

Gym Management System

CS107.3

Object Oriented Programming with C#

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Table of Contents

Introduction to the selected scenario.....	3
System Scope and Overview.....	3
Specific Requirements	3
Functional Requirements	3
Non-functional Requirements.....	3
Hardware and Software Requirements	4
Database Requirements	4
Diagrammatic Explanations.....	5
ER.....	5
Use Case Diagrams	6
Class diagrams	7
Interface Requirements	8
User Interfaces	8
Login.....	8
Signup.....	8
Home	9
Members	10
Staff	13
Equipment	15
Payment	18
Membership packages	19
Workload Matrix of group members	19



Introduction to the selected scenario

The gym management system can be introduced as an application which facilitates the management of the fitness center through a computerized information system. This gym management system is developed with the intention of providing a platform for the higher management of the gym to handle all the related procedures happening at the gym premises. The management staff are given the privilege to keep records of essential information such as details about members, trainers, equipment and also the payment records easily and comfortably. The system designers had tried their level best to implement a high-quality application.

Talking about the application, the management staff has to pass through a login system in order to use other features and other functionalities. The users who can login to the system are able to manage the member records, staff records by inserting necessary required details. All the gym equipment details can be set easily which includes name, description, muscles used etc. The authorized users are also given the privilege to search, remove and update any information which is stored within the system.

System Scope and Overview

The gym management system is developed using the visual studio IDE(versions: 2017 and 2019).This gym management requires the system that will deal with all the fundamental and minute details effectively and appropriate database security according to the user. They require software, which will store information about members, staff, equipment, payroll and payment receipts.

The users do not require high educational levels, technical skills or advanced computer expertise to deal with this system. This platform is designed in a way that we can expand rapidly and add more functionalities and extensions efficiently.

The specification of the developed system are summarized below:

- An accurate system without any data redundancy
- Secured data storage
- Better graphical user interfaces
- Saving time and money via the computerization

Specific Requirements

Functional Requirements

Functional requirements specify the details about the behavior and services offered by the application. These are the tasks expected to be performed by using the system. Functional requirements basically explain the software system and its components. All the processes/ inputs and outputs are categorized under the functional requirements.

Non-functional Requirements

Nonfunctional requirements focus on the criteria which the application is conform to. These non-functional requirements describe the qualities and the characteristics of the developed system. Non-functional requirements define the attributes of the designed system and ensure the effectiveness and the quality of the system:

- Accuracy
- Ability to perform extensions and developments
- Accessibility
- Compatibility
- Efficiency
- Maintainability
- Minimum response and loading time
- Performance

Hardware and Software Requirements

For a better performance, the following requirements should be met.

Processor – Core i3
RAM – 2GB/4GB
VGA – Minimum 512MB

To run this project, the Visual Studio IDE must have been installed on the PC. The developed gym management application is highly compatible with the Windows Operating system.

Database Requirements

The databases which are required to store the information are created using the Microsoft SQL Server Database file system which is provided by the Visual Studio itself.

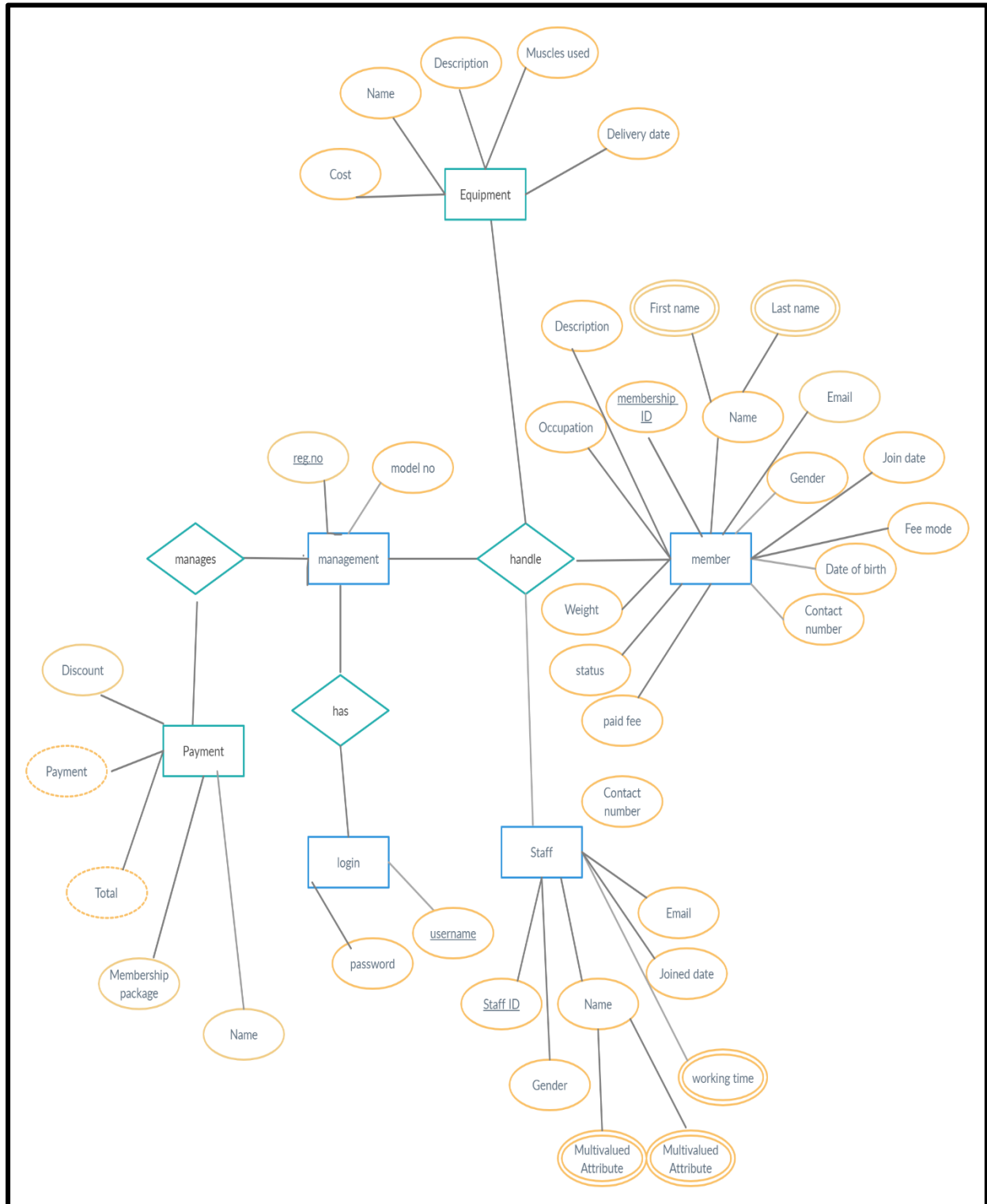
Here, several databases have been used separately for the particular interfaces in order to avoid any confusion and complexities.

