COMMERCE AND COMPUTER COLLEGE OF SOUTH AFRICA (PTY) LTD

Real World Project (RWP) – Software Development Online Registration and management software for a local Gym

Abstract

Technical documentation and a system proposal of a gym management system

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1. Introduction

Project information: Local Gym Management System.

The gym management system will handle all the necessary and minute details easily with a proper database for storing of records. The software will store data about members, staff, trainers, equipment, payment receipts of members and all transactions that occur in Gym.

The current system is a manual system, there is no database to keep track of the records and the staff is always complaining about the growing load of paperwork. A lot of paper is used, which is costly and more room is needed to store all the files and paperwork, Other **Limitations Of The existing system**

- ✓ Lot of paper work is involved as the records are maintained in the files & registers
- ✓ As the records are to be manually maintained it consumes a lot of time.
- ✓ Use of papers for storing valuable data information is not at all reliable
- ✓ As the system is in manual there are lot many chances of human errors. These can cause errors in maintaining customer details.

Proposed Project scope

1) Reduce the overload paperwork.
2) To update records quickly and easily since the system will be computerized.
3) Speed the joining and leaving process.
4) Checking validity of information provided by users
5) Storing information of members according to their id.

Project Time Frame: 05/10/21 -01/11/21

2. System Proposal

System Request-Local Gym Management system

Project Sponsor: Mr. Sandile H Ngcobo

Business Need:

_To save time management for recording details of each and every member and employee.

- ✓ To provide storage for all the transactions made by all the trainees.
- ✓ To avoid the redundancy of data.
- ✓ Avoid human mistakes or error

Business requirement:

- o The system will allow Online registration
- o Search information from the database
- o Add new items to the database, such as new members joining the gym.
- o Cancel or freeze contracts of members leaving the gym
- o Be User friendly.
- o Manage member payments

Business Value:

- ➢ A user friendly system that requires minimal user training.
- ➢ To increase efficiency with reduced cost.
- ➢ We will be able to forecast and manage our sales better.
- ➢ The administrative cost will be reduced since we won`t need more staff.
- ➢ Reduced cost of buying paper and files.
- ➢ increase in sales since the members can also register online

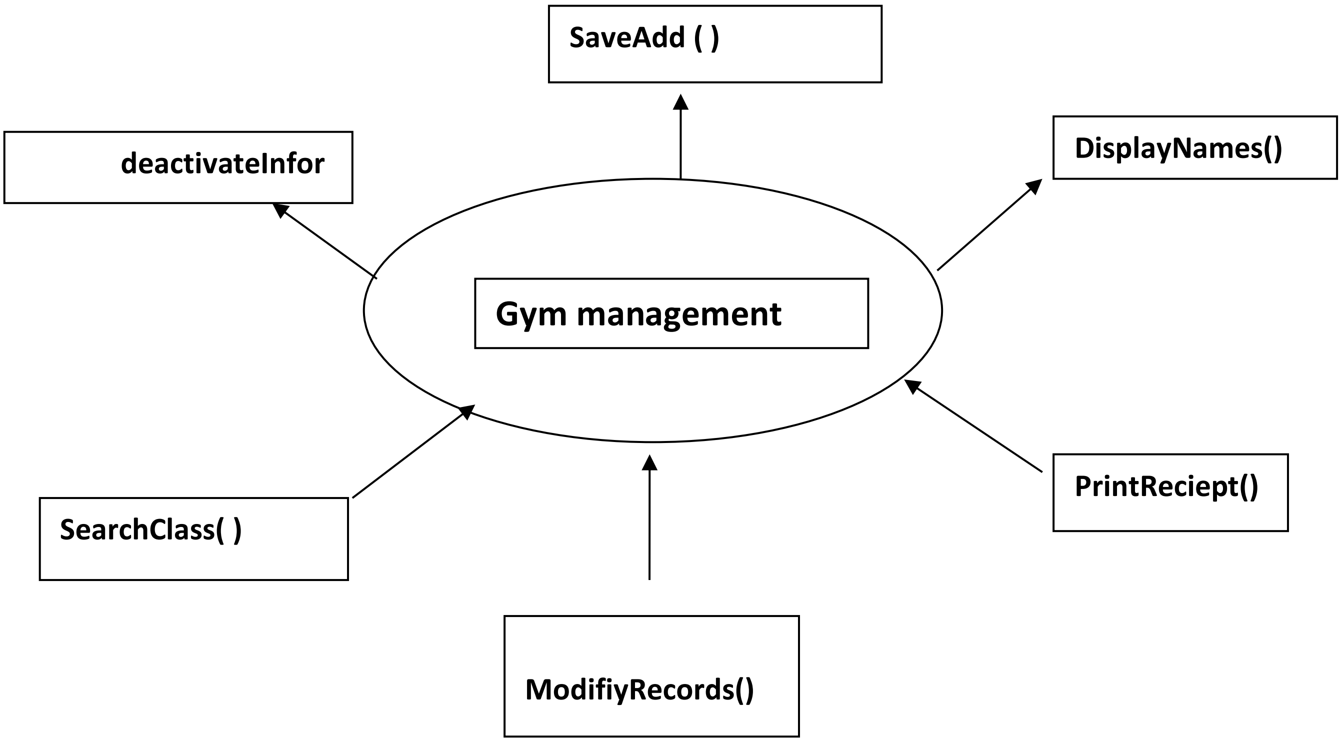
Estimates of tangible value to the company

