DATABASE AND TRANSACTIONS MANAGEMENT SYSTEM FOR A SMART GYM: LAYYAH FITNESS CENTER

Muhammad Abdul Shakoor[1], Muhammad Abbas[2], Muhammad Irfan Mehdi[3], Sajjad Hussain[4], Ashraf Ali[5]

ICBA College Layyah affiliated with NCBA&E, Lahore[1, 2, 3]

MAE, Nanyang Technological University, Singapore[4]

Department of Computer Science and Information, College of Science Al Zulfi, Majmaah University, K.S.A[5]

abshakoor713@gmail.com[1], muhammad.abbas14125@yahoo.com[2], Irfanmehdi8548@gmail.com[3], Hussain.sajjad@ntu.edu.sg[4], a.haider@mu.edu.sa[5]

Correspondence Author: hussain.sajjad@ntu.edu.sg

ABSTRACT— *This work presents a design for online database and transactions management. The design system can manage employee, member, facilities, payroll, receipts, and products information. It also provides the facility of search & advanced search for searching the records efficiently & immediately. This system provides data storing & report generation with a graphical user interface (GUI).*

Keywords: Database Management, Design System, Data storing, Report Generation

1. INTRODUCTION

Web-based applications are now a day's become very popular and useful. An existing system refers to the system that is being followed till now. The gym is working manually. The current system is time-consuming and also it is very costly because it involves a lot of paperwork. The manual handling of the gym system was a very difficult task. But now a day's computerization provides increased efficiency with reduced cost, reduced the burden of paperwork, saved time management for recording details of each and every member and employee, generate required reports easily.

Our proposed "Smart Gym Management System" is for those who run a gym business. Before doing anything, we did decent research on major difficulties for gym owners. We examined carefully about how to make a huge registering system without failure as well as different functions for different kind of user depending on their privilege. The Gym management requires a system that will handle all the necessary and minute details easily and proper database security accordingly to the user. They require software, which will store data about members, employees, products, payroll, receipts of members & all transactions that occur in Gym.

The online gym management system is a user-friendly application. This automated system makes all functionality easier for both owners and customers. It is very simple in design and to implement. The system requirements are very low. System resources and the system can work in almost all configurations.

The main objective of the Smart Gym Management System is to enhance and upgrade the existing system by increasing its efficiency and effectiveness. The software improves the working methods by replacing the existing manual system with the computer-based system. The Smart Gym Management System automates each and every activity of the manual system and increases its throughput. Thus the response time of the system is very less and it works very fast. It provides a quick response with very accurate information regarding the users etc. The transaction reports of the system can be retired as and when required. Thus, there is no delay in the availability of any information, whatever needed, can be captured very quickly and easily, with the reduced cost of maintenance.

2. SOFTWARE PROCESS MODEL

The online gym management system is based on the classical design of waterfall model which progress steadily downwards) through the phases of conception, initiation, analysis, design, construction, testing, production/implementation, and maintenance. It is divided into phases and output of one phase becomes the input of the next phase. Each phase is quite precise well defined. The classification of the phases is as follows: Requirements & definition, System &software design, implementation& unit testing, integration, and system testing, and operation & maintenance.

