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## Original Research

# Designing a Web-based Health Document Automation for Fitness Clubs

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## ABSTRACT

The main purpose of this project was to design a web-based health document automation program for fitness clubs. This research was carried out using information such as fitness features of the clubs and the types of users. The existing literature on this subject was reviewed to reflect the limitations and suggestions of previous studies in the program design. The types of services and required processes were identified by field surveys, and program designing continued in both the database and user sections. Creating a Web-based context, predicting user education and the possibility of developing a smart phone app were among the factors that were considered by previous reviews of similar health-related software. The results of this design can help improve specialized services. This design can also be employed at the University Health Center to determine the essential characteristics of each level of user.

**Keywords:** Sports automation, Sports club, Health

## Introduction

In today's world, the advancement and use of numerous technologies and electronic systems reduces both the cost of human resources and time compared to traditional life. On the other hand, exercise is an essential part of a healthy lifestyle. Given the differing views on this and the importance of technology advancement, sports have not been progressing much in this regard. This disadvantage should be dealt with given the needs and demands of users and physical education and sports science professionals who are involved in the field of software design and engineering. For this reason, with the rise in the numbers of web clients, and the recipient of sports services, and also the easy access to the service providers, there is a need for sports clubs to move in this direction. Existing applications are designed according to the personal tastes of their developers. As a result, there is inconsistency among different apps which in turn causes difficulty for the users. Many sports clubs cannot benefit from these applications because of their high cost. Also, the cooperation of different people and organizations for this important issue seems necessary. The goal of exercise for the public is to improve the health of all human beings, and this can be achieved by the least costly program [1]. But the truth is that public sports, especially for middle-aged and adults, has been overlooked [2]. On the other hand, the role of the information infrastructure cannot be ignored. This is so important that the web software industry has been cited as a determining factor in the future of nations. Nouri et al (2016) have predicted a fundamental movement for Iran by 1404 if the government supports this industry [3]. Information and communication technologies are gradually being introduced into all parts of life. It has been reported that software for recording and analyzing injury and risk factors in football makes data analysis easier and faster [4]. Also, multimedia software has a positive effect on the sports behavior and physical fitness indices related to women's health [5]. Although there is no significant relationship between the presence of media and participation in sport, the relationship between these tools and people's attitudes has been confirmed [6]. Since electronic health record software pertains to the field of health, a review of literature in this field can be effective in designing it. With regard to the employment of such software, individuals' attitudes and behavioral limitations, organizational changes [7], technical and financial and legal constraints [8] have been cited as factors that hinder electronic health record implementation. Electronic health records for various sectors including traditional medicine [9], future health care system [10], Thalassemia Major Patients [11] and other health sectors have been reported to be essential by individual studies. Some Iranian scholars have pointed out that human resources needed for the electronic health record are not well-prepared [12] and some have found it necessary to adhere to design [8,13].

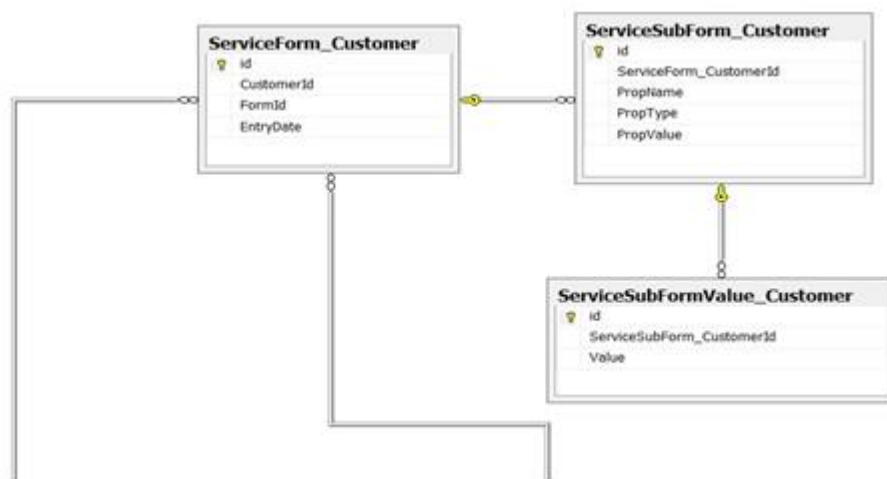
Information needed in electronic health record design includes personal records and demographic information [14], but it is advisable to prioritize needs analysis of the stakeholders. It has also been recommended that different reports be connected. The application can also facilitate people's access and user convenience [15]. Therefore, considering the significance of this issue, a web health file was designed. It is hoped that by the necessary electronic file infrastructure being provided, sports will also be linked to the health system. The program is designed to create a free membership for clubs and to allow users to register online. Therefore, the following two objectives are pursued in this study:

### Research methodology

In any scientific research, the researcher has to go through a scientific process in order to answer the research questions and test the researcher's initial hypotheses. This process must be carried out by the researcher at various stages of the research to reach the final conclusion. The research process should be seen as a road that is initially very wide and narrows over time. The data were collected based on demographic, physical and health status and interests. The checklist was initially given to five experienced coaches. Then the general revisions were made and its content was validated by the team. The registration information was used in the piloting stage. The option of adding the information needed for the clubs was also considered in the design. The data, then, was finalized for the last version. The second stage of the study was software design. At this stage, the researcher created the software using his professional experience in designing the appropriate structure for an electronic sports record system by SQL tools and Visual Studio software. The file structure in this study was web-based and was written in SQL database in C # language in Visual Studio. The data were defined and coded in 13 tables that included customer base information, service center and management as the file information repository.

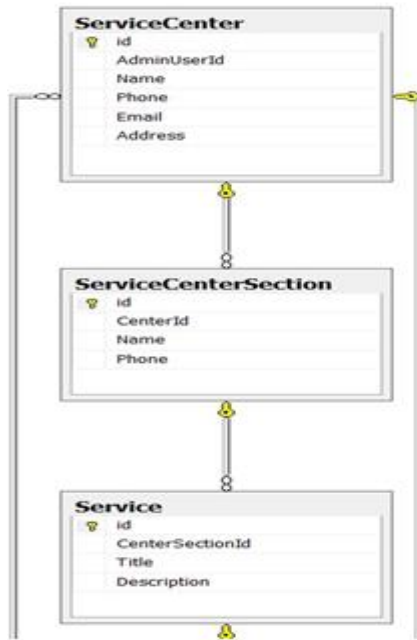
### Design tables and databases

The first part is for sports clients who need to be able to use the services provided by the clubs on one hand and on the other hand to enter their own electronic information useful to both coaches and themselves.