- increase in Sales: R1000.00
- Decrease in Administrative costs:-R50 000

Constraints:

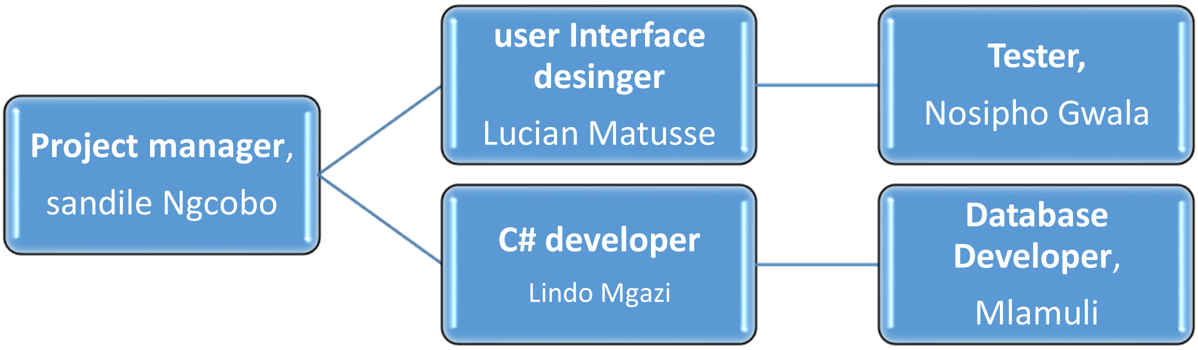
- o Members won’t be comfortable with paying online since they not used to the online systems.

3. BRAINSTORMING DIAGRAM



1**) SaveAdd ():** This a function that saves information the our databases, e.g members accounts.
2**) DisplayNames ():** displays all the records of a particular table from the database in a datagridview.
3**) PrintReciept ():** Prints receipts as proof of payment.
4) **ModifyRecords ():** Updates or edits information.
5) **SearchClass ():** Search data from the database, e.g member details.
6) **DeactivateInfor () :**deactivating records which are no longer active, such as a member leaving .

4. **Organogram and the roles of team members**



Project manager, sandile Ngcobo

user Interface desinger Lucian Matusse

C# developer Lindo Mgazi

Tester, Nosipho Gwala

Database Developer, Mlamuli

Team member	Role	Responsibility
1. Mr. Sandile Ngcobo	Project manager, Champion of the project	✓ Software configuration management ✓ Risk management ✓ Project cost estimation
2. Lucian Matusse	UI designer	• Deals with the user interface
3. Lindo Mgazi	C# developer, Programmer	• Creating functions and modules.
4. Mr. Mlamuli	Database developer	• Develops and design the databases. • Create ERD diagrams
5. Nosipho Gwala	Tester	• Does manual tests to ensure the software is fit for the purpose or meets the requirements.

4.1 Background information of Sponsor and team members

1. **Project Sponsor(s)** : Mr. Sandile H Ngcobo

Background Information:

Sponsor 1: Mr. Sandile H Ngcobo

ID: 67778999

Address: Durban Nuz

Email :fuzesasa1@gmail.com

Cell phone: 0738557626

Qualification(s): Computer Science

Skills: Experienced Software Developer - has advanced skills in: - C#- Microsoft SQL Server Administration - Database Management and Design – Full stack developer- Qualified Data Analyst.

