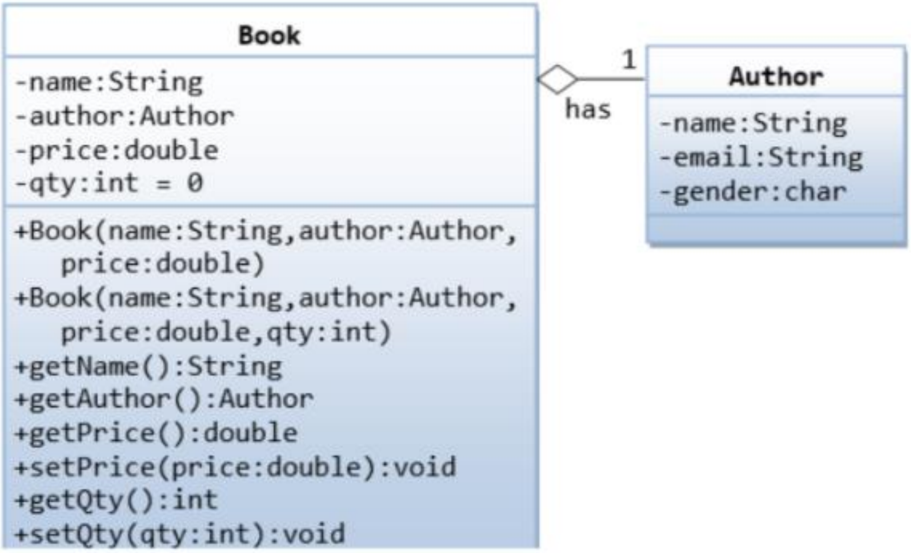
Assignment 5

1. **task 1**
    a. create class Point that has the following
    b. integer x and integer y
    c. setter function for x and another for y
    d. create getter function
    e. create default constructor that will put x and y by 1
    f. create Parametrized constructor that will take 2 integers
    g. create setpoint function that will take 2 integers then save them in x and y
    h. create 2 objects in main, one of them should call default constructor and the second should call the parametrized constructor

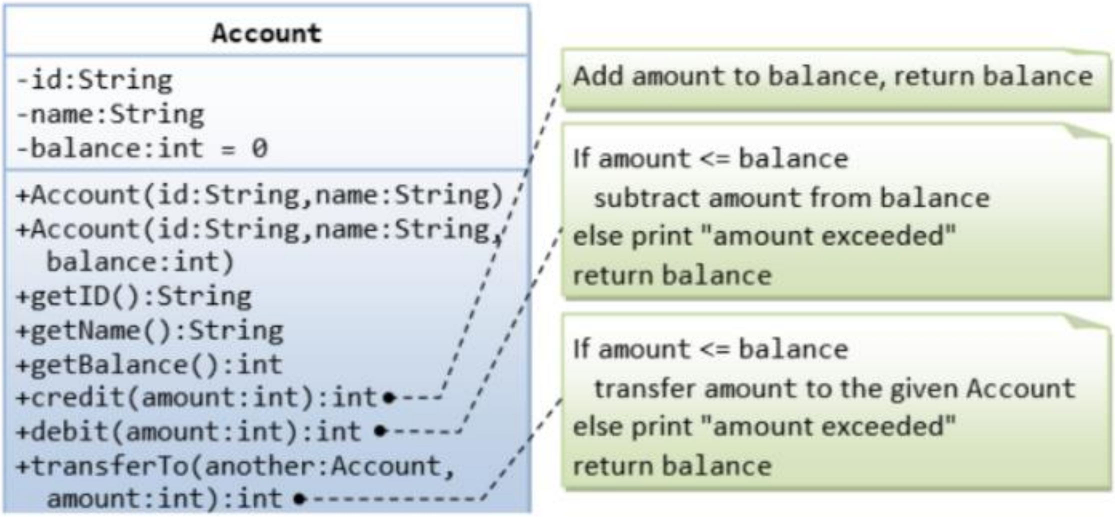
2. **task 2**
    a. Write a class named *Car* that has the following member variables.
        i. **yearModel**. An *int* that holds the car's year model.
        ii. **make**. A *string* that holds the make of the car.
        iii. **speed.** An *int* that holds the car's current speed.
        iv. **Constructor.** The constructor should accept the car's year model and make as arguments. These values should be assigned to the object's yearModel and make member variables. The constructor should also assign 0 to the speedmember variables.
        v. **Accessors**. Appropriate accessor functions to get and set the values stored in an object's *yearModel, make, and speed* member variables.
        vi. **accelerate**. The *accelerate* function should add 5 to the speed member variable each time it is called.
        vii. **brake**. The *brake* function should subtract 5 from the speed member variable each time it is called.
    b. Demonstrate the class in a program that creates a *Car* object, and then calls the *accelerate* function five times. After each call to the *accelerate* function, get the current speed of the car and display it. Then, call *brake* function five

