

GitHub Link:

<https://github.com/MaryamAlwars/Assignment-1-Software-Modelling->

Draw.Io Link:

[https://app.diagrams.net/#G1c2W28QFcXIspHZshtwSK\\_iEU-UMYW-IN](https://app.diagrams.net/#G1c2W28QFcXIspHZshtwSK_iEU-UMYW-IN)

## ADD DISPLAYINFO FUNCTIONS

Colab Link:

<https://colab.research.google.com/drive/1A4bVny9cXv6VqBr0ahRELc1jXz22RCKA>

Colab Share Link:

<https://colab.research.google.com/drive/1A4bVny9cXv6VqBr0ahRELc1jXz22RCKA?usp=sharing>

### **Classes, attributes and functions**

Customer

- firstName: String
- lastName: String
- phoneNumber: int
- email: String
- address: String
  
- + getFirstName(): String
- + setFirstName(firstName : String)
- + getLastName(): String
- + setLastName(lastName : String)
- + getPhoneNumber(): Integer
- + setPhoneNumber(phoneNumber : Integer)
- + getEmail(): String
- + setEmail(email : String)
- + getAddress(): String
- + setAddress(address : String)

Vehicle

- make: ENUM
- type: ENUM
- color: ENUM
- ID: String
- licensePlate: String

- + getMake(): ENUM
- + setMake(make : Make)
- + getType(): ENUM
- + setType(type : Type)
- + getColor(): ENUM
- + setColor(color : Color)
- + getID(): String
- + setID(ID : String):
- + getLicensePlate(): String
- + setLicensePlate(licensePlate: String):

Car (it inherits from Vehicle class)

- seaters: ENUM 2,4,5,7,8

- + setSeaters(seaters: Seaters)
- + getSeaters(): ENUM

Service

- serviceName: String
- description: String
- partsCost: Float
- laborCost: Float
- totalPrice: Float

- + getServiceName(): String
- + setServiceName(serviceName : String)
- + getDescription(): String
- + setDescription(description : String)
- + getPartsCost(): Float
- + setPartsCost(partsCost : Float)
- + getLaborCost(): Float
- + setLaborCost(laborCost : Float)
- + getTotalPrice(): Float
- + setTotalPrice(totalPrice : Float)

Price

- taxes: Float
- totalPriceWithoutDiscount: Float
- discount: Float
- profit: Float
- finalAmount: Float

```
+ getTaxes(): Float
+ setTaxes(taxes : Float)
+ getTotalPriceWithoutDiscount(): Float
+ setTotalPriceWithoutDiscount(totalPriceWithoutDiscount : Float)
+ getDiscount(): Float
+ setDiscount(discount : Float)
+ getProfit(): Float
+ setProfit(profit : Float)
+ getFinalAmount(): Float
+ setFinalAmount(finalAmount : Float)
```

### **Use case diagram:**

Actors:

- Appointment and Billing team
- Serviceman
- Customer

Use cases:

- Create a customer database
- Manage appointments
- Diagnose the vehicle
- Repair the vehicle
- Generate invoices

