FITNESS CONNECTION: Web-Based Gym Management System with Data Analytics

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Abstract

Prior to the widespread adoption of technology in gyms, fitness centers ran on manual procedures and more conventional techniques. Staff personnel kept records for their members, for instance, by manual record-keeping. These documents contained membership information, personal data, and progress reports. When members hit fitness milestones or attended the gym, staff would manually update these data. Members frequently made their monthly or yearly payments at the gym's front desk because there were no electronic payment mechanisms in place. The objective of this system is to develop a user-friendly website that allows gym administrators to manage membership plans seamlessly. The system should enable easy registration, renewal, collection of payments, and modification of membership details, reducing administrative burden and improving customer satisfaction. The aim of this system is to make the transaction easier and efficient to the gym administrators as well as to customers. To gather information for the system, the researcher used the interview and evaluation questionnaire ISO 25010 tool as a method. With the 38 respondents composing of 8 owners, 2 front desk clerks, 1 cashier, 24 customers and 3 IT Experts were asked to evaluate these criteria according to their personal experiences. The evaluation result from the IT Expert aggregate with a mean of 3.15 for all evaluation categories, the Fitness Connection received a good grade, indicating that it satisfies the IT Expert's software quality standards but still needs some improvements. While in the evaluation result of the respondents, Fitness Connection system has an overall mean score of 4.45 out of 5, which is Excellent. In conclusion, as the researcher, we conclude that the Fitness Connection is a huge help not only to the administrators but also for the customers

INTRODUCTION

Exercise and physical activity are beneficial to almost everyone, including the elderly. Staying active can benefit your health and physical ability regardless of your age. Indeed, research demonstrate that "taking it easy" is dangerous. When older adults lose their ability to perform activities on their own, inactivity is often more to blame than aging. Physical fitness is essential for living a healthy and stress-free life. Diet, exercise, and sleep all contribute to physical fitness. These three fundamental things are significant in each individual's life (Rogers, 2020)

A modern-day gymnasium, or gym as it was known in Ancient Greece, is a facility where people can work out physically indoors using a variety of machines and staff. A conventional gym, in the eyes of some, is a location where you concentrate on weightlifting and related exercises. While it is true that gyms used to be dedicated for weight training and were rarely visited by women, this is no longer the case. Both men and women exercise in the gym, which has a wide range of machines, including cardiovascular machines (Sisson, 2019).

Aside from the gym equipment fitness trainers and instructors are part of the staff in a gym that may work with individuals or design and choreograph their own group classes. In addition to their fitness duties, they may manage the front desk, sign up new members, provide tours of the facility, or supervise the weight-training and cardiovascular equipment areas. Fitness trainers and instructors can also promote their facilities and training through social media, newsletters, blog postings, and poster and flyer creation.

Personal fitness trainers and exercise trainers deal with individuals or small groups. They may train at a gym or in the homes of their customers. They assess their clients' current level of fitness, personal goals, and talents. They then create

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tailored training regimens for their clients to follow and track their progress. These employees frequently sell training sessions to members of gyms or other fitness facilities (Statistics, 2022)

Before the widespread use of technology in gyms, fitness facilities operated using more traditional methods and manual processes. Like for example, manual record-keeping is how staff-maintained records for their members. These records included personal information, membership details, and progress tracking. Staff would manually update these records whenever members visited the gym or achieved fitness milestones. Payment for memberships and services was primarily done in cash or check. There were no electronic payment systems, and members would often pay monthly or annually at the gyms front desk. Gym schedules, including group class timings and trainer availability, were displayed on notice boards or printed handouts. Members referred to these schedules to plan their workouts or attend classes. This is how traditional gyms managed to operate effectively by focusing on personalized services and building strong relationships with their members (Fitness, 2022)

Scope of the Study

The scope of the study is to develop a web-based gym management system the Fitness Connection that incorporates its key modules: System Admin Module, Customer Module, Staff Module and Data Analytics Module. The system aims to provide an efficient and comprehensive solution for gym management, enhancing the overall experience for both administrators and customers while leveraging data analytics to gain valuable insights.

1. **System Admin Module** - The System Admin Module focuses on providing administrative functionalities to manage the gym operations effectively.
2. **Customer Module** - The Customer Module focuses on providing features and functionalities to enhance the experience for gym members
3. **Staff module** - The Staff Module focuses on providing functionalities to manage the gym operations effectively but the access and actions are limited compared to the admin module.

Data Analytics Module - The Data Analytics Module focuses on leveraging data collected by the system to provide valuable insights for both administrators and customers.

Delimitations of the Study

The following are not included in the study:

1. Online payments, which cannot be handled by our capstone project due to technical constraints
2. QR code implementation
3. Automated reservations, scheduling, and trainer availability.