2. **UI(User Interface Designer):**Mr. Lucian Matusse

Background Information

Name: Lucian Matusse

ID: 67987698

Address: Durban **,** Umhlanga Rocks

Email: Lucian@gmail.com

Cell Phone:0987646434

Qualification(s): Diploma in Information Technology

Skills: Experience in Adobe Photoshop, C# developer

3. **Programmer:** Mr. Lindo Mgazi

Background Information

Name: Lindo Mgazi

ID: 29243045

Address: Durban **,** Ntuzuma

Email: Lindo@gmail.com

Cell Phone:0609846434

Qualification(s): Diploma in Systems Development.

Skills: Application Development, UML data Modeling, C# developer, Graphic design.

4. **Programmer:** Miss Nosipho Gwala

Background Information

Name: Nosipho Gwala

ID: 000776443

Address: Durban **,** Folweni

Email:sipho@gmail.com

Cell Phone:06098657

Qualification(s): Microsoft Certified system Administrator

Skills: System Analyst, C# developer, Pc hardware and Trouble shooting.

5. Resource Needs

Human Resource Needs

Need	Resource	Amount of hours	status	responsibility
1.Project Manager	Mr Sandile H Ngcobo	50	assigned	To oversee the development process
2. Technical Writing	Mr Sandile Ngcobo	20	assigned	
3. Quality assurance planning	Miss Nosipho Gwala	30	assigned	Plans all the QA strategies
4.Development	Lindo, Lucian, Mlamuli	200	assigned	Develop the system. combining the front-end with back-end

Technical Resources (Hardware and Software)

Hardware

1) Minimum 512MB HDD space
2) 128MB Ram
3) Celeron Based Processor
4) Printer(any Printer)

Software

- IDE: Microsoft Visual Studio
- DATABASE:Ms SQL SEVER 2005
- Development Language(s) : C#

6. Work Breakdown Structure

Step	Description	Estimate
1. 1.1	Preparation developer training	48 Hours
2. 21.	Inception Requirements gathering	24Hours
3	Elaboration High Level design Low level design Object design User Interface Design Database Design Design Review and evaluation	20Hours 16Hours 13hours 50hours 24hours 6hours
4	**System Implementation** Register coding	**5 hours**
	Login form coding	**5 hours**
	Dashboard/menu coding	**6 hours**
	Add, Delete ,modify functions	**20 hours**
	Search function	**2 hours**
5	Technical documentation (break down by component**)**	**10 Hours**
6	Testing the system	**5 hours**
7	Implementation review and evaluation	**10hours**
8	Release packaging	**24hours**
	Total	**288 Hours**

5. USE CASES

Use Case Name: Create an Account

Use Case Id:uc-01

Description: a new member registering online to join the gym.

Actor: new member

Pre-Condition: The member should fill all the required details in the form, personal and login details.

Normal Course:

1) member clicks on the 'register' button
2) the system displays the register form
3) The member fills the required details (personal and login information) and click on submit button.
4) The system registers the new member on the database and displays the MessageBox "successfully registered now go and sign in!"

Alternative Course: if the member filled invalid information the system displays and an error MessageBox" Please fill all the required details" and require the user to try again.

Post condition: the system displays the login form.

Use Case Name: login

Use Case id: UC-02

Description: all the users need to login to the system in order to perform a task.

Actor: admin, members, instructors

Pre-Conditions: user should have an account to login to the system

Normal course:

1) System displays the login form
2) User enter user name and password
3) System verify username and password
4) System displays dashboard or menu
5) Use case ends

Alternative Course:

2a) Admin clicks on the "admin" button"

2b) enters only the password

Normal course 4)

3a) if the username and password does not match with the ones in the database, the system will display a MessageBox that requires the user to key again.

Use Case Name: add payment

Use Case Id:uc-03

Description: this use case is to allow the user to add a payment

Actor: admin

Pre-Condition: The user should log in to the system and navigate to the "payments" button to add a payment.

Normal Course:

1) admin clicks on the 'PAYMENTS' button
2) the system displays the payments form
3) The admin enters the required payments details and click on save button.
4) The system will verify the data entered by the admin
5) The system records the payment on the database and displays the MessageBox " member successfully paid"
6) Use case ends

Post-Conditions

System prints a receipt as proof of payment

Alternative Course: if one of the data entered by the admin is invalid data, the system will display an error message.

Use Case Name: ADD Equipment

Use Case Id:uc-04

Description: this use case is to allow the user to add a new Gym Equipment

Actor: admin

Pre-Condition: The user should log in to the system and navigate to the "Equipments" button to add a new machine.

