Lab 05: Introduction to Inheritance & Multi-Inheritance

Task 01:

Discuss in detail what you understand by inheritance, Multi-inheritance, Multilevel inheritance and Super().

Inheritance:

The method of inheriting the properties of parent class into a child class is known as inheritance.

Multi-Inheritance:

When a child class inherits from more than one parent class.

Multilevel Inheritance:

When a child class becomes a parent class for another child class.

Super() Method:

Super keyword is used to invoke the overridden method which overrides one of its superclass methods. This keyword allows to access overridden methods and also to access hidden members of the superclass.

It also forwards a call from a constructor to a constructor in the superclass

Task 02:

Create class and sub classes for different types of frequent airline travelers with different connecting flights. Use concept of Multiple inheritance and Super().

Code:

```
class UAE_Airline:

    def __init__(self,name, departure, arrival, departuring_date, returning_date, class_type, ticket_price,
                 seat_no, plane_no):
        self.name = name
        self.departure = departure
        self.arrival = arrival
        self.departuring_date = departuring_date
        self.returning_date = returning_date
        self.class_type = class_type
        self.ticket_price = ticket_price
        self.seat_no = seat_no
        self.plane_no = plane_no


    def info(self):
        print(f"Passenger Name : {self.name}")
        print(f"Departure from : {self.departure} \t\t\t\t Arrrival : {self.arrival}")
        print(f"Departuring date : {self.departuring_date} \t\t Returning date : {self.returning_date}")
        print(f"Class : {self.class_type} \t\t\t\t Ticket price : {self.ticket_price}")
        print(f"Seat No : {self.seat_no} \t\t\t\t\t Plane no : {self.plane_no}")
        print("\n")



class Emirates(UAE_Airline):

    def __init__(self,name, departure, arrival, departuring_date, returning_date,class_type, ticket_price, seat_no, plane_no):
```

```
        UAE_Airline.__init__(self,name, departure, arrival, departuring_date,
returning_date, class_type, ticket_price, seat_no, plane_no)


    def airline(self):

        print("Emirates Airline \t\t\t\t\t Boarding Pass")

print("_____
_____")


flight1 = Emirates("Bilal Yousuf","Dubai","Sharjah","12-June-2020","20-June-
2020","Economy","2000 AED","201","A380")

flight1.airline()

flight1.info()




class flydubai(UAE_Airline):

    def __init__(self,name, departure, arrival, departuring_date,
returning_date,class_type, ticket_price, seat_no, plane_no):

        UAE_Airline.__init__(self,name, departure, arrival, departuring_date,
returning_date, class_type, ticket_price, seat_no, plane_no)


    def airline2(self):

        print("fly dubai \t\t\t\t\t\t Boarding Pass")

print("_____
_____")


flight1 = flydubai("Abdul Samad","Ajman","Abu Dhabi","15-June-2020","23-June-
2020","Business","2500 AED","305","MAX 9")

flight1.airline2()

flight1.info()
```

```
class Abudhabi(UAE_Airline):

    def __init__(self,name, departure, arrival, departuring_date, returning_date, class_type, ticket_price, seat_no, plane_no):

        UAE_Airline.__init__(self,name, departure, arrival, departuring_date, returning_date, class_type, ticket_price, seat_no, plane_no)


    def airline3(self):

        print("Air Arabia AbuDhabi \t\t\t\t\t Boarding Pass")

print("_____")


flight1 = Abudhabi("Mohammad Yousuf","Ajman", "Fujairah", "30-June-2020", "15-July-2020", "First Class","5000 AED", "201", "A320")

flight1.airline3()

flight1.info()




class Etihad(UAE_Airline):

    def __init__(self,name, departure, arrival, departuring_date, returning_date, class_type, ticket_price, seat_no, plane_no):

        UAE_Airline.__init__(self,name, departure, arrival, departuring_date, returning_date, class_type, ticket_price, seat_no, plane_no)


    def airline4(self):

        print("Etihad \t\t\t\t\t\t\t Boarding Pass")

print("_____")


flight1 = Etihad("Bilal Yousuf","Dubai", "London", "01-August-2020", "22-August-2020", "Business","80000 AED", "601", "E380")

flight1.airline4()

flight1.info()
```