Conceptual Framework

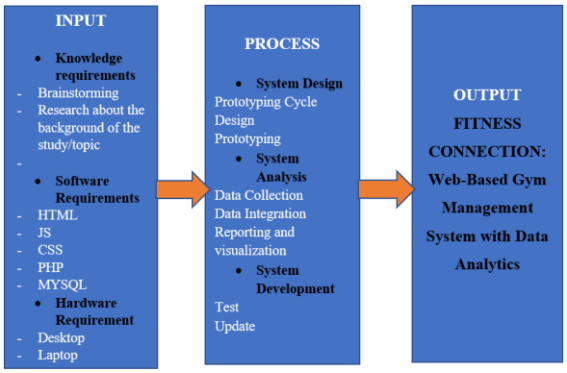

Figure 1. Conceptual Framework

Significance of the Study

To the owners: with the integration of data analytics provides gym owners, managers, and administrators with valuable insights into member behavior, preferences, and trends.

To the customers: with the help of a web-based gym management system with data analytics enables personalized member experiences. This leads to increased member engagement and satisfaction, ultimately fostering long-term loyalty.

To the Researchers. The researchers will be able to acquire knowledge on how to develop a web-based gym information system. The system will also help them allocate the information they need all about gym facilities.

To the Future Researchers. Future researchers may use this study as a reference for their research.

Definition of Terms

1. Dashboard – A dashboard or information display, is a way of providing some type of visual data in one place, designed to provide disparate but linked information in an easy-to-digest form. In the dashboard this where you can see the information of the customer and who are availing the subscription. We can also see there the data analytics of the user.

2. Data Analytics – A process of the studying raw data to draw conclusion about that information is known as data analytics. Data analytics, it helps to easily understand the information with the use of visual charts and graphs.

3. Database – A structured collection of data that can be stored and retrieved electronically using a database management system. So that they can monitor who has registered, input and get data.

4. Management System – Defines the ways which companies organize their structure and procedures to in order to conduct themselves ensure smooth processes, and achieve planned results. It is the main source of information that can use and put on the data analytics. The information's needed are the monthly reports and the daily total count of customers.

5. Subscription – A service or product that is paid for on a regular basis rather than all at once.

6. Visual Studio Code (VSC) – is a free open-source text editor created by Microsoft. Which is frequently know as VS code. It is simple to use because it is always used while developing a website, and it includes a live session to view the website you are creating.

7. Web based – Refers to any program that is accessed over a network connection instead of existing in a devices' memory. In this information helps to maintain records of the users, and allow access and easily communicate.

8. XAMPP – A famous cross-platform web server that enables programmers to build and test code on a local web server. It is also an open-source package that is commonly used in PHP programming. It provides a graphical interface for SQL, making it simple to manage data in a relational database.

METHODOLOGY

This chapter discusses the methods that the researchers will utilize in the development of the system. It also presents the research design, respondents, sampling technique, instruments, preparation and validation of the instrument, data gathering procedures, and tools that researchers will use in the study.

Research Design

This section of the research described the processes and techniques utilized in the paper to illustrate the elements required to frame the objectives and address the challenge.

To address the data collection strategy and how they are implemented, the researchers used a descriptive research design that seeks information to characterize a phenomena, scenario, or demographic in a methodical manner. It specifically assists in answering the what, where, how, when, as well as questions about the research challenge as opposed to the why. (Voxco, 2021)

Quantitative research is a type of research also known as the process of gathering and interpreting numerical data. It may be used to identify trends and averages, formulate hypotheses, examine causality, and extrapolate findings to larger groups (Bhandari, 2022). This research often has a large sample size and relies on statistical analysis to draw conclusions about a community from the information gathered. To acquire quantitative data, this is done by surveys, experiments, or other structured data collection techniques (Hassan, 2023).

Systems Development Methodology

Rapid Application Development, or RAD, is a flexible approach to software development that places less of a focus on detailed design and more on experimentation and fast feedback. In general, the RAD method places more emphasis on prototyping and development than it does on planning.

The researchers decided to use RAD because it allows for quick revisions and upgrades to the program without having to start from scratch. This ensures that the ultimate result is more quality-focused and meets the needs of the end customers (Kissflow, 2023).

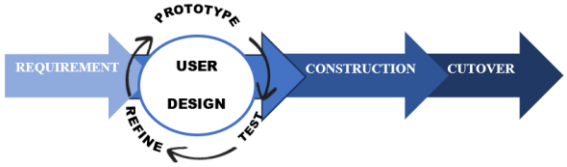

Figure 2. RAD Methodology Diagram

The Requirement Planning

In order to address the requirements, a system design will be created at this stage. During this phase, expectations are brought to the table and discussed. The system design should also address how to accomplish project objectives, deadlines, and budget; any challenges or problems that need to be resolved; and how communication between teams (users and developers), as well as users themselves, can be used to address issues and formulate plans. In this stage team members will use their proposed system during meetings to establish project requirements.

