

1. A small airline has just purchased a computer for its new automated reservations system. You've been asked to develop the new system. You're to write an application to assign seats on each flight of the airline's only plane (capacity: 10 seats). Your application should display the following alternatives: Please type 1 for First Class and Please type 2 for Economy. If the user types 1, your application should assign a seat in the firstclass section (seats 1–5). If the user types 2, your application should assign a seat in the economy section (seats 6–10). Your application should then display a boarding pass indicating the person's seat number and whether it's in the first-class or economy section of the plane.

Use a one-dimensional array of primitive type boolean to represent the seating chart of the plane. Initialize all the elements of the array to false to indicate that all the seats are empty. As each seat is assigned, set the corresponding element of the array to true to indicate that the seat is no longer available. Your application should never assign a seat that has already been assigned. When the economy section is full, your application should ask the person if it's acceptable to be placed in the first-class section (and vice versa). If yes, make the appropriate seat assignment. If no, display the message "Next flight leaves in 3 hours."

2. A palindrome is a sequence of characters that reads the same backward as forward. For example, each of the following five-digit integers is a palindrome: 12321, 55555, 45554 and 11611. Write an application that reads in a five-digit integer and determines whether it's a palindrome.

If the number is not five digits long, display an error message and allow the user to enter a new value.

3. Use a one-dimensional array to solve the following problem:

Write an application that inputs five numbers, each between 10 and 100, inclusive. As each number is read, display it only if it's not a duplicate of a number already read. Provide for the "worst case," in which all five numbers are different. Use the smallest possible array to solve this problem. Display the complete set of unique values input after the user enters each new value.