**INHERITANCE**

1. **Basic Inheritance:** Define a base class **Shape** with members to store the dimensions of a shape and a derived class **Circle** that inherits from **Shape**. Add a method to calculate the area of the circle.
2. **Multiple Inheritance:** Create a base class **Person** with attributes **name** and **age**. Create a derived class **Student** which inherits from **Person** and has additional attributes **studentId** and **grade**. Implement appropriate methods.
3. **Hierarchical Inheritance:** Create a base class **Animal** with a method **makeSound()**. Derive two classes **Dog** and **Cat** from **Animal** and override the **makeSound()** method to represent the sound each animal makes.
4. **Virtual Functions:** Define a base class **Shape** with a virtual function **calculateArea()**. Derive classes **Circle** and **Rectangle** from **Shape** and override **calculateArea()** for each shape.
5. **Pure Virtual Functions:** Create an abstract base class **BankAccount** with a pure virtual function **calculateInterest()**. Derive two classes **SavingsAccount** and **CurrentAccount** from **BankAccount** and implement **calculateInterest()** accordingly.
6. **Access Control:** Define a base class **Base** and a derived class **Derived**. Test the accessibility of different members (public, private, protected) from the derived class.
7. **Constructor Inheritance:** Create a base class **Vehicle** with attributes like speed and a derived class **Car** that inherits from **Vehicle**. Implement constructors for both classes and display the speed of the car.
8. **Function Overriding:** Create a base class **Shape** with a method **draw()**. Derive classes **Circle**, **Square**, and **Triangle** from **Shape** and override **draw()** to display the shape name.
9. **Polymorphism:** Define a base class **Animal** with a virtual function **makeSound()**. Derive classes **Dog**, **Cat**, and **Cow** from **Animal** and implement **makeSound()** to display the sound each animal makes.
10. **Dynamic Binding:** Define a base class **Base** with a virtual function **display()**. Derive a class **Derived** from **Base** and override **display()**. Create objects of both classes and call the **display()** method to observe dynamic binding.