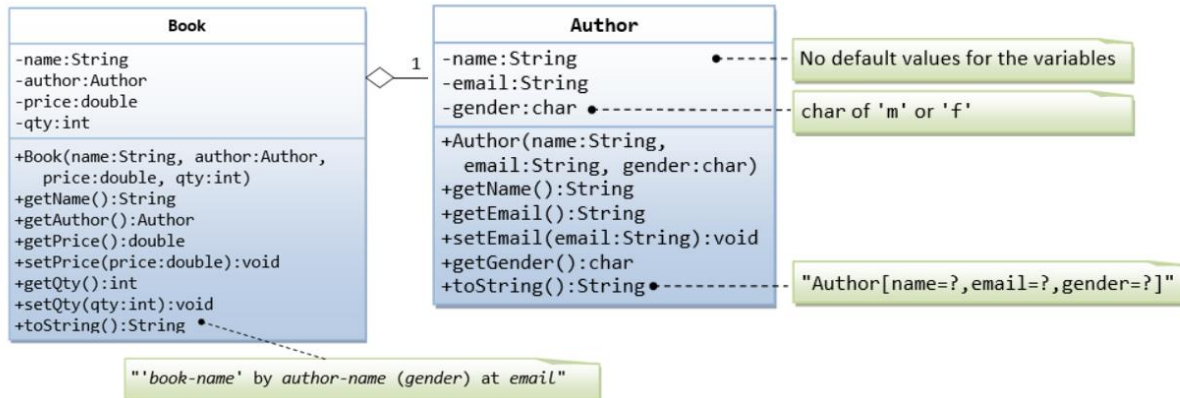


Task 1

A Book is written by one Author - Using an "Object" Member Variable

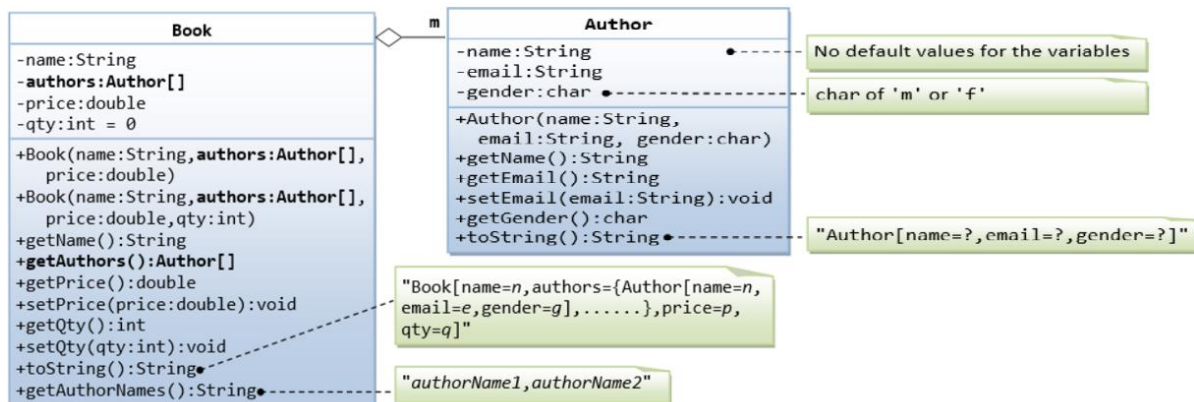


Let's design a Book class. Assume that a book is written by one (and exactly one) author. The Book class (as shown in the class diagram) contains the following members:

- Four private member variables: name (String), author (an instance of the Author class we have just created, assuming that each book has exactly one author), price (double), and qty (int).
- The public getters and setters: `getName()`, `getAuthor()`, `getPrice()`, `setPrice()`, `getQty()`, `setQty()`.
- A `toString()` that returns `"'book-name' by author-name (gender) at email"`. You could reuse the Author's `toString()` method, which returns `"author-name (gender) at email"`.

Task 2

In previous task, a book is written by one and only one author. In reality, a book can be written by one or more author. Modify the Book class to support one or more authors by changing the instance variable authors to an Author array. Before modification save the previous task so u can submit on lms.



Notes:

- The toString() method shall return
"Book[name=?,authors={Author[name=?,email=?,gender=?],.....},price=?,qty=?]".

Task 3

Create four interfaces WaterBreather, EggLayer, MilkProvider and Flyer. WaterBreather should have the waterBreathing() method, EggLayer should have the laysEggs() method, MilkProvider that should have the givesMilk() method and Flyer should have the flies() method. Create Amphibian abstract class that implements the WaterBreather and Egglayer interfaces. Birds abstract class that implements the Egglayer and Flyer interfaces, Mammal abstract class that implements the MilkProvider interface. Now create a concrete class Platypus that inherits from Mammal but implements the EggLayer interface. Also create another concrete class Bat that implements the Flyer interface. Finally, create a Chimera concrete class that implements all the four interfaces.

Also create a main class to test your code. Also implement polymorphism in your code.