

# **Software Integration Final Project**

## **Course Management system for Students and Instructors**

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#### **Introduction:**

The project is a c++ based course management suite for students and instructors. They can log in with usernames and passwords, and access course information. Instructors can view a list of students and their given attribute, and student can view a list of their classes. The students can also add and remove classes, but no student can have more than 5 classes at a time (too much workload)

#### **Design:**

The project is built using an class hierarchy and inheritance system. to avoid duplication of code. I used a linked list for the student course lists and an array for the student lists that the instructors have access to.

The list was a regular linked list class I built myself, which allows for adding in  $O(1)$  time by appending new nodes to the tail, and updating the tail node. The list also has methods for deleting a single node, or destroying the entire list. The list class was also built as a template class so that in the future I could use it to store objects of a different nature if need be.

I defined a user class which will be extended by classes Student and Instructor, since a user of the application can either be a student or an instructor.

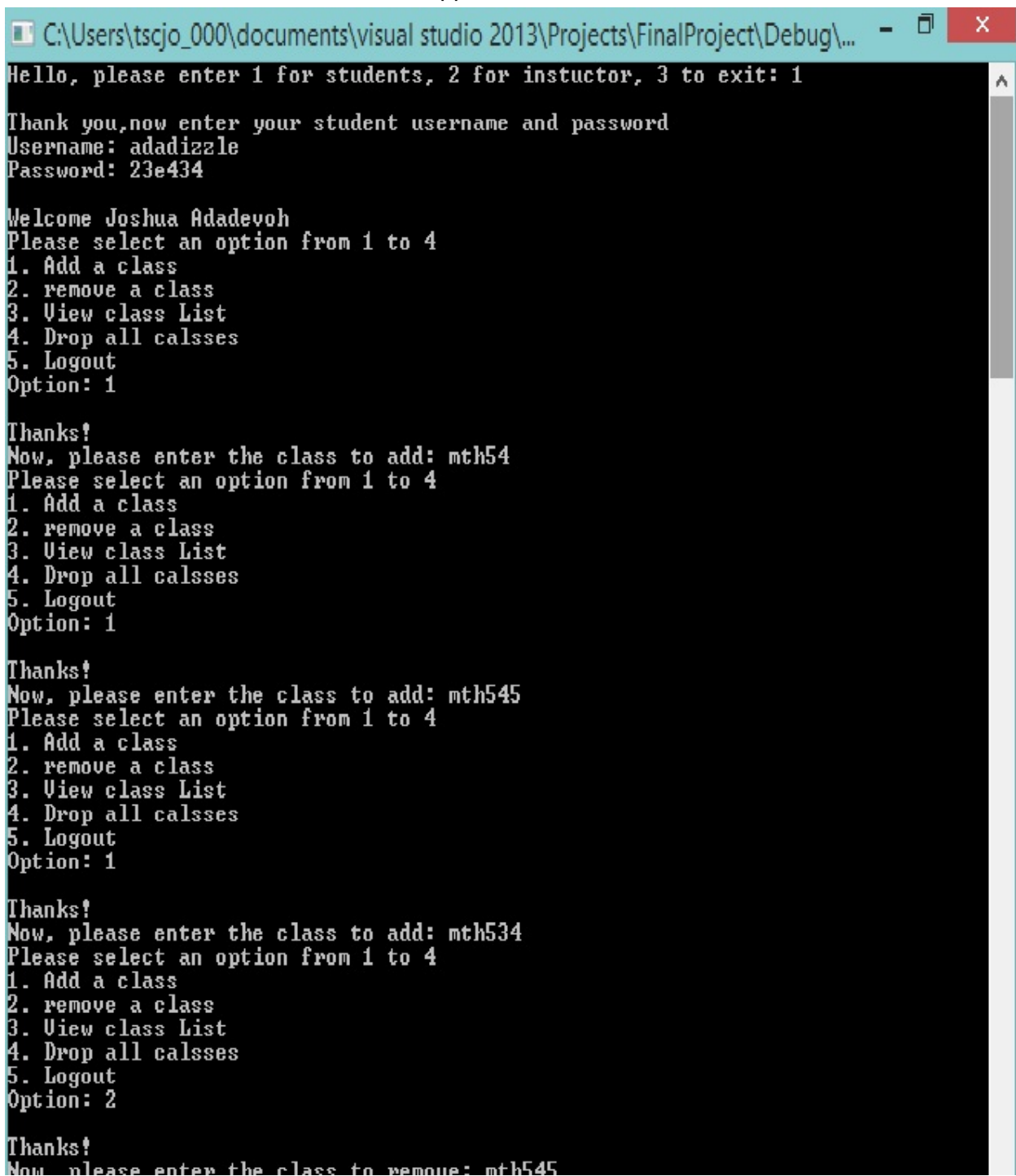
The student class uses the list class to house and manage the student courses. It has methods for adding a class, removing a class, dropping all classes and displaying the list of classes.