times. After each call to the brake function, get the current speed of the car and display it.

3. **task 3**
    a. create an object from class Book then fill his info



4. **task 4**


Account
-id:String
-name:String
-balance:int = 0
+Account(id:String,name:String)
+Account(id:String,name:String, balance:int)
+getID():String
+getName():String
+getBalance():int
+credit(amount:int):int
+debit(amount:int):int
+transferTo(another:Account, amount:int):int
Add amount to balance, return balance
If amount <= balance
subtract amount from balance
else print "amount exceeded"
return balance
If amount <= balance
transfer amount to the given Account
else print "amount exceeded"
return balance

Assignment 6

1. **Task 1**
    a. create class Point3D that has the following
    b. make it inherit from class Point (from assignment 5)
    c. integer z
    d. setter function for z
    e. create getter function
    f. create default constructor that will put x, y and z by 1
    g. create Parametrized constructor that will take 3 integers
    h. create setpoint function that will take 3 integers then save them in x, y and z
    i. create 2 objects in main, one of them should call default constructor and the second should call the parametrized constructor
2. **Task 2**

   Create two classes named Mammals and MarineAnimals. Create another class named BlueWhale which inherits both the above classes. Now, create a function in each of these classes which prints "I am mammal", "I am a marine animal" and "I belong to both the categories: Mammals as well as Marine Animals" respectively. Now, create an object for each of the above class and try calling
   1 - function of Mammals by the object of Mammal
   2 - function of MarineAnimal by the object of MarineAnimal
   3 - function of BlueWhale by the object of BlueWhale
   4 - function of each of its parent by the object of BlueWhale

3. **Task 3**

   We want to store the information of different vehicles. Create a class named Vehicle with two data member named mileage and price. Create its two subclasses
   *Car with data members to store ownership cost, warranty (by years), seating capacity and fuel type (diesel or petrol).
   *Bike with data members to store the number of cylinders, number of gears, cooling type(air, liquid or oil), wheel type(alloys or spokes) and fuel tank size(in inches)
   Make another two subclasses Audi and Ford of Car, each having a data member to store the model type. Next, make two subclasses Bajaj and TVS, each having a data member to store the make-type.
   Now, store and print the information of an Audi and a Ford car (i.e. model type, ownership cost, warranty, seating capacity, fuel type, mileage and price.) Do the same for a Bajaj and a TVS bike.

4. Task 4

a. Create class Vehicle which contains:
   - Vehicle model string
   - Registration number string
   - Vehicle speed (km/hour) integer
   - Fuel capacity (liters) double
   - Fuel consumption (liter/km) double
   - Parameterized constructor that will initialize all the data
   - members with the given values.
   - fuelNeeded() method that will take distance then calculate the
   - amount of fuel needed
   - method distanceCovered() that will take time (in hours) as an argument. It will calculate the distance for the given time
   - display() method that will display all the information of a vehicle.

b. Create Class Truck which will inherit from Vehicle:
   - Cargo weight limit (Kilo grams)// data member
   - Parameterized constructor
   - Setter and getter
   - A display() method which will call parent display() then print Cargo weight value.

c. Create Class Bus which will inherit from Vehicle:
   - Data members: Num of passengers int
   - Parameterized constructor
   - Setter and getter
   - A display() method which will call parent display() then print number of passengers.