1. Abstract Base Classes and Interfaces:

- Create an abstract base class `**Shape**` with pure virtual methods `**calculateArea()**` and `**display()`.**

- Implement concrete classes `**Circle**`, `**Rectangle**`, and `**Triangle**` that inherit from `**Shape**`.

- Introduce an interface `**Resizable**` with a pure virtual method `**resize()`.**

- Modify the classes to use multiple inheritance to allow certain shapes to be resizable.

2. Multiple Inheritance and Diamond Problem:

- Create classes `Person`, `**Employee**`, and `**Student**`.

- Introduce a common virtual base class `Details` and use multiple inheritance to address the diamond problem.

- Add relevant attributes and methods to each class, ensuring proper initialization and avoidance of redundant data.

3. Hierarchical Inheritance and Polymorphism:

- Create a hierarchy of classes representing animals (e.g., **`Animal`, `Mammal`, `Bird`, `Fish`**).

- Implement polymorphic behavior by using virtual functions for common methods like `**eat()**`, `**move()**`, and `**makeSound()**`.

- Create a collection of these animals and demonstrate polymorphism through iteration and function calls.