PRACTICE SET-2 (Classes & Objects) ***UCA -1,2***

Implement the following problems. Use scanner class to take input from user, wherever required. Follow conventions while writing the code.

1. Create a class '*ShapesOne*' to calculate the volume of cone and sphere.
   The members of class are:
   - Private fields- *radius* and *height*. Use constructor overloading to assign values to fields.
   - A method- *volCone*(), which calculates the volume of cone.
   - A method- *volSphere*(), which calculates the volume of sphere.

2. Create a class '*ShapesTwo'* to calculate the area and perimeter of square and rectangle. The members of the class are:
   - Private fields- *length* and *breadth*. Use constructor overloading to assign values to fields.
   - A method- getDim()- which prints the values of fields.
   - A method- perimeter()- which returns the perimeter of the shape
   - A method- area()- which returns the area of the shape.

3. Define a class '*Bank'* to represent the details of depositors of the bank.
   The fields of the class are:
   - Name of bank
   - Count of number of depositors
   - Name of the depositor
   - Balance amount in the Account
   - Address of the depositor

   Your program should be able to perform following operations on the data.
   - Enter the details of the depositor – name, balance, address.
   - Display the details of the depositor – name, balance, address
   - Deposit money in the account
   - Display the name of bank
   - Withdraw money from the account and display remaining balance.
   - Print the number of depositors in the bank

4. In the 'Problem Statement 3', create two instances of the class 'Bank' i.e. two different depositors.
   Write a method which will exchange the '*address'* field of both the depositors.

5. Extend the 'Problem Statement 3', to find the average balance amount of five depositors of the bank. (*Hint: Use Array of Objects*)

6. Write a static method to perform recursive binary search on an array.