Developing and Implementing a Website for Sports Clubs

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ABSTRACT

This work aims to design and develop a website that combines sports clubs in the Kingdom of Saudi Arabia, which provides all the information related to the clubs in the region in addition to the offers and discounts, with the ability to book and move from one club to another without the need to personally go to the club to register, in order to motivate them to participate in the appropriate clubs for them with ease way and show the best equipment and machines in addition to innovative programs, cardio and strength halls, freestyle and varied classes of exercise, internationally certified trainers and many features for members. The proposed system was developed using the Unified Modeling Language (UML) and PHP.

Keywords : Unified Modeling Language (UML), Sports Clubs.

I. INTRODUCTION

Sports clubs vary from establishments where its members play together, and could compete with similar clubs, unpaid, mostly watched by friends and family, to big commercial organizations whose members are professional players and have teams that compete regularly with other teams. Clubs can be dedicated to a single sport or to several (multi-sport club) [1, 2].

Bigger sports clubs are categorized by having amateur and professional departments in several sports, for example, football, bike polo, futsal, basketball, volleyball, cricket, rink hockey, handball, water polo, bowling, rugby, baseball, boxing, tennis, cycling, gymnastics, rowing, and others. The athletes and teams of the sports club play in several leagues, and championships wearing similar club colors and with the same club name, and club fans, supporters and facilities [1, 2].

In many world regions such as North Africa, Latin America, Europe, the Indian subcontinent, or the Middle East, multisport clubs or branches, including professional teams, are highly popular and became among the most powerful sports institutions in those countries. Generally, student sports [1, 2].

II. RELATED WORKS

The MINDBODY app is your source for fitness memberships, workout classes, wellness services, beauty appointments and more, no matter where you are in the world. The Home page of the smart application shows the options for the user to choose the type of service required (such as beauty, gym and health centers). The search, selection and reservation for the service needed by the user and the price range are made from the Explore icon. The user can also create his own schedule in the centers where he subscribes or his other appointments under the "My

Schedule" icon. Also, through the application, the user can save the training sessions and favorite centers under the Favorites icon. Figure 1 shows the home page for the MINDBODY application [3].
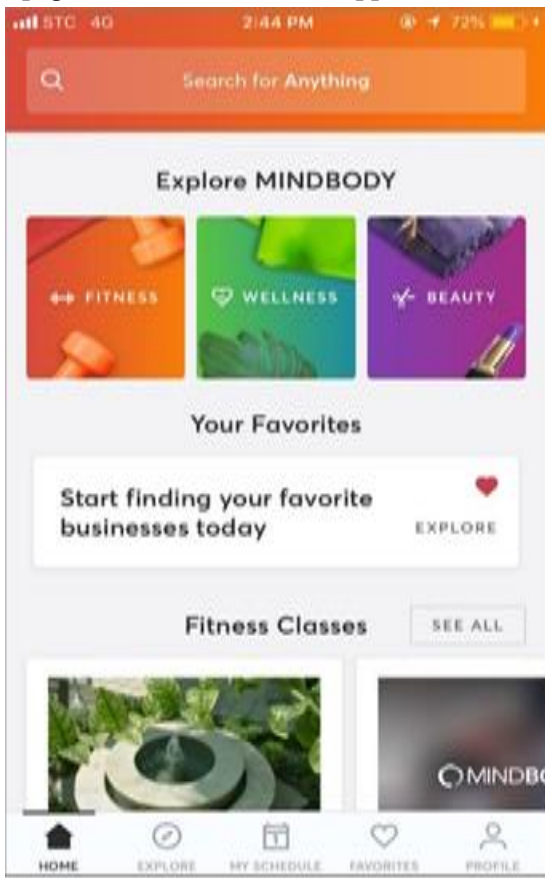

Figure1: MINDBODY application home page [3].

Vagaro is a powerful scheduling and management software for your business. It helps in finding sports clubs, beauty salons and spas in your local area, as it contains a list of options through which you can find the best search results based on the time, prices, comments, distance and then book an appointment and get emails and text reminders for appointments, and it automatically puts Favorite reference on the services you have booked and the calculation of reward points where points can be collected and redeemed for free discounts and services. Figure 2 shows the booking appointment page for the Vagaro application [4].
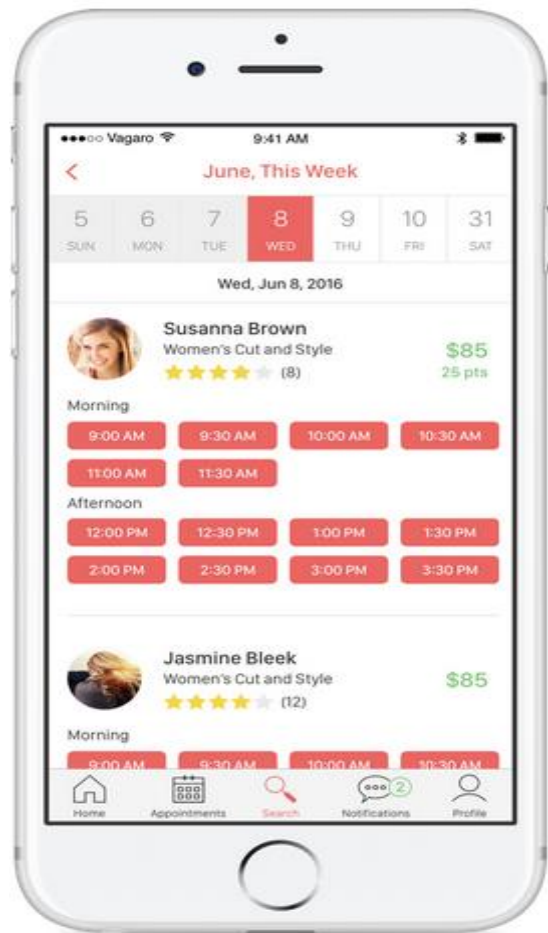