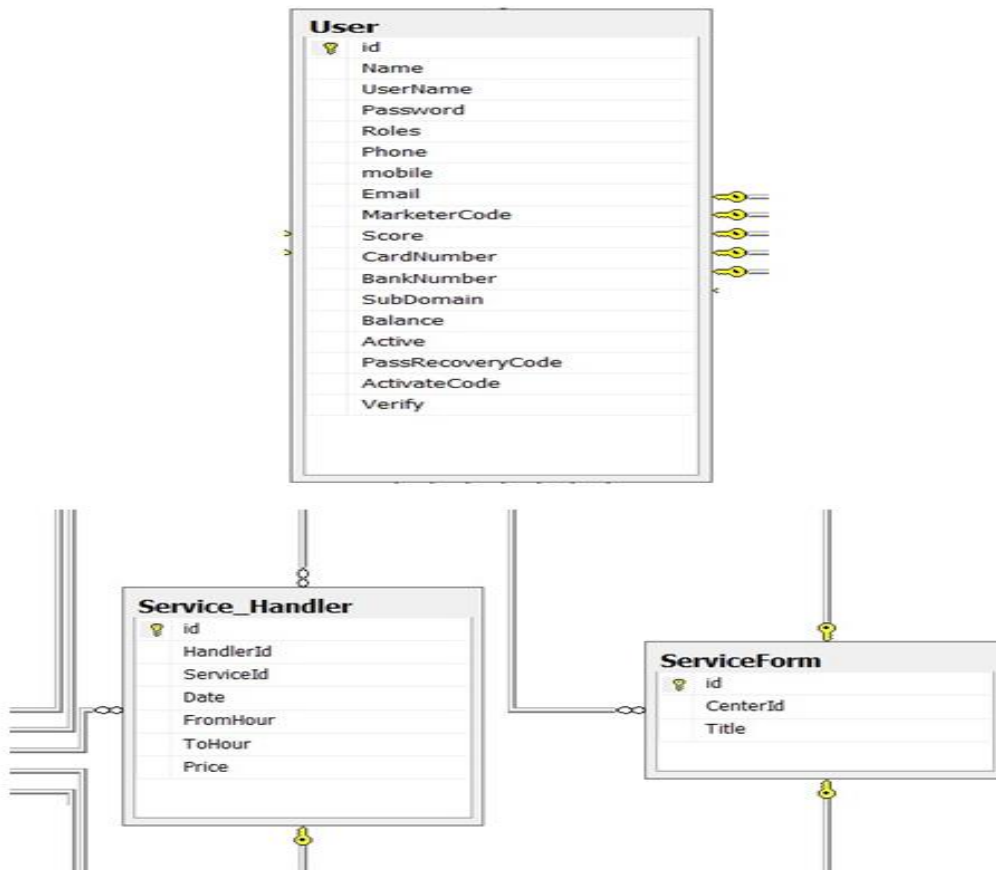
Figur1: services form structure

The second part is for the service centers that can categorize services for their clubs and register for their classes and other services they provide about public sport. They can also enter their coaches' specifications or use the coaches registered in the system.



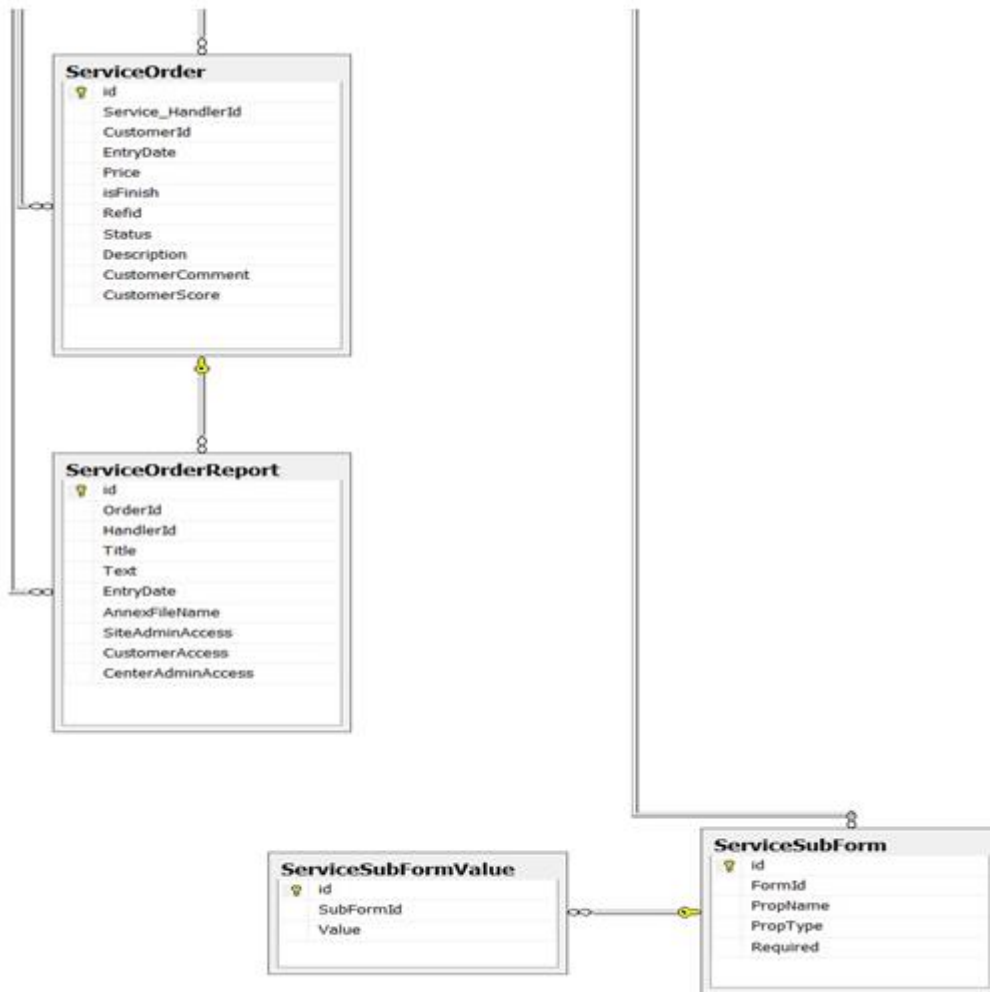
Figur2: service provider information

How to create an electronic user account and its communications, e.g. ordering and purchasing services are shown in this table.