The User Design

This phase will move to implement the blueprint they built serving as a guide after they have set the requirements. It is a method for ensuring client satisfaction, receiving feedback, and observing the project's prototype copy. This stage will help developers to understand what system development clients want in terms of design. It also modifies the design to ensure that the client is satisfied with what they have seen thus far.

The Rapid Construction

The iterative prototyping phase is the fast stage because during this stage, developers are able to construct the final working model faster. This is because they have addressed users' problems and changes while building a prototype. They then use their findings in this phase to construct an improved version of their product. During this process, developers enhance every area of the product, and then the client suggests alterations or gives new ideas that solve problems as they are discovered.

Cutover

In the final phase of a product's development, the team is ready to test the operation of the system. In this phase, staff members are trained so they are familiar with the interface of the released product and can deal with any problems that arise during early prototype. This is where developers solve technical problems that come up during this stage and make improvements as they prepare for release.

Participants

This section provides information about the people or units in the study. It indicates the specific departments and numbers of respondents involved in this research project.

The participants in this study are eight (8) owners, two (2) front desk clerks, one (1) cashier, twenty-four (24) customers.

Procedure

The researchers used the following methods to gather information for the proposed system:

Interview

The researcher used oral interview because it is useful method for gathering more data. They allow you to gather more in-depth information on interviewee’s opinions, preferences, and feelings. The researcher can conduct interviews by phone or in person.

Evaluation Questionnaire ISO 25010. Defines a product quality evaluation system is designed around the quality model. The quality model determines which quality attributes will be considered when assessing the properties of a software product.

Functional Suitability. This refers to the degree to which the functions of the system meet the specified needs.

Performance Efficiency. This characteristic refers to the number of resources which affects the system's performance.

Compatibility. This criterion refers to the degree to which the system can work with or share data with other system.

Usability. Measures whether different users can use the system under specific conditions.

Reliability. Measures if the system can work under different circumstances.

Security. Measures the security of the data stored in the system.

Maintainability. Refers to the system's adaptability to changes including modification, and improvement.

ISO 25010 Evaluation Tool for Participants

ISO 25010 (See Appendix B) is used as a criterion for evaluation. It consists of the characteristics and sub-characteristics of a system from the user's perspective, which are as follows:

A. **Functional Suitability** - Evaluate if Fitness Connection Gym set of functions covers all the specified tasks and objectives, provides the correct results, and the functions facilitate the accomplishment of tasks and objectives.

B. **Performance Efficiency** - Evaluate if Fitness Connection response and processing times meet requirements when performing its functions.

C. **Compatibility** - Evaluate if Fitness Connection can perform well to its function without experiencing any difficulties.

D. **Usability** – Evaluate if Fitness Connection can be used by specified users to achieve specified goals of learning the use of the system in a specified context of use. Moreover, if Fitness Connection has the attributes that make it easy to operate and control.

E. **Reliability** – Evaluate if Fitness Connection provides reliable outputs and information

Purposive sampling is used as a sampling technique. Purposive sampling is a group of non-probability sampling techniques in which units are selected because they have characteristics that you need in your sample. In other words, units are selected "on purpose" (Nikolopoulou, 2023).

ISO 25010 Evaluation Tool for IT Experts

ISO 25010 (See Appendix C) is used as a criterion for evaluation consisting of characteristics and sub-characteristics of a system from the IT expert's perspectives which are as follows:

A. **Functional Suitability** - The degree to which functions cover and facilitate all specified tasks and their objectives and the degree to which a system provides the correct results with needed precision. Its sub characteristics include Functional Completeness, Functional Correctness, and Functional Appropriateness.

B. **Performance Efficiency** - The degree to which the processing and response time with the resources meets the requirements and the degree of the limits when meeting the requirements. Its sub-characteristics include Time Behavior, Resource Utilization, and Capacity.

C. **Compatibility** – The degree to which two systems, products, or components can share a common environment and resources or Fitness Connection.

D. **Usability** – The degree to which the users can recognize that Fitness Connection is appropriate for their needs, protects them from errors, and is visually pleasing. It is also the degree to which Fitness Connection has a range of characteristics that make it easy to operate and use for specified goals.

Its sub-characteristics include Appropriateness, Recognizability, Learnability, Operability, User Error Protection, User Interface Aesthetics, and Accessibility,

E. **Reliability** – The degree to which Fitness Connection operates as intended despite faults and is operational and accessible. It is also the degree to which Fitness Connection can recover its data. Its sub-characteristics include Maturity, Availability, Fault Tolerance, and Recoverability.

