Write a Python program to implement the object-oriented concepts of multiple, Multilevel and Hierarchical Inheritances using your domain applications.

Implementing Multiple Inheritance

In [ ]:
```
class Expense:
    def __init__(self, amount, description):
        self.amount = amount
        self.description = description

    def display(self):
        print(f"Expense: {self.description}\tAmount: {self.amount:.2f}")


class Category:
    def __init__(self, name):
        self.name = name

    def display_category(self):
        print(f"Category: {self.name}")


class CategorizedExpense(Expense, Category):
    def __init__(self, amount, description, category):
        Expense.__init__(self, amount, description)
        Category.__init__(self, category)


categorized_expense = CategorizedExpense(100, "Groceries", "Food")

categorized_expense.display()
categorized_expense.display_category()
```

```
Expense: Groceries      Amount: 100.00
Category: Food
```

Multilevel Inheritance

In [ ]:
```
class Expense:
    def __init__(self, amount, description):
        self.amount = amount
        self.description = description

    def display(self):
        print(f"Expense: {self.description}\tAmount: ${self.amount:.2f}")


class Category(Expense):
    def __init__(self, amount, description, category):
        super().__init__(amount, description)
        self.category = category

    def display_category(self):
        print(f"Category: {self.category}")


class CategorizedExpense(Category):
    def __init__(self, amount, description, category):
        super().__init__(amount, description, category)
```

```
    def bill(self):
        print(f'Your expense: {self.amount} \t Description: {self.description}')
        print(f'Category: {self.category}')

c = CategorizedExpense(6000, "Holiday Shopping","Clothing")
c.bill()
```

```
Your expense: 6000       Description: Holiday Shopping
Category: Clothing
```

Hierarchial Inheritance

In [ ]:
```
class User:
    def __init__(self, username):
        self.username = username

    def display(self):
        print(f"User: {self.username}")

class Expense(User):
    def __init__(self, username, amount, description):
        super().__init__(username)
        self.amount = amount
        self.description = description

    def display_expense(self):
        super().display()
        print(f"Expense: {self.description}\nAmount: ${self.amount:.2f}")


class Category(User):
    def __init__(self, username, name):
        super().__init__(username)
        self.name = name

    def display_category(self):
        super().display()
        print(f"Category: {self.name}")


expense = Expense("Vishal", 1000, "Holiday expense")
category = Category("Vishal", "Travel")

expense.display_expense()
category.display_category()
```

```
User: Vishal
Expense: Holiday expense
Amount: $1000.00
User: Vishal
Category: Travel
```