Programming Practice Lab

Assignment 4

CO3: Understand and implement OOP features through C++ Programming
CO4: Design and implement the solution following OOP paradigm

1. Design the class(es) for the following. Each account has account number and balance amount. A list of account is to be maintained where one can add and find account, display information of all accounts. While adding, account number must be unique. Withdraw object has account number (must exist) and amount (will not exceed balance amount of corresponding account). Withdraw object will update the balance of corresponding account in the list. User will be able to search and view account, add account and withdraw money from the account. Implement your design. Use friend function wherever required and again, modify your implementation to avoid friend function.

2. Design a COMPLEX class, which will behave like normal integer with respect to
   - addition,
   - subtraction,
   - accepting the value and
   - Displaying the value.

3. Design an ARRAY of integer class with the following features:
   a. Array object may be declared for a specific size and a value for initializing all the elements. Default values for the parameters may be taken as 0.
   b. An array object may be declared and initialized with another object.
   c. An array object may be declared and initialized with another array (not the object, standard array as in C language).

   Let a and b are two objects:
   i. a+b will add corresponding elements.
   ii. a=b will do the assignment.
   iii. a[I] will return the ith element of the object.
   iv. a*5 or 5*a will multiply the elements with 5.

4. Design a STRING class, which will have the initialization facility similar to array class. Provide support for
   - Assigning one object for another,
   - Two string can be concatenated using + operator,
   - Two strings can be compared using the relational operators.

5. Modify the STRING class so that assigning/initializing a string by another will not copy it physically but will keep a reference count, which will be incremented. Reference value 0 means the space can be released