Certificate of completion

This is to certify that the following students have successfully completed the Python Fitness First GYM Project presented to us by the eProject team. The project was completed under the guidance of Mr. Obed Jonathan and Mr. Emmanuel Odelede.

Project Details:

* Project Title: Fitness First Gym
* Duration: 11-June-2024 to 20-June-2024
* Description: The Python Fitness First GYM Project involved developing a comprehensive software web application to manage the operations of the Fitness First GYM, including member management, class booking, sales tracking, and member communication.

Skills Demonstrated:

* Proficiency in Python programming language
* Object-oriented programming concepts
* Database design and integration
* Web development with Python frameworks
* User interface design and implementation
* Automated billing and payment processing
* Mass communication and notification systems

The following students have exhibited exceptional dedication, problem-solving skills, and attention to details throughout the project. They have successfully completed all project requirements and demonstrated a deep understanding of Python programming principles:

Alabi Esther Fiyinfoluwa

Adefemi Alex Ayomide

Adebayo Esther Oluwatoyin

Gym management system

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ACKNOWLEDGEMENT

We would like to express our heartfelt appreciation to the individuals who have contributed to the successful completion of our Python project, ”Fitness First GYM”.

First and foremost, we would like to thank God for granting us the wisdom, inspiration, and strength throughout this project. We are deeply grateful for the blessings and guidance that have been bestowed upon us.

We would also like to extend our sincere thanks to our project supervisors, Mr. Obed Jonathan and Mr. Emmanuel Odelede, for their continuous support, guidance, and expertise. Their valuable insights and feedback have played a pivotal role in shaping the project and ensuring its quality and relevance to the gym’s operation.

Furthermore, we would like to express our gratitude to our dedicated team members and fellow students who have provided assistance, shared their knowledge, and collaborated closely with us. Their contributions, ideas, and discussions have significantly enriched the project and made it a collective effort.

We are also thankful to our families and loved ones for their unwavering support, understanding, and encouragement throughout this endeavour. Their love, belief in us, and prayers have been a constant source of motivation.

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Finally, we extend our sincere appreciation to all those who have directly or indirectly contributed to the completion of this project. Your support, encouragement, and involvement have been instrumental, and we are truly grateful for your contributions.

Yours Sincerely,

Alabi Esther Fiyinfoluwa

Adefemi Alex Ayomide

Adebayo Esther Oluwatoyin

Problem definition

“Fitness First GYM” is a leading gym in the town with an increasing number of members and new registrations. The gym owners are finding it difficult to maintain member records and manage operations manually. They require a robust online software solution that can streamline their gym management processes, improve record-keeping, and provide a better experience for both members and staff.

The key problems the gym owners are facing include:

1. Inefficient Member Management:

* The current manual system of maintaining member records and membership details is time-consuming and prone to errors.
* There is a need for a centralized database to store and manage member data effectively.

1. Disorganized Class and Trainer Scheduling:

* With the growing number of members, it has become challenging to efficiently schedule classes, book training sessions, and manage instructor availability.
* This is negatively impacting member satisfaction and utilization of gym resources.

1. Limited Reporting and Analytics:

* The lack of a centralized data management system makes it difficult for the gym owners to generate comprehensive reports on member activity, revenue, and overall business performance.
* This hinders their ability to make data-driven decisions and identify areas for improvement.

To address these challenges, the “Fitness First GYM” requires feature-packed gym management software solution that can streamline operations, improve member experience, and provide valuable insights to the management team.

Key Requirements:

1. Guest User Functionality

* Guest users can view the website and check out the information about the gym.
* Guest users can also inquire through the contact us page.
* General information about trainers and equipment should be mentioned.

1. Registered User Functionality:

* Users can visit the website and apply for gym packages.
* Registration: One-time registration is required to apply for any gym package.
* Login: After registration, the user can log in and apply for the gym package.
* Booking History: In this section, users can see booked packages and payment details.
* Profile: In this section, users can update their profile.
* Change Password: In this section, users can change their own password.

