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CLASS:BSAI-162

SEMESTER: 3RD

SUBJECT: ARTIFICIAL INTELLIGENCE-LAB

1-Create a Class with instance attributes

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

```
class vehicles:
 def __init__(self,max_speed,milege):
  self.max_speed=max_speed
  self.milege=milege
a=vehicles(120,18.2)
print(a.max_speed)
print(a.milege)
```

OUTPUT

```
120
18.2
```

2. Create a Vehicle class without any variables and methods

```
class vehicles:
 pass
bus(vehicle)
```

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

```
class vehicle:
 def __init__(self,speed,milege):
  self.speed=speed
  self.milege=milege
class bus(vehicle):
 pass
school_bus=bus(300,5.6)
print("speed",school_bus.speed,"milege",school_bus.milege)
```

OUTPUT

```
speed 300 milege 5.6
```

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.

```
class vehicle:
 def __init__(self,max_speed,milege):
  self.max_speed=max_speed
  self.milege=milege
class bus(vehicle):
 def __init__(self,max_speed,milege,Seating_capacity):
  super().__init__(max_speed,milege)
  self.Seating_capacity=50
bus=vehicle(300,5.6)
print("max_speed",bus.max_speed,"milege",bus.milege)
```

OUTPUT

```
max_speed 300 milege 5.6
```

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

```
class Vehicle:
    color = "White"
    def __init__(self, make, model):
        self.make = make
        self.model = model
class Bus(Vehicle):
    pass
class Car(Vehicle):
    pass
bus = Bus("hino", 2022)
print(" bus name=",bus.make,"/t""bus model=",bus.model,"/t""car color is=",bus.color)
car = Car("Audi e-tron", 2020)
print("name is=", car.make,"/t" "car model=:", car.model,"/t""car color is=", car.color)
```

OUTPUT

```
 bus name= hino /tbus model= 2022 /tcar color
is= White
name is= Audi e-tron /tcar model=: 2020 /tcar
color is= White
```

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.

```
class Vehicle:
    def __init__(self, name, mileage, capacity):
        self.name = name
        self.mileage = mileage
        self.capacity = capacity
    def fare(self):
        return self.capacity * 100
class Bus(Vehicle):
    def fare(self):
        amount = super().fare()
        amount += amount * 10 / 100
        return amount
School_bus = Bus("School Volvo", 12, 50)
print("Total Bus fare is:", School_bus.fare())
```

OUTPUT

```
Total Bus fare is: 5500.0
```