

EXPERIMENT NO: 02 Programs to illustrate concept of class and static classes and methods
CLASSES AND OBJECTS

02.09.2024

Write a Java program to perform the following:

1. Write a program to create a class that contains two methods add() and sub() that performs addition and subtraction of two numbers respectively and print the output.
2. Create a class for bank account that has name of the depositor, type of account, account number, and balance amount. The class should have methods that assigns initial values, to deposit an amount, to withdraw amount after checking balance and to display the name and balance. (Use Constructors also)
3. Create a class with appropriate data members and methods as per the class diagram given in the Figure 1.

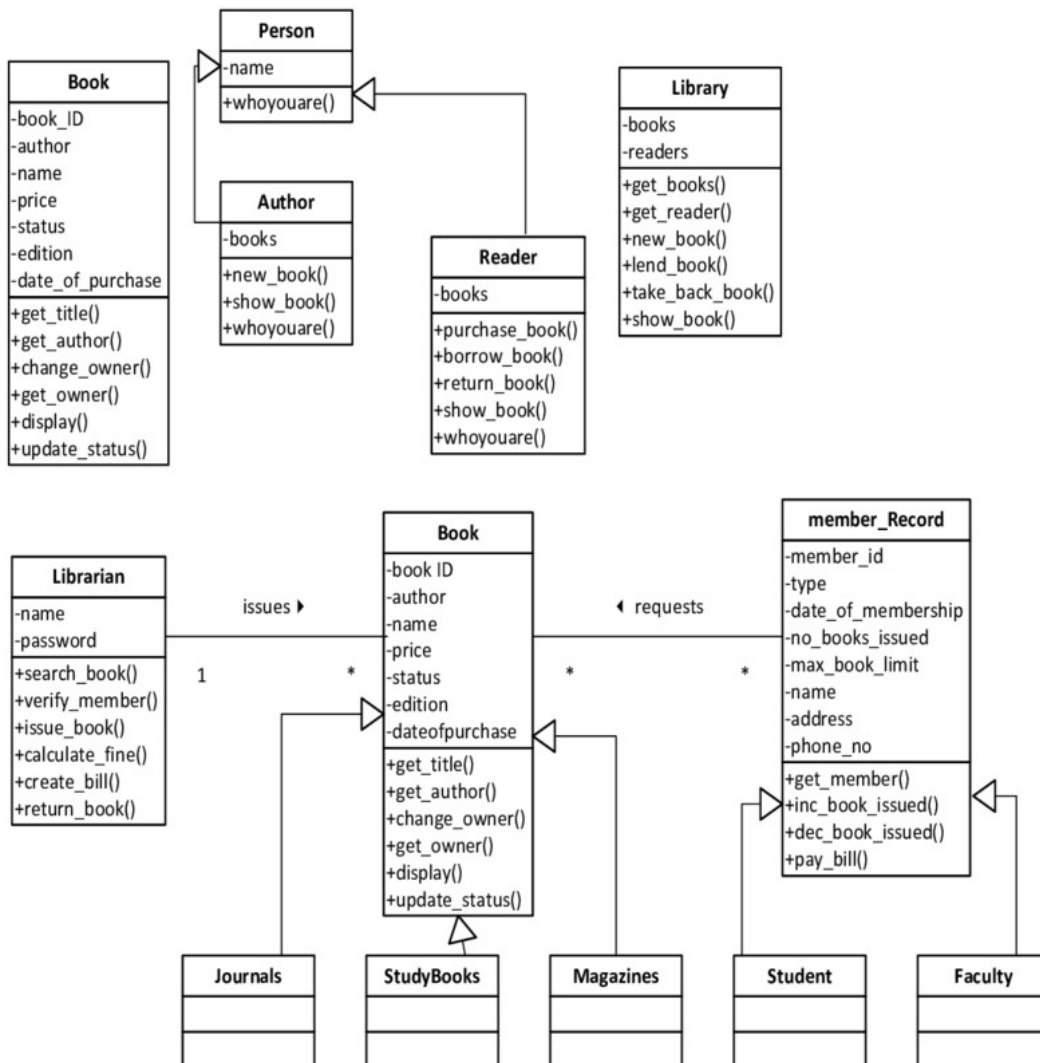


Figure 1 Library Management System

4. Write a java program to illustrate the working of static classes and methods.

5. Write a program to print the area of two rectangles having sides (4,5) and (5,8) respectively by creating a class named 'Rectangle' with a function named 'Area' which returns the area. Length and breadth are passed as parameters to its constructor.
6. Print the sum of two complex numbers by creating a class named 'Complex' with separate functions for sum and print whose real and imaginary parts are entered by the user. Initialize the objects using a constructor

Additional Exercises:

7. Create a class ArrayUser with a 1-D array and length of the array. Create functions to :
add: Adds two array, avg: Find the average of array elements, print: Print the array
8. Demonstrate the working of the above functions by creating two ArrayUser objects.
9. Create a class called UserLogin with username, and password. Create methods: validateUsername() and validatePWD() to check if the username and password are valid or not. Create an array of 5 Login credentials and initialize using constructors. All 5 users must try to login with their credentials (use a loop through the array). If the username does not exist "Username invalid" message should be displayed. If the username is correct, but the password is incorrect, "password does not match the username" message must be displayed. If both are correct, "Successful login by username ____" message must be displayed.
10. Write a program that accepts a shopping list of five items and stores them in a vector and perform the following:
 - (a) To delete an item in the list
 - (b) To add an item at the specified location in the list
 - (c) To add an item at the end of the list
 - (d) To print the contents of the vector.
