CS 114 Lab Project

Implement a FIFO Queue using a hybrid array/linked list data structure.

Define an ArrayLink class where each ArrayLink object contains an array of Object references and a link to the next ArrayLink object in the list.

Define a Queue class that maintains a FIFO queue using a linked list of ArrayLink objects. The Queue class should keep four private members:

1. a reference to the first ArrayLink object in the linked list.
2. a reference to the last ArrayLink object in the linked list.
3. the insert index, an integer index of a location in the array contained in the last ArrayLink object in the list.
4. the remove index, an integer index of a location in the array contained in the first ArrayLink object in the list.

A new item is added by inserting it at the insert index location in the last last ArrayLink object. If the array in this object becomes full, create a new ArrayLink object and link it into the list.

Items are removed from the remove index location in the first ArrayLink object in the list. If the array becomes empty, remove the first ArrayLink object from the linked list.

Write a menu driven main program to test the Queue.