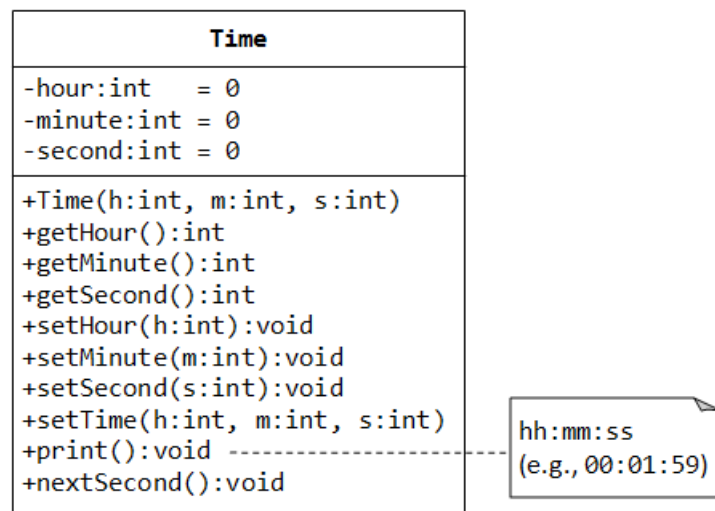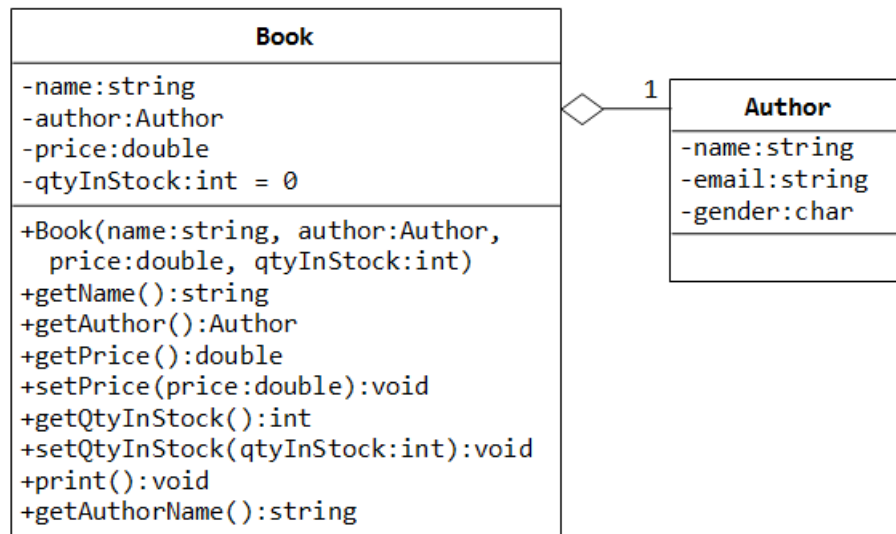# Lab 8

Class Work

1) Create a class named 'Student' with a string variable 'name' and an integer variable 'roll_no'. Assign the value of roll_no as '2' and that of name as "John" by creating an object of the class Student.

   • Assign and print the roll number, phone number and address of two students having names "Sam" and "John" respectively by creating two objects of the class 'Student'. (Add two new data members, phone number and address, to the previous 'Student' class)

2) Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' with a function to print the area and perimeter.

   • Write a default constructor and a parameterized constructor to initialize the three sides of the triangle.

3) Implement a class called Time, which models a specific instance of time with hour, minute and second values, as shown in the class diagram. Write a main function to create necessary objects and print their properties.

```
                 Time
  -hour:int    = 0
  -minute:int  = 0
  -second:int  = 0

  +Time(h:int, m:int, s:int)
  +getHour():int
  +getMinute():int
  +getSecond():int
  +setHour(h:int):void
  +setMinute(m:int):void
  +setSecond(s:int):void
  +setTime(h:int, m:int, s:int)
  +print():void  ------------------  hh:mm:ss
  +nextSecond():void                  (e.g., 00:01:59)
```

4) Implement a Book class. Assume that a book is written by one and only one author. The Book class (as shown in the class diagram) contains the following members. Write a main function to create necessary objects and print their properties.

```
┌─────────────────────────────────────┐            ┌─────────────────────────┐
│                 Book                 │         1  │         Author          │
├─────────────────────────────────────┤  ◇────────┤├─────────────────────────┤
│ -name:string                        │            │ -name:string            │
│ -author:Author                      │            │ -email:string           │
│ -price:double                       │            │ -gender:char            │
│ -qtyInStock:int = 0                 │            ├─────────────────────────┤
├─────────────────────────────────────┤            │                         │
│ +Book(name:string, author:Author,   │            └─────────────────────────┘
│   price:double, qtyInStock:int)     │
│ +getName():string                   │
│ +getAuthor():Author                 │
│ +getPrice():double                  │
│ +setPrice(price:double):void        │
│ +getQtyInStock():int                │
│ +setQtyInStock(qtyInStock:int):void │
│ +print():void                       │
│ +getAuthorName():string             │
└─────────────────────────────────────┘
```

Home Work

Design two classes "Company" and "Employee" class. Both "Company" and "Employee" class should have data members to store their information accordingly such as name, address and so on. Additionally, the company class should also have an array of employee class. Design and implement these classes and write the main function.