Christopher Huynh

CMPS 109 - Karim Sobh

Assignment 2 - Due: Feb 6

Problem 1 Report

How to build:

Either use the Makefile provided to create an .exe or use the following command to build and run the program:

g++ problem1.cpp CardReader.cpp

Implementation:

The card reader uses a 2D array to store if a seat is occupied or not. The first index of the array is the class room number from 0 to 7 and the second index of the array is the student number from 0 to 255. Each function uses validations to check if the class number and/or student number is within this index. When a student is checked in their respective location in the array is set to 1 to represent it is occupied e.g. to check in student 5 into class 2, classrooms[2][5] is set to 1. When checking out students we set their respective location.

To check if a seat is occupied in class, the function checks if classrooms[class_number][seat_number] is equal to 1. If it is not then the seat is not occupied. When returning the number of seats occupied in a class, we iterate through the array and decrement the seat counter from 256 to get the total number of seats available.

When inquiring about the location of a student, we iterate through the array at the student seat number. If the seat number is out of index, we return -2 to represent an error. If the student is not found in any class we return -1 to represent the student is not in a class. Otherwise the function returns the class number the student is in.