Normal Course:

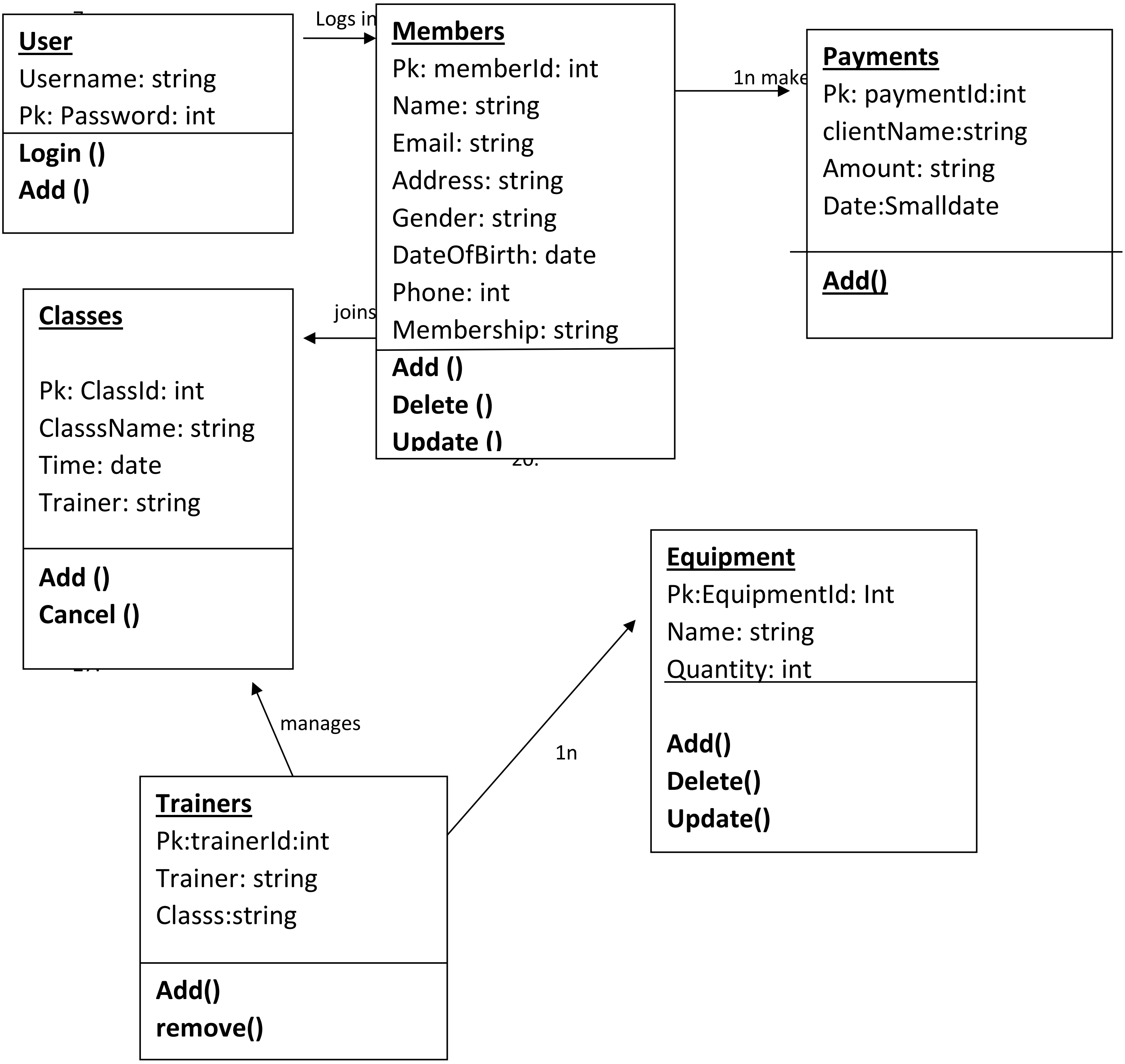
1) admin clicks on the 'EQUIPMENT' button
2) the system displays the equipments form
3) The admin enters the details of the equipment and click on save button.
4) The system will verify the data entered by the admin
5) The system records the new equipment to the database.
6) Use case ends

Post-Conditions

The new equipment is added successfully.

Alternative Course: if one of the data entered by the admin is invalid data, the system will display an error message.

