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Project Proposal 1

“AquaFit Pro/Triathlon Pro” – Integrated Booking, Learning & Membership Platform

1. Project Overview

“AquaFit Pro” is a proposed web and/or mobile application designed to manage aquatic fitness services such as swim coaching, aqua-based fitness classes, and online learning resources. The system will streamline class bookings, payments, customer progression, instructor management, and member engagement, while also providing a digital classroom and community space.

This project challenges to design and implement a real-world, multi-role system involving customers, instructors, and administrators with access authorised accordingly at each level.

However, the creation of additional blocks by management can extend the original application to facilitate the addition of running and cycling schedules for the purpose of triathlon training.

2. Project Objectives

The primary objectives of this project are to:

- Design and develop a secure booking and payment system
- Support structured class blocks and skill progression
- Provide priority booking and pricing incentives
- Implement a digital classroom with tiered access
- Enable communication, notifications, and enquiries
- Deliver a members-only community area
- Demonstrate competence in full-stack development, database design, and UX/UI principles based on a RESTful architecture style.

3. Target Users

- Customers / Members – swimmers and fitness participants
- Instructors – swim coaches and fitness professionals
- Management / Administrators – business owners or coordinators

4. Core System Features

4.1 Booking & Class Management System

The booking system must support the following functionality:

Class Types

- Multiple class offerings (e.g. Swim Coaching, Aqua Pilates, HIIT H2O)
- Each class type includes:
 - Description
 - Skill level
 - Instructor assignment
 - Capacity limits

Block-Based Booking

- Classes are delivered in time-based blocks (e.g. Tuesdays 6pm – 6-week block)
- Each block can be divided into four structured levels:
 - Beginners
 - Improvers
 - Development
 - Advanced
- Administrators can:
 - Add new blocks
 - Edit block details (e.g. change start time from 6:00pm to 6:15pm)
 - Close or cancel blocks if required

Priority Booking

- Existing customers receive early or priority booking access (e.g. 1 week before public booking opens)

Confirmation & Payment

- Users must:
 1. Select sessions
 2. Review and confirm selections
 3. Include contact details
 4. Proceed to payment
- Places are not secured until payment is completed

Pricing & Credit System

- Sliding scale pricing:
 - 1 session/week → €15 per session
 - 2 sessions/week → €13 per session
- Customers can:
 - Add credit to their account
 - Use credit for future bookings
- System calculates best available rate automatically

4.2 Communication & Notifications

Contact Groups

- Automatic contact groups for structured sessions
 - Example: all swimmers on Tuesday 6pm lessons
- Enables quick group communication (e.g. class cancellations due to pool maintenance)

Pre-Programmed Messages

- Administrators can schedule automated messages, such as:
 - Return-to-swim reminders after summer holidays(date,time)

- Block renewal prompts
- Event announcements
- Messages can be sent via:
 - Email
 - In-app notifications (optional extension)

Customer Enquiries

- Customers can submit enquiries through the system, such as:
 - Requesting to move from one class time to another if availability exists
- Administrators can respond and approve/deny requests

4.3 Instructor Management

- Instructors can be allocated to:
 - Specific classes
 - Specific skill groups
- Instructors can:
 - Raise issues or concerns about swimmers to management
 - View class rosters and attendance
- Management can:
 - Track swimmer progress
 - Notify customers when they advance to the next level
 - Be able to add credit to customer's account

4.4 Digital Classroom

Learning Content

- Video-based learning resources
- Content grouped into categories (e.g. Beginners Technique, Advanced Drills)

Paid Access Levels

- Tiered classroom access:
 - Beginners Access – €150

- Full Access – €250
- System controls access based on payment status

4.5 Calendar System

A central calendar displaying:

- All scheduled classes
- Live talks and Q&A sessions
- Guest speakers
- One-off events and workshops

Calendar should support:

- Monthly and weekly views
- Filtering by event type

4.6 Members Area (Community)

A members-only space where clients can:

- Create a short profile
- Introduce themselves
- Share why they joined AquaFit Pro
- Interact with other members (posts/comments or forum-style discussion)

4.7 About Section

A public-facing section including:

- Staff bios
- Instructor qualifications and achievements
- Photo gallery of events and classes

5. Technical Requirements (Suggested)

Students may choose an appropriate technology stack, for example:

- **Frontend:** React (JavaScript Library), Vue (JavaScript Framework), Angular (Full JavaScript Framework developed by Google but takes time to learn), or another suitable development platform.
- **Backend:** Spring Boot (preferred) with inbuilt relational database. However other platforms maybe used but may require separate database configuration to be provided
- **Payments:** Stripe or PayPal sandbox integration or any other Fintech (Financial Technology) company suitable for the Irish market.
- **Authentication:** Role-based login (Customer, Instructor, Admin), restricted to allowable access suitable for each level.

6. Non-Functional Requirements

- Secure handling of payments and personal data
- Responsive design (mobile-first approach)
- Clear and intuitive user interface
- Scalable system architecture
- Error handling and validation

7. Project Deliverables

1. Requirements analysis & system design documentation
2. Database schema and ER diagrams
3. Fully functional prototype or MVP
4. User testing and evaluation report
5. Final presentation and demonstration

8. Learning Outcomes

By completing this project, students will demonstrate:

- Full-stack application development skills
- Real-world problem analysis and system design
- User-centred design thinking
- Payment and booking workflow implementation
- Team collaboration and project management