1. Case Study.

Create an application to generate an invoice after a customer makes payment.Intially customer has only one option of making payment by cash,later on there should be provision for making payment either for creditcard or by cheque.design the application that takes care of extensibility feature, without affecting the working of the client's interface.(use Factory design pattern and use interfaces)

2

Create an interface MyList that acts as a container to store collection of elements using array.
Has a method addElement ,displayElements, removeElement.

Create 3 implementations for MyList.
A QueueList that stores/adds/removes elements in FIFO order.
B StackList that stores/adds/removes elements in LIFO order
C SortedList that stores elements in sorted Order and removes the maximum element.

Test the above with a menu driven program .that allows the user to add as many elements as desired either as a queue,stack or sorted.

B
Modify the above application such that the array created in MyList becomes dynamic that means it's capacity increases only when an element is added, and decreases when an element is removed.