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Assessment Task (AT 3 Project)

Jupiter Mining Corporation

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# Project Outline

## What data structures are you using?

I will be using a User class which will contain the following member properties:

* Username: string
* PasswordHash: string

## Where are you using hashing techniques?

I will be using Cryptographic level hashing of the Password. This will be done at the Server end, where the User objects will be stored in a CSV file.

## What sorting algorithm are you using, and how is different from selection and bubble sort?

I will be using an AVLTree to hold the User objects. This tree uses a binary sort method at the time of insertion of each new item. It is more efficient than either the selection or bubble sort methods.

## What search technique are you using?

As I will be using an AvlTree to store the User objects, obviously the search mechanism will be a binary search. This search is internal to the AvlTree itself.

## What third party libraries are you using?

I will be using the following third-party libraries:

* CsvHelper (v27.1.1)
* Microsoft.AspNetCore.Cryptography.KeyDerivation (v5.0.11)

In addition, I will be using two of my own libraries from previous project:

* MyNETCoreLib (v1.0)
* MyWpfNETCoreLib (v1.0)

## Where can I find the documentation for this?

All documentation will be stored with the rest of the project files and included in the Source Control System.

## A mock-up of the GUI.

Graphical user interface, application

Description automatically generated

Figure - New Account view

Graphical user interface, application

Description automatically generated

Figure - Login view

Graphical user interface, application

Description automatically generated

Figure - Chat view

## What source control are you using?

I will be using git and GitHub as the source control system.

## What are your coding standards you are enforcing?

I will be using the following coding standards:

<https://docs.microsoft.com/en-us/dotnet/csharp/fundamentals/coding-style/coding-conventions>

## What tests are you going to run?

I plan on testing the following scenarios:

1. Start Socket Server
2. Run the GUI program
3. Show Log Console
4. Create a new user account:  
   User: “Peter”  
   Password: “Rabbit”
5. Show use of Chat session
6. Log out of Chat session
7. Login as:  
   User: “Peter”  
   Password: “Rabbit”
8. Try to add new user:  
   User: “Nutter”  
   Password: “”
9. Try to Login as:  
   User: “Nutter”  
   Password: “”
10. New Account form:
    1. Try to Submit with blank Username
    2. Try to submit with blank Password
    3. Try to submit without entering the same Password into the second password field
    4. Use Reset button to clear the form
11. Close Log Console
12. File/Exit

# References