Eg:

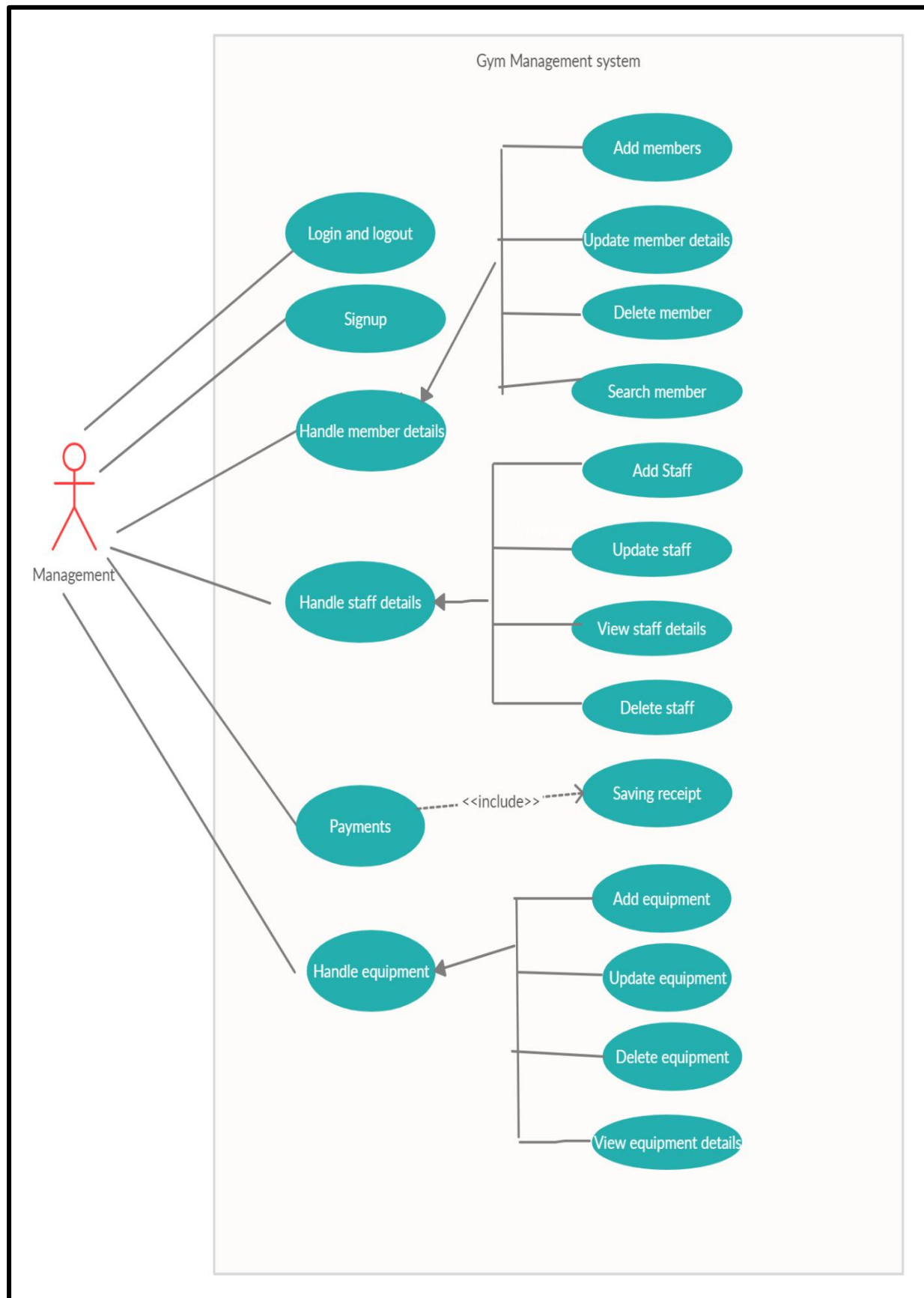
Database Name	Tables inside the particular database
Member	Member Info
StaffDB	Staff
Equipment	Equipment

