1. A small company dealing with transportation has just purchased a computer for its new automated reservations system. You have been asked to program the new system.

   You are to write a program called *ReservationSystem* to assign seats on a vehicle. Your class also requires the following:

   - a constructor method, which initialize the variables
   - a method to assign the capacity of seating.
   - a method for assigning seats.

   Use an array to represent the seating chart of the plane. Initialize all the elements of the array to 0 to indicate that all the seats are empty. As each seat is assigned, set the corresponding elements of the array to 1 to indicate that the seat is no longer available. Your program should, of course never assign a seat that has already been assigned.

   The company also needs a program dealing especially with its only plane with each flight having a capacity of 10 seats. Name this class *AirlineReservationSystem.* This class is a type of *ReservationSystem* but the way it reserves seats are different.

   Your program should display the following menu of alternatives for reserving a seat on the flight:

   Please type 1 for "smoking"

   Please type 2 for "non-smoking"

   If the person types 1,then your program should assign a seat in the smoking section(seats 1-5). If the person types 2,then your program should assign a seat in the non-smoking section(seats 6-10). Your program should then print a boarding pass indicating the person's seat number and whether it is in the smoking or non-smoking section of the plane.

   When the smoking section is full, your program should ask the person if it is acceptable to be placed in the non-smoking section (and vice versa). If yes, then make the appropriate seat assignment. If no, then print the message "**Next flight leaves in 3 hours.**"

   Create objects of both the classes and test the functionalities.