For the instructor class, there is a vector list of students, which signifies the students a certain instructor is assigned to, and there is a method to view this list. Given more time I would also implement functionality for an instructor to cycle through of each student in that vector list, and perform operations on each one, such as viewing the students course list.

In my driver file I initialized sample entries for the application for testing purposes, ideally I wanted to allow the user to create his own account, and populate his information, time would not allow for it, so instead I have lists of predefined characters that the app can be simulated against.

#### **Evaluation:**

These are runtime screen shots of the application in use:



```
C:\Users\tscjo_000\documents\visual studio 2013\Projects\FinalProject\Debug\... - X
Hello, please enter 1 for students, 2 for instuctor, 3 to exit: 1

Thank you,now enter your student username and password
Username: adadizzle
Password: 23e434

Welcome Joshua Adadevoh
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 1

Thanks!
Now, please enter the class to add: mth54
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 1

Thanks!
Now, please enter the class to add: mth545
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 1

Thanks!
Now, please enter the class to add: mth534
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 2

Thanks!
Now, please enter the class to remove: mth545
```

```
C:\Users\tscjo_000\documents\visual studio 2013\Projects\FinalProject\Debug\... - [X]
Thanks!
Now, please enter the class to remove: mth545
mth545 was dropped successfully
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 3

Thanks!
Your list of registered classes:
mth54
mth534
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 2

Thanks!
Now, please enter the class to remove: mth54
mth54 was dropped successfully
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 3

Thanks!
Your list of registered classes:
mth534
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 4

Thanks!
```

```
Thanks!
Your list of registered classes:
mth534
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 4

Thanks!
Are you sure you want to drop all your classes? (Y/N): Y
Successfully dropped all classes
Please select an option from 1 to 4
1. Add a class
2. remove a class
3. View class List
4. Drop all calsses
5. Logout
Option: 5

Thanks!
Logging you out
Hello, please enter 1 for students, 2 for instuctor, 3 to exit: 2

Thank you. Now enter your instructor credentials
Username: cotero
Password: 23re928j
Welcome Charles Otero
Please select an option
1. Display your student list
2. Logout
Option: 1

Thanks!
List of students in your class:
```

```
C:\Users\tscjo_000\documents\visual studio 2013\Projects\FinalProject\Debug\... -
Hello, please enter 1 for students, 2 for instuctor, 3 to exit: 2
Thank you. Now enter your instructor credentials
Username: coterio
Password: 23re928j
Welcome Charles Otero
Please select an option
1. Display your student list
2. Logout
Option: 1
Thanks!
List of students in your class:
Joshua Adadevoh
Joanna Adadevoh
Jill Neem
James Dean
Dean Winchester
Sam Winchester
Bobby Singer
Castiel Angel
Bereket Mathewos
Random User
Please select an option
1. Display your student list
2. Logout
Option:
```

### Conclusion:

I enjoyed writing this, but there is a lot of room for additional functionality, and given more time, more meaningful attributes that can be implemented.