Diagrammatic Explanations

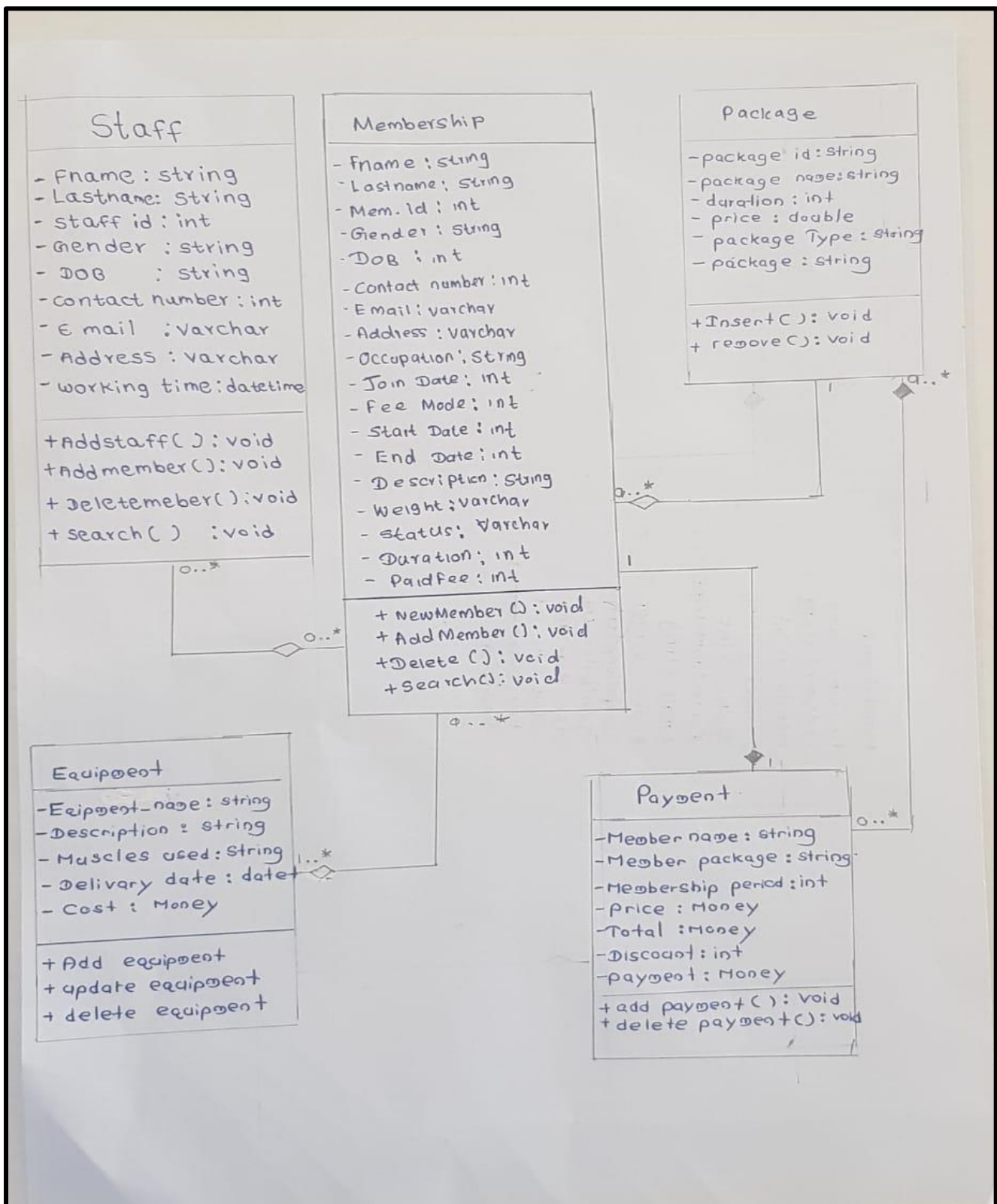
ER



Use Case Diagrams



Class diagram



Interface Requirements

User Interfaces

Login

In the login screen, the application requires the username and the password created by him when creating the account. In a case where the user has forgotten his password, he has the option to recover it by clicking on the “Forgot password” option. If the user doesn’t have an account, he can navigate to the signup page via the login page as well.

The image shows a 'User Login' interface. It features a dark background with a faint image of a person. The title 'User Login' is at the top. Below it are two input fields: the first is preceded by a person icon, and the second is preceded by a lock icon. Below the password field is a 'Show Password' checkbox. A link 'Forgot Password?' is positioned between the two fields. At the bottom are two buttons: a yellow 'Login' button and a grey 'Sign Up' button.

Signup

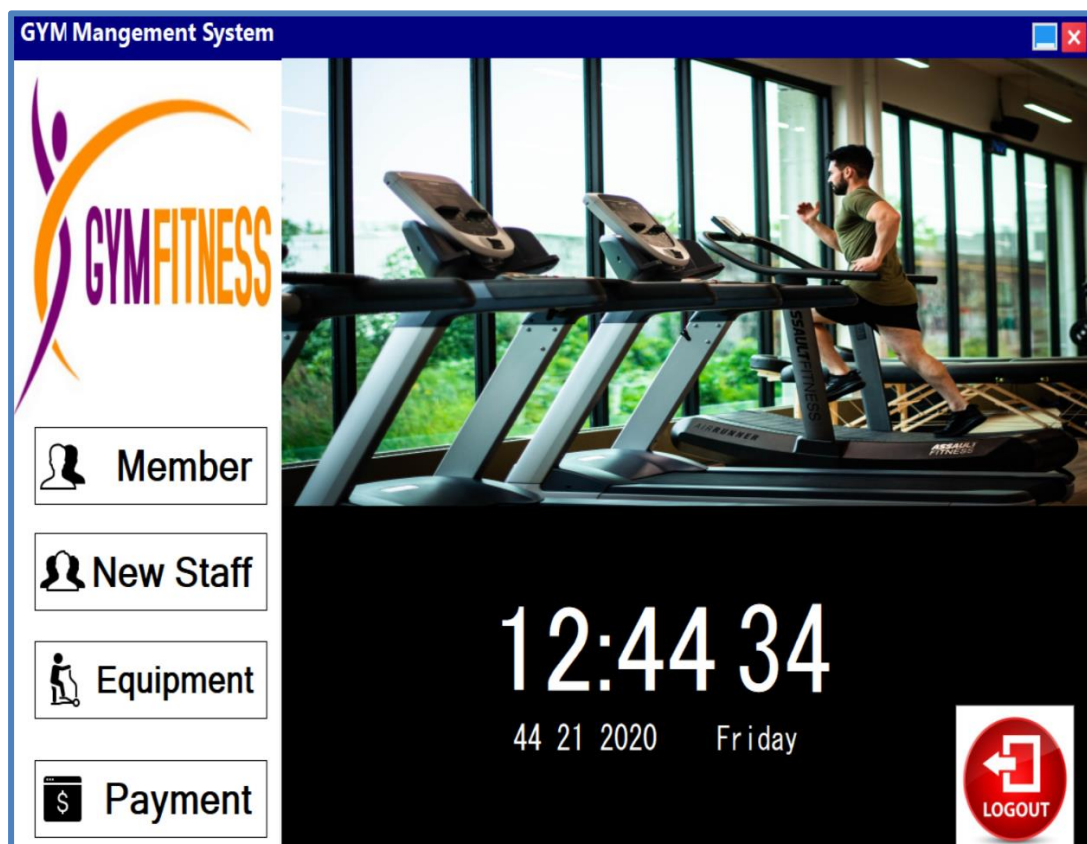
The registration/signup page allows the user to create an account on their own. Here, the users are required to complete a registration form which include the username, email address, contact number, age, password and gender. If the user already has an account, he can login to the system without creating a new account.