1. Admin Functionality

* Admin is the super user of the website who can manage everything on the website.
* Admin can log in through the login page.
* Dashboard: In this section, the admin can see the overview of bookings, listed packages, categories, and package types.
* Categories: In this section, the admin can add and delete categories.
* Package Type: In this section, the admin can add and delete package types.
* Packages: In this section, the admin can add and edit packages.
* Bookings: In this section, the admin can check new bookings and partial/full payment bookings. The admin can also update the payment details against a particular booking.
* Report: In this section, the admin can generate reports between specific dates for bookings and registered users.
* The admin can also update their profile, change their password, and recover their password.

1. Integrated Functionalities

* Full booking system for classes and trainers
* Point of sale (POS) for in-person sales and purchases
* Billing and payment integration
* Website integration for online booking and member management
* Automated communication and notification system for members

In conclusion, this comprehensive gym management software solution will help “Fitness First GYM” to streamline its operations, improve record-keeping, enhance member experience, and make data-driven decisions to drive the growth and profitability of the gym.

Customer requirement specification

**Guest User Features:**

1. The system should allow guests (non-registered users) to access the gym's website and view general information about the facility, such as:

* Gym location, hours of operation, and contact information
* Details about the available exercise equipment, training facilities, and class schedules
* Profiles and credentials of the gym's trainers and instructors

1. The system should provide a user-friendly contact form for guests to inquire about the gym's services, membership options, and other relevant information.

**Registered User Features:**

1. The registration and login process should be straightforward, allowing users to easily create an account and access the system.
2. When applying for gym memberships, users should be able to select from the various package options available, view package details, and complete the purchase transaction.
3. The booking history feature should allow users to view their past and current gym package bookings, including the payment status and other relevant details.
4. The user profile management functionality should enable users to update their personal information, such as contact details, emergency contacts, and fitness goals.
5. The password management feature should provide a secure way for users to change their password and recover it if necessary.

**Admin Features:**

1. The admin dashboard should provide a comprehensive overview of the gym's key performance indicators, such as total bookings, active memberships, revenue generated, and user engagement metrics.
2. The category management feature should allow admins to organize the gym's services and offerings into logical categories (e.g., cardio, strength training, yoga, etc.), making it easier for users to navigate and select the desired services.
3. The package type management feature should enable admins to define and manage the various gym membership packages (e.g., monthly, quarterly, annual) with their respective pricing and benefits.
4. The package management feature should allow admins to create, edit, and manage the details of the gym's membership packages, including pricing, inclusions, and validity periods.
5. The booking management feature should provide admins with the ability to view, update, and manage all bookings, including the ability to track payment status and process partial/full payments.
6. The reporting feature should allow admins to generate detailed reports on bookings, memberships, and user activities within a specified date range, enabling data-driven decision-making.
7. The admin profile and password management features should ensure that the system's security is maintained, allowing admins to update their personal information and reset their passwords as needed.

**General System Requirements:**

1. The system should be designed with scalability in mind, allowing the gym to accommodate a growing user base and expand its operations without significant changes to the underlying infrastructure.
2. The user interface should be intuitive and easy to navigate, ensuring a seamless experience for both registered users and admins.
3. The system should implement robust security measures, such as secure authentication, authorization, and data encryption, to protect sensitive user information and gym data.
4. The system should be designed with the ability to integrate with third-party payment gateways, allowing users to securely process their gym membership payments.
5. The system should also integrate with calendar and scheduling systems, enabling users to view and book gym classes and trainer sessions directly through the platform.
6. The reporting and analytic capabilities should provide gym management with valuable insights into the business performance, user behavior, and other key metrics, supporting data-driven decision-making and strategic planning.