Figure 2: booking an appointment page for the Vagaro application [4].

Fitness Time is the biggest sports center network in the MENA region. *Fitness Time* is a *fitness* and sports facility. *It* is a full-service center that is developed *for* customers interested in a variety of *fitness* options and facilities. Membership is accessible *for* members above 18 years. Figure 3 shows the home page for the Fitness Time website [5].
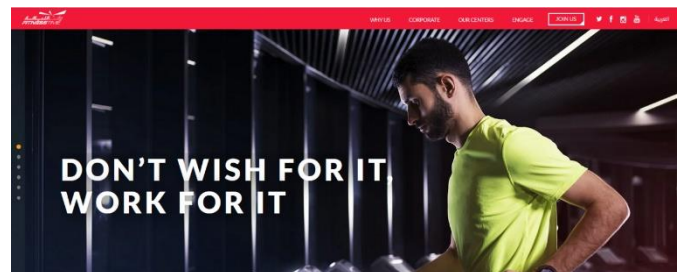

Figure 3: Fitness Time website home page [5].

The technological revolution influenced everything [6-83], even the approaches that aim to improve the community culture and knowledge by introducing a free electronic application for encouraging sport in the community. Today, the use of Artificial Intelligence (AI) algorithms is expansive, particularly in providing solutions to challenging problems including image segmentation [7], information retrieval [53] and Healthcare Monitoring system [46, 57]. Therefore; many technologist have used AI as an effective techniques for introducing new applications for encouraging sport in the community [84, 85].

III. METHODOLOGY

Unified Modeling Language (UML) physical and logical models of data are used for object-oriented database modeling. The diagrams point out inheritance along with a variety of relationships [86-90]. The UML provides a standard method to write blueprints of the system, conceptual things like system functions and business processes along with concrete things like database schemas, statements of programming language, and reusable software components. It was used mostly for the proposed system design. The context diagram and the Use-Case diagram are addressed below.

1.1 Use Case Diagram

In the UML, a use case diagram summarizes the of your system's users' details (known as actors) and their system interactions. It is a behavior diagram that visualizes the interactions between the underdevelopment system and actors [19, 89, 91, 92]. The external entities are Actors. They may be human users, external hardware or other systems. In this case, the actors are the Gym Client, Third-party payment services and Gym Admin. Figure 4 shows the use case diagram for the proposed system.
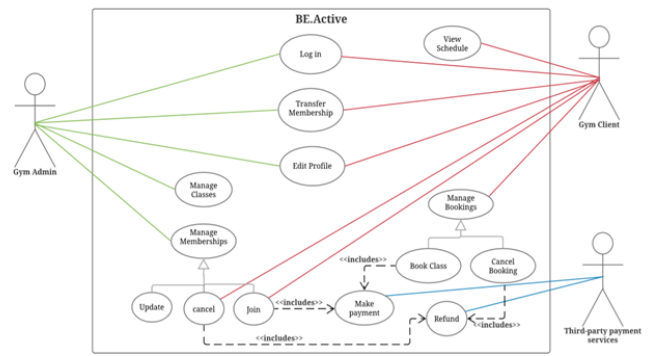

Figure 4: Use case diagram for the proposed system.

The use case begins with the user registration to the system; then, the user is offered a login form and he/she has to enter the required information. After that the system will search in the database to verify the inputted information, if it is correct the system homepage will be displayed to the user to make the user utilize the system. nevertheless, the system will redirect the user to the login page.

1.2 Context Diagram

A context diagram is used to overview an entire system, it has only one process/circle to represent the entire system. this diagram is used to display the expected system outputs and inputs and from many external entities. The system analyst can use the context diagram to model the data going into the system, and the output data that are processed by the system [93]. Figure 5 shows the Context Diagram for the proposed system.
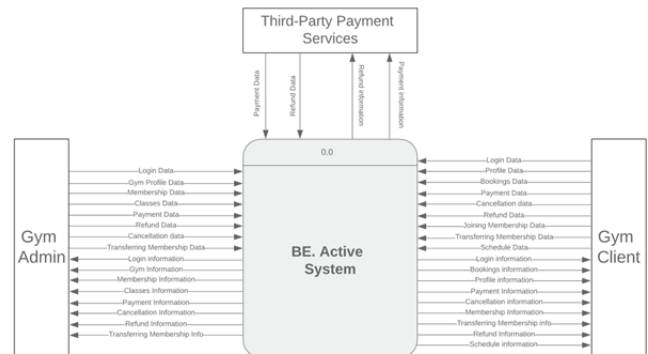

Figure 5: The Context Diagram for the proposed system.

