Lab # 13

December 29, 2016

Task 1: Use a single-subscripted array to solve the following problem. Read in 20 numbers, each of which is between 10 and 100, inclusive. As each number is read, print it only if it's not a duplicate of a number already read. Provide for the "worst case" in which all 20 numbers are different. Use the smallest possible array to solve this problem. **(5 marks)**

Task 2: A small airline has just purchased a computer for its new automated reservations system. The president has asked you to program the new system. You'll write a program to assign seats on each flight of the airline's only plane (capacity: 10 seats). **(5 marks)**

Your program should display the following menu of alternatives:

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Please type 1 for "first class"
Please type 2 for "economy"
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If the person types 1, then your program should assign a seat in the first-class section (seats 1–5). If the person types 2, then your program should assign a seat in the economy section (seats 6–10). Your program should then print 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 single-subscripted array to represent the seating chart of the plane. Initialize all the elements of the array to 0 to indicate that all seats are empty. As each seat is assigned, set the corresponding element 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. When the first-class section is full, your program should ask the person if it's acceptable to be placed in the economy section (and vice versa). If yes, then make the appropriate seat assignment. If no, then print the message "`Next flight leaves in 3 hours.`"

Grading and LMS Submission

- Make sure that the lab engineer has graded your programs until 5 pm.
- You've uploaded the C source files in Zip format over LMS until 5:30 pm.