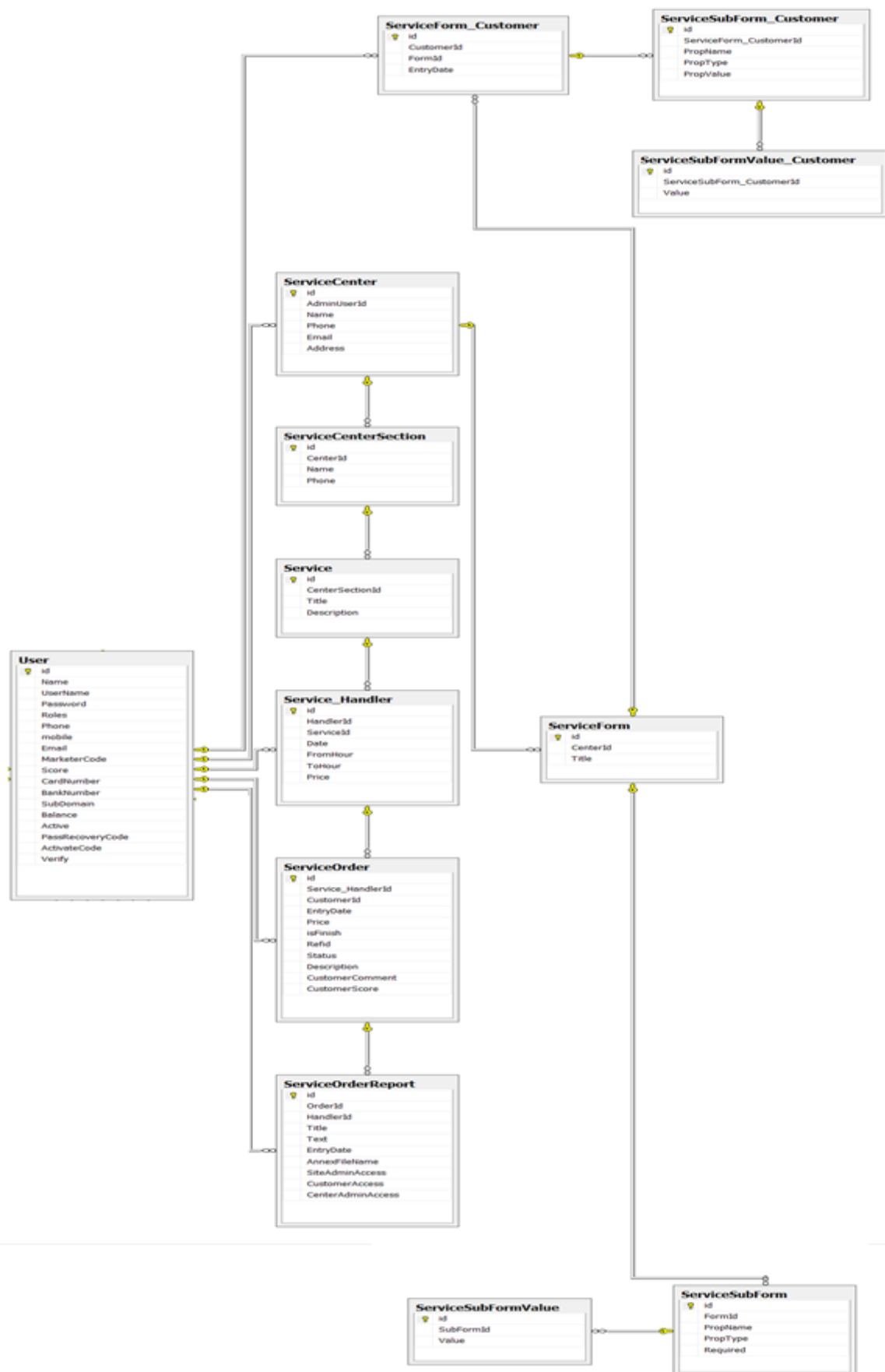
Figur3: user submit structure

Clients' order reports, website management and service providers will all be accessible to ensure that the actions in each segment are transparent.