Project plan

**1. PROJECT OVERVIEW**

**PROJECT OBJECTIVES**

* Develop a user-friendly website for Fitness First GYM to streamline their guest and member management, booking, and payment processes
* Improve the gym's operational efficiency and customer experience through the implementation of a digital solution

**PROJECT SCOPE**

* Design and develop a web-based application with the following key modules:
* Guest User
* Registered User
* Admin
* Implement core functionalities, such as membership registration, class booking, payment processing, and reporting
* Integrate with third-party services (e.g., payment gateway, SMS/email service)
* Provide user training and documentation for the different user roles

**PROJECT DELIVERABLES**

* Functional web application with the specified modules and features
* User manuals and training materials for the Admin, Registered Users, and Guest Users
* Project documentation, including requirements, design, testing, and deployment artifacts

**2. PROJECT ORGANIZATION**

**PROJECT TEAMS AND ROLES**

* Project Manager: Responsible for overall project planning, coordination, and delivery
* UI/UX Designer: Designs the user interface and user experience
* Software Developers: Implement the application functionalities
* Training Specialist: Develops user manuals and conducts training sessions

**STAKEHOLDER MANAGEMENT**

* Key Stakeholders: Fitness First GYM owners, gym members, and administrative staff
* Stakeholder Engagement Plan:
* Regular status updates and review meetings
* Obtain feedback and sign-off on key project deliverables
* Manage stakeholder expectations and address concerns promptly

**3. PROJECT MANAGEMENT PROCESSES**

**PROJECT INITIATION**

* Gather requirements from the Fitness First GYM owners
* Understand the current challenges and the proposed solution
* Define the project scope, objectives, and deliverables
* Obtain project approval from the stakeholders
* Identify project team members and assign roles and responsibilities

**PROJECT PLANNING**

* Develop a detailed project schedule and timeline
* Identify and allocate project resources (human, financial, and technological)
* Establish project communication and collaboration protocols
* Define the project's risk management strategy
* Create a comprehensive project management plan

**PROJECT EXECUTION AND MONITORING**

* Conduct system analysis and design activities
* Implement the key modules and functionalities
* Perform testing and quality assurance activities
* Deploy the application and provide user training
* Monitor project progress, address issues, and implement necessary changes

**PROJECT CLOSURE**

* Conduct a project retrospective to identify lessons learned and areas for improvement
* Obtain final acceptance and sign-off from the client (Fitness First GYM owners)
* Archive the project documentation and artifacts

**4. PROJECT SCHEDULE**

| Task | Duration (Days) | Start Date | End Date |
| --- | --- | --- | --- |
| Project Initiation | 1 | 2023-06-15 | 2023-06-15 |
| Project Planning | 1 | 2023-06-16 | 2023-06-16 |
| System Analysis and Design | 2 | 2023-06-17 | 2023-06-18 |
| Development | 2 | 2023-06-19 | 2023-06-20 |
| Testing and Quality Assurance | 1 | 2023-06-21 | 2023-06-21 |
| Deployment and Training | 0.5 | 2023-06-22 | 2023-06-22 |
| Maintenance and Support | 0.5 | 2023-06-22 | 2023-06-22 |
| Project Closure | 0.5 | 2023-06-22 | 2023-06-22 |

**5. RISK MANAGEMENT**

| Risk | Impact | Probability | Mitigation Strategy |
| --- | --- | --- | --- |
| Scope Creep | High | Medium | Clearly define and manage the project scope, obtain regular stakeholder sign-offs |
| Unavailability of Key Resources | High | Medium | Identify and allocate backup resources, cross-train team members |
| Technical Complexity | Medium | Medium | Conduct thorough system analysis, engage experienced developers, and implement rigorous testing |
| Delays in Third-Party Integration | High | Low | Establish clear communication and coordination with third-party service providers |
| Resistance to Change from Gym Staff | Medium | Medium | Ensure comprehensive user training and provide ongoing support |

