CAB301 ALGORITHMS AND COMPLEXITY

Assignment 3

**Development of a Community Library**

**Movie DVDs Management Software**

**Group 22**

| **Team Member** | **Student Number** |
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## 

# 1. Introduction

briefly talk about the project and the software application that you have developed

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# 2. Design and Analysis of Algorithms

Design an algorithm and analyse the time efficiency the algorithm using the empirical

algorithm analysis technique introduced in Topic 2 for the following computational

problem:

• Given an array where the elements are randomly stored, find the three largest

elements in the array.

– Use the pseudocode notations introduced in Topic 1 to describe your algorithm, analyse the time efficiency of your algorithm using the empirical algorithm analysis technique introduced in Topic 2, and apply your algorithm to solve the following computational problem in the software application development:

* Display the top three (3) most frequently borrowed movies by the members in the descending order of their frequency.

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# 3. Software Test Plan and Test Results

design a test plan for each of the application’s functions. In each of the test plans, please include the test scenarios/cases, actual test data for each of the test scenarios/cases. Please also provide screenshots of the tests and test results.

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## Test Plan

| Menu | Menu Option | Functionality to Test |
| --- | --- | --- |
| Main Menu |  | * Choose an action |
| Staff Login Sub-Menu |  | * Login as staff |
| Member Login Sub-Menu |  | * Login as member |
| Staff Menu | 1. Add new DVDs of a new movie to the system | * Add a new movie if a new DVD movie is not in the system. * Add DVDs to a movie that already exists |
| 2. Remove DVDs of a movie from the system | * Remove a number of DvD copies from a movie that is less than the number of copies available. * Delete the movie from the system if all the copies are deleted. |
| 3. Register a new member with the system | * Register a new member |
| 4. Remove a registered member from the system | * Remove a registered member from the system |
| 5. Display a member's contact phone number, given the member's name | * Display a member's contact phone number, given the member's name |
| 6. Display all members who are currently renting a particular movie | * Display all members who are currently renting a particular movie |
| 0. Return to the main menu | * Return to the main menu |
| Member Menu |  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## Test Results

### Main Menu

Functionality Under Test: Choose Action

| Test | Attempt selecting a valid choice |
| --- | --- |
| Test Data | * Choice: 1 |
| Expected Result | The Staff Login Menu appears |
| Actual Result |  |
| Test Passed | |

| Test | Attempt selecting an invalid choice |
| --- | --- |
| Test Data | * Choice: 4 |
| Expected Result | Warning Message is displayed |
| Actual Result |  |
| Test Passed | |

### Staff Login Sub-Menu

Functionality Under Test: Login as staff

| Test | Successful Login: Correct Password and Username |
| --- | --- |
| Test Data | * Username: staff * Password: today123 |
| Expected Result | The Staff Menu appears |
| Actual Result |  |
| Test Passed | |