F. **Security –** The extent to which a system safeguards data and information to ensure that people or other system have access to it suitable to their kinds and degrees of permission.

G. **Maintainability** – The degree to which Fitness Connection can be used in building more assets, modified, and tested, whether the criteria have been met or be diagnosed with deficiencies or causes of failure. Its sub characteristics include Modularity, Reusability, Analyzability, Modifiability, and Testability.

Table 1. Five-point Likert Rating Scale

Numerical Rating	Descriptive Evaluation
5	Excellent
4	Very Good
3	Good
2	Fair
1	Poor

Table 1 shows the metrics of the respondents' replies to each item on the questionnaire. Each numerical grade, which ranges from Excellent to Poor, has a different connotation.

Table 2. Scale for Interpreting the Evaluation Result

Numerical Rating	Description
4.20 – 5.00	Excellent
3.40 – 4.19	Very Good
2.60 – 3.39	Good
1.80 – 2.59	Fair
1.00 – 1.79	Poor

Table 2 shows the scale for interpreting the respondents' evaluation findings. To evaluate the total findings, a weighted average has been used to distill the statistical evaluation of the questionnaire replies. It is used to generalize the understanding of their responses.

The formula for computing the weighted mean is as follows:

Mean: $\bar{x} = \frac{\Sigma f x}{N}$

Where:

$\bar{x}$= Mean

x= Number of respondents

f= Weight given by each respondent

Design and Implementation

Requirement Specification Analysis

This portion will present the features of each module.

1. *System Admin Module*
   a) Log in – from here, system admins may log in to the admin account, and gaining access the admin module of the website.
   b) Admin Dashboard – In here, the admin will access a dashboard that displays information about data analytics, including the number of registered members.
   c) Manage Members tab – in here, they can see the list of the member, remove and also update a member's information.
   d) Gym Equipment tab – in here, they can list, add, remove, and also update a specific gym equipment
   e) Members status tab – this is where you can view the status of each member whether they're membership is currently active, expired, or pending
   f) Payment tab – in here, allows viewing details of the payment done.
   g) Announcement tab – in here, provide the tasks or tasks list specifying what needs to be updated.

h) Staff management tab – in here, they are able to add and remove their staff members.
i) Report tab – in here, provides sales figures and the number of customers who visited the gym.

2. User

a) Register – This function enables users to register their accounts.
b) Log in – Users can create or access their account on the website.
c) User Dashboard – They can see the summary of the interface, such as to-do list, reminders and announcements
d) Profile tab – This function enables users to view their detailed information regarding their account and membership
e) To-Do list tab – in here, users are able to set their to-do list whenever they want so they can be reminded.
f) Reminder's tab – to view if their current membership plan is almost due or expired.
g) Announcement tab – this is where the users can see if there are announcements that are posted from the gym.

3. Staff

a) Log in – from here, staffs may log in to the staff login page, and gaining access the staff module of the website.
b) Manage members tab – in here, staffs have the ability to view the list of users, add, remove, and update a user's information.
c) Gym equipment tab - in here, they can list, add, remove, and also update a specific gym equipment.
d) Members status tab – this is where you can view the status of each member whether they're membership is currently active, expired, or pending.
e) Payment tab – in here, it allows the staff to view the details of the payments

System Design and Specifications

User Interface Design. This portion of the study presents sample screenshots of the user interface generated by the system. (See Appendix A)

Entity Relationship Diagram. In a particular field of knowledge, an entity-relationship model defines the interrelated topics of interest. A fundamental ER model consists of many entity kinds and describes the possible connections between them. A graphical representation that shows relationships between individuals, things, locations, concepts, or events within an information technology (IT) system is called an entity-relationship diagram (ERD), also known as an entity-relationship model. To establish business processes and lay the groundwork for a relational database, ERD employs data modeling techniques (J. Biscobing, 2019)

Logical Specifications

Data Flow Diagram. According to Tiwari et al., (2012) DFD is a graphic representation made up of nodes and directed arcs. A node that is either an input or an output of the system can be a data store, an auxiliary node, a process, or a terminator. The arrows serve as a visual representation of data flows, or arcs. The nodes and arcs must be labeled by the designer. For process modeling in structured requirement analysis, DFD is a fairly popular language. DFD are employed for incremental system refinement as well as reflecting the system structure.