**6. QUALITY MANAGEMENT**

**QUALITY ASSURANCE PLAN**

* Develop a comprehensive test plan covering functionality, usability, and performance
* Create test cases for the key modules and features
* Conduct unit, integration, and end-to-end testing
* Identify and resolve defects in a timely manner
* Ensure the system meets the defined requirements and provides a seamless user experience

**QUALITY CONTROL MEASURES**

* Enforce coding standards and best practices
* Implement code reviews and pair programming
* Conduct regular walkthroughs and inspections
* Monitor system performance and user feedback

**7. COMMIUNICATION PLAN**

**STAKEHOLDER COMMUNICATION MATRIX**

| Stakeholder | Communication Method | Frequency |
| --- | --- | --- |
| Fitness First GYM Owners | In-person meetings, email updates | Weekly |
| Gym Administrators | In-person training, user manuals, email support | As needed |
| Gym Members | Website, email notifications, SMS alerts | As needed |

**REPORTING AND MEETINGS**

* Weekly project status meetings with the project team
* Bi-weekly progress updates to the Fitness First GYM owners
* Ad-hoc meetings to address any issues or changes

**8. CHANGE MANAGEMENT PLAN**

* Establish a change control board to review and approve any proposed changes
* Develop a formal change request process, including impact analysis and approval workflows
* Communicate and document all approved changes to the project team and stakeholders
* Ensure that changes are properly incorporated into the project plan, schedule, and deliverables

**9. PROJECT GOVERNANCE**

**DECISION-MAKING PROCESSES**

* The project manager is responsible for day-to-day decision-making
* Significant decisions (e.g., scope changes, budget adjustments) require approval from the Fitness First GYM owners
* Escalation procedures are in place for resolving conflicts or issues that cannot be addressed at the project team level

**ESCALATION PROCEDURES**

* Project team members can escalate issues to the project manager
* The project manager will attempt to resolve the issue or elevate it to the Fitness First GYM owners if necessary
* The Fitness First GYM owners have the final decision-making authority on all project-related matters

Project synopsis

Fitness First GYM is a comprehensive software application designed to streamline the management and operations of a fitness center. The primary goal of this project is to develop a user-friendly and efficient platform that caters to the needs of both gym members and administrators.

The key features of the Fitness First GYM software include:

1. **USER MANAGEMENT**

* Ability for guests to explore the gym's facilities and services
* Intuitive registration and login process for members
* Robust user profile management, including personal information, membership details, and payment history

1. **MEMBERSHIP AND BOOKINGS**

* Wide range of membership packages with customizable options
* Seamless booking of gym facilities, classes, and personal training sessions
* Automated payment processing and invoicing

1. **GYM ADMINISTRATION**

* Comprehensive dashboard for gym managers to monitor operations
* Efficient management of gym categories, package types, and individual packages
* Detailed booking and user reports for data-driven decision making

1. **MOBILE ACCESSIBILITY**

* Responsive design for optimal user experience on desktop, tablet, and mobile devices
* Mobile-friendly features, such as class schedules, booking, and member profiles

The Fitness First GYM software aims to provide a centralized and user-centric platform that enhances the overall gym experience for both members and administrators. By streamlining various gym operations, the application will help improve customer satisfaction, increase revenue, and optimize the management of the fitness center.

This project will be developed using the latest web technologies and industry best practices, ensuring a scalable, secure, and maintainable solution.