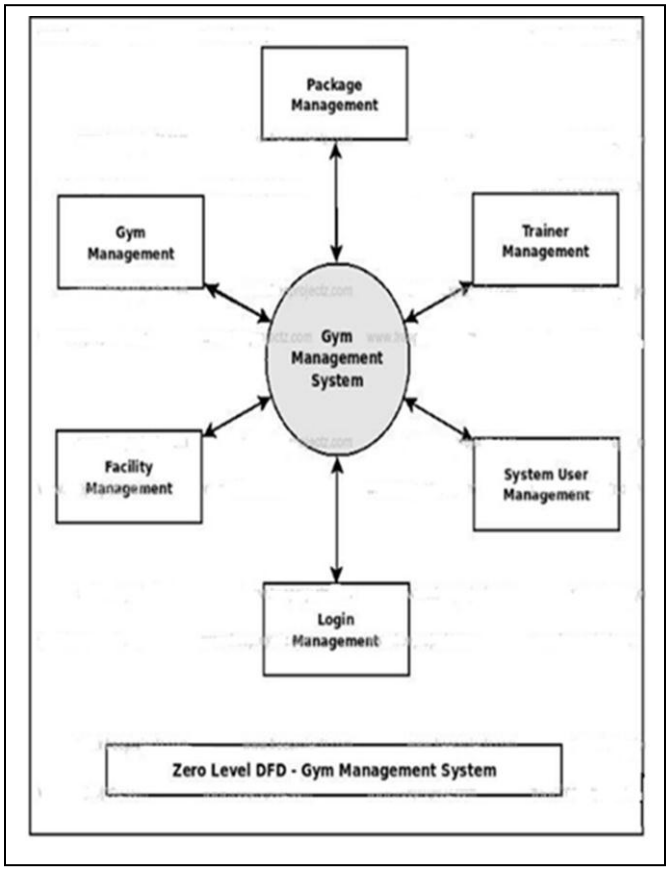


Figure-1. Data Flow Diagrams (DFD) Level 0

2.1. One Level DFD

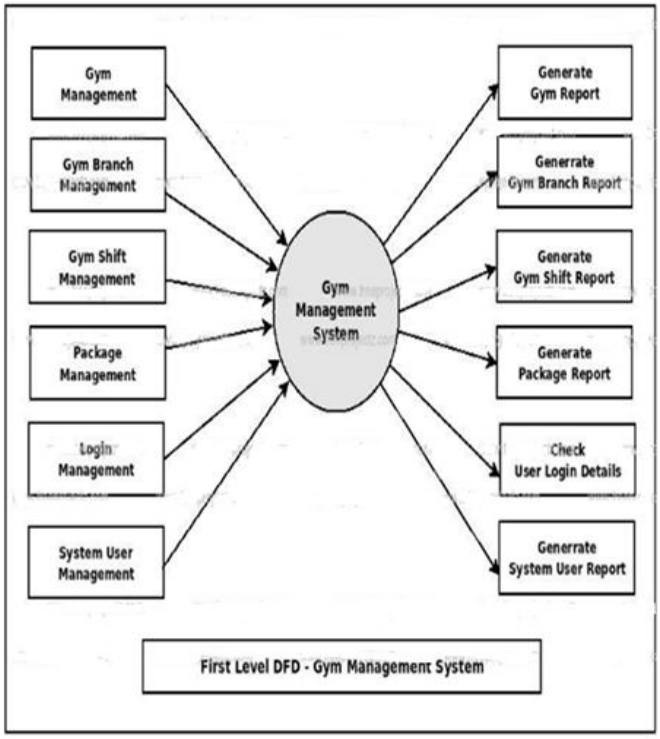


Figure-2. Data Flow Diagrams (DFD) Level 1

2.2. Second Level DFD

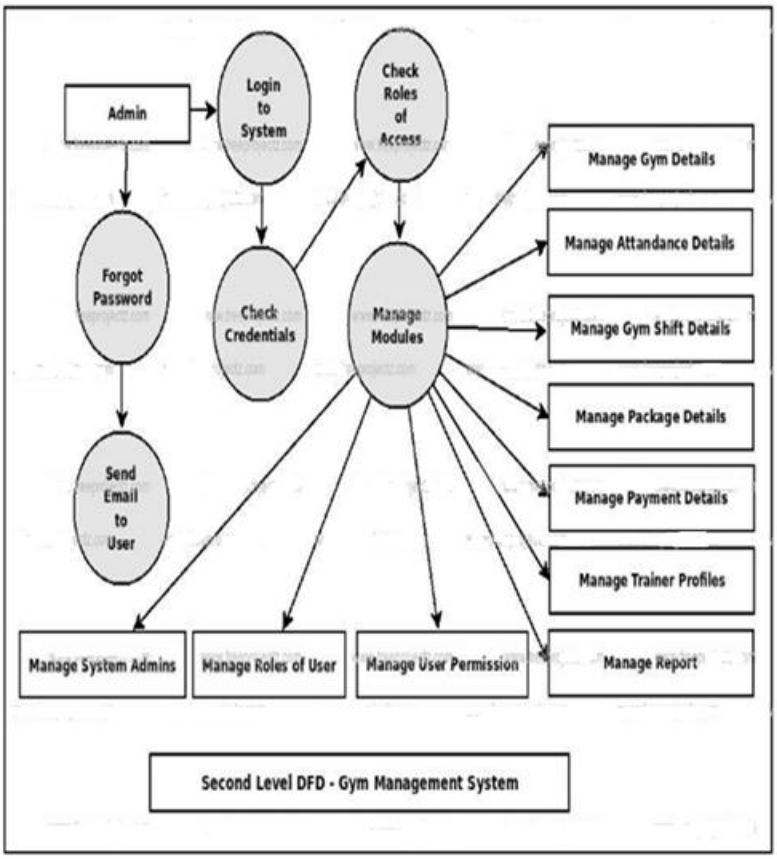
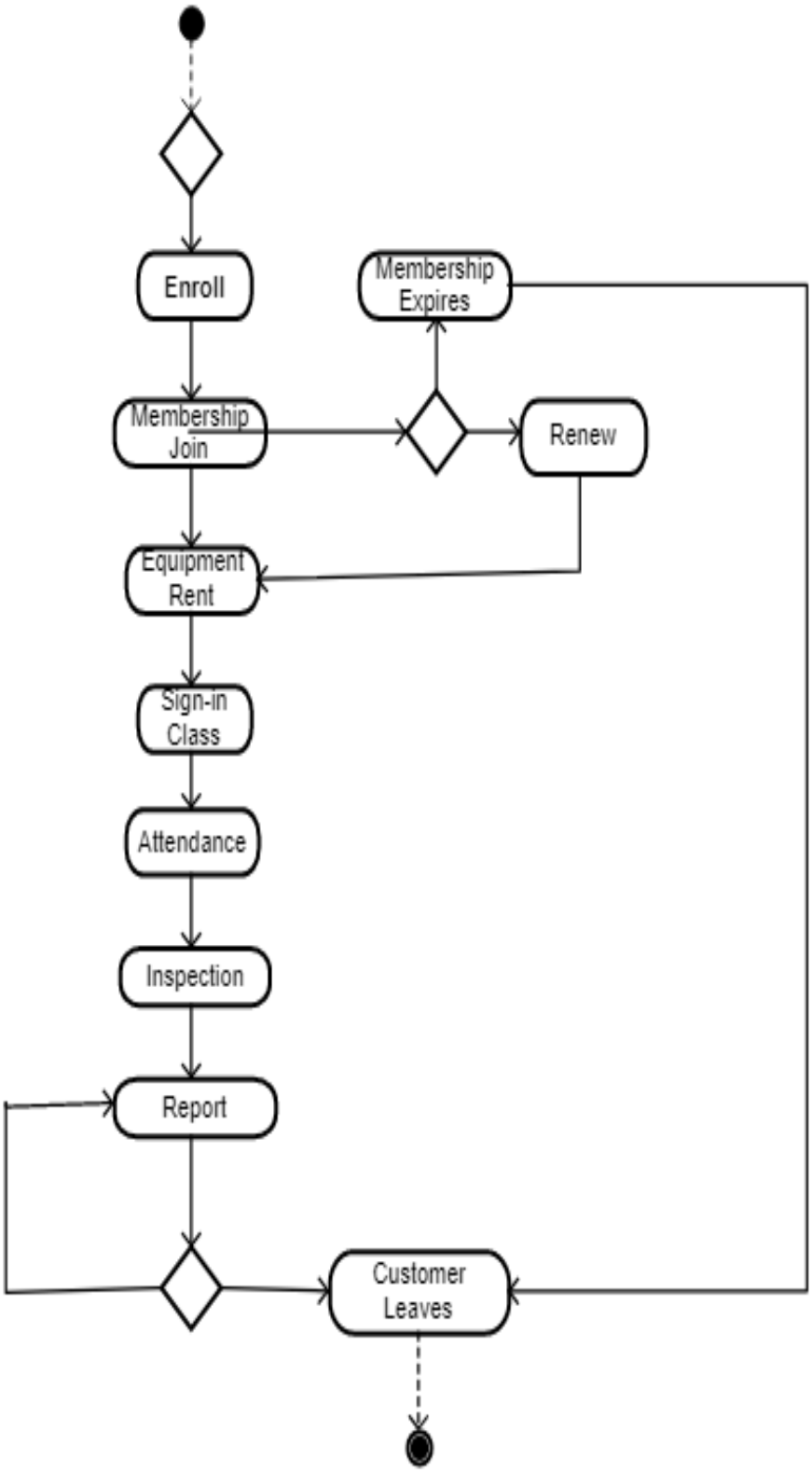
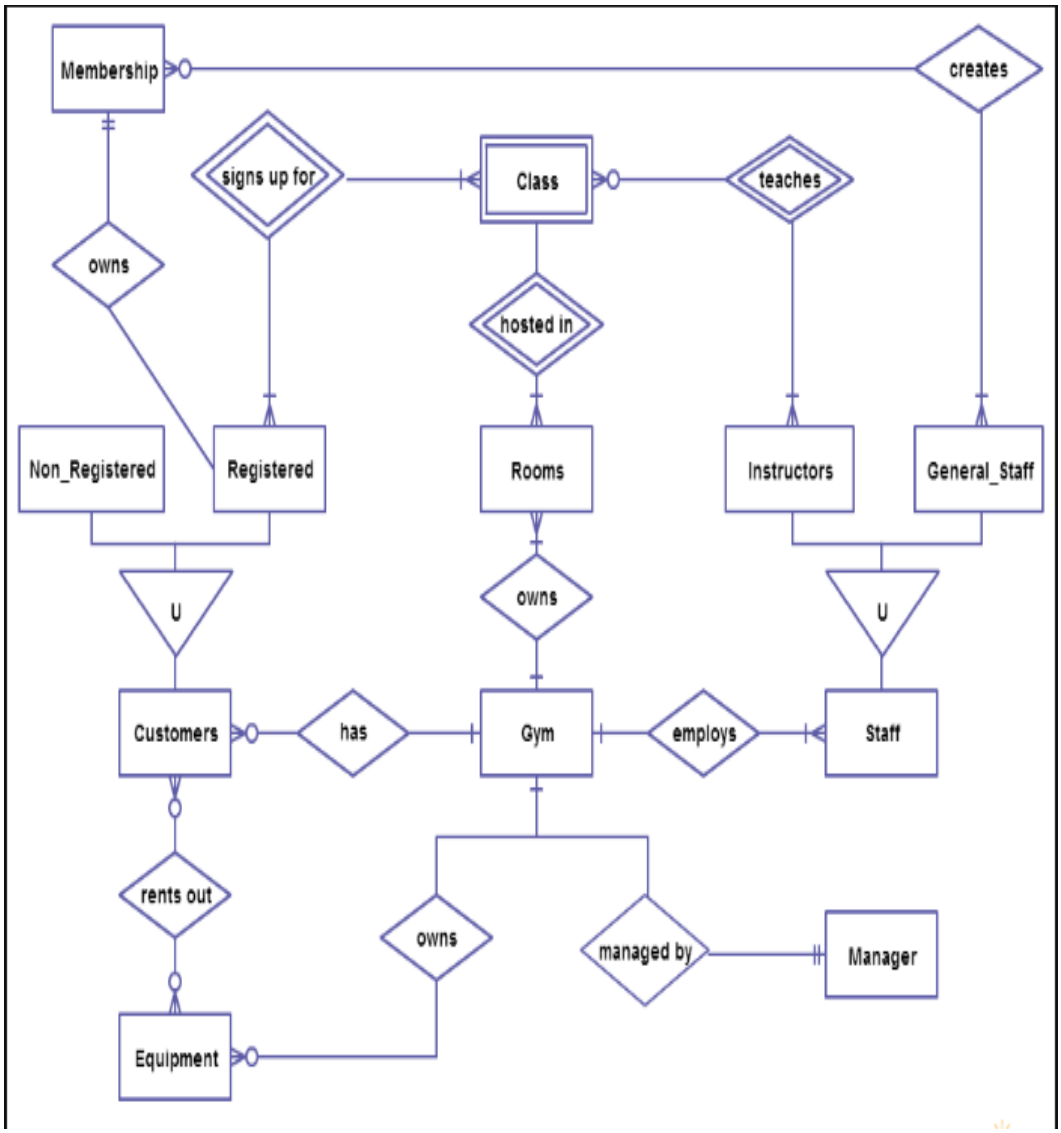