Output:

```
Emirates Airline                                        Boarding Pass
_____________________________________________________________________________
Passenger Name : Bilal Yousuf
Departure from : Dubai                          Arrrival : Sharjah
Departuring date : 12-June-2020                 Returning date : 20-June-2020
Class : Economy                                 Ticket price : 2000 AED
Seat No : 201                                   Plane no : A380

fly dubai                                               Boarding Pass
_____________________________________________________________________________
Passenger Name : Abdul Samad
Departure from : Ajman                          Arrrival : Abu Dhabi
Departuring date : 15-June-2020                 Returning date : 23-June-2020
Class : Business                                Ticket price : 2500 AED
Seat No : 305                                   Plane no : MAX 9

Air Arabia AbuDhabi                                     Boarding Pass
_____________________________________________________________________________
Passenger Name : Mohammad Yousuf
Departure from : Ajman                          Arrrival : Fujairah
Departuring date : 30-June-2020                 Returning date : 15-July-2020
Class : First Class                             Ticket price : 5000 AED
Seat No : 201                                   Plane no : A320

Etihad                                                  Boarding Pass
_____________________________________________________________________________
Passenger Name : Bilal Yousuf
Departure from : Dubai                          Arrrival : London
Departuring date : 01-August-2020               Returning date : 22-August-2020
Class : Business                                Ticket price : 80000 AED
Seat No : 601                                   Plane no : E380
```

Task 03:

Create class and sub classes for differ types of umbrella, they have different styles, prints, sizes, for male, female, kids, they have different usage such as only for rain, for sun protection for snow. Etc.

```
class Umbrella:
    def __init__(self, umbrella_type, style, size, color, price, target_user):
        self.umbrella_type = umbrella_type
        self.style = style
        self.size = size
        self.color = color
        self.price = price
        self.target_user = target_user



    def specification(self):
        print(f"Umbrella Type : {self.umbrella_type}")
        print(f"Style : {self.style}")
        print(f"Size : {self.size}")
        print(f"Color : {self.color}")
        print(f"Price : {self.price}")
        print(f"Target User : {self.target_user}")
        print("\n")



class Clear_Umbrella(Umbrella):
    def __init__(self, umbrella_type, style, size, color, price, target_user):
        Umbrella.__init__(self, umbrella_type, style, size, color, price, target_user)


u1 = Clear_Umbrella("Clear Umbrella","Long Umbrella", "One Size", "Black",
"17000", "Adult")
u1.specification()
```

```
class Bubble_Umbrella(Umbrella):
    def __init__(self, umbrella_type, style, size, color, price, target_user):
        Umbrella.__init__(self, umbrella_type, style, size, color, price, target_user)


u1 = Bubble_Umbrella("Bubble Umbrella","Three-Fold", "One Size", "White",
"15000", "Man")
u1.specification()


class Automatic_Umbrella(Umbrella):
    def __init__(self, umbrella_type, style, size, color, price, target_user):
        Umbrella.__init__(self, umbrella_type, style, size, color, price, target_user)


u1 = Automatic_Umbrella("Automatic Umbrella","Automatic Open", "Two Size",
"Multi-Color", "20000", "Both for Man and Women")
u1.specification()
```

Output:

```
Umbrella Type : Clear Umbrella
Style : Long Umbrella
Size : One Size
Color : Black
Price : 17000
Target User : Adult


Umbrella Type : Bubble Umbrella
Style : Three-Fold
Size : One Size
Color : White
Price : 15000
Target User : Man


Umbrella Type : Automatic Umbrella
Style : Automatic Open
Size : Two Size
Color : Multi-Color
Price : 20000
Target User : Both for Man and Women
```