CSE 1384 - Vectors and Functions
Lab 4

Objectives:

- Continue practicing past concepts
- Practice using vectors
- Practice using functions

Assignment:

Create a program that allows a user to view and alter a class schedule. To make the class schedule, you'll need to use **TWO** string vectors: courseCodes and courseNames.

Note: Throughout the lab, you can assume the user will enter the correct data type you're expecting. So, if you're asking for an integer, assume they will correctly always enter an integer.

Your program should utilize four functions:

- main
  - Parameters: none
  - Return value: 0
  - Purpose: Loop through the user menu letting the user choose options until they'd wish to stop
- viewSchedule
  - Parameters: codes and class names (both by reference)
  - Return value: none
  - Purpose: display all the items in the vectors
- addClass
  - Parameters: codes and class names (both by reference)
  - Return value: flag to determine pass/failure
  - Purpose: add a course to the vectors. Course codes should be checked for being exactly four characters long (can fail). Return a flag to indicate a passed or a failed add
- removeClass
  - Parameters: codes and class names (both by reference)
  - Return value: flag to determine pass/failure
  - Purpose: remove a course from the vectors. *Should not display the vectors here.* Ask the user which item they'd like to remove … check to see if the number is valid given the size (can fail). Return a flag to indicate a passed or a failed remove

The main function should contain a menu, as noted above. The menu should consist of four options:

- Exit
    - Exit the menu
- View Schedule
    - Check to see if the vector contents aren't empty
    - Call view schedule function if they aren't
- Add Class
    - Call add class function
    - Check for failure and tell the user if an add passed or failed
- Remove Class
    - Check to see if the vector contents aren't empty
    - If they aren't
        - Display vector contents
        - Call remove class function
        - Check for failure and tell the user if a remove passed or failed
- Incorrect menu option
    - Display an error to the user that the menu option isn't valid

Hints:

Course names should be received in their entirety – including spaces. Additionally, strings include a .size() function that should be useful in one of your functions.

BONUS / Honors Student Credit:

If you're an honors student, you ***must*** complete this portion. If you do not, it will be counted against you. If you're not an honors student, you may complete this section for an additional 10 bonus points.

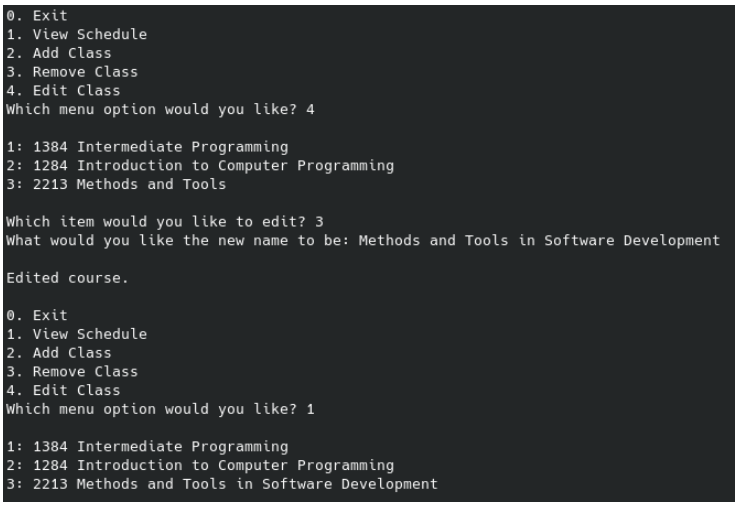
Add an additional function and menu option to allow for the editing of classes. The function criteria is as follows:

- editClass
    - Parameters: class names (by reference)
    - Return value: flag to determine pass/failure
    - Purpose: edits a single course in the vectors. *Should not display the vectors here.* Ask the user which item they'd like to edit … check to see if the number is valid (can fail). *Only* the class name should be editable. Return a flag to indicate a passed or a failed edit

To use it, add an additional menu option:

- Edit Class
    - Check to see if the vector contents aren't empty
    - If they aren't
        - Display vector contents
        - Call edit class function
        - Check for failure and tell the user if an edit passed or failed

Example Execution (of Honors/BONUS options):



Example Execution (without BONUS):

```
Welcome to the class schedule manager.
0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 6

That's not a valid menu option. Try again.

0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 1

You have to add classes first!

0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 2

What course code would you like to add? (4 characters long) 111


Error in adding course. Try again.

0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 2

What course code would you like to add? (4 characters long) 1384
What is the course name? Intermediate Programming

Course added!

0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 2

What course code would you like to add? (4 characters long) 1284
What is the course name? Introduction to Computer Programming

Course added!

0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 1

1: 1384 Intermediate Programming
2: 1284 Introduction to Computer Programming


0. Exit
1. View Schedule
2. Add Class
3. Remove Class
Which menu option would you like? 0

Good-bye!
```

Comment Block:

Your code should contain a comment block at the top containing information on who wrote the code, what the assignment is, when it is due, etc. Here is an example of a good comment block to put:

```
/*
 Name: <your name>                          NetID: <your netID>
 Date: <current date>                       Due Date: <enter in due date>

 Description: <What is the program?>
*/
```

Deliverables:

- C++ code (.cpp file)
- A document (.pdf) with two screenshots showing the program running
    - The two program screenshots should have completely different inputs from each other
    - The two screenshots must be *legible* to count (too small or pixelated text will not be interpreted)
    - Show *all* possible error messages
    - If you're doing the honors/bonus credit, this ***must*** be shown in screenshots

Point Breakdown:
(100 points total)
A submission that doesn't contain any code will receive a 0.

- 5pts - no global variables
- 10pts - IO
    - 5pts - user input handled correctly
    - 5pts - output handled correctly
- 30pts - user defined functions (3)
    - 6pts - Parameters correct (2pts per function)
    - 6pts - Return values correct (2pts per function)
    - 18pts - Functions correctly (6pts per function)
        - Handles everything it should and nothing it shouldn't
- 20pts - vectors
    - 5pts - both vectors are present and utilized correctly
    - 5pts - displays vector items correctly
    - 5pts - adds vector items correctly
    - 5pts - removes from vectors correctly
- 15pts - menu handling
    - 5pts - loops correctly
    - 5pts - chooses options correctly
    - 5pts - options handle what they should/not what they shouldn't
- 10pts - two unique screenshots
- 10pts - programming style *
- Honors / BONUS (dependent on Honors status):
    - Honors: 10pts penalty for not completing
    - BONUS: 10pts added for completing

* Programming style includes good commenting, variable nomenclature, good whitespace, etc.