Figure-3. Data Flow Diagrams (DFD) Level 2

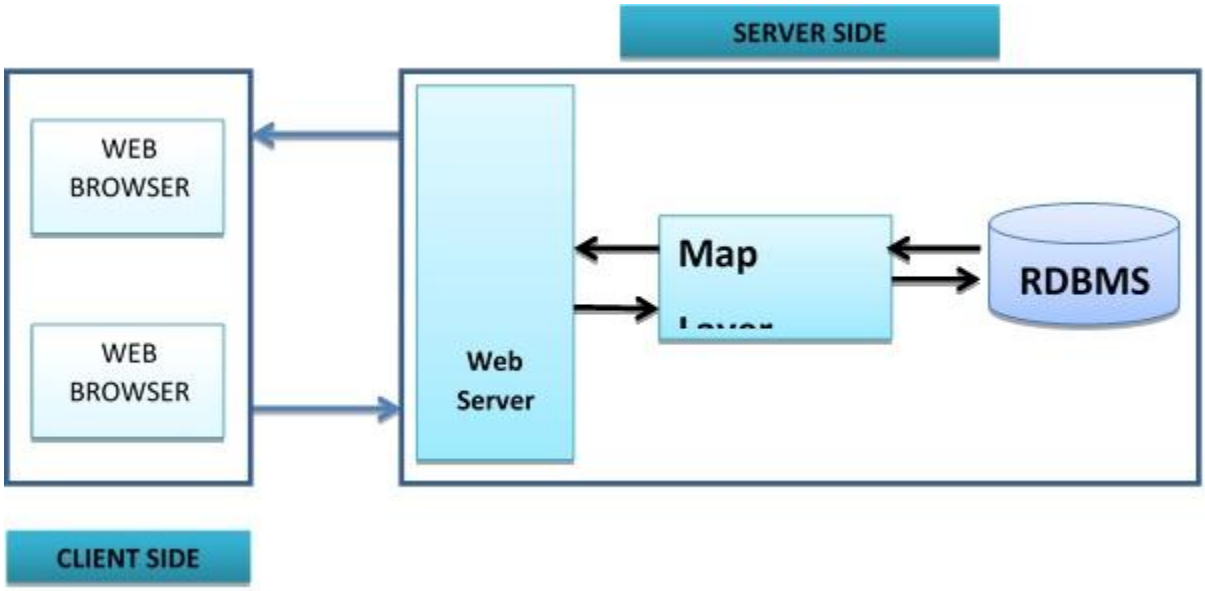
2.3. Activity Diagram



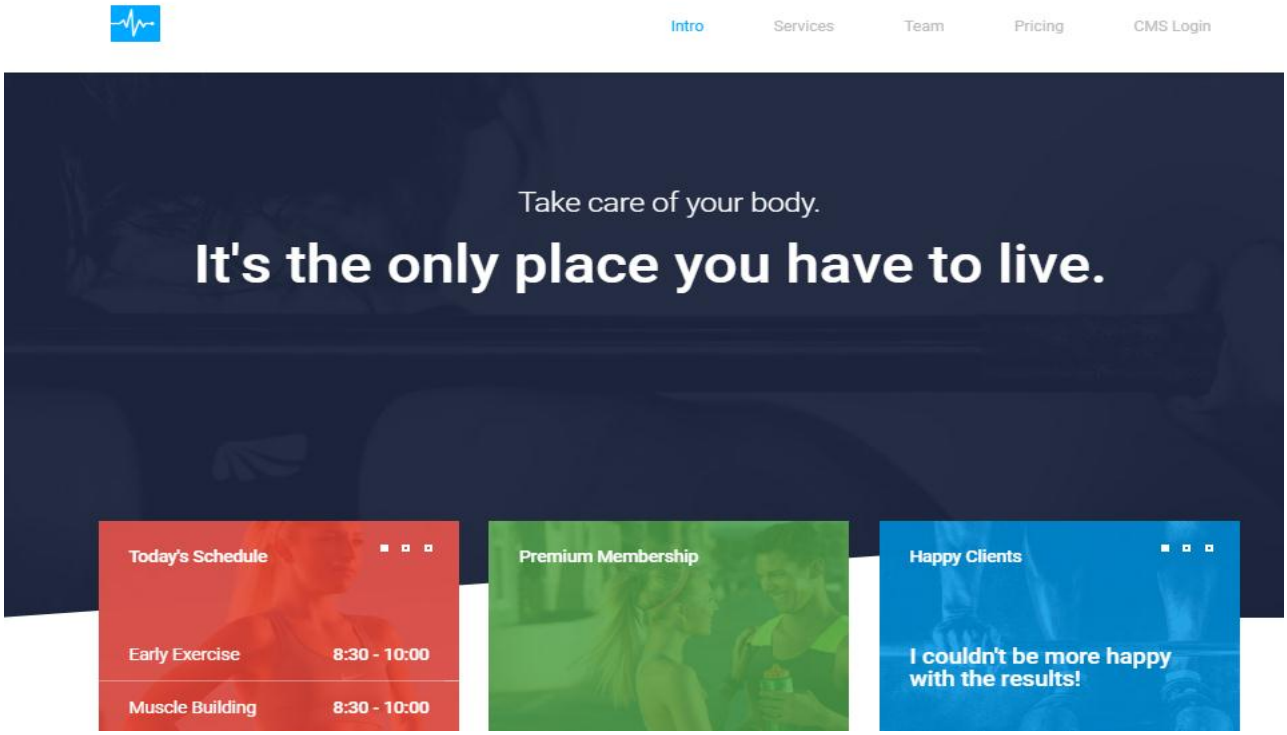
2.4 E-R Diagram



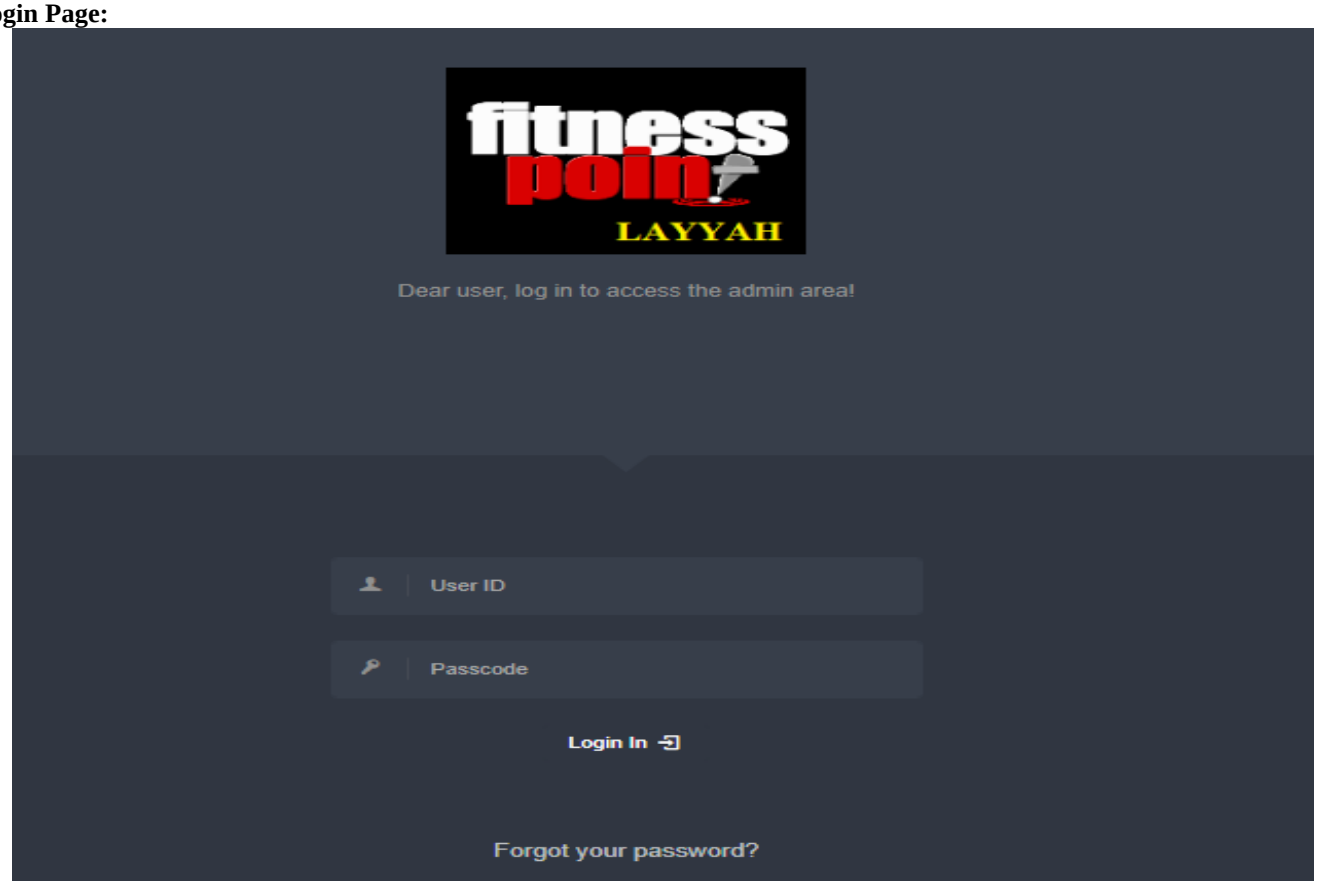
Architecture Design Diagram



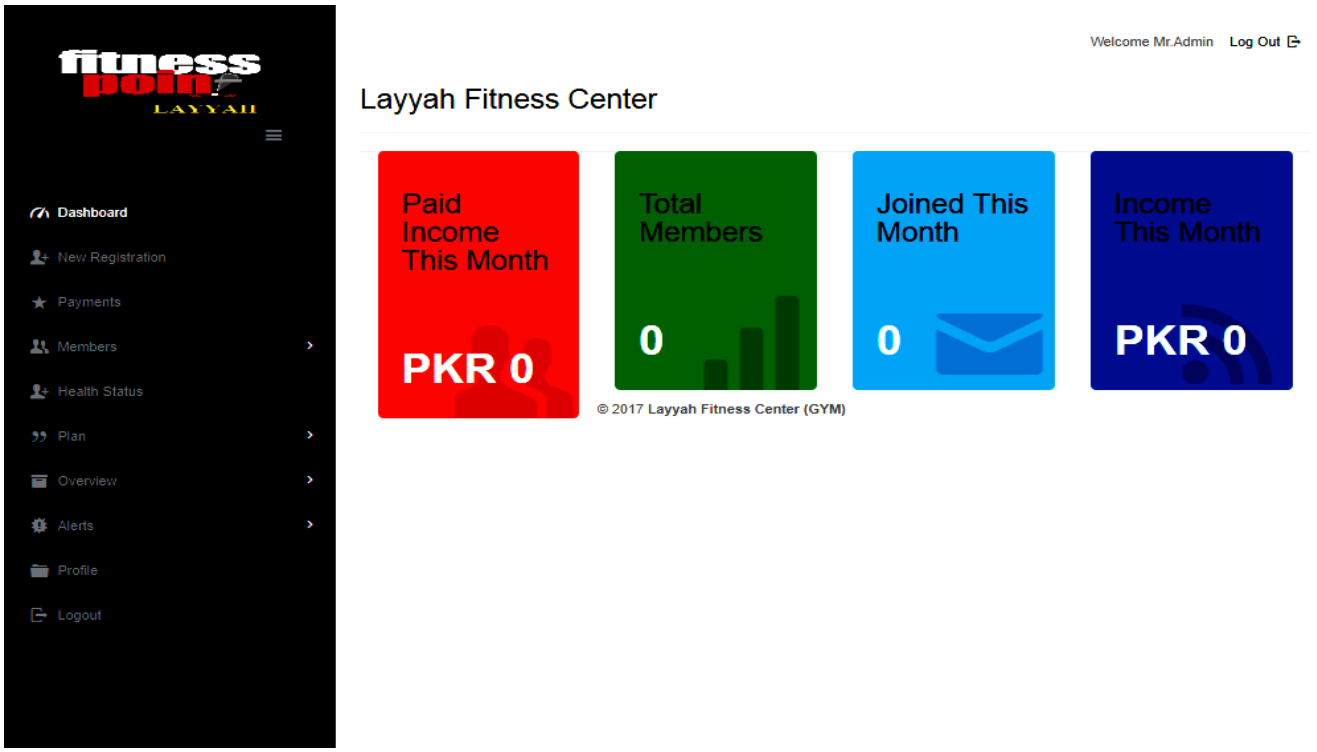
Physical Interface Design:



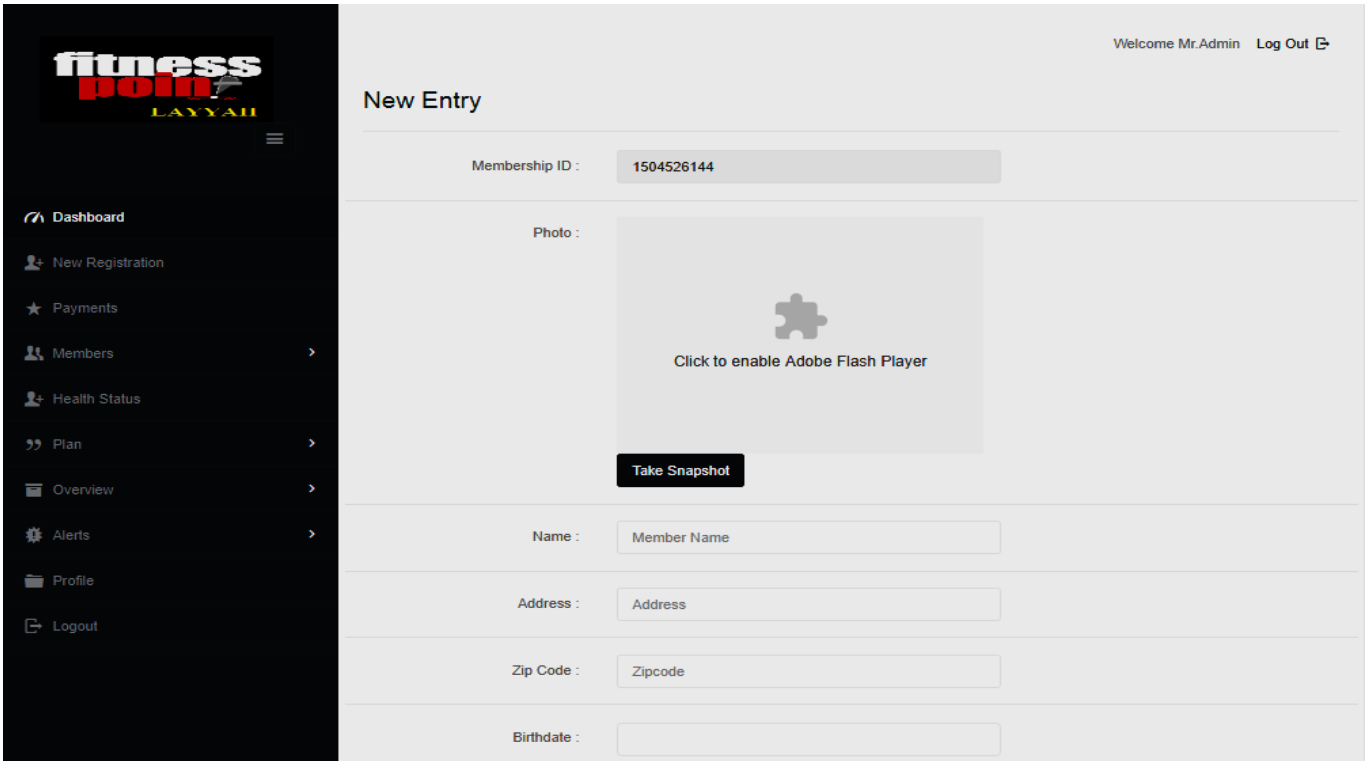
Login Page:

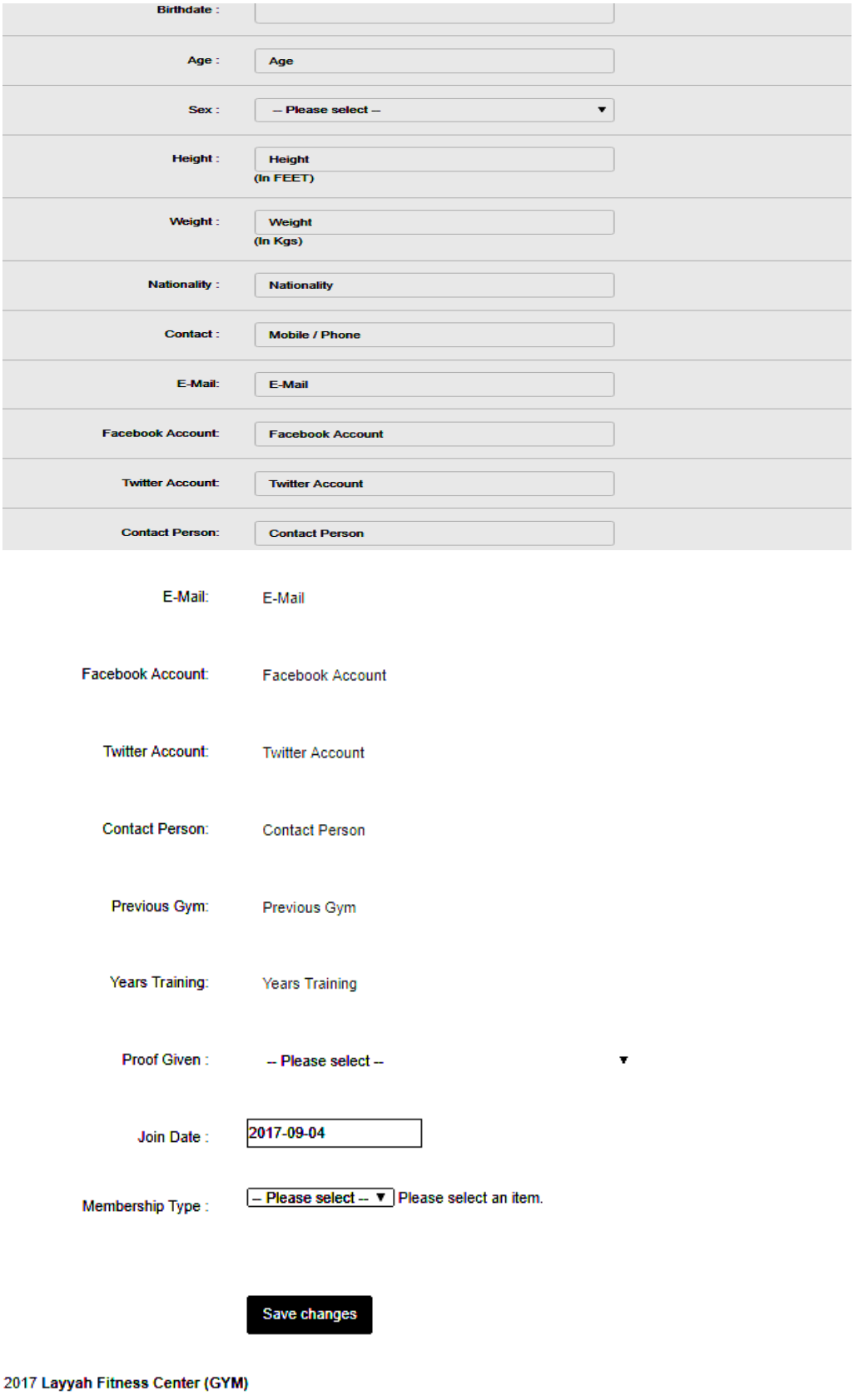


Dashboard View:

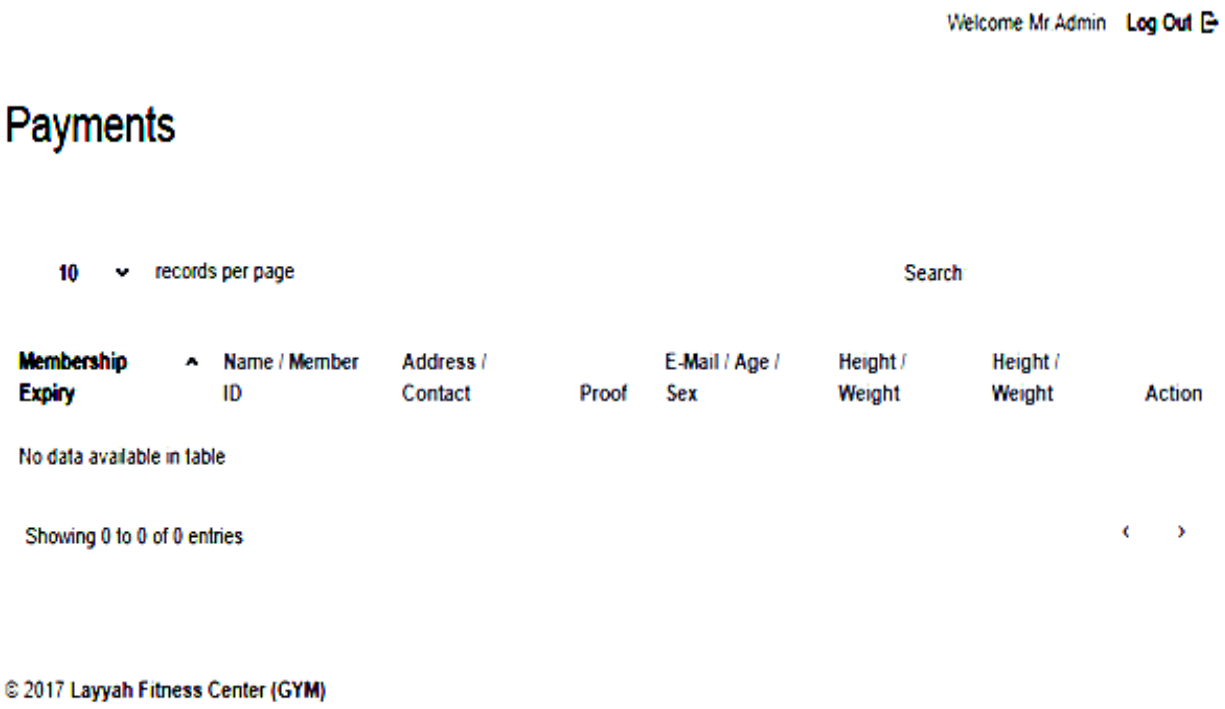


New Member Entry:

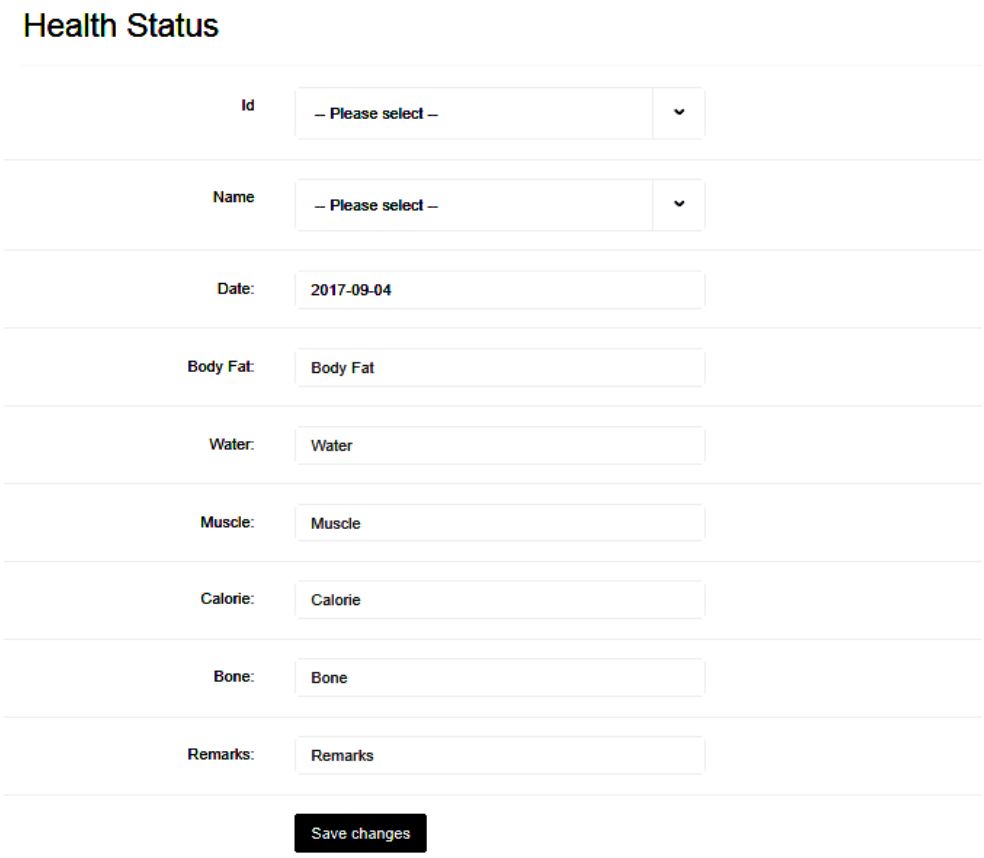



Birthdate :
Age :
Age
Sex :
-- Please select --
Height :
Height
(In FEET)
Weight :
Weight
(In Kgs)
Nationality :
Nationality
Contact :
Mobile / Phone
E-Mail:
E-Mail
Facebook Account:
Facebook Account
Twitter Account:
Twitter Account
Contact Person:
Contact Person
E-Mail:
E-Mail
Facebook Account:
Facebook Account
Twitter Account:
Twitter Account
Contact Person:
Contact Person
Previous Gym:
Previous Gym
Years Training:
Years Training
Proof Given :
-- Please select --
Join Date :
2017-09-04
Membership Type :
-- Please select --
Please select an item.
Save changes
2017 Layyah Fitness Center (GYM)

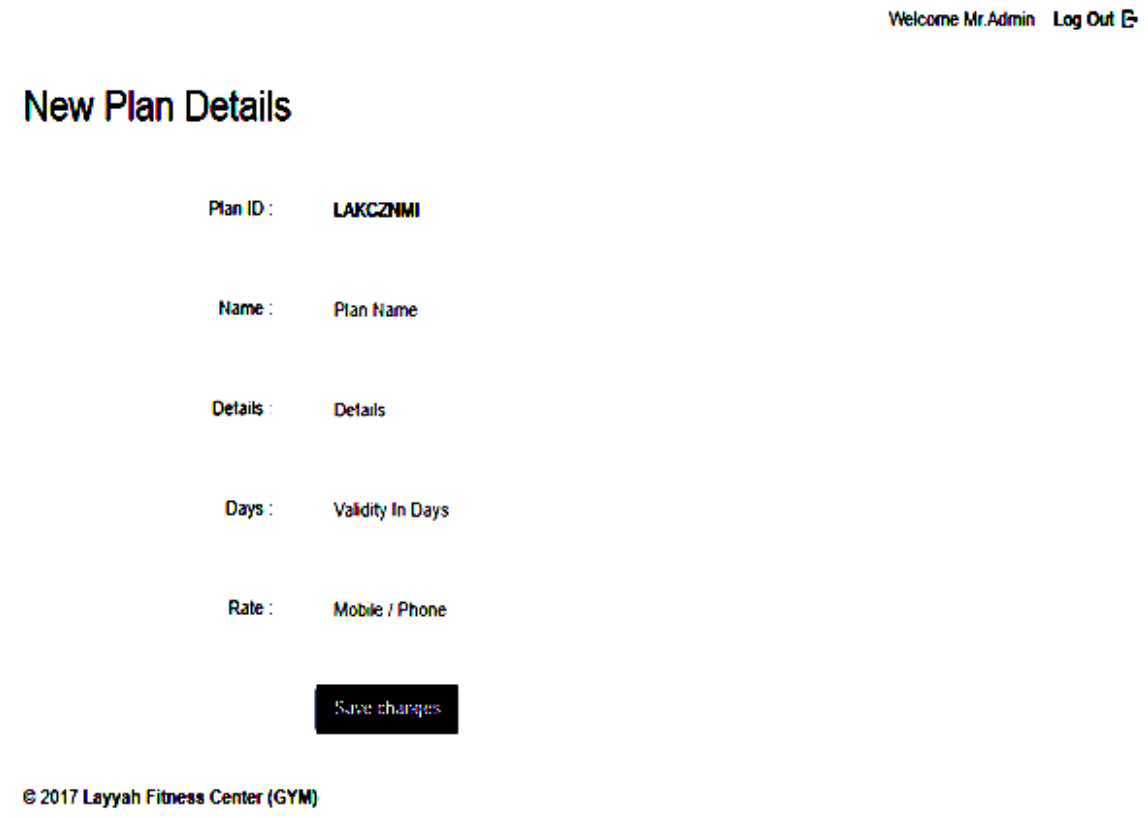
Payments Module:



