# CST 2550

Gym Membership system

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## INTRODUCTION

The Gym Membership System is a Windows Forms application developed using C# and SQL Server to manage user authentication, membership sign-ups, workout plans, supplement packages, and customer checkouts. The system aims to streamline gym operations and improve user experience by providing an interactive, digital solution.

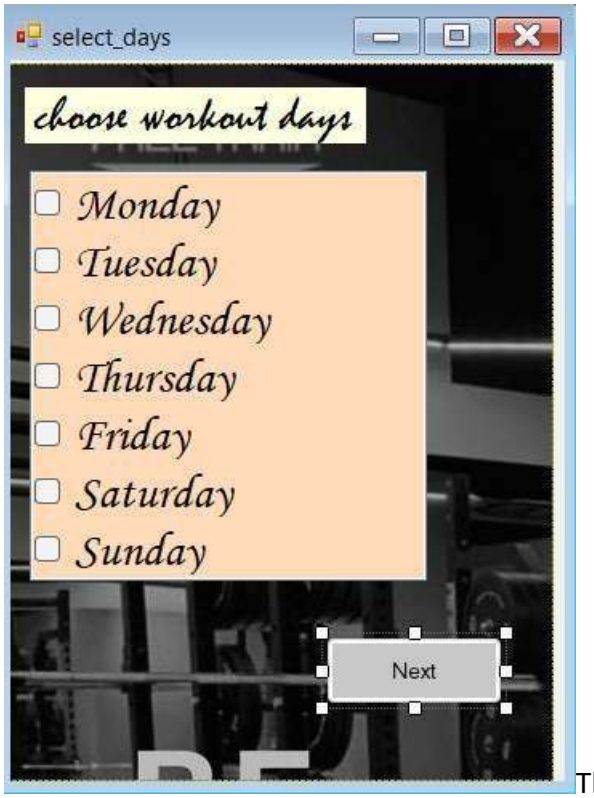
## DESIGNING


Initially the user will be required to login


Clearly the users would be first time user , thus they would have to create an account first and if they are students they get 10% off the membership fee.

This is the main dashboard where the users can choose to either check the workout plans, buy supplements or book coaches for sessions. The workout schedule from Monday to Sunday is already displayed.

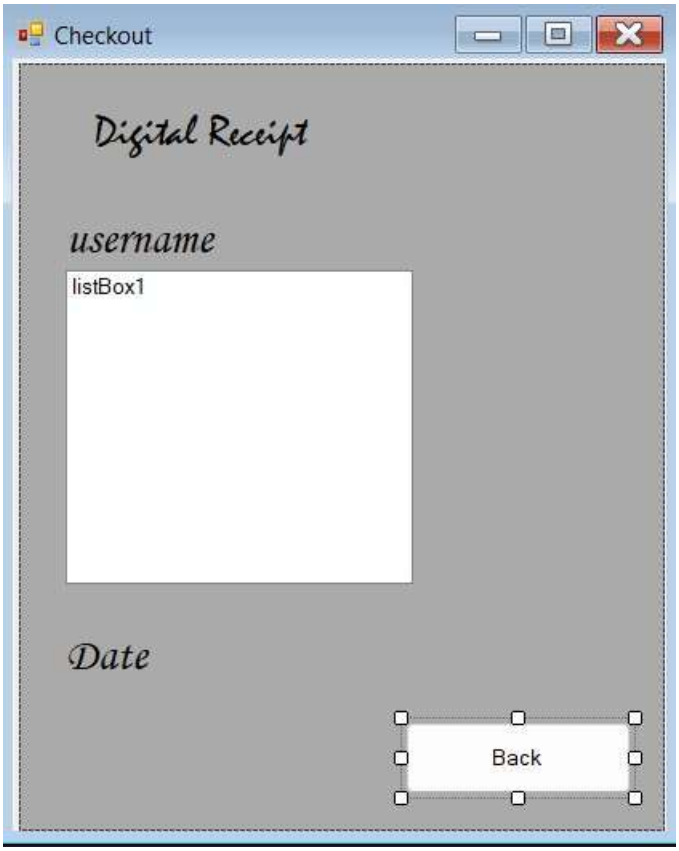

The user will be required to select their goals.

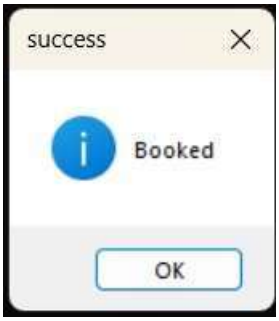


The days they are free to workout can also be chosen.

This table demonstrates the coaching sessions from  Monday to Sunday.


when the “Add To Package “ button is clicked ,the selected item is added to the user’s package and when pressing proceed button the user would be provided with a digital receipt.




The users can even book their personal coaches.

Designing

1.user authentication logic

```
FUNCTION LoginUser(username, password):

    IF username IS empty OR password IS empty:

        RETURN "Please enter both fields"


    CONNECT to SQL database


    QUERY database WHERE username = inputUsername


    IF user NOT found:

        RETURN "User does not exist"


    IF password MATCHES databasePassword:
```

RETURN "Login successful"  ELSE:

RETURN "Incorrect password"

### 2.Discount based pseudocode

FUNCTION ApplyDiscount(profession, originalPrice):

IF profession == "student":

discount = 0.2

ELSE IF profession == "trainer":

discount = 0.1

ELSE:

discount = 0.0

finalPrice = originalPrice - (originalPrice * discount  RETURN finalPrice

## TESTING

I used blackbox testing which focuses on inputs and outputs without analysing the internal code structure. The test was conducted based on different input combinations, including edge cases like empty fields and invalid data types.

test case table

| ID | TEST CASE DESCRIPTION | INPUT | EXPECTED OUTPUT | PASS/FAIL |
|---|---|---|---|---|
| TC01 | Empty login fields | Username:””, password:”” | Error message: ”please enter both fields” | pass |
| TC02 | Valid registration | Valid username, password | “Account created” +saved in database | pass |
| TC03 | Invalid login | Username not in DB | “user does not exist” | pass |
| TC04 | Incorrect password | Valid username, wrong password | “incorrect password” | pass |

| | | | | |
|---|---|---|---|---|
| TC05 | Profession discount (student 10% off) | Student + price=100 | Final price=80 | pass |
| TC06 | Supplement choice and goals selection | Selected items + goals | Cart summary shows all data correctly | pass |
| TC07 | Checkout confirmation | Click on checkout | Confirmation message + close window | pass |

## CHALLENGES FACED

Difficulties to connect SQL database and query structuring.

**Harvard Style:**


- Microsoft Docs. (n.d.). *SqlConnection Class (System.Data.SqlClient)*. [online] Available at: https://learn.microsoft.com/enus/dotnet/api/system.data.sqlclient.sqlconnection [Accessed 14 Apr. 2025].
- Stack Overflow. (n.d.). *How to use SQL Server with C# Windows Forms?* [online] Available at: https://stackoverflow.com/questions/19193287/ [Accessed 14 Apr. 2025].
- GeeksforGeeks. (2023). *C# Windows Forms Tutorial*. [online] Available at: https://www.geeksforgeeks.org/c-sharp-windows-forms/ [Accessed 14 Apr. 2025].