### **Code**

```
#complete the objects
#delete Price
#check if we can put "" for float when creating the objects
```

```
from enum import Enum
```

```
class Make(Enum):
    Audi = 1
    Nissan = 2
    Lexus = 3
    Mercedes = 4
    Tesla = 5
```

```
class Type(Enum):
    #Audi Type
```

```
A2 = 1
A3 = 2
A4 = 3
A5 = 4
A6 = 5
A7 = 6
Q3 = 7
Q5 = 8
Q7 = 9

#Nissan Type
Sunny = 10
Patrol = 11
Altima = 12

#Lexus Type
IS = 13
ES = 14
GS = 15
UX = 16
NX = 17
GX = 18
LX = 19

#Mercedes Type
AClass = 20
CClass = 21
EClass = 22
GClass = 23

#Tesla Type
ModelS = 24
ModelX = 25
ModelY = 26

class Color(Enum):
    Black = 1
    White = 2
    Red = 3
    Blue = 4
    Silver = 5

class Seaters(Enum):
    Two = 1
    Four = 2
```

```
Five = 3
Seven = 4
Eight = 5
```

```
class Customer:
    def __init__(self, firstName, lastName, phoneNumber, email, address):
        self.__firstName = firstName
        self.__lastName = lastName
        self.__phoneNumber = phoneNumber
        self.__email = email
        self.__address = address

    def getFirstName(self):
        return self.__firstName

    def setFirstName(self, firstName):
        self.__firstName = firstName

    def getLastName(self):
        return self.__lastName

    def setLastName(self, lastName):
        self.__lastName = lastName

    def getPhoneNumber(self):
        return self.__phoneNumber

    def setPhoneNumber(self, phoneNumber):
        self.__phoneNumber = phoneNumber

    def getEmail(self):
        return self.__email

    def setEmail(self, email):
        self.__email = email

    def getAddress(self):
        return self.__address

    def setAddress(self, address):
        self.__address = address

    def displayCustomerInfo(self):
```

```
        print("Customer:", self.__firstName, ", Last Name: ",
self.__lastName, ", phoneNumber: ", self.__phoneNumber, ", Email: " ,
self.__email, ", Address:", self.__address)
```

```
class Vehicle:
    def __init__(self, make, type, color, ID, licensePlate):
        self.__make = make
        self.__type = type
        self.__color = color
        self.__ID = ID
        self.__licensePlate = licensePlate

    def getMake(self):
        return self.__make

    def setMake(self, make):
        self.__make = make

    def getType(self):
        return self.__type

    def setType(self, type):
        self.__type = type

    def getColor(self):
        return self.__color

    def setColor(self, color):
        self.__color = color

    def getID(self):
        return self.__ID

    def setID(self, ID):
        self.__ID = ID

    def getLicensePlate(self):
        return self.__licensePlate

    def setLicensePlate(self, licensePlate):
        self.__licensePlate = licensePlate

    #def displayVehicleInfo(self):
```

```
        #print("Make:", self.__make, ", Type:", self.__type, ", Color:" ,
self.__color, ", ID:" , self.__ID, ", License Plate:",
self.__licensePlate)
```

```
    def __str__(self):
        return "Make:" + self.__make.name + ", Type:" + self.__type.name + ",
Color:" + self.__color.name + ", ID:" + self.__ID + ", License Plate:" +
self.__licensePlate
```

```
class Car(Vehicle):
```

```
    def __init__(self, make, type, color, ID, licensePlate, seaters):
        super().__init__(make, type, color, ID, licensePlate)
        self.__seaters = seaters
```

```
    def setSeaters(self, seaters):
        self.__seaters = seaters
```

```
    def getSeaters(self):
        return self.__seaters
```

```
    #def displayCarInfo(self):
        #print(super().displayVehicleInfo(), ", Seaters: ",
self.__seaters)
```

```
    def __str__(self):
        return super().__str__() + ", Seaters: " + self.__seaters.name
```

```
class Service:
```

```
    def __init__(self, serviceName, description, partsCost, laborCost,
totalPrice):
```

```
        self.__serviceName = serviceName
        self.__description = description
        self.__partsCost = partsCost
        self.__laborCost = laborCost
        self.__totalPrice = totalPrice
```

```
    def getServiceName(self):
        return self.__serviceName
```

```
    def setServiceName(self, serviceName):
        self.__serviceName = serviceName
```

```
    def getDescription(self):
        return self.__description
```

```

def setDescription(self, description):
    self.__description = description

def getPartsCost(self):
    return self.__partsCost

def setPartsCost(self, partsCost):
    self.__partsCost = partsCost

def getLaborCost(self):
    return self.__laborCost

def setLaborCost(self, laborCost):
    self.__laborCost = laborCost

def getTotalCost(self):
    return self.__totalCost

def setTotalCost(self, totalCost):
    self.__totalCost = totalCost

def displayServiceInfo(self):
    print("Service Name:", self.__serviceName, ", Description:",
self.__description, ", Parts Cost:" , self.__partsCost, ", Labor Cost:",
self.__laborCost, ", Total Price:", self.__totalPrice)

class Price:
    def __init__(self, taxes, totalPriceWithoutDiscount, discount, profit,
finalAmount):
        self.__taxes = taxes
        self.__totalPriceWithoutDiscount = totalPriceWithoutDiscount
        self.__discount = discount
        self.__profit = profit
        self.__finalAmount = finalAmount

    def getTaxes(self):
        return self.__taxes

    def setTaxes(self, taxes):
        self.__taxes = taxes

    def getTotalPriceWithoutDiscount(self):
        return self.__totalPriceWithoutDiscount

```



```

def setTotalPriceWithoutDiscount(self, totalPriceWithoutDiscount):
    self.__totalPriceWithoutDiscount = totalPriceWithoutDiscount

def getDiscount(self):
    return self.__discount

def setDiscount(self, discount):
    self.__discount = discount

def getProfit(self):
    return self.__profit

def setProfit(self, profit):
    self.__profit = profit

def getFinalAmount(self):
    return self.__finalAmount

def setFinalAmount(self, finalAmount):
    self.__finalAmount = finalAmount

def displayPriceInfo(self):
    print("Taxes:", self.__taxes, ", Total Price Without Discount:",
self.__totalPriceWithoutDiscount, ", Discount:", self.__discount, ",
profit:", self.__profit, ", finalAmount:", self.__finalAmount)

Customer1 = Customer("Maryam", "Alwars", "0509900037",
"malwars717@gmail.com", "Ajman - Aljurf")
Customer1.displayCustomerInfo()

Vehicle1 = Vehicle(make = Make.Audi, type = Type.Q7, color = Color.Silver,
ID = "AD-7861", licensePlate= "Ajman 717")
print(Vehicle1)
Vehicle1.setColor(Color.Black)
print(Vehicle1)

Car1 = Car(make = Make.Mercedes, type = Type.AClass, color = Color.Black,
ID = "AD-2562", licensePlate= "Ajman 266", seaters = Seaters.Four)
print(Car1)
Car1.getSeaters()

```

```
Service1 = Service(serviceName = "Oil Replacement" , description =  
"replacing used engine oil to clean oil" , partsCost = "50" , laborCost =  
"10", totalPrice = "120" )  
Service1.displayServiceInfo()
```