Figur4: services ordering structure

All the communications among the user, services provider, and management are illustrated in the above table.



Figur5: designing automation stacture

## User registration

The first time users wish to enter, they have to register in the system. The selection of information that a user must enter for registration was based on necessity. However, in case more information is needed based on different offered services, it can be added later. After registering with the site and verifying the account, the customer can log in to the website with their username and password.

The image shows a user registration form with two tabs: "Register" (active) and "Login to system". The form contains the following fields and labels:

- Name & Last name
- Username
- Password
- Repeat Password
- Mobile
- Landline phone number
- Mail
- Reference code

A blue "Register" button is located at the bottom center of the form.

Figur6: register form of user and login to system

## Profile Management

Client profiles with sections such as personal information, password resetting, customer / club addresses and physical and sport records, etc. will be available on this page.

Addresses Change pass Edit profile

Current password  
 New Password  
 Repeat New Password

[Save](#)

Figur7: client profile setting

### Client purchases of the club services

The communication model of this system is designed in a way that the users can get the services they need from the nearest location. In addition, these client orders can be viewed.

Sport Talent [Discount net](#) [You are here](#)



38%off

Researcher Health Center

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Sport Talent

Researcher University - Health Center [Address](#)

[Mobile](#)

[Discount End Date](#)

[Buy](#)  Number

[Share](#)
[f](#)
[t](#)
[in](#)
[G+](#)
[p](#)

Figur8: Client purchase form

### Public training to promote sports

To promote sports and health, we have included a section accessible to all where the management can load useful information, including exercise programs, diets, and so on.

[General education](#) [Main Page](#)

**List of training files**

Description	Category	Title	Number
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Figur9: learning opportunity for client



## Ability to add sport related ads for authorized sports club owners

Sports clubs as providers can advertise their services. The unlimited access of sports clients to this sector will certainly create a healthy competition among clubs; it will lead clubs to improve the quality of their services and also make it easier for sports clients to order what they need.



Figur10: advertiseng services by sports club

## Discussion and conclusion

The software industry and numerous technologies have greatly affected human life. Entering this industry is both a serious challenge and an opportunity for sports clubs. However, if clubs do not exploit this great potential, their future in the profession might be threatened. Using technology has had an impact on various health sectors. Moeil et al. (1986) reported that web-based systems can be used to help patients control their blood transfusions and reduce their complications and improve their health [11]. Exercise has contributed to disease prevention significantly. Thus, if clubs are not ready for IT, a large share of the sports market which is of great importance will be lost. No research in the field of sports, especially public sport, and electronic records, has been done and research is only limited to electronic records of diseases. The major challenges of electronic records are in the type of information required and how the patient, physician, and the centers communicate. Plus, there is no definite agreement on the type of information requested. Ahmadi et al. (2012) in a study of information needs of electronic health records of patients concluded that in designing electronic health records of dialysis patients, information such as name and surname, documentation number, blood group, tests and test results, type of dialysis, surgery and transplantation history, the cause of kidney failure, discharge recommendations, and clinical warnings should be of primary importance [14]. Therefore, considering the technical and professional challenges involved in electronic file formulation during research, it was attempted to anticipate these issues by defining new and individualized information for each athlete registration center in software design. One of the most important obstacles to implementation of electronic records during Jabraeili et al.'s (2010) research was that human resources were not well-prepared to use electronic health records [7]. Therefore, effective factors should be identified and dealt with to increase people's readiness, and necessary training should be provided to increase their computer literacy and skills. For this reason, we have included a human resources training component in this program and it is possible to upload a variety of guides and training programs for users. In addition, the gap between 2010 and present is relatively long, and it is hoped that this information gap will be somewhat resolved. Langarizadeh et

al. (2016) also proposed the development of an individualized health record application for gestational diabetes for mobile phones [11]. In designing of this program the prerequisites for becoming a mobile application have been considered. The network-based structure was used to create the communication measures that were mentioned in most of the electronic file studies to allow increasing or decreasing the number of other stakeholders in the electronic file structure. Therefore, the limitations of electronic records in the health sector, which are technically similar to general sport, were reviewed in this program as far as possible. However, it is recommended that this program be used tentatively by public sports clubs over a one-year period and then be finalized.

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