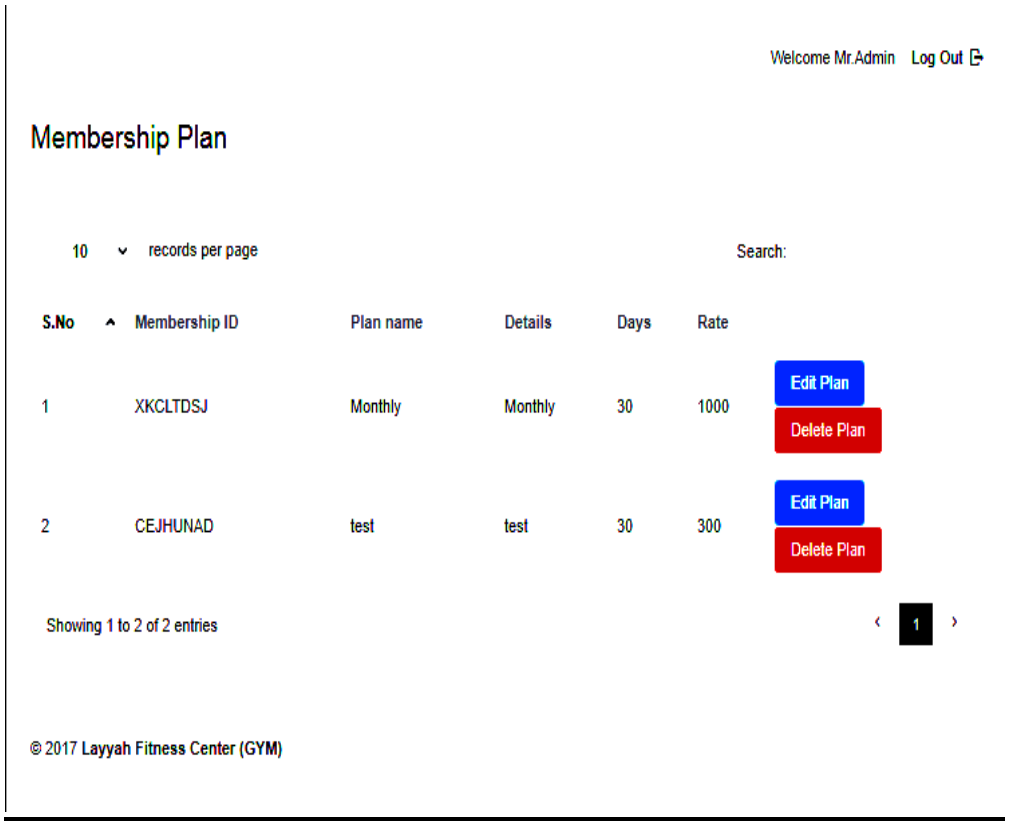
Health Status Module:



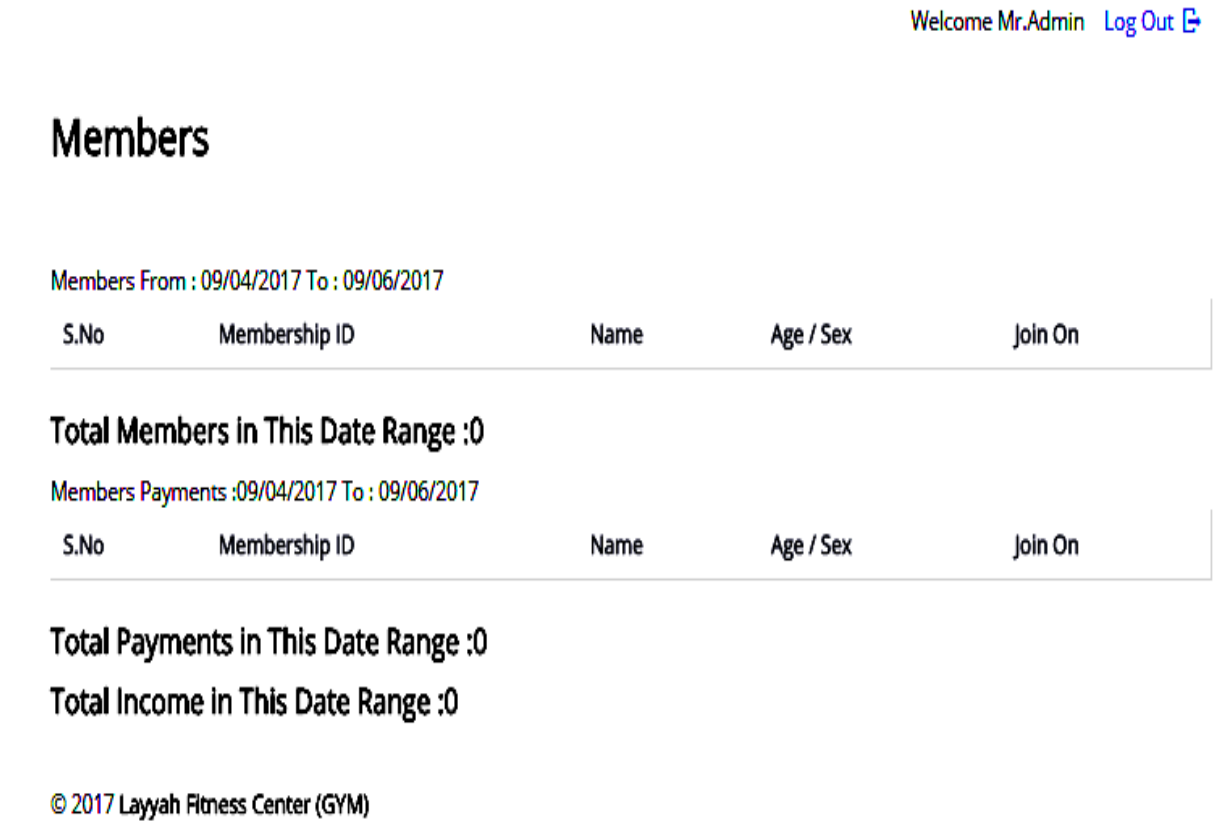
New Plan Entry:



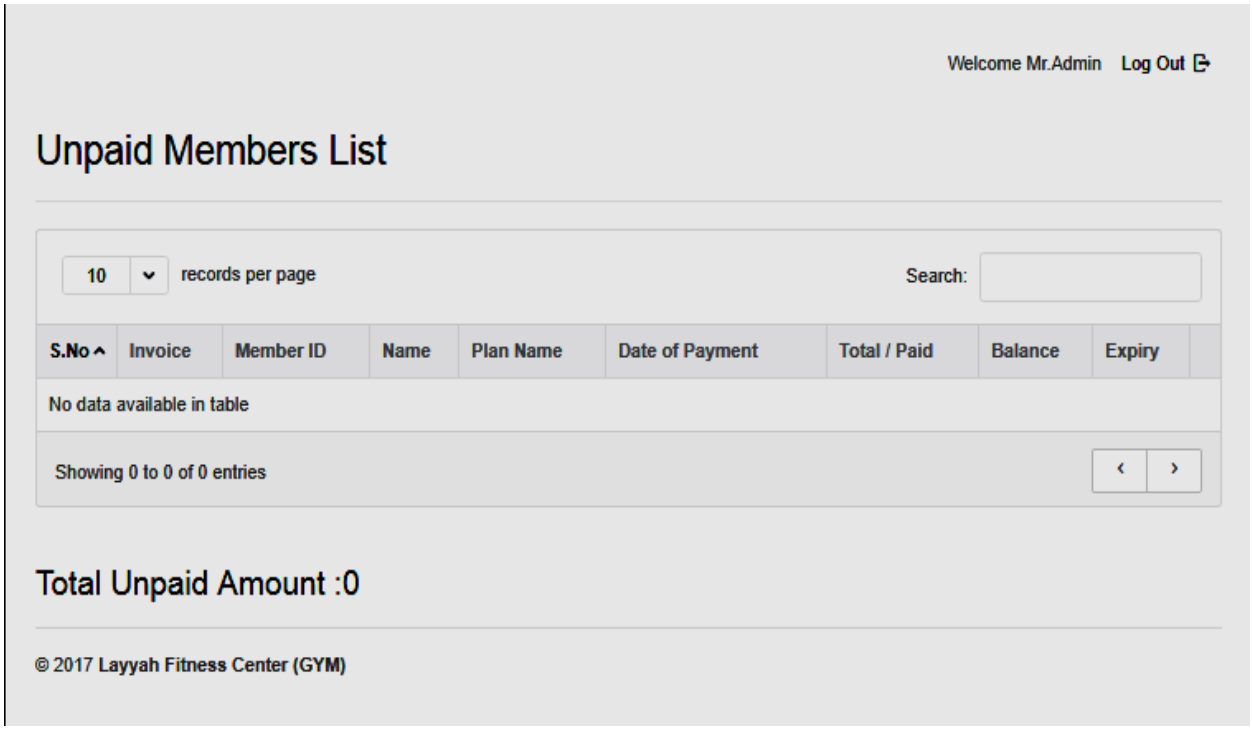
Plan Adjustment Module:



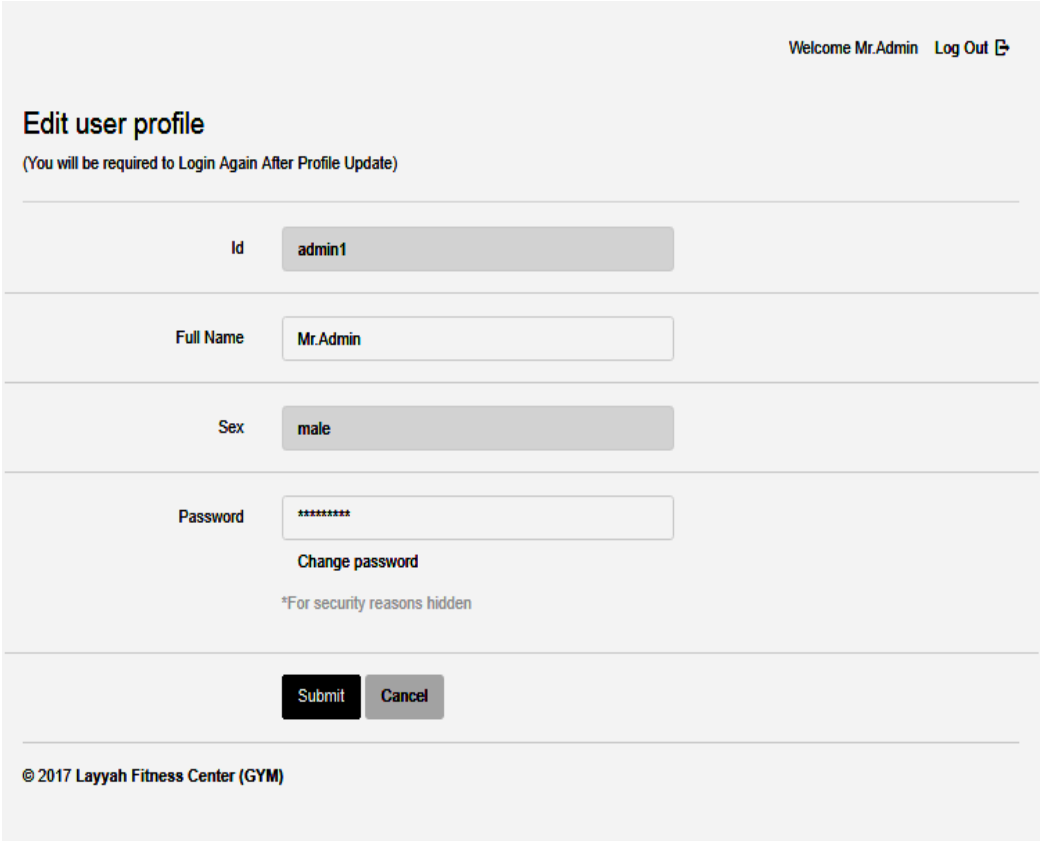
Membership Status Tracking:



Option for List of Unpaid Members:



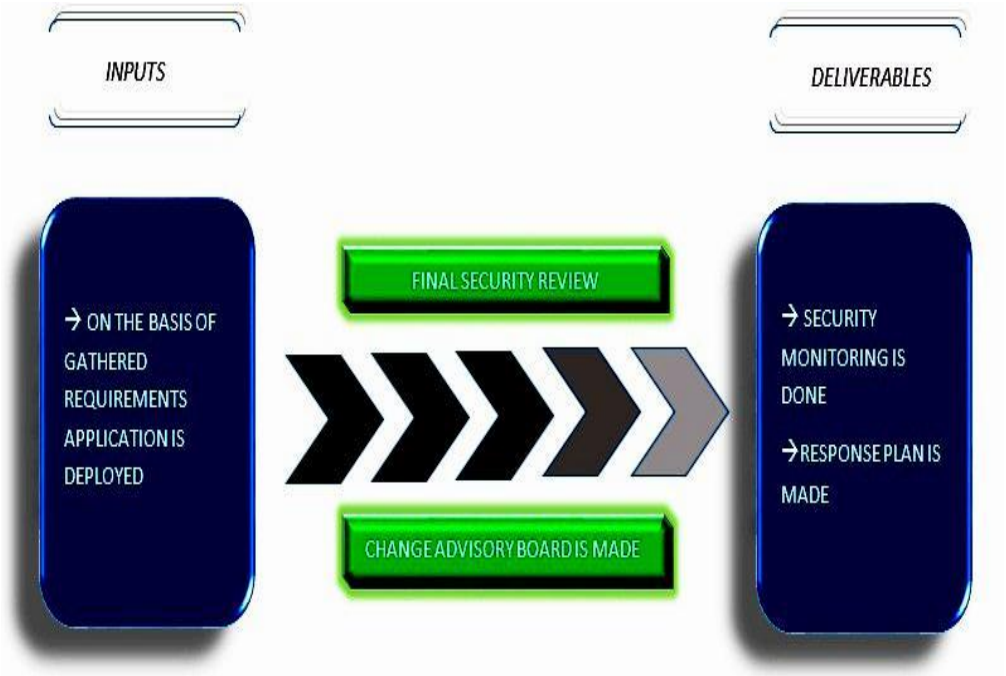
User Profile Module:



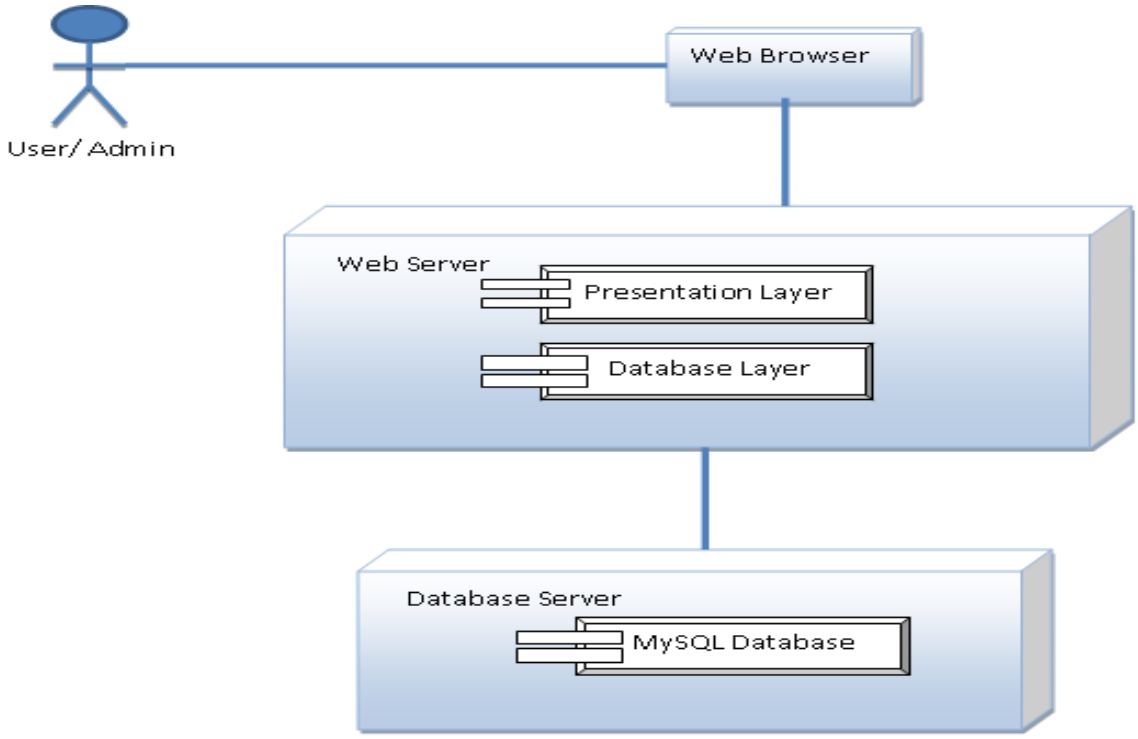
3. DEPLOYMENT

Software deployment process consists of several interrelated activities with possible transitions between them. These activities can occur at the producer side or at the consumer side or both. Each activity is described briefly as presented below.

