
- This relationship is also called as **Generalization**



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Inheritance in Python

- In Python3 all classes inherit from the default ***object*** class.
- Syntax for inheritance in python:

```
<Derived Class> (<Base Class>):  
    # member definition
```

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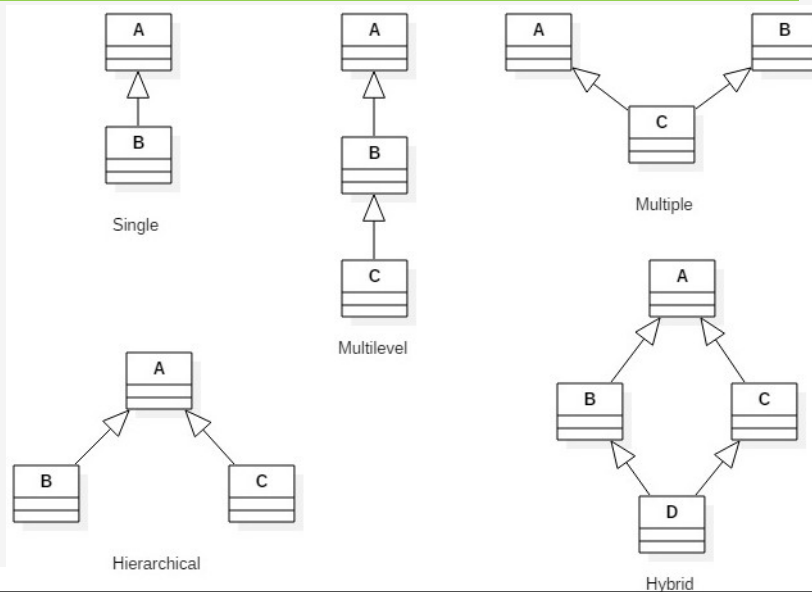
Python Inheritance

- In Python all classes inherit from the default **object** class.
- Can be checked using the dir method on derived class.
- Syntax for inheritance in python:

```
<Derived Class> (<Base Class>):  
    # member definition
```

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Inheritance Types



Overriding in Python

- Giving a custom implementation instead of using base class implementation of a method.
- Ex: Pizza Class to get Price of a Pizza

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Super method and Calling Base class Implementation

- **super** is used to invoke the base class implementation of an Overridden method
- Base class methods can also be invoked using Base class name and the method name.
- But in Python3 we have the **super** method available.

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Overriding in Python

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