This part of the study will explain how our system will demonstrate and explain where the data for our study comes from. It offers more information than a context diagram because each process within the information system is shown as a separate circle, indicating that the final product will include those operations. The DFD's shape will serve as a representation of our data warehouse, from which we can determine where data will be transmitted and retrieved. The DFD model will use a graphical depiction of the flow of information between system operations in its

presentation. We can provide an illustration of how the system processed our data during the input and output processes. (See Appendix B)

Data Flow Diagram. Data flow diagram consist of the following:

a. Context Level (Level 0) Data Flow Diagram.

b. Level 1 Data Flow Diagram.

Flowchart. Flow of the whole system. This is separate from the conceptual framework.

Use Case Diagram. An approach for identifying, outlining, and organizing system requirements is called a use case. Use case diagrams are an example of object-oriented diagrams. It demonstrates how a system communicates with outside parties. As a result, there are few specifics regarding how the system operates inside and how the exterior environment is set up.

A use case diagram would help describe the actions, services, and functions of the system. A "system" is anything that is being created or used in this context, such as a website. The "actors" are individuals or groups acting in certain capacities inside the system. (Arwa Y. Aleryan, 2016).

The researchers will use case diagrams to portray the dynamic aspects of a system. Through this diagram, the researchers will be able to easily describe how the system communicates to either outside or inside parties. (See Appendix C).

Hardware Specifications

This section shows the hardware specification used during the development of the system, and the recommended hardware specifications for using the system.

Table 3. Minimum and recommended hardware specifications

	Recommend – Server	**Recommend – PC**
PROCESSOR	Intel® Core™ i5 Processor	Intel ® Celeron® CPU N3350 @1.1OGHz 1.10
RAM	8.00 GB	4.00 GB
STORAGE	512 GB	118 GB

Software Specifications

This section lists down the software resources used during the development of the system.

MySQL is Oracle's relational database management system (RDBMS) based on structured query language. It is to store data coming in and out of the system.

JavaScript is a programing language used to make website more interactive that helps engage the users.

Visual Studio is an integrated development environment (IDE) created by Microsoft. It includes a code editor which is used to develop computer programs. (Nunns, 2017)

PHP or Hypertext Processor is a general-purpose scripting language commonly used for website development.

HTML Hypertext Markup Language is used in web development to create the structure of the website. Developers use it to describe the layout of HTML elements. It describes how the elements should be described on the screen.

CSS or Cascading Style Sheets is used to describe the layout of HTML elements. It describes how the elements should be described on the screen

RESULTS

This chapter covers the discussions and results of the findings of the study. This chapter consists of the system/application outputs and the evaluation results presented in tabular form and interpreted with ratings.

System / Application Outputs

The following are the system/application outputs of Fitness Connection with its features.

Figure 1. *Homepage*

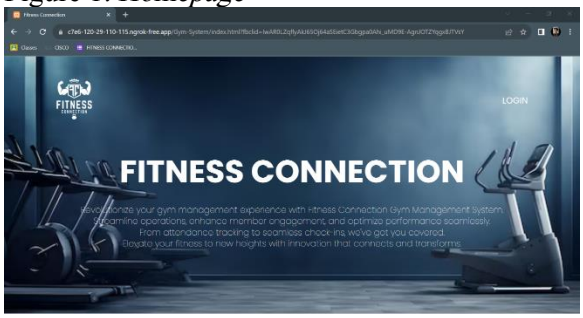

Figure 1. Homepage – In this feature, this is the very front page of the Fitness connection website. This is where the user will be directed once they go to the website. The log in module for admin as well as users can also be found here.

Figure 2. *Customer Login*

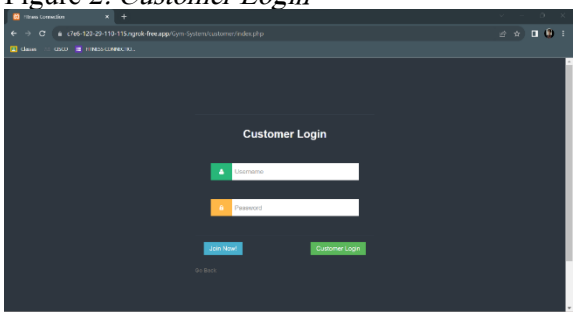

Figure 2. Customer Login – the user can log in to use the website.

Figure 3. *Customer Registration*

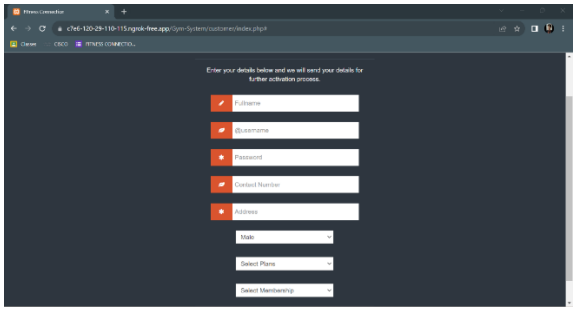

Figure 3. Customer Registration – In this feature, the user can registers to have an account. They will use that account to use the website.

