Type of Inheritance

Pewarisan/Penurunan adalah konsep pemrograman dimana sebuah class dapat 'menurunkan' property dan method yang dimilikinya kepada class lain.

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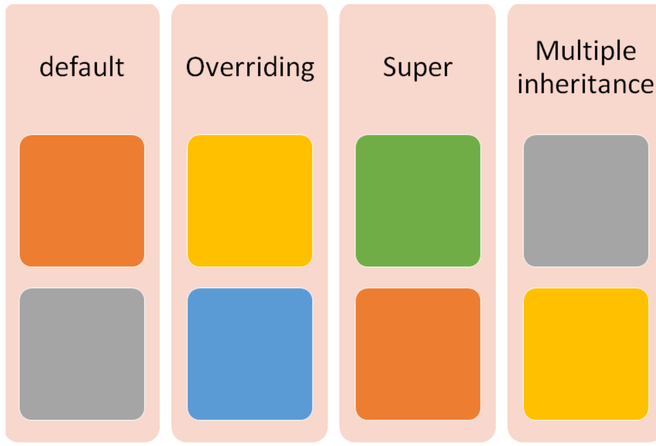

Contoh Default: property, property dan method

In [ ]:
```
class Fish:
    def __init__(self, first_name, last_name="Fish", skeleton="bone", eyelids=False):
        self.first_name = first_name
        self.last_name = last_name
        self.skeleton = skeleton
        self.eyelids = eyelids
    def swim(self):
        print("The fish is swimming.")
    def swim_backwards(self):
        print("The fish can swim backwards.")
class Trout (Fish):
    pass
```

Contoh Overriding: property/method, property dan method

Metode overriding di kelas anak harus memiliki nama, signature, dan parameter yang sama dengan yang ada di kelas induknya. Namun, overriding kelas anak dapat memodifikasi nilai property/method pada kelas induk.

In [ ]:
```
class Fish:
    def __init__(self, first_name, last_name="Fish", skeleton="bone", eyelids=False):
        self.first_name = first_name
        self.last_name = last_name
        self.skeleton = skeleton
        self.eyelids = eyelids
    def swim(self):
        print("The fish is swimming.")
    def swim_backwards(self):
        print("The fish can swim backwards.")
class Shark(Fish):
    def __init__(self, first_name, last_name="Shark", skeleton="cartilage", eyelids=True):
        self.first_name = first_name
        self.last_name = last_name
        self.skeleton = skeleton
        self.eyelids = eyelids
    def swim_backwards(self):
        print("The shark cannot swim backwards, but can sink backwards.")
```

Dari contoh diatas kelas Shark yang merupakan subclass dari Fish,mengganti metode konstruktor **init** () dan swim_backwards ().

Contoh Super: property

Fungsi super() paling umum digunakan dalam metode **init** (),karena di situlah kemungkinan besar perlu menambahkan beberapa keunikan pada kelas anak dan kemudian menyelesaikan inisialisasi dari induknya.

In [3]:
```
class Fish:
    def __init__(self, first_name, last_name="Fish", skeleton="bone", eyelids=False):
        self.first_name = first_name
        self.last_name = last_name
        self.skeleton = skeleton
        self.eyelids = eyelids
    def swim(self):
        print("The fish is swimming.")
    def swim_backwards(self):
        print("The fish can swim backwards.")
class Trout(Fish):
     def __init__(self, water, first_name, last_name, skeleton, eyelids):
        self.water = water
        Fish.__init__(self, first_name, last_name, skeleton, eyelids)
terry = Trout("freshwater", "shark", "fish", "no bone", "true")
terry.first_name = "Terry"
print(terry.first_name)
print(terry.first_name + " " + terry.last_name)
print(terry.eyelids)
print(terry.water)
terry.swim()
```

```
Terry
Terry fish
true
freshwater
The fish is swimming.
```

contoh tadi ada ganti metode **init** () di kelas anak Trout, memberikan implementasi yang berbeda dari **init** () yang sudah ditentukan oleh kelas induknya Fish.

Contoh Multiple:

Multiple inheritance adalah ketika sebuah kelas dapat mewarisi atribut dan metode dari lebih dari satu kelas induk.

In [2]:
```
class Coral:
        def community(self):
                print("Coral lives in a community.")

class Anemone:
        def protect_clownfish(self):
                print("The anemone is protecting the clownfish.")

class CoralReef(Coral, Anemone):
        pass
great_barrier = CoralReef()
great_barrier.community()
great_barrier.protect_clownfish()
```

```
Coral lives in a community.
The anemone is protecting the clownfish.
```

In [1]:
```
class Murid:

    def __init__(self):
        self.nama = input("Nama: ")

    def display(self):
        print("Nama: ",self.nama)

class NilaiPelajaran:

    def __init__(self):
        print("Nilai Pelajaran")
        self.math = int(input("Math: "))
        self.biology = int(input("Biology: "))

    def display(self):
        print("Rata2 Nilai: ", (self.math + self.biology)/2 )



class student(Murid, NilaiPelajaran):
    def __init__(self):
        Murid.__init__(self)
        NilaiPelajaran.__init__(self)

    def result(self):
        Murid.display(self)
        NilaiPelajaran.display(self)


stu1 = student()
stu1.result()
```

```
Nama: Joko
Nilai Pelajaran
Math: 90
Biology: 90
Nama:  Joko
Rata2 Nilai:  90.0
```