

## Assignment 2 (1 September)

### Classes and Objects with Dynamic Memory Allocation

1. Suppose you have a stack class. Now you want to implement operations related to queue using this stack class. Write a menu driven program, where the menu should look like the following:

1. Insert an item
2. Delete an item
3. Show the elements
4. Exit

Hint:

- The program should behave as if we are interacting with a queue.
  - However, the internal implementation is that of a stack.
  - Implementation to be done using arrays.
  - Use of STLs is not permitted.
2. A book shop maintains the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher and stock position. Whenever a customer wants a book, the sales person inputs the title and author and the system searches the list and displays whether it is available or not. If it is not, an appropriate message is displayed. If it is, then the system displays the book details and requests for the number of copies required. If the requested copies are available, the total cost of the requested copies is displayed; otherwise “Required copies not in stock” is displayed. Design a system with appropriate building blocks. Use new operator in constructors to allocate memory space required.

Incorporate the following features:

- The price of the books should be updated as and when required. Use a private member function to implement this.
- The stock value of each book should be automatically updated as soon as a transaction is completed.
- The number of successful and unsuccessful transactions should be recorded for the purpose of statistical analysis. Use static data members to keep count of transactions.

***Demonstrate the use of pointers to access the members.***