Figure 4. *Customer Dashboard*

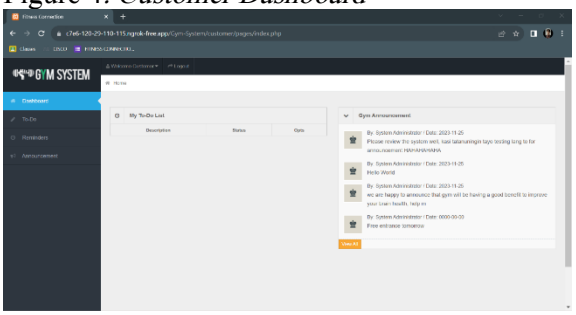

Figure 4. Customer Dashboard – This feature is the user's overview. The user can see here the announcement from the admin or any related announcement about the gym. Also, this feature can also be used to make notes of what he/she will do or what his focus for that day.

Figure 5. *Customer Profile*

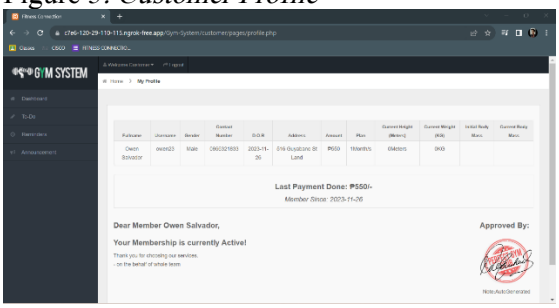

Figure 5. Customer Profile – In this feature, you can see the summary of the information of user's account. The name, date when he availed, address, span of the membership plan and other related information about the user can be seen here.

Figure 6. *Staff Login*

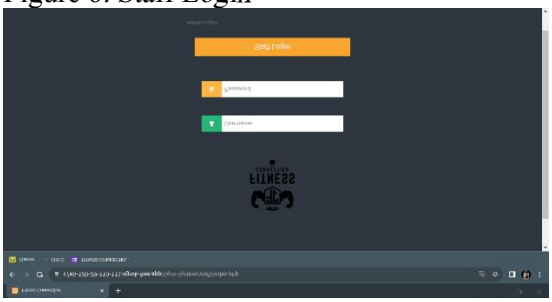

Figure 6. Staff Login – In this feature, this is the log in page that is exclusive to the staff.

Figure 7. *Staff Dashboard*

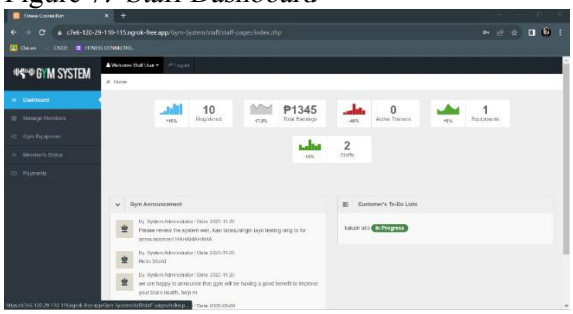

Figure 7. Staff Dashboard – This feature is the staff's overview. Here you can see the summary involving the users.

Figure 8. *Admin Login*

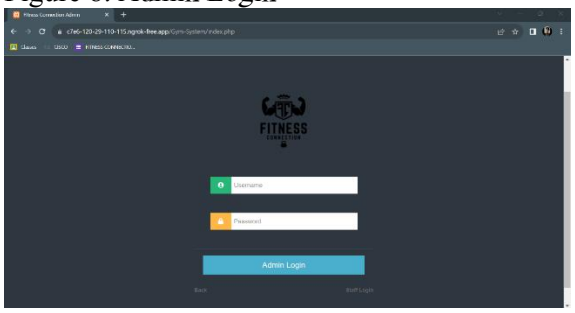

Figure 8. Admin Login – In this feature, this is the log in page that is exclusive to the owner or admin.

Figure 9. *Admin Dashboard*

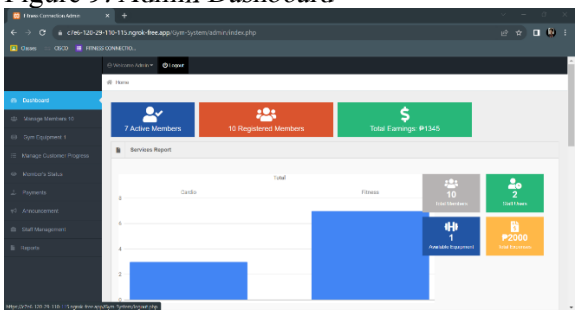

Figure 9. Admin Dashboard – This feature is the admin's overview. But compared to the staff dashboard, the admin has more access to his /her users. This includes the members, gym equipment, customer progress, member's status, and payments, make an announcement, staff management and the reports.