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Tests to addd to tables

#### Successful Login: Correct Password and Username

Test Data

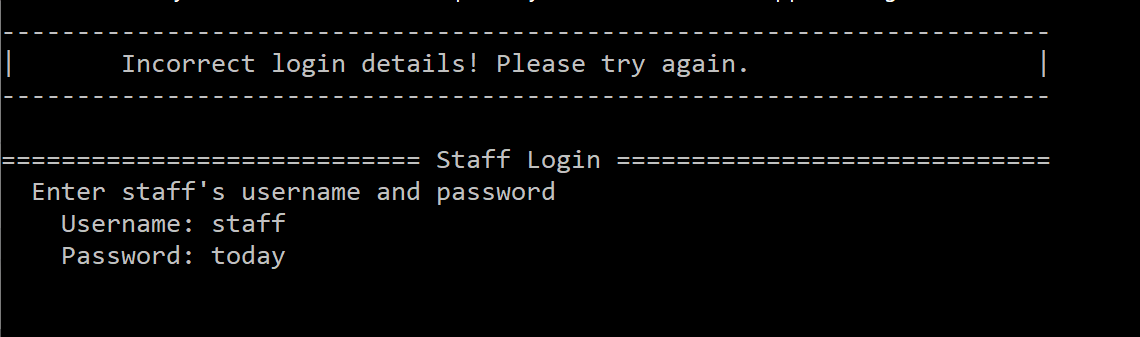
* Username: staff
* Password: today123

Result

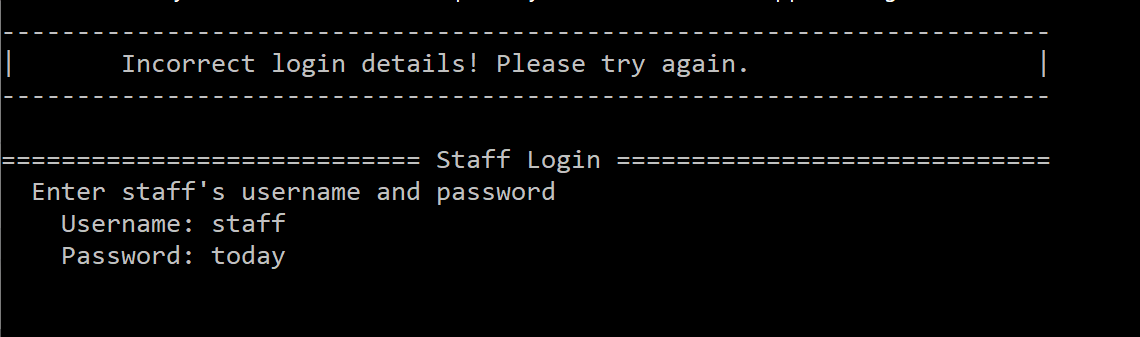
#### Unsuccessful Login: Wrong Password

Test Data

* Username: staff
* Password: today



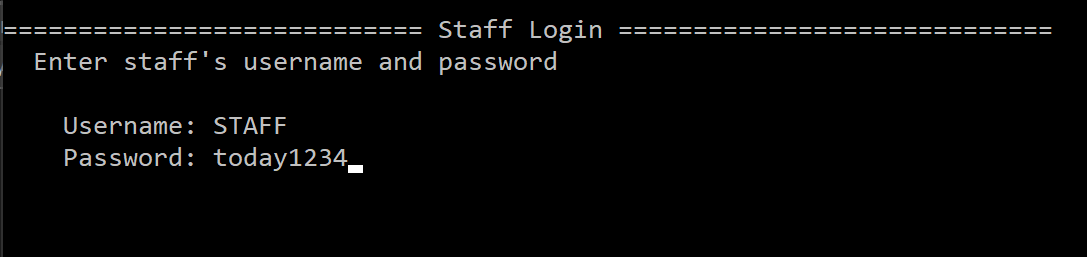
Result:

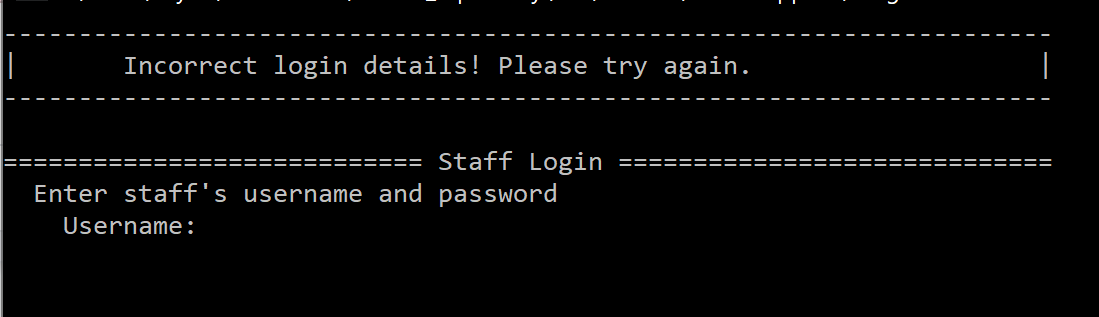


#### Unsuccessful Login: Wrong Username

Test Data

* Username: STAFF
* Password: today1234



Result: 

### 3. Member Login

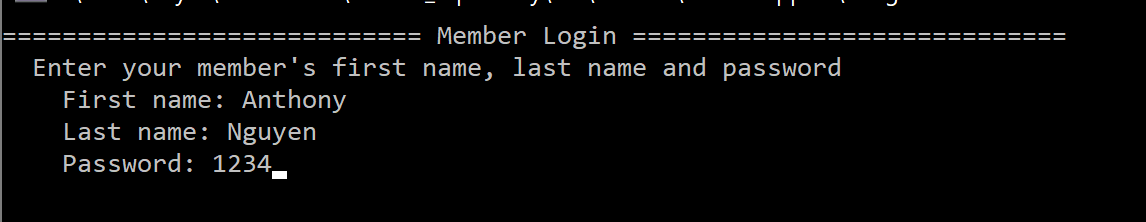
Correct member details:

* First name: Anthony
* Last Name: Nguyen
* Password: 1234

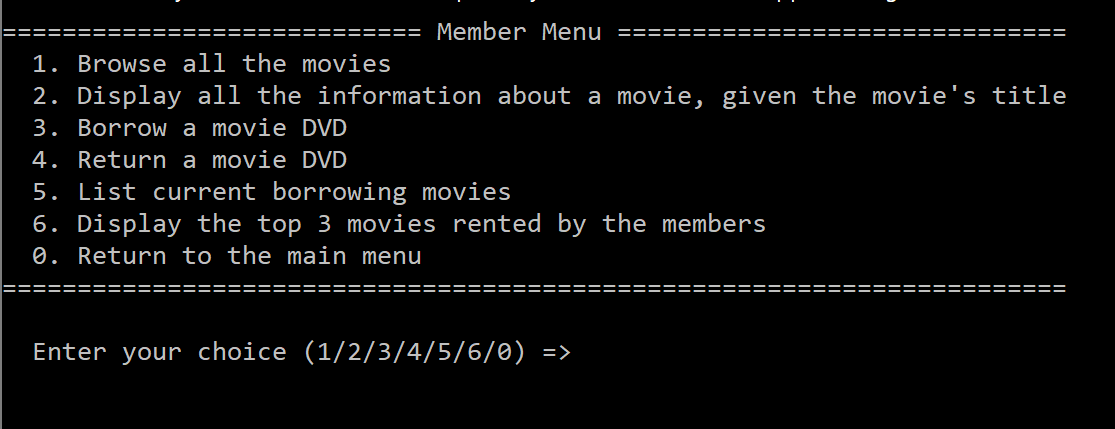
#### Successful Login: Correct Password and Names

Test Data

* First name: Anthony
* Last Name: Nguyen
* Password: 1234



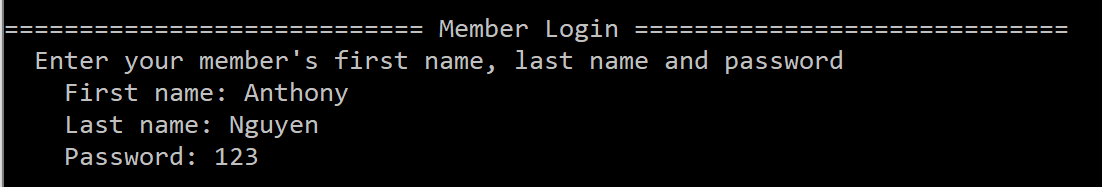
Result



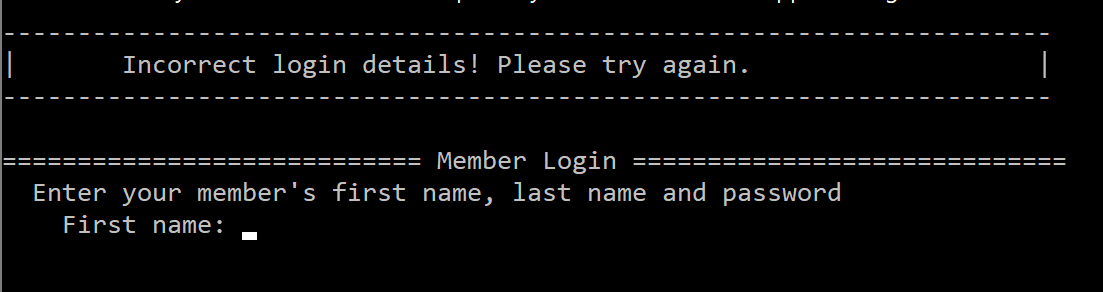
#### Unsuccessful Login: Wrong Password

Test Data

* First name: Anthony
* Last Name: Nguyen
* Password: 123



Result

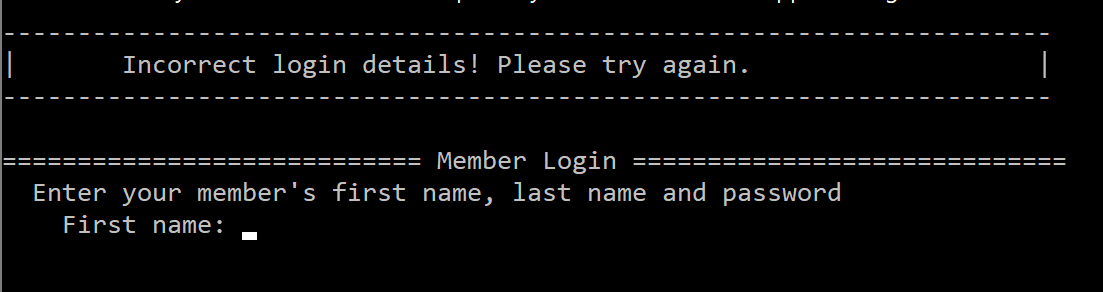


#### Unsuccessful Login: Wrong First Name

Test Data

* First name: Anthony
* Last Name: Nguyen
* Password: 1234

Result



#### Unsuccessful Login: Wrong Last Name

Test Data

* First name: Anthony
* Last Name: Nguyen
* Password: 1234

Result