1.3 Entity-Relationship (ER) Diagram

An entity-relationship ERD, also called an entity relationship model, is the entities' graphical representation with each other relationships. ER Diagrams are used typically in computing regarding the data organization within information systems or databases [44, 45, 54, 55, 94]. Figure 6 shows the ER diagram for the proposed system.
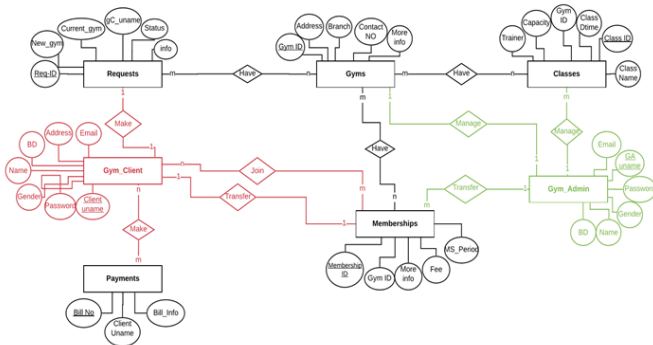

Figure 6: ER diagram for the proposed system.

2. Database Testing and Construction

Database testing is important for finding errors that affect the reliability, security, performance, and consistency of the system. Also, it helps in validating the system against the user's specified requirements[95, 96]. For implementing the database the proposed system utilizes MySQLi. Tables 1 and 2 are created as follows:

Table 1: Club Clients table.

Table 2: Subscription transfer requests table.

3. Interface Design

Interface design is the designing interfaces of the software for devices, typically focusing on maximizing aesthetic, responsiveness, and efficiency

to support improved user experience. This precess is employed typically for services or products that need user interaction to get their expectations from the experience. The interface is supposed to enable a user to perform tasks required for accomplishing the service or product function. The figures below are examples of the implemented interfaces.
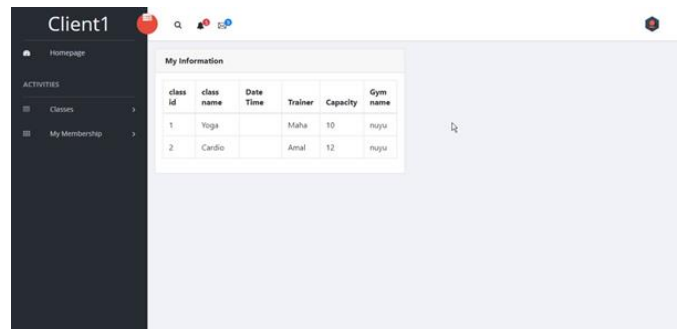

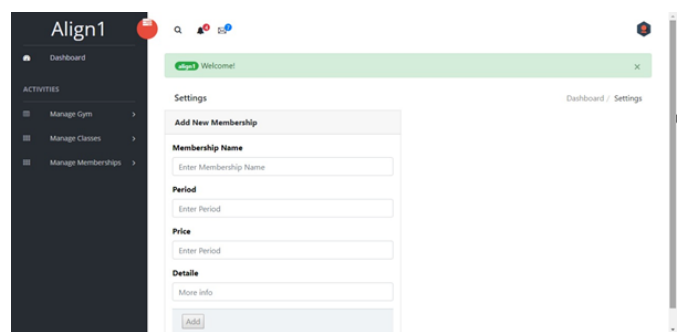Figure 7: Proposed website homepage.

Figure 8: client homepage.

Figure 9: add a new membership interface.

IV. Discussion

To evaluate the system, we invited 20 students from the Imam Abdurrahman Bin Faisal University (IAU) at the College of Applied Studies and Community Service for using the system. A brief description of the system interface and usage was illustrated to the students. Then, they have tested the prototype and answered the survey which consists of 10 items to measure the user satisfaction level. Also, the proposed system's usability was determined. The level of usability and results according to the student's feedback are addressed in Table 3. As can be interpreted from the result, the majority of users agree that the system is easy to use, beneficial and achieves the primary objective of the project.

Table 3: collected data results from the 20 students.

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Strongly disagree										
Disagree										
Neutral	6	5	6	4	3	2	1	3	4	5
Agree	5	9	7	7	6	8	11	3	12	11
Strongly agree	9	6	7	9	11	10	8	14	4	4

V. CONCLUSION

This work designed and developed a website that combines sports clubs in the Kingdom of Saudi Arabia, and provides all the information related to the clubs in the region in addition to the offers and discounts, with the ability to book and move from one club to another without the need to personally go to the club to register, in order to motivate them to participate in the appropriate clubs for them with ease way and show the best equipment and machines in addition to innovative programs, cardio and strength halls, freestyle and varied classes of exercise, internationally certified trainers and many features for members. The proposed system was developed using the Unified Modeling Language (UML) and PHP.

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