Figure 10. *BMI Calculator*

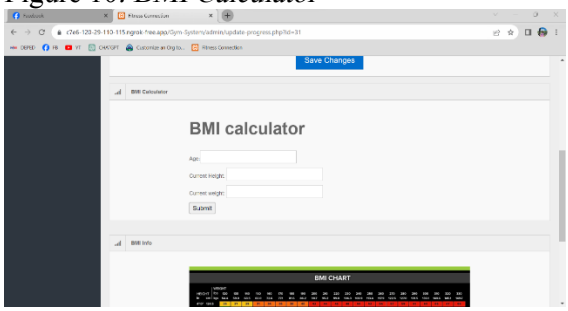

Figure 10. BMI Calculator – In here, the admin has the ability to update the customer's BMI whenever a customer requested I or wants it to be updated.

Evaluation Results

The evaluation results were compiled by assessing the characteristics and sub-characteristics for software quality standards in ISO 25010, also known as "Systems and Software Engineering–Systems and Software Quality Requirements and Evaluation (SQuaRE)." The 38 respondents composing of 8 owners, 2 front desk clerks, 1 cashier, 24 customers and 3 IT Experts were asked to evaluate these criteria according to their personal experiences.

Evaluation for the IT Experts

Table 4. Evaluation for the IT Experts

Criteria	Mean	Descriptive Rating
Functional Suitability	3.11	Good
Performance Efficiency	3.22	Good
Compatibility	3.67	Very Good
Usability	3.05	Good
Reliability	2.67	Good
Security	3.13	Good
Maintainability	3.20	Good
TOTAL	3.15	Good

This table summarizes the evaluation results from IT Expert who evaluated Fitness Connection. The figures indicate the scores of Fitness Connection's Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, and Maintainability. These criteria are measured by questions that have been selected from each of

these criteria, and a descriptive rating for each of them is provided.

Functional suitability was rated 3.11 out of 5, corresponding to a good rating. This means that Fitness Connection's functions cover and facilitate all specified tasks, their objectives, and the degree to which a system provides the correct results with needed precision.

Performance Efficiency was rated 3.22 out of 5, indicating a good rating. This means that Fitness Connection's processing and response time with the resources meets the requirements and limits when meeting those requirements. This criterion includes sub-characteristics evaluating time behavior, resource utilization, and capacity.

Compatibility was rated 3.67 out of 5, corresponding to a very good rating. This means that Fitness Connection's systems, products, or components can share a common environment and resources or exchange information efficiently without detrimental impact on the other.

Usability was rated 3.05 out of 5, corresponding to a good rating. This means that Fitness Connection is appropriate for the needs of its users, can protect them from errors, and is visually pleasing. It also has characteristics that make it easy to operate and use for specified goals. This criterion included sub-characteristics evaluating the IDE's appropriateness and operability as well as user error protection, user interface aesthetics and accessibility.

Reliability was rated 2.67 out of 5, corresponding to a good rating. This means that Fitness Connection operates as intended despite faults, is operational and accessible, and can recover its data. The reliability criteria included sub-characteristics evaluating the IDE's maturity and availability; fault tolerance; and recoverability.

Security was rated 3.13 out of 5, which translates to a good rating. This means that Fitness Connection has taken measures to protect your data from unauthorized access. The Security criteria included sub-characteristics evaluating the IDE's Confidentiality, Integrity, Non-repudiation and Accountability.

Maintainability was rated 3.20 out of 5, corresponding to a good rating. This indicates that Fitness Connection may be used to develop more assets, make modifications, and test if the requirements have been satisfied or identify any flaws or reasons why a failure occurred. Sub-criteria assessing the modularity, reusability, analyze ability, modifiability, and testability of the IDE were added in this criterion.

Compatibility got the highest rating with mean of 3.67, followed by Performance Efficiency with 3.22, Maintainability with 3.20, Security with 3.13, followed by Functional Suitability with a mean of 3.11, followed by Usability with a mean of 3.05, and Reliability with the lowest rating of 2.67.

With an aggregate mean of 3.15 for all evaluation categories, the Fitness Connection received a good grade, indicating that it satisfies the IT Expert's software quality standards but still needs some improvements.

