



Fast Innovation for Commerce Unified Systems

Software Requirements Specification

Version 1.1

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Table of Contents

1.	Introduction	8
1.1	Purpose	8
1.2	Scope	8
1.3	Definitions, Acronyms, and Abbreviations	9
	Table 1.1 Definitions	9
	Table 1.2 Acronyms	12
	Table 1.3 Abbreviations	12
1.4	Reference	12
1.5	Overview	13
2.	Overall Description	13
	Figure 2.1 Describes the use-cases of the mayor functional areas and interactions	13
2.1	Product Perspective	14
2.1.1	System Interfaces	15
	Figure 2.2 Administrators homepage login interface, for a live preview visit http://ficus.xtilos.com	15
	Figure 2.3 Administrators Create Account interface	16
	Figure 2.4 Administrators Courses interface	16
	Figure 2.5 Administrators Subscriptions interface	17
	Figure 2.6 Administrators Create Profile interface	17
	Figure 2.7 Administrators Forum interface	18
	Figure 2.8 Administrators Management Menu interface	18
	Figure 2.9 Administrators Forum Manager interface	19
	Figure 2.10 Administrator User Manager Interface	19
	Figure 2.11 Administrator File Manager interface	20
	Figure 2.12 Customers homepage login interface, for a live preview visit http://ficus.xtilos.com	20
	Figure 2.13 Customer Create Account interface	21
	Figure 2.14 Customers Courses interface	21
	Figure 2.15 Customers Subscriptions interface	22
	Figure 2.16 Customers Create /View Profile interface	22
	Figure 2.17 Customers Forum interface	23
	Figure 2.18 Guest homepage login interface, for a live preview visit http://ficus.xtilos.com	23
	Figure 2.19 Guest Request Registration Account interface	24
	Figure 2.20 Guest Courses interface	24



Figure 2.21 Guest Subscriptions interface	25
Figure 2.22 Guest Forum interface	25
2.1.2 Hardware Interfaces	26
2.1.3 Software Interfaces	26
Table 2.1 Software Interfaces based on the most frequently used web browsers	26
2.1.4 Communications Interfaces	26
2.1.5 Memory Constraints	27
2.1.6 Operations	27
2.1.7 Site Adaptation Requirements	27
2.2 Product Functions	27
Table 2.2 Product function access levels and descriptions.	27
2.2.1 Administrator's Functions	28
2.2.2 Customer's Functions	29
2.2.3 Guest's Functions	29
Figure 2.25 Guest functions. (Use Case Diagram)	29
2.2.4 Manage Accounts	30
Figure 2.26 Use Case diagram for function Manage Accounts	30
Table 2.3 Function flow, normal and exceptions	30
Figure 2.27 Use Case diagram for function Manage Accounts	31
Table 2.4 Function flow, normal and exceptions	31
2.2.5 Manage Forum	32
Table 2.5 Function flow, normal and exception	32
2.2.6 Post News and Events	33
Table 2.6 Function flow, normal and exceptions	33
2.2.7 Schedule Courses	34
Table 2.7 Function flow, normal and exceptions	34
2.2.8 Manage Profile	35
Figure 2.31 Use Case diagram for function Manage Profile	35
Table 2.8 Function flow, normal and exceptions	35
Figure 2.32 Use Case