**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)

1. **Create a Vehicle class without any variables and methods.**

**Code:**

class Vehicle:

pass

1. **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)

1. **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)

1. **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)

1. **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)