Evaluation for the Users

Table 5. Evaluation for the Users

Criteria	Mean	Descriptive Rating
Functional Suitability	4.64	Excellent
Performance Efficiency	4.51	Excellent
Compatibility	4.26	Excellent
Usability	4.31	Excellent
Reliability	4.51	Excellent
TOTAL	4.45	Excellent

The table below summarizes the evaluation results from Fitness Connection's user, including the owner, front desk clerk, cashier, and customer. The figures indicate the scores of Fitness Connection's Functional Suitability, Performance Efficiency and Usability. These criteria are measured by questions that have been selected from each of these criteria, and descriptive ratings for each of them are provided.

Functional Suitability was rated 4.64 out of 5, corresponding to an excellent rating. Fitness Connection's set of functions covers all the specified tasks and objectives, provides the correct results, and functions facilitate the accomplishment of tasks and objectives.

Fitness Connection's performance efficiency was rated 4.51, corresponding to an excellent rating. This indicates that when executing, Fitness Connection's response and processing speeds match requirements of its functions for users.

Fitness Connection's compatibility is rated 4.26, corresponding to an excellent rating. This means that for users, Fitness Connection can perform well to its function without experiencing any difficulties.

The usability of Fitness Connection was rated 4.31, which means that the system can be used by specified users to achieve specified goals of learning how to operate the system in a specific context at the level of proficiency needed for success. Moreover, Fitness Connection has attributes that make it easy to operate and control.

Fitness Connection received a reliability rating of 4.51, an excellent rating. This
Means that for users, Fitness Connection provides reliable outputs and information.

Functional Suitability got the highest rating with a mean of 4.64, followed by Performance Efficiency and Reliability with a mean of 4.51, followed by Usability
With a mean of 4.31, and Compatibility with the lowest rating of 4.26.

The Fitness Connection system has an overall mean score of 4.45 out of 5, which is Excellent. The assessment findings of all the categories combined show that Fitness Connection satisfied the needs of the user.

DISCUSSION

This chapter covers the discussions of the findings. It consists of the summary of findings, conclusions, and recommendations for the study.

Summary of Findings

Based on the evaluation, Fitness Connection has been evaluated using the ISO25010 tool. The IT professionals' scores of 3.11 for functional suitability and 3.13 for security, which correspond to a Good grade. This demonstrates that the security and appropriateness somehow did meet the IT professional's expectations, but it still needs improvement. Its security for user privacy and protection, as well as its performance as a web system, can still be enhanced.

When the evaluation findings were further discussed, it became clear that the IT experts gave compatibility and performance efficiency the highest ratings among the rest. However, Functional stability receives the greatest rating from the gym participants. This indicates that Fitness Connection as a system can provide the user with a versatile but compatible experience.

Conclusions

The study emphasizes the importance of the FITNESS CONNECTION for providing gym related information. Furthermore, based on the data, the system can provide such features like being able to check your profile, membership plan, BMI, and payments. Finally, signing up with the system allows gym owners and also the users of each locale to make it easier for them to be able to connect with each other.
The primary objective of this study is to streamline and automate various aspects
of gym operations. This system typically helps in managing member information, billing and payments, inventory, and overall administration. It improves efficiency, reduces manual errors, and enhances the overall management of a gym or fitness center.

Recommendations

The researcher advocates for the addition of new capabilities to the, FITNESS CONNECTION to make it more acceptable for professional wok while still easy to use. FITNESS CONNECTION is primarily focused on the GYM, therefore incorporating these characteristics can make it valuable to all users,

1. Automated reminder feature on a particular date
2. Online payment

3. QR code automated reservations and scheduling.

REFERENCES

Bhandari, P. (2022, October 20). What is a Likert scale? | Guide & examples. *Scribbr*. https://www.scribbr.com/methodology/likert-scale/#:~:text=A%20Likert%20scale%20is%20a,about%20the%20statement%20or%20question

Gamage, K. G. S. T. (2017). *Web based Gym Management System*. Dl.ucsc.cmb.ac.lk. https://dl.ucsc.cmb.ac.lk/jspui/handle/123456789/3899

Hassan, M. (2022, September 4). *Quantitative research - Methods and analysis - Research method*. Research Method. https://researchmethod.net/quantitative-research/

Design and implementation of fitness management website | IEEE Conference Publication | IEEE Xplore. (n.d.). Ieeexplore.ieee.org. Retrieved November 17, 2023, from https://ieeexplore.ieee.org/abstract/document/10074213

Kissflow. (2022, October 31). *Rapid Application Development (RAD) | Definition, Steps & Full Guide*. Kissflow.com. https://kissflow.com/application-development/rad/rapid-application-development/

Voxco. (2021, September 29). Descriptive research design. *Voxco*. https://www.voxco.com/blog/descriptive-research-design/#:~:text=Descriptive%20research%20design%20is%20a,problem%20rather%20than%20the%20why