The image shows a 'SIGN UP' interface. The left side has a dark red background with the text 'SIGN UP' and 'Building Confidence Building Fitness'. The right side has a light background with the 'GYM FITNESS' logo. Below the logo is a registration form with fields for: username, password, Confirm password, e-mail, Mobile Number, Gender, and Age. At the bottom are four buttons: 'Sign Up', 'Reset', 'Login', and 'View'.

SignUp Details					
Back					
	username	password	confirmpassword	email	mobilenumber
▶	asini	15263	15263	deaqdcfvghnj	15263
	deetak	152	152	s@gmail.com	123456
	hiruni	123	123	bbbb	12344
	hiruni12	444	444	hiruni@gmail.com	12345
	lasal	lasal123	lasal123	lasallekvindu@g	778964621
	lasal	lasal	fdfd	dkjdkj	1556565
	nisal	12	12	rv@gmail.com	123456
	nnb	cvc	vdvdc	cscsx	24221
	ovini	123	123	s@gmail.com	21556878
	adjsdkj	cdjcdco	cdjcdj	cdjs	6464

Home

The home page is the main window of the application. It enables to navigate through all the interfaces of the system. The buttons have been used to navigate to those different pages. When the login is successful, the user automatically gets redirected to the home page.



Members

❖ Add members

The new members can be added by inserting Name, membership ID, birthday, telephone number, email, address, occupation, weight, duration, paid fee etc.

	FirstName	LastName	MembershipID	Gender	DateOfBirth	ContactNumber	Email	Address
▶	Kamal	Perera	1	male	7/9/2020	147852963	qwertyuiop	qwertyu
*	aldal	lak	34	Female	8/6/2020	135468989	lasdkslkk@gmail	dsksfs.d

❖ Update members

The DataGrid view displays all the records initially and when the necessary record is selected from the grid view, they get automatically filled into the textboxes of the form.

GYM Management System

Update Memeber Form

First Name

Last Name

Membership ID

Gender

☐ Male ☐ Female

Date Of Birth

Contact Number

Email

Address

Occupation

Join Date

Fee Mode

Start Date

End Date

Description

Weight

Status

Duration

Paid Fee

Update

Cancel

	FirstName	LastName	MembershipID	Gender	DateOfBirth	ContactNumber	Email	Address
▶	Kamal	Perera	1	male	7/9/2020	147852963	qwertyuiop	qwertyus
	aldal	lak	34	Female	8/6/2020	135468989	laskdskkk@gmail....	dskjfs,dls
*								

❖ Delete members

When the membership ID is given, the particular member records are deleted from the database.

GYM Management System

Delete Memeber Form

Membership ID

Delete **Cancel**

	FirstName	LastName	MembershipID	Gender	DateOfBirth	ContactNumber
▶	Kamal	Perera	1	male	7/9/2020	147852963
	aldal	lak	34	Female	8/6/2020	135468989
*						

❖ Search member

When the search member form loads, all the records inside the database are visible in a data grid view. From there, we can search any member.

GYM Management System

Search Memeber Form

Membership ID

Search **Cancel**

	FirstName	LastName	MembershipID	Gender	DateOfBirth	Contact
▶	Kamal	Perera	1	male	7/9/2020	1478529
	aldal	lak	34	Female	8/6/2020	1354689
*						

Staff



❖ Add staff

Here, new staff/trainers/instructors can be added to the system using the add member form by entering their details such as Name, joined date, age, email, contact number, gender and the working time. In this scenario, the staff ID for each and every member will be generated automatically.

A screenshot of a web application window titled "Add New Staff Members". The window has a teal background. On the left side, there is a sidebar with a home icon. The main area contains a form with the following fields: "Staff ID" (with a value of 9), "Email", "First Name", "Last Name", "Joined Date" (with a date picker showing Friday, August 21, 2020), "Age", "Contact number", "Gender" (with radio buttons for Male and Female), and "Working Time" (with a dropdown menu). At the bottom of the form, there are two buttons: "Add" and "Clear". The window has standard Windows-style controls (minimize, maximize, close) in the top right corner.

❖ Update staff

In the update staff window, the stored data of staff are displayed using a DataGrid view. When the user wants to update the details of a one particular person, the staff ID of that person should be entered. Then the stored details relevant to that person get automatically get filled into the textboxes and we can update only the required information.