3.1 Deployment Model

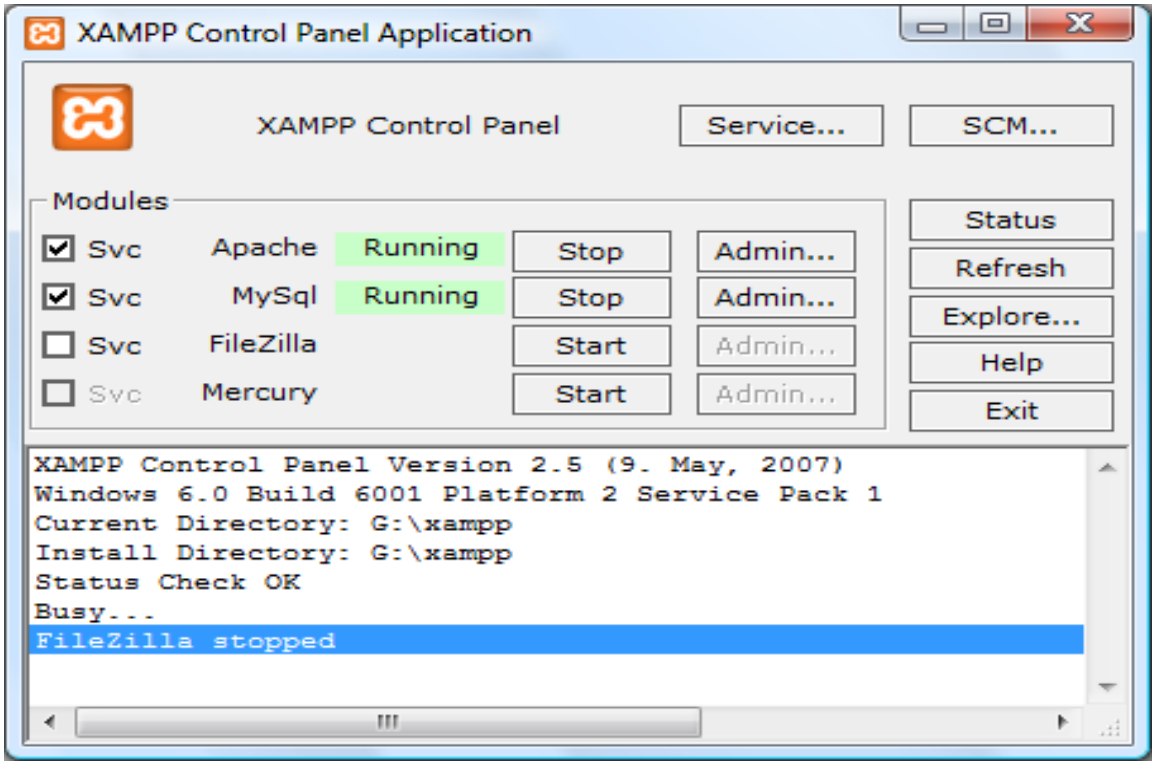


Deployment Diagram:



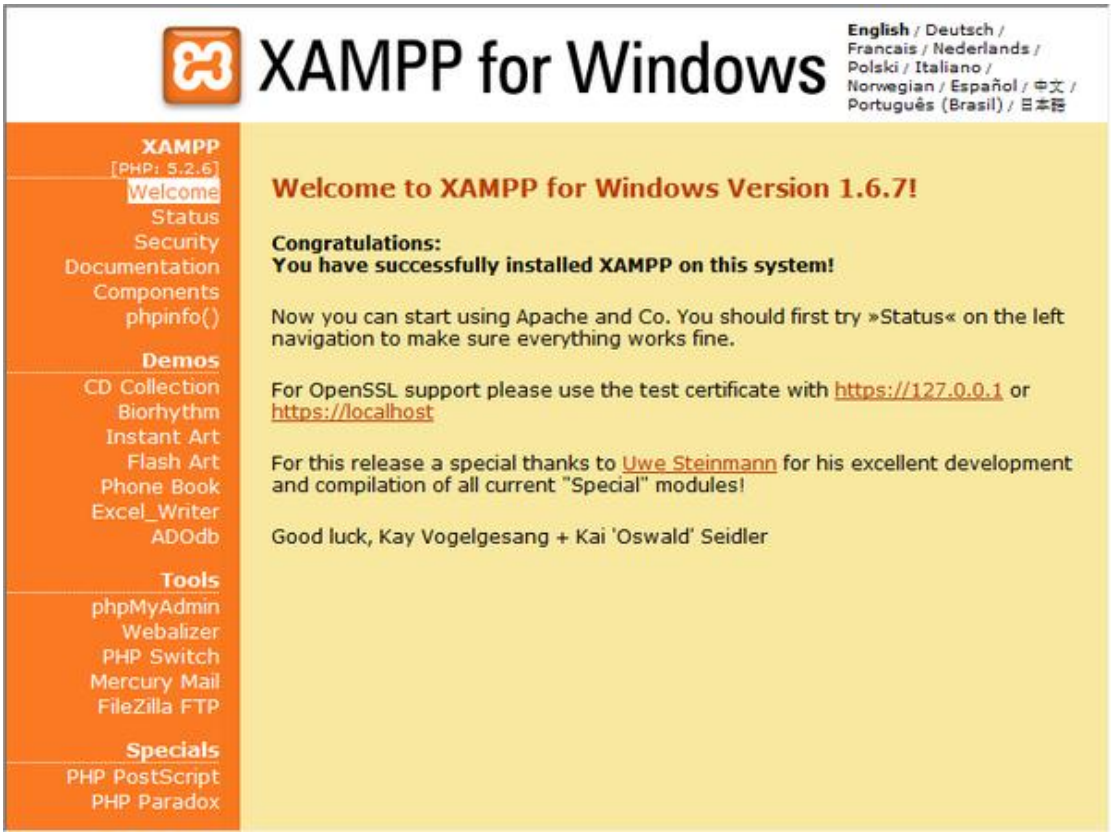
4. CONFIGURING PHP DEVELOPMENT ENVIRONMENT IN WINDOWS

For our convenience, we installed an AMP (Apache, MySQL, and PHP) package at first hand, then XAMPP 1.7.2 has been utilize4d with PHP 5.3. Net Beans IDE for PHP 6.8, currently available as a development build, fully supports PHP 5.3. The Apache server was installed and the MySQL database server as services. The self-extracting archive was extracted to run the file setup-xampp.bat to configure the components of the package. After configuration, open the XAMP Control Panel, the modules that are installed as services are already running.



5. CHECKING XAMPP INSTALLATION

To ensure that the Apache and MySQL servers have been installed as system services, restart your operating system, run the browser, and enter the http://localhost URL again. The XAMPP welcome page opens or directly. run your browser and enter the following URL: http://localhost.:



6. TESTING

Three software testing strategies namely, Unit test, Integration test and Performance test have been implemented.

6.1. Unit Testing

For unit testing, the focus was to verify the smallest unit of software design module. The unit test was white box oriented. The module interface, local data structures, boundary conditions, execution of all the independent paths and error-handling paths were tested with accuracy.

6.2. Integration Testing:

A systematic technique to uncover errors associated with interfacing was employed. The specific functional performance and internal design characteristics were tested. The top-down testing and bottom-up testing methods were employed.

6.3. Performance Testing:

The timing for both read and update transactions was gathered to determine whether system functions were performed in an acceptable timeframe.

7. MAINTENANCE

The maintenance phase involved making changes to hardware, software, and documentation to support its operational effectiveness. It was ensured that modifications did not disrupt operations or degrade a system's performance or security, organizations. Routine change controls including the procedures for requesting, evaluating, approving, testing, installing, and documenting software modifications. Some major modifications were implemented in the normal course of business. To ensure accurate system inventories, all modifications were carefully documented. The change management processes included quality assurance, security, audit, regulatory compliance, network, and end-user personnel should be appropriate. Risk and security review was done whenever a system modification was implemented to ensure controls remain in place.

CONCLUSION

We have successfully designed and developed to fulfill the necessary requirements, as identified in the requirements analysis phase, such as the system is very much user-friendly, form level validation and field level validation is performing very efficiently. The old manual system was suffering from a series of drawbacks. The present project has been developed to meet the aspirations indicated in the modern age.

REFERENCES

1. Manjiri R. Girnale G. H. R .C .E. M, Pune Sonali S. Jathar G. H. R .C. E. M, Pune Komal D. Untwal G. H. R. C. E. M, Pune Prince Anand G. H. R. C. E. M, Pune Mansi Bhonsle, Virtual Gym Management System,

International Journal of Engineering Technology Science and Research, **4**(11) , 384-389(2017)

2. Joseph S. K. and Vazhacharickal, P.J., Gym management interface: an overview, 2017 https://www.researchgate.net/publication/316986625.
3. Imam KhanghaniFar,SvetlanaNikitina,MacrosBaze, ”Fitness Applications for Home-based Training” in Pervasive Computing,IEEE, 2015.
4. https://www.apachefriends.org/download.html
5. Cassola F., L., F. Morgado, de Carvalho, H. Paredes, B. Fonseca, and Martins, P., Online-Gym: a 3D Virtual gymnasium using Kinect interaction, Procedia Technology, **13**, pp. 130-138, 2014
6. http://www.w3schools.com/php/default.asp
7. Monir Ahmed &Jannatun Nayeem , Smart Gym Management System: A project paper submitted at Department of Computer Science and Engineering, East West University, Dhaka, Bangladesh, 2016.
8. http://dspace.ewubd.edu/bitstream/handle/123456789/2075/Monir_Ahmed.pdf?sequence=1&isAllowed=y
9. Zhou, Z., Tedjokusumo, J., Winkler, S., Ni, B.: User studies of a multiplayer first person shooting game with tangible and physical interaction. In: Shumaker, R. (ed.) Virtual Reality, HCII 2007. LNCS, vol. 4563, pp. 738–747. Springer, Heidelberg (2007).
10. Cassola, F., Morgado, L., de Carvalho, F., Paredes, H., Fonseca, B., Martins, P.: Online-gym: A 3d virtual gymnasium using kinect interaction. Procedia Technology 13, 130–138 (2014); SLACTIONS 2013: Research conference on virtual worlds Learning with simulations.
11. Lala D., Nitschke C., Nishida T. , Enhancing Communication through Distributed Mixed Reality. In: Ślęzak D., Schaefer G., Vuong S.T., Kim YS. (eds) Active Media Technology. AMT 2014. Lecture Notes in Computer Science, vol 8610. Springer, Cham. (2014) **DOI**https://doi.org/10.1007/978-3-319-09912-5_42.