Assignment No.1

Que.1 Create a Vehicle class with max_speed and mileage As Data Members

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

obj1 = Vehicle(250,25)
print(obj1.max_speed,obj1.mileage)
```

```
250 25
```

Que.2 Create a Vehicle class without any variables and method

```
class Vehicle:
    pass
```

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

```
class Vehicle: # Parent class

    def __init__(self, name, max_speed, mileage):
        self.name = name
        self.max_speed = max_speed
        self.mileage = mileage

class Bus(Vehicle): # Child class
    pass

School_bus = Bus("Shivshahi", 240, 20)
print("Vehicle Name:", School_bus.name, "Speed:",
School_bus.max_speed, "Mileage:", School_bus.mileage)
```

```
Vehicle Name: Shivshahi Speed: 240 Mileage: 20
```

Que.4 Define property that should have the same value for every class instance Define a class attribute”color” with a default value white. I.e., Every Vehicle should be white.

```
class Vehicle:
    color = "White"
    def __init__(self, name, max_speed, mileage):
        self.name = name
        self.max_speed = max_speed
        self.mileage = mileage

class Bus(Vehicle):
    pass

class Car(Vehicle):
    pass

class truck(Vehicle):
    pass

School_bus = Bus("Shivneri", 220, 25)
print(School_bus.color, School_bus.name, "Speed:",
School_bus.max_speed, "Mileage:", School_bus.mileage)

car = Car("BMW", 250, 22)
print(car.color, car.name, "Speed:", car.max_speed, "Mileage:",
car.mileage)

truck = truck("Pickup",260,25)
print(truck.color,truck.name,"Speed:",truck.max_speed,"Mileage:",truck
.mileage)
```

```
White Shivneri Speed: 220 Mileage: 25
White BMW Speed: 250 Mileage: 22
White Pickup Speed: 260 Mileage: 25
```

Que.5 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. Use the following code for your parent Vehicle class. We need to access the parent class from inside a method of a child class.

```
class Vehicle: # Parent class

    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
Travel_bus = Bus("Shivneri", 12, 50)
print("Total Bus fare is:", Travel_bus.fare())
```

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

Que. 6 Determine which class a given Bus object belongs to (Check type of an object)

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

class Bus(Vehicle):
    pass

Travel_bus = Bus("Lal Pari", 20, 40)

print(type(Travel_bus))
```

```
<class '__main__.Bus'>
```