**Task 1: Basic Inheritance**

Create a simple C++ program with two classes, Shape and Circle. The Shape class should have data members for width and height, and a function to calculate the area. The Circle class should inherit from Shape and have an additional data member for the radius. Implement the necessary functions to calculate the area of a circle and display the results Hint Prevent any one form make change in radius of circle.

**Task 2: Inheritance Types**

Create a C++ program with a base class **Vehicle**. Implement two derived classes called Car and Bike. The base class should have common properties like brand, model, and a virtual function displayInfo(). The **Car** class should have an additional property numDoors and **override the displayInfo() function to display information about the car**. The **Bike** class should have an additional property numGears and override the displayInfo() function to display information about the bike. In the main function, demonstrate the use of these classes and polymorphism by creating objects of both Car and Bike and calling the displayInfo() function.

**Task 3: Late Binding (Dynamic Binding)**

Modify Task 2 to demonstrate late binding (dynamic binding) using pointers and virtual functions. In the main function, create a pointer to the base class Vehicle and initialize it to point to a Car object. Call the displayInfo() function using the pointer and observe the output. Then, reassign the pointer to point to a Bike object and call the displayInfo() function again. Explain the difference between early binding and late binding based on your observations.