E-r DIAGRAMS

GYM\_MEMBER ||--o{ MEMBERSHIP : has

GYM\_MEMBER ||--o{ CLASS\_BOOKING : books

GYM\_MEMBER {

int memberID PK

string firstName

string lastName

string email

string phone

date joinDate

}

MEMBERSHIP {

int membershipID PK

int memberID FK

string membershipType

date startDate

date endDate

decimal monthlyFee

}

CLASS\_BOOKING {

int bookingID PK

int memberID FK

int classID FK

date bookingDate

time bookingTime

}

CLASS {

int classID PK

string className

int instructorID FK

string classType

date classDate

time classTime

int maxCapacity

}

INSTRUCTOR {

int instructorID PK

string firstName

string lastName

string email

string phone

}

In this E-R diagram, we have the following entities:

1. GYM\_MEMBER Entity:

* The GYM\_MEMBER entity represents the gym members, which are the core users of the application.
* The attributes include memberID (primarykey), firstName, lastName, email, phone, and joinDate.
* The memberID is a unique identifier for each gym member and is the primary key for this entity.

1. MEMBERSHIP Entity:

* The MEMBERSHIP entity represents the membership information for each gym member.
* The attributes include membershipID (primary key), memberID (foreign key), membershipType, startDate, endDate, and monthlyFee.
* The membershipID is a unique identifier for each membership, and the memberID is a foreign key that links the membership to the corresponding gym member.
* This entity stores the details of the membership, such as the membership type, start and end dates, and the monthly fee.

1. CLASS\_BOOKING Entity:

* The CLASS\_BOOKING entity represents the class bookings made by gym members.
* The attributes include bookingID (primary key), memberID (foreign key), classID (foreign key), bookingDate, and bookingTime.
* The bookingID is a unique identifier for each class booking, and the memberID and classID are foreign keys that link the booking to the corresponding gym member and class.
* This entity stores the details of the class booking, such as the booking date and time.

1. CLASS Entity:

* The CLASS entity represents the classes offered by the gym.
* The attributes include classID (primary key), className, instructorID (foreign key), classType, classDate, classTime, and maxCapacity.
* The classID is a unique identifier for each class, and the instructorID is a foreign key that links the class to the corresponding instructor.
* This entity stores the details of the class, such as the class name, type, date, time, and maximum capacity.

1. INSTRUCTOR Entity:

* The INSTRUCTOR entity represents the instructors who teach the classes.
* The attributes include instructorID (primary key), firstName, lastName, email, and phone.
* The instructorID is a unique identifier for each instructor.
* This entity stores the personal information of the instructors.

The relationships between these entities are as follows:

1. One-to-Many Relationship: A GYM\_MEMBER can have one or more MEMBERSHIP records, and a MEMBERSHIP record is associated with one GYM\_MEMBER.
2. One-to-Many Relationship: A GYM\_MEMBER can make one or more CLASS\_BOOKING records, and a CLASS\_BOOKING record is associated with one GYM\_MEMBER.
3. One-to-Many Relationship: A CLASS is taught by one INSTRUCTOR, and an INSTRUCTOR can teach one or more CLASS records.
4. Many-to-One Relationship: A CLASS\_BOOKING is associated with one CLASS and one GYM\_MEMBER.

Algorithm

**GUEST USER FLOW**

* User visits the gym website
* User navigates to the "About Us", "Trainers", and "Facilities" sections to view information
* User clicks on the "Contact Us" page to submit an inquiry

**REGISTERED USER FLOW**

* User visits the gym website
* User clicks on the "Join Now" or "Membership" section
* User fills out the registration form and creates an account
* User logs in to their account
* User navigates to the "Membership" section to view available packages and book a package
* User can view their booking history and payment details
* User can update their profile information and change their password

**ADMIN FLOW**

* Admin logs in to the admin panel
* Admin views the dashboard to get an overview of the gym's operations
* Admin manages categories:
* Admin can add new categories or delete existing ones
* Admin manages package types:
* Admin can add new package types or delete existing ones
* Admin manages packages:
* Admin can add new packages or edit existing ones
* Admin manages bookings:
* Admin can view new, partial, and full payment bookings
* Admin can update the payment details for a particular booking
* Admin generates reports:
* Admin can generate reports between specific dates for bookings and registered users
* Admin manages their own profile:
* Admin can update their profile information, change their password, and recover their password