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BSAI-144

Lab Report – 02

1. Create a Class with instance attributes.

Write a Python program to create a Vehicle class with max_speed and mileage instance attributes.

Code:

```
class Vehicle:
  def __init__(self, max_speed, mileage):
      self.max_speed = max_speed
      self.mileage = mileage


v = Vehicle(140, 20)
print(v.max_speed, "\n", v.mileage)
```

2. Create a Vehicle class without any variables and methods.

Code:

```
class Vehicle:
    pass
```

3. Create a child class Bus that will inherit all of the variables and methods of the Vehicle class.

Code:

```
class Vehicle:
 def __init__(self, max_speed, mileage):
  self.max_speed = max_speed
  self.mileage = mileage
```

```
class Bus(Vehicle):
 pass
b = Bus(180, 17)
print(b.max_speed, "\n", b.mileage)
```

4. Class Inheritance
Given:

Create a Bus class that inherits from the Vehicle class. Give the capacity argument of Bus.seating_capacity() a default value of 50.

Code:

```
class Vehicle:
 def __init__(self, max_speed, mileage):
  self.max_speed = max_speed
  self.mileage = mileage

class Bus(Vehicle):
 def __init__(self, max_speed, mileage, seating_capacity = 50):
  super().__init__(max_speed, mileage)
  self.seating_capacity = seating_capacity

b = Bus(180, 17)
print(b.max_speed, b.mileage, b.seating_capacity)
```

5. Define a property that must have the same value for every class instance (object).

Define a class attribute"color" with a default value white. I.e., Every Vehicle should be white.

Code:

```
class vehicle:
 color= "white"
```

```
 def __init__(self, make, model):
     self.make=make
     self.model=model


v1=vehicle("Toyota", "2019")
v2=vehicle("Audi" , "2020")
print(v1.make, v1.model, v1.color)
print(v2.make, v2.model, v2.color)
```

6. Class Inheritance

Given:

Create a Bus child class that inherits from the Vehicle class. The default fare charge of any vehicle is seating capacity * 100. If Vehicle is Bus instance, we need to add an extra 10% on full fare as a maintenance charge. So total fare for bus instance will become the final amount = total fare + 10% of the total fare.

Note:

The bus seating capacity is 50. so the final fare amount should be 5500. You need to override the fare() method of a Vehicle class in Bus class.

Code:

```
class Vehicle:
    def __init__(self, seating_capacity):
        self.seating_capacity = seating_capacity


    def fare(self):
        return self.seating_capacity * 100


class Bus(Vehicle):
    def fare(self):
        total_fare = super().fare()
```

```
        maintenance_charge = total_fare *
        final_fare = total_fare + maintenance_charge
        return final_fare

bus = Bus(50)
fare = bus.fare()
print(fare)
```