6. ERD DIAGRAMS



9. Function Points and Procedures

1) Core Function 1 :display Names() ➢ This function displays all the records from the database to the datagridview. `public void DisplayNames()`
2) Function2: Edit button It's a button click function that Modifies or update member details. `private void editbtn_Click(object sender, EventArgs e)`
3) Function 3: add button This button click functions adds information to the database. `private void addbtn_Click(object sender, EventArgs e)`
4) Button Search This is a button click function that allows a user to search information from the database `private void SearchBtn_Click(object sender, EventArgs e)`

1) User Registration

FP1: Verifies data entered

FP2: Add personal and login details to the database

FP3: Shows Login Page

2) USER LOGIN

FP1: Verify username

FP2: Verify Password

FP3: Shows Menu

3) Member Payments

FP1: Verify Payments details

FP2: Saves payments details to the database

FP3: Generate a Slip as proof payment.

4) Schedule module

FP1: add a schedule or details of the class

FP1: remove or cancel a schedule or class

FP3: View available classes

10. Software Requirements Specifications (SRS)

Introduction

I studied the operations of the current system of which was manual and I noticed a lot of limitations, like the loads of paperwork, which motivated me to come up with an idea to computerize the system.

User Needs

The main requirement of the project is was to develop a user friendly which will replace all the existing manual system with a computer based system.

Functional requirements

1) Login module
2) Payments module
3) Equipment module
4) Schedule module

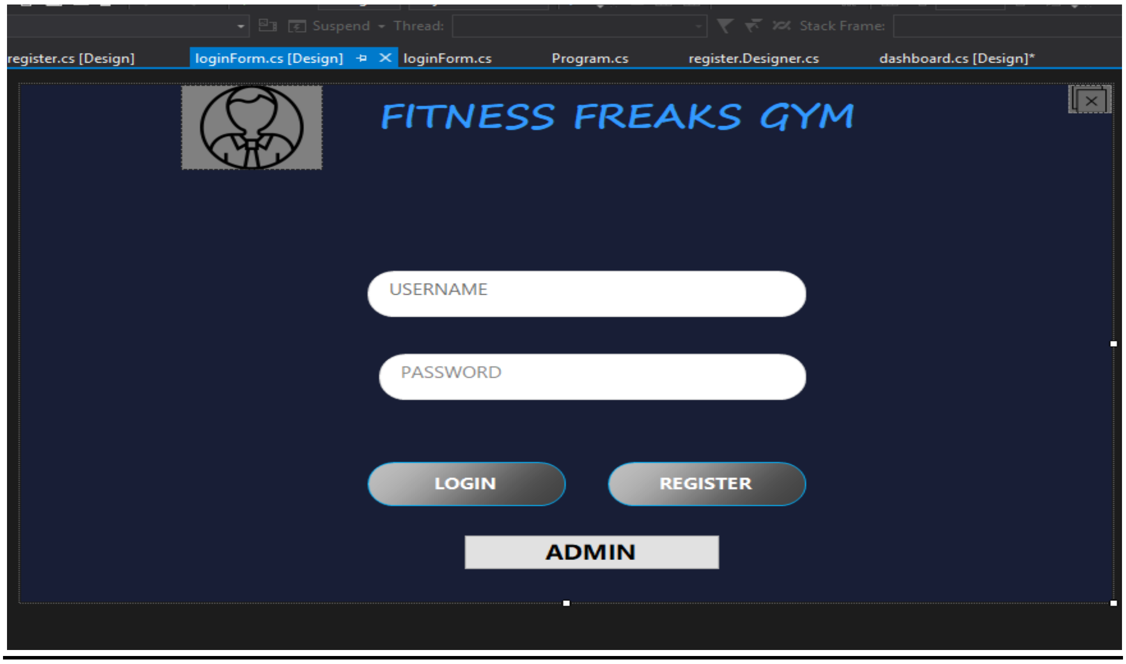
Non-Functional Requirements

1) **Security**: all the data can only be accessible to those authorized to see it.
2) **Reliability**:
3) **Availability**: the system will always be available for accesses with connected network and power source.
4) **Usability**: The system provides suggestions via message boxes

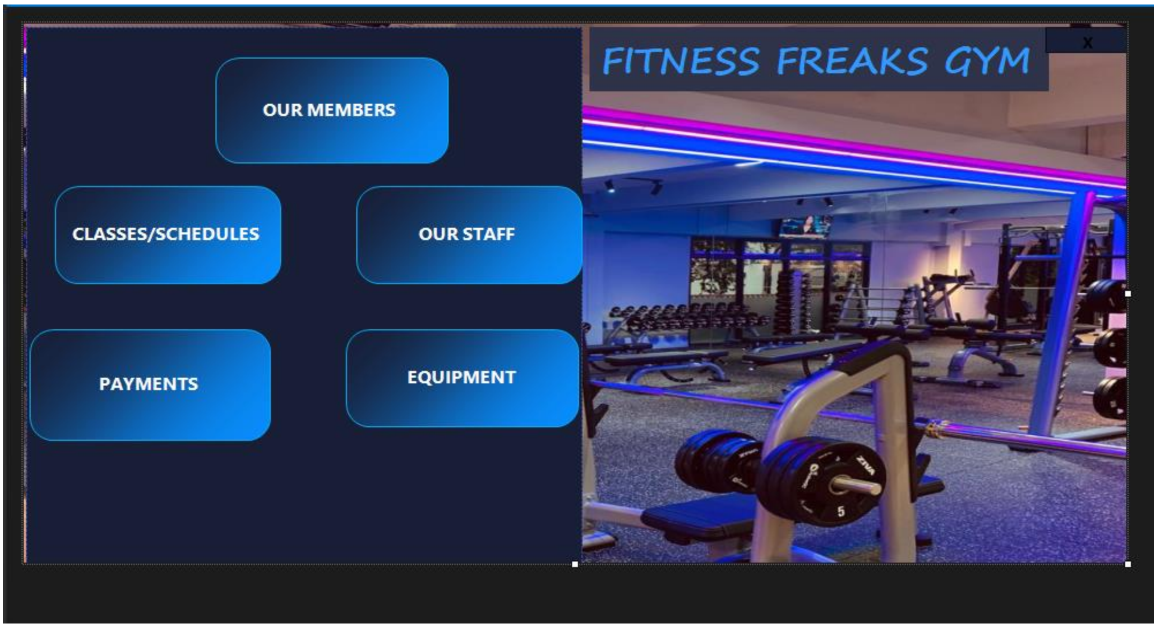
10. UI Diagrams

1) Loginform

Below is a **login form.** it's the first form the system displays,
After creating an account the users must login.

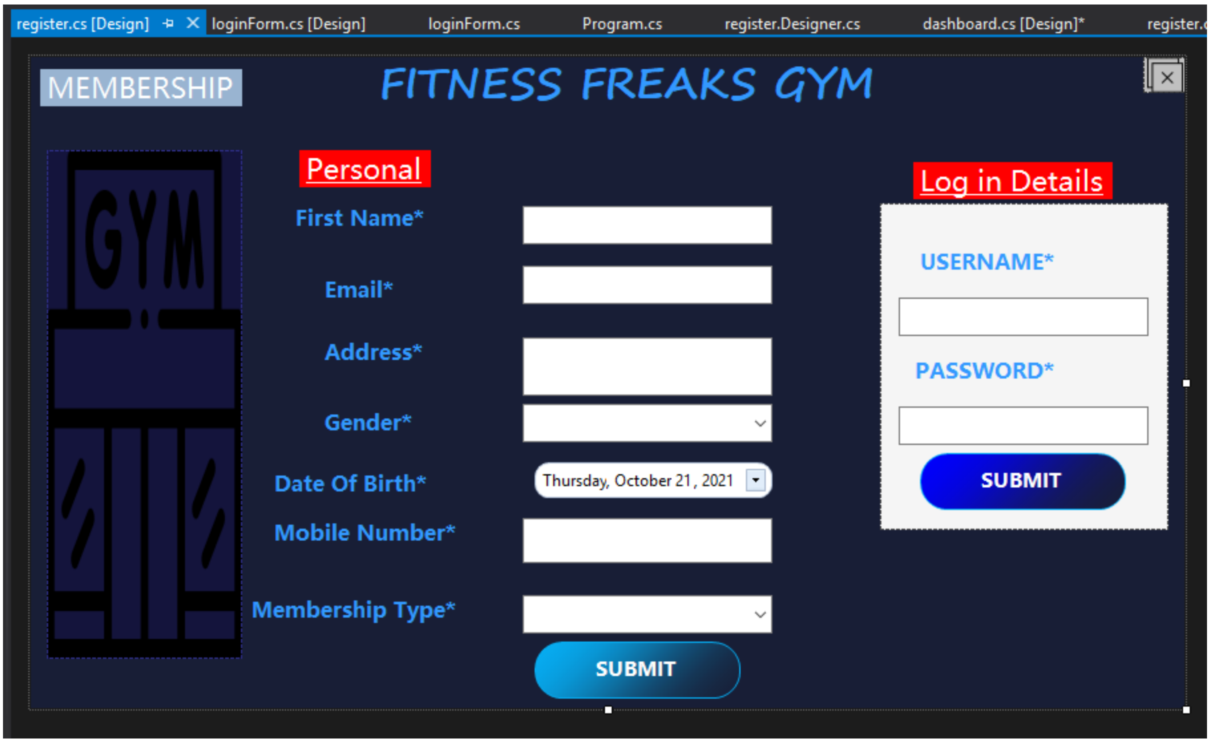


2) Menu/Dashboard

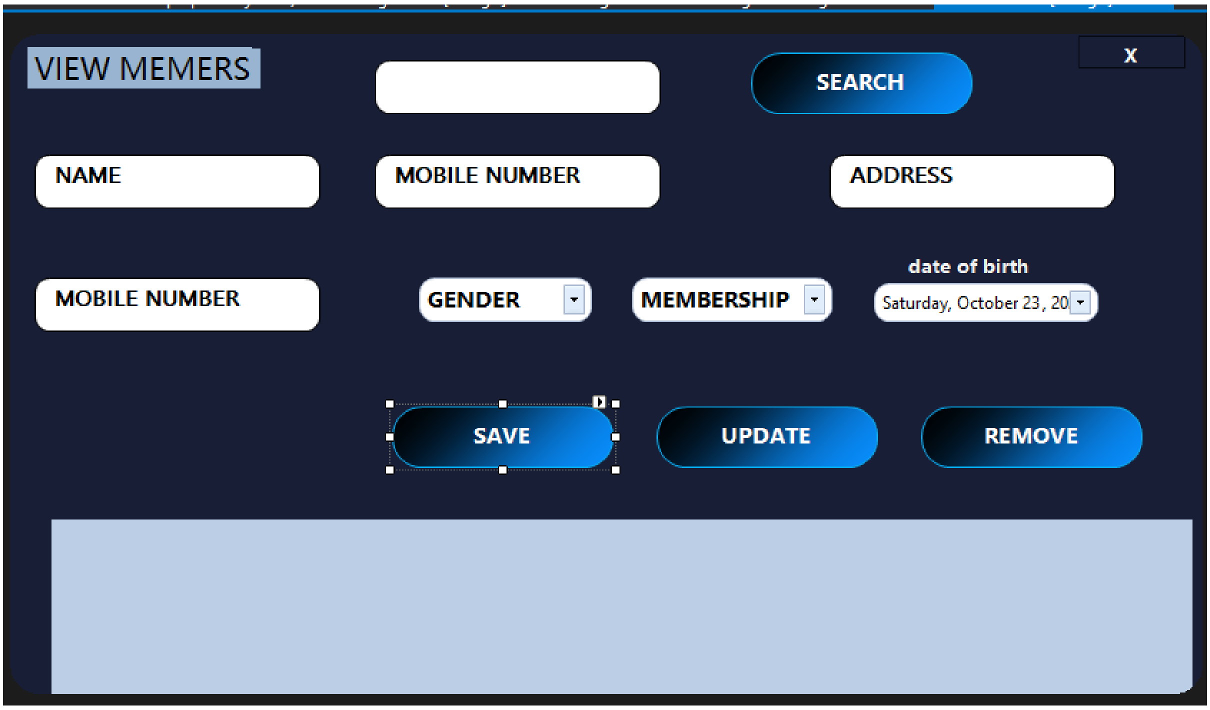


3) Create an Account / Register

Register to create an account



4) Members management



11. Quality Assurance/Testing Plan

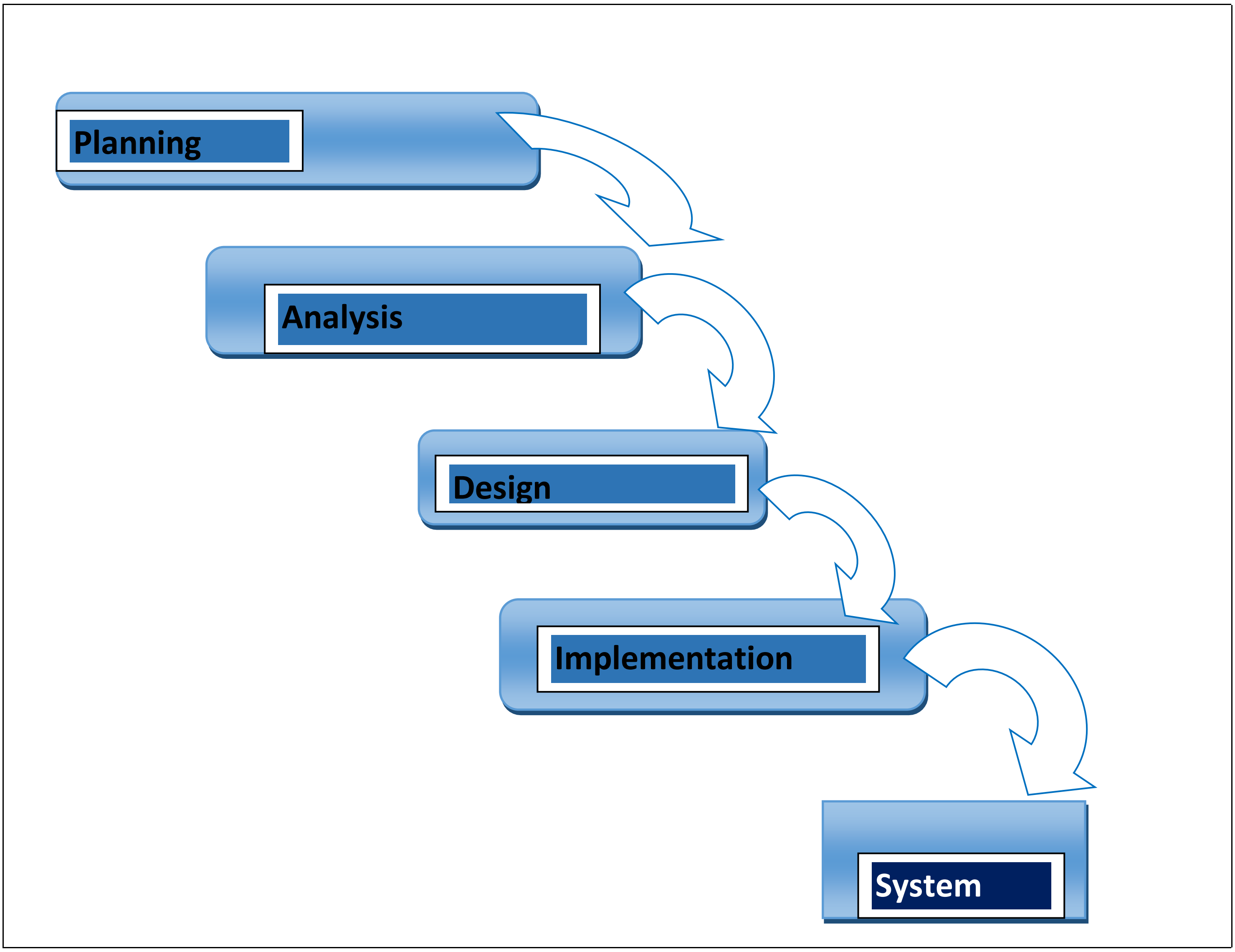
Activity	description
Setting milestones	• Reviewing the project milestones to ensure the project is completed in time and does meet the requirements.
Peer/ Buddy Reviews	• Reviews made by our team members
System Verification and validation	• System verification and validation is done to check the quality of the software in simulated and live environment.
Source code test Plan: Functional test Performance test Stress test	• The test plan for source code specifies the objectives of testing, the test completion criteria, the system integration plan, and methods to be used on particular test inputs expected outcomes.
Multi user system testing	• A locking scheme that allows only one user at a time to update information
Validation testing	• Testing whether the system functions in a manner that can be reasonably expected by the users.
Unit testing	• Components are tested individually.

12. Risk Management

Risk Number	Risk	Mitigation technique	Severity level
Risk 1	Invalid user input	Try catch statements and suggestions message boxes	9%
Risk 2	viruses	Use free antivirus	6%
Risk 3	Software license fees	Use the 30 day trial	8%
Risk 4	SQL injection attacks , hackers	Use Stored procedure and install firewalls.	5%

13. Software Development Methology

Waterfall Development



- We chose the Waterfall model because it`s easy to proceed sequentially from one phase to the next.

Advantages of using a waterfall Methology

- Identifying requirements long before programming begins and limiting changes to the requirements as the project proceeds.

Advantages of using a waterfall Methology: The design must be completely specified before programming begins.

14. Conclusion

- As a project manager and sponsor, the creation of this project has taught me a lot when it comes to developing a system, I`ve learned that , documenting the software before you implement and design it, makes the development easier,
  I`ve gained knowledge about how current gymnasiums function.
  Completing this project I managed to meet the business requirements, the system is very user friendly, to everyone even if you’re not computer literate you can learn it by yourself. The team is satisfied with the outcome.

15.

16. Bibliography

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