	StaffID	FirstName	LastName	JoinedDate	Age	WorkingTime	Email
▶	3	Nayana	Kalyani	Saturday, June 2...	35	Morning	nayana@gmail
	6	Sasini	Meegoda	Thursday, August...	21	Evening	megoda@gmail
	7	Hasini	Sewwandi	Thursday, August...	21	Night	hasini@gmail
	8	dfjs	fefekok	Friday, August 28...	45	Afternoon	lasalksdaldl@gmail
*							

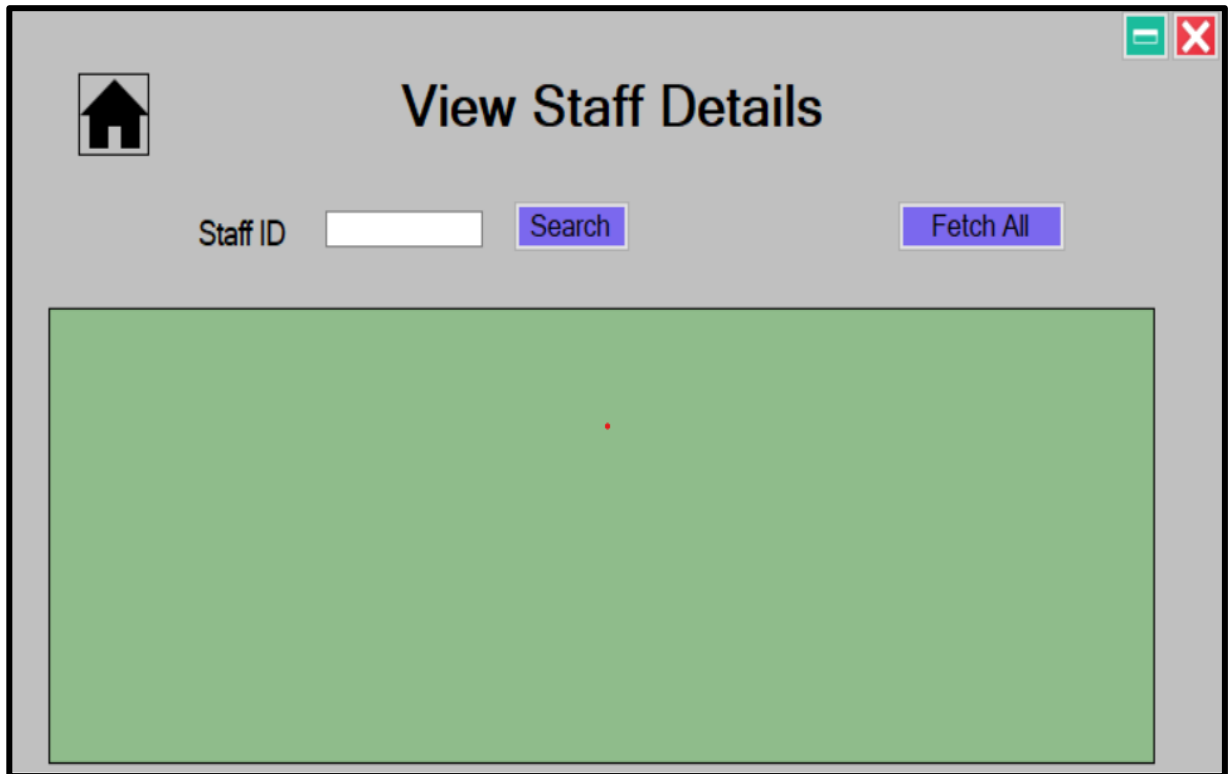
❖ Delete staff

Here, when the staff ID is inserted, entire record corresponding to the entered ID get removed from the system.

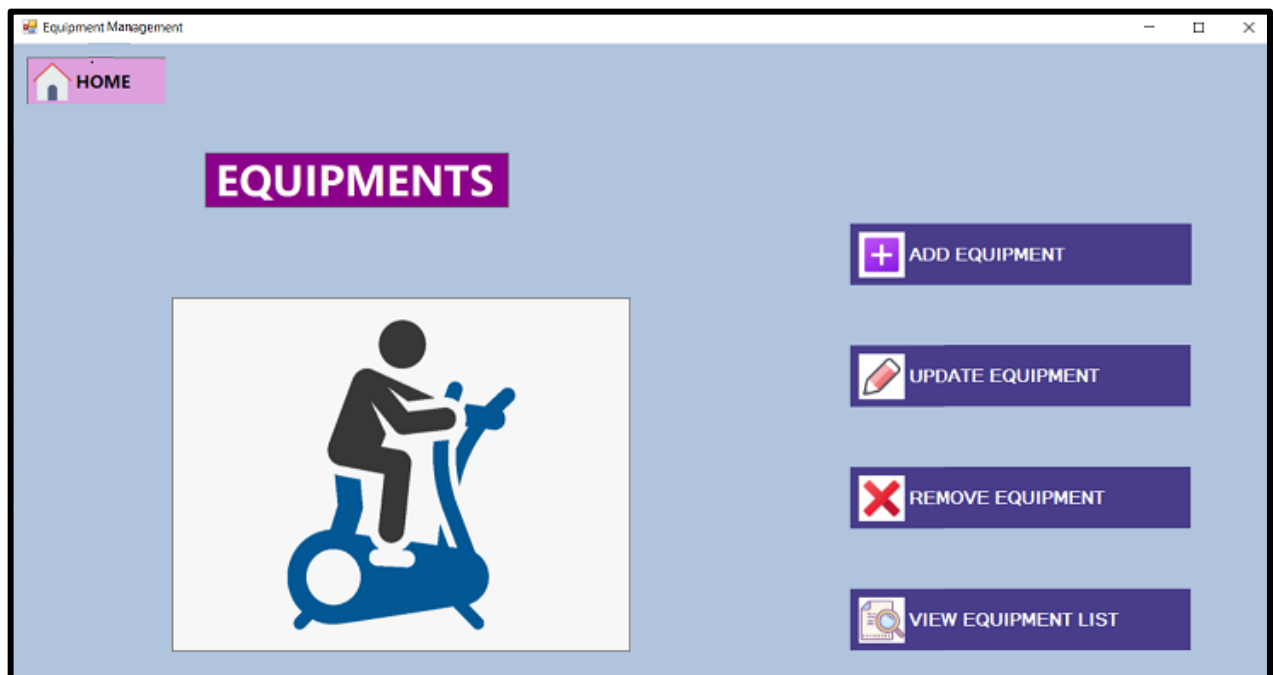
	StaffID	FirstName	LastName	JoinedDate	Age	WorkingTime	Email
▶	3	Nayana	Kalyani	Saturday, June 2...	35	Morning	nayana@gmail
	6	Sasini	Meegoda	Thursday, August...	21	Evening	megoda@gmail
	7	Hasini	Sewwandi	Thursday, August...	21	Night	hasini@gmail
	8	dfjs	fefekok	Friday, August 28...	45	Afternoon	lasalksdaldl@gmail
*							

❖ View staff details

In the view staff details interface, the authorized users are able to search the details by entering the staff ID. Moreover, there is an option to view all the details which are available in the database by clicking on the 'Fetch All' button.

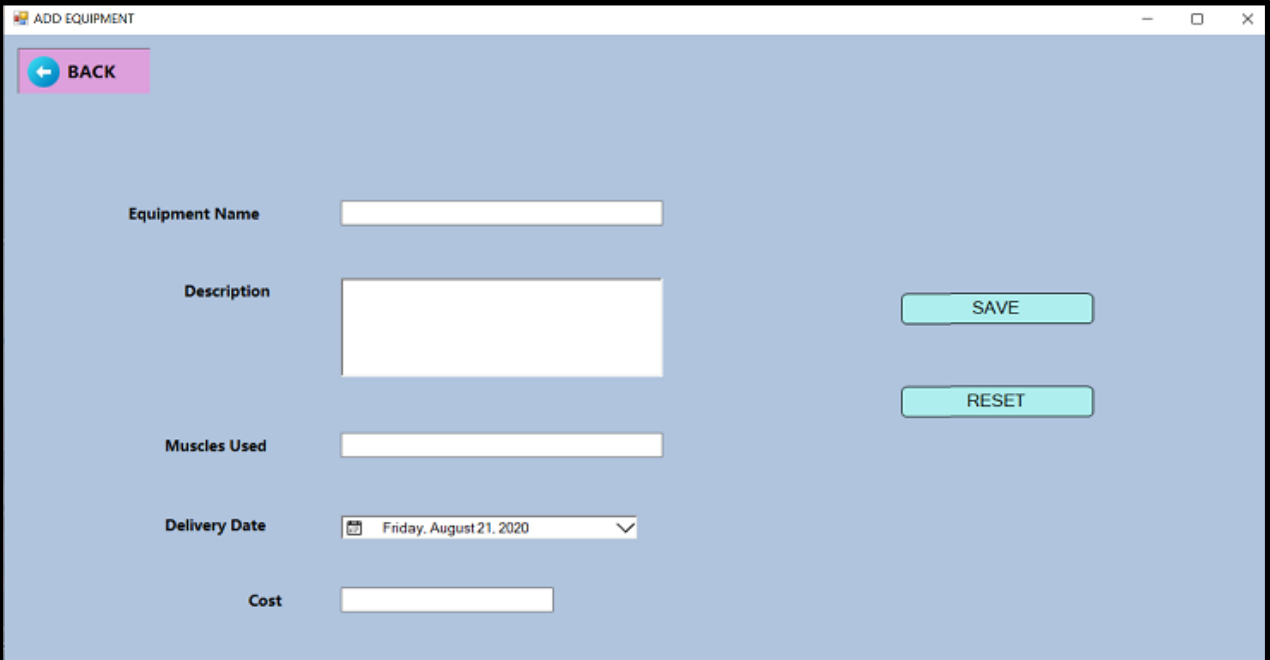


Equipment



❖ Add equipment

Equipment which are newly purchased to the gym can be added by entering their details such as name, description, delivery date and cost.



ADD EQUIPMENT

[← BACK](#)

Equipment Name

Description

Muscles Used

Delivery Date

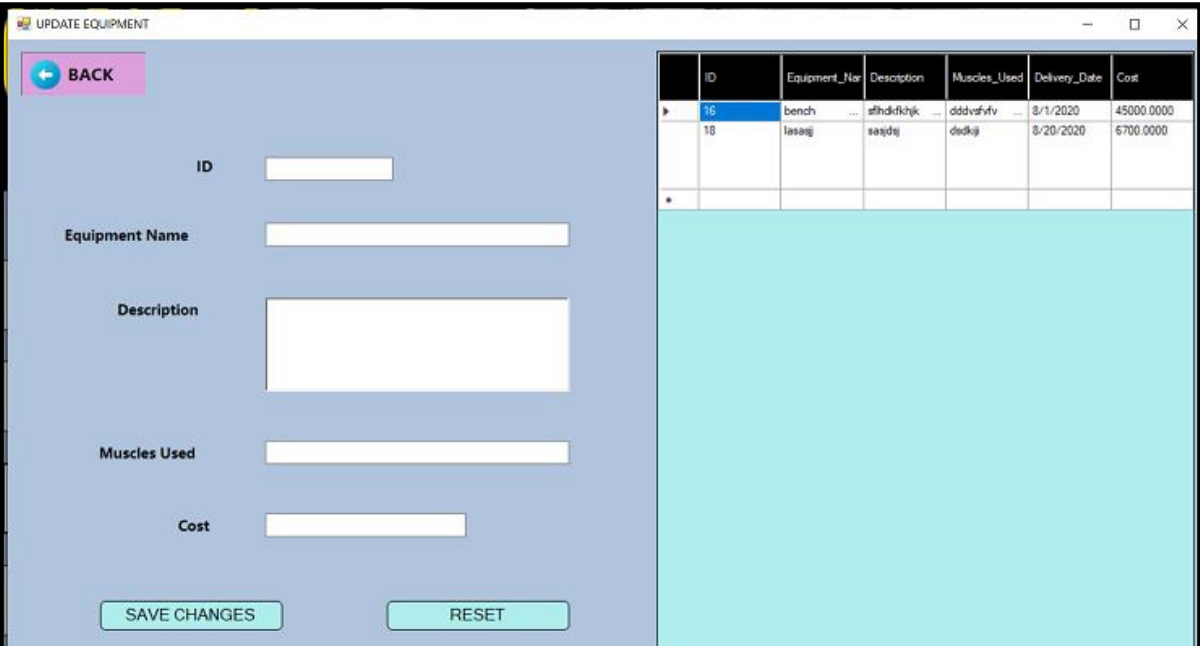
Cost

[SAVE](#)

[RESET](#)

❖ Update equipment

Here when the update form loads all the records of available equipment are displayed in a data grid view. Any modifications to the details of the equipment can be performed as well.



UPDATE EQUIPMENT

[← BACK](#)

ID

Equipment Name

Description

Muscles Used

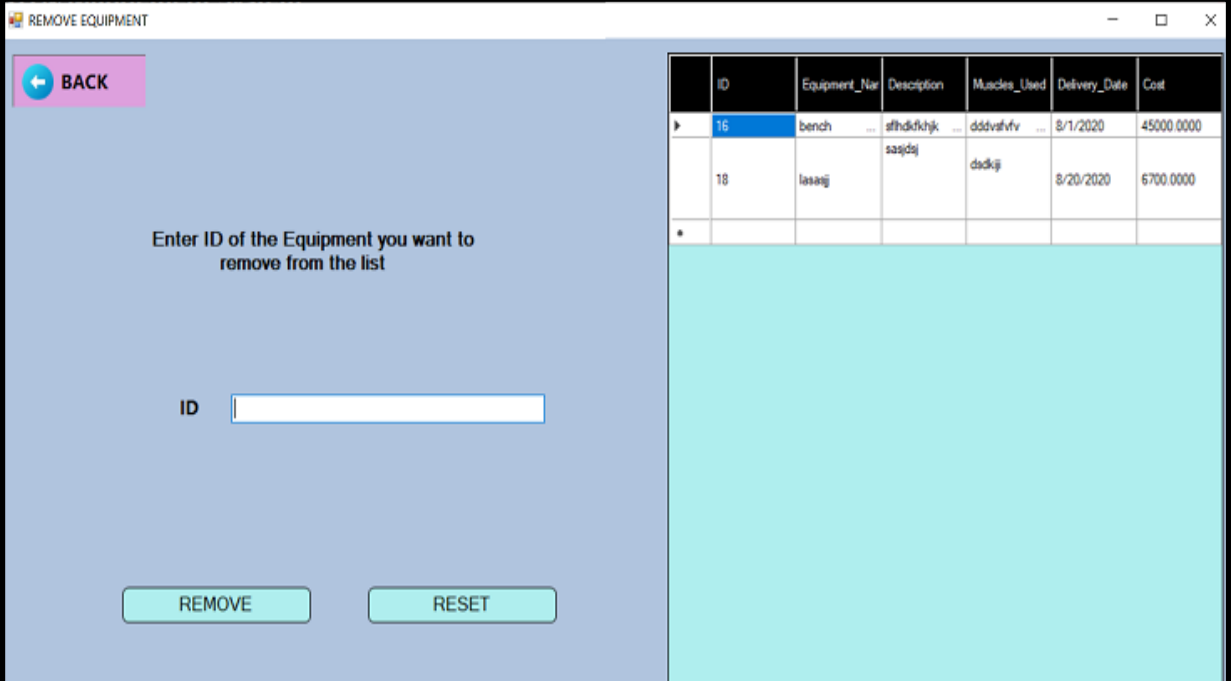
Cost

[SAVE CHANGES](#) [RESET](#)

ID	Equipment_Nar	Description	Muscles_Used	Delivery_Date	Cost
16	bench	sthdcktkjk	oddvafvfv	8/1/2020	45000.0000
18	lasasj	asjdsj	dedkj	8/20/2020	6700.0000
*					

❖ Delete equipment

By inserting the equipment name, the particular record can be removed from the system.



REMOVE EQUIPMENT

← BACK

Enter ID of the Equipment you want to remove from the list

ID

REMOVE RESET

ID	Equipment_Nam	Description	Muscles_Used	Delivery_Date	Cost
16	bench	sthdtdhjk	dddvstfv	8/1/2020	45000.0000
18	lasasj	sasjdj	dsdkij	8/20/2020	6700.0000
*					

❖ View equipment list

Here, all the records are visible when the form is loaded



VIEW EQUIPMENT LIST

← BACK

EQUIPMENTS LIST

ID	Equipment_Name	Description	Muscles_Used	Delivery_Date	Cost
16	bench	sthdtdhjk	dddvstfv	8/1/2020	45000.0000
18	lasasj	sasjdj	dsdkij	8/20/2020	6700.0000
*					

Payment

When a person comes to join the gym, he\she is being given a receipt.

The gym staff(manager) then enters the details to the software which is then generated.

The gym manager enters the following details:

- ❖ Full name
- ❖ Membership package-which offers a selecting option
- ❖ Membership period
- ❖ The price

The software then calculates the total and displays when the total button is clicked.

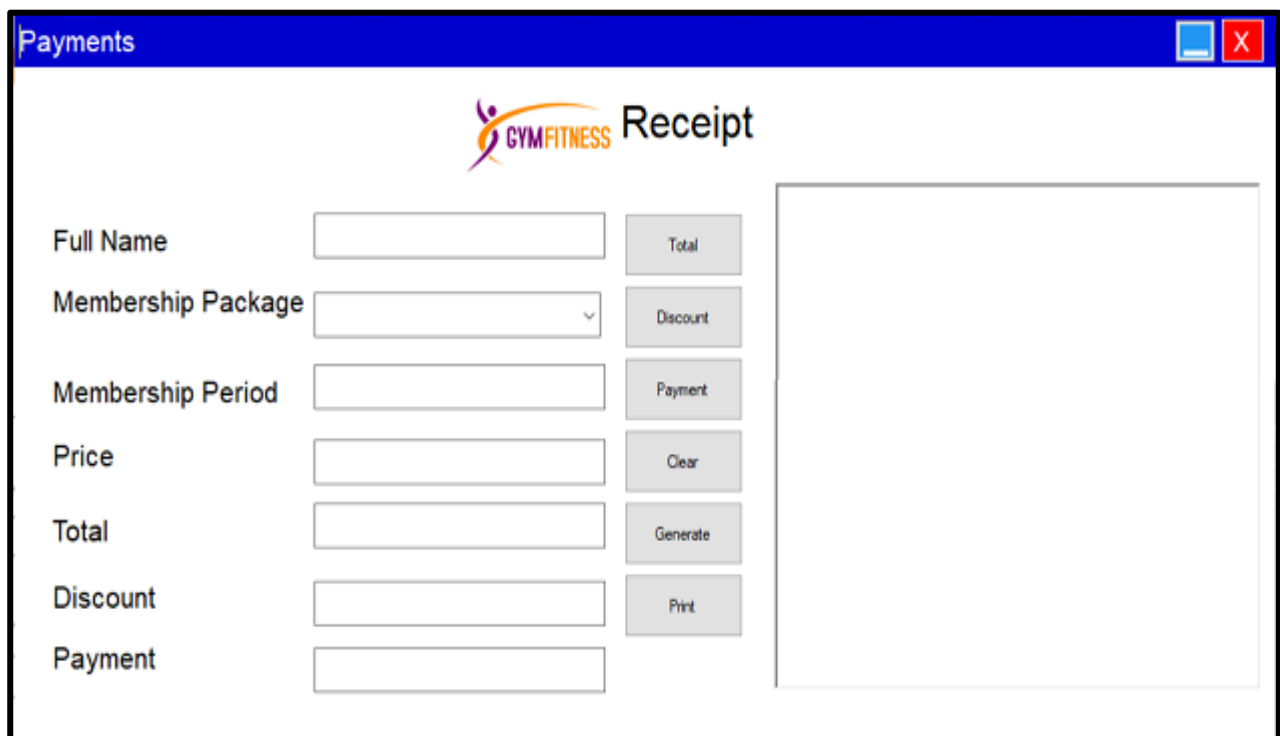
The gym offers a fixed discount value and displays the discount once the discount button is pressed.

The payment is being displayed once the payment button is clicked.

All the textboxes are cleared once the clear button is clicked.

A receipt is being generated once the Generate button is clicked. you can clear the receipt form once you click the clear button.

Once the print button is pressed the bill is being printed you can also save the bill receipt in a PDF file.



The screenshot shows a software window titled 'Payments' with a blue header bar. Inside the window, there is a 'Receipt' form with the 'GYM FITNESS' logo. The form consists of several input fields and buttons. On the left, there are labels for 'Full Name', 'Membership Package', 'Membership Period', 'Price', 'Total', 'Discount', and 'Payment'. Each label is followed by a text input field. To the right of these fields is a vertical column of buttons: 'Total', 'Discount', 'Payment', 'Clear', 'Generate', and 'Print'. A large, empty rectangular box is positioned to the right of the buttons, intended for displaying the generated receipt.

Membership packages

Form1

MEMBERSHIP PACKAGES

BRONZE - 1 MONTH	SILVER - 4 MONTHS	GOLD - 1 YEAR
FREE BASIC TRAINING FULL ACCESS TO THE GYM	FREE BASIC TRAINING FULL ACCESS TO THE GYM FREE T-SHIRT	FREE BASIC TRAINING FULL ACCESS TO THE GYM FREE T-SHIRT NUTRITION PLAN
Rs. 1500/=	Rs. 5000/=	Rs. 13000/=
BUY NOW	BUY NOW	BUY NOW

Workload Matrix of group members

1) Group Leader – Perera HHTD (18048)

- ✓ Login including the Password Recovery
- ✓ Signup page
- ✓ Payment Interface

2) Dhananjani RMN (18216)

- ✓ Staff Interface
 - Add new Staff
 - Update Staff details
 - Delete Staff
 - View Staff Details
- ✓ Created the report

3) MKSS Meegoda (18046)

- ✓ Member Interface
 - Add new member
 - Update member details
 - Delete member
 - View member Details
- ✓ Home window

4) Samarasinghe K.A.L.L (18842)

- ✓ Equipment Interface
 - Add new equipment
 - Update equipment details
 - Delete equipment
 - View equipment
- ✓ Membership packages form

5) Rajapaksha OV

- ✓ Contributed to draw the diagrams

