DEPARTMENT OF COMPUTER SCIENCE (BS-AI PROGRAM)
PROGRAMMING FOR AI LAB PROJECT PROPOSAL FORMAT

3rd SEMESTER	FALL	BS (AI)-3A	2025

TITLE OF PROJECT

GYM MEMBERSHIP MANAGEMENT SYSTEM

Group Members

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INTRODUCTION

The **Gym Membership Management System** is a desktop app to help a gym manage its entire business. The goal is to build one simple, all-in-one tool that can replace messy spreadsheets, paper logbooks, or outdated software.

It's a Python-based app that will handle everything from member sign-ups and billing to daily attendance.

SCOPE

To ensure the project is focused and achievable, the following boundaries are defined:

In-Scope

- The system will be a desktop application designed to run on a single computer.
- All data will be stored locally on the computer using JSON files.
- The system will be operated by a single admin or a staff member who manages everything.
- All core modules (Dashboard, Members, Trainers, Payments, Attendance, Visitors) are included.
- The system will track complex member history, separating a member's permanent profile from their individual membership contracts.

Out-of-Scope

- This is **not** a web-based or cloud application.
- The system will **not** integrate directly with banks or credit card processors for automatic payments.
- This is **not** an accounting or payroll system; it only tracks membership-related income.

PROJECT OBJECTIVES

The primary goals for this project are:

- **To Centralize Management:** All member profiles, trainer info, and payment records will be in one spot.
- **Automation:** The app will automatically calculate how much a member owes, even adding extra fees if they've hired a personal trainer. It'll make it super easy to see who has paid and who hasn't.
- **Historical Insights:** Maintain a complete, accessible history of every member, including past memberships (even if they left and re-joined), payment logs, and attendance logs.
- **To Streamline Daily Operations:** Provide a simple screen for the front desk to perform common tasks like quickly check members in and out or sign-up new trial visitors.
- **Visual Representation of Key Stats**: The main dashboard will have graphs showing important info, like how much money the gym is making and what the busiest hours are.

Key Features

The application will be organized into the following distinct modules:

- **Dashboard:** This is the homepage. It will display live statistics (Total Members, Pending Payments, Members Checked-In) and visual graphs for Monthly Income and Busiest Gym Hours.
- **Member Management:** This module is the "phone book" for every person who has ever joined.
    - It will allow staff to add, view, and edit member profiles.
    - Crucially, it will allow viewing a member's full history, including all past and present memberships, payments, and attendance.
    - It supports re-joined members by treating their new membership as a separate contract.
- **Trainer Management:** Staff can manage trainer profiles, contact information, and specializations.
- **Payment Management:** This module lists all payment records.
    - It will automatically calculate the amount due
    - Staff can easily filter the list to see only unpaid members and mark them as "Paid" when payment is received.
- **Attendance Tracking:** A simple, task-focused screen.
    - Staff can enter a Member ID and click "Check In" or "Check Out."
    - A log of "Today's Activity" will be displayed, and all visits will be saved to the member's history.
- **Visitors Module:** A simple log for tracking trial guests.
    - Staff can save the contact details of visitors who come for a trial.
    - Includes a "Convert to Member" button, which will pre-fill the "Add Member" form with the visitor's information.

PAI Concepts

- Modules
- Functions
- Input, Output
- Error handling
- Dictionaries, Lists
- Libraries, Packages
- CRUD operations, File handling

Expected Outcome

The final deliverable will be a single, functional, and standalone desktop application. It will successfully meet all the stated objectives, providing a small gym with a powerful and easy-to- use tool to manage their entire facility.

TEAM PROFILE

- **Sami Ullah**
  - UI/UX model
  - Data model
  - Researched on relevant features for the project
- **Faizan Raza**
  - Researched on required tools for the project
  - Data Structure optimization
- **Hasan Raza**
  - UI/UX model
  - Visual representation of data
  - Error handling
  - Data storage

ASSUMPTIONS AND CONSTRAINTS
We've picked a simple, modern, and powerful set of tools: • **Language:** Python 3 • **UI:** CustomTkinter • **Graphs:** Matplotlib • **Data:** JSON files • **Code Editor:** VS Code

PROJECT DELIVERABLES NOT CHANGEABLE
Deliverables Include. • Software Project Proposal. • Project progress • Project report • Team member's work, as per their contribution, you should have to be honest with your future.

For Teacher Use Only

REMARKS

Lab Instructor		**Signature**		**Date**	