**Name:**

**Section:**

**Date:**

**Programming Exercise 1**

**(Duplicate Elimination) Use a one-dimensional array to solve the following problem. Read in 20 numbers, each of which is between 10 and 100, inclusive. As each number is read, validate it and store it in the array only if it isn’t a duplicate of a number already read. After reading all the values, display only the unique values that the user entered.**

**Program Code:**

**#include <iostream>**

**using namespace std;**

**int main()**

**{**

**int arr[]={10,10,30,31,40,43,43,45,50,55,60,60,67,75,79,79,85,90,95,100};**

**int size = sizeof(arr) / sizeof(arr[0]);**

**cout<<"The elements are: " <<endl;**

**for(int i = 0; i< size; i++)**

**{**

**cout<<arr[i] <<" ";**

**}**

**cout<<endl;**

**cout<<"These are the elements unique: " <<endl;**

**for(int i=0; i<size; i++)**

**{**

**int j;**

**for(j = 0; j < i; j++)**

**if(arr[i] == arr[j])**

**break;**

**if(i==j)**

**cout<<arr[j] <<" ";**

**}**

**}**

**Sample Output:**

**The elements are:**

**10 10 30 31 40 43 43 45 50 55 60 60 67 75 79 79 85 90 95 100**

**These are the elements unique:**

**10 30 31 40 43 45 50 55 60 67 75 79 85 90 95 100**

**--------------------------------**

**Programming Exercises 2**

**(Airline Reservations System)**

**A small airline has just purchased a computer for its new automated reservations system. You’ve been asked to program the new system. You are to write a program to assign seats on each flight of the airline’s only plane (capacity: 10 seats). Your program should display the following menu of alternatives—Please type 1 for "First Class" and Please type 2 for "Economy". If the person types 1, your program should assign a seat in the first class section (seats 1–5). If the person types 2, your program should assign a seat in the economy section (seats 6–10). Your program should 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 one-dimensional array to represent the seating chart of the plane. Initialize all the elements of the array to false (0) to indicate that all seats are empty. As each seat is assigned, set the corresponding elements of the array to true (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."**

**Program Code:**

**#include "stdafx.h"**

**#include <string>**

**#include <iostream>**

**using namespace std;**

**int main()**

**{**

**int c, s[10];**

**string name;**

**cout << "Welcome to Airline Reservations System!\n";**

**cout << "Please enter your name: ";**

**getline(cin,name);**

**cout << "Choose a class: ";**

**cin >> c;**

**switch(c)**

**{**

**case 1:**

**cout << "First class" << endl;**

**cout << "Seats available are 1,2,3,4,5.\n";**

**cout << "Pick a number: ";**

**cin >> s;**

**for(int i; i < 10; i++)**

**if(s <= 5)**

**{**

**cout << "\n";**

**cout << "--------------------------\n";**

**cout << "Name: " << name << endl;**

**cout << "Class: " << "First class" << endl;**

**cout << "Seat no.: " << s << endl;**

**cout << "--------------------------\n";**

**}**

**else**

**cout << "Wrong number! No seat for you!\n";**

**break;**

**case 2:**

**cout << "Economic class\n";**

**cout << "Seats available are 6,7,8,9,10.\n";**

**cout << "Pick a number: ";**

**cin >> s;**

**if(s >= 6)**

**{**

**cout << "\n";**

**cout << "--------------------------\n";**

**cout << "Name: " << name << endl;**

**cout << "Class: " << "Economic class" << endl;**

**cout << "Seat no.: " << s << endl;**

**cout << "--------------------------\n";**

**}**

**else**

**cout << "Wrong number! No seat for you!\n";**

**break;**

**}**

**system("pause");**

**return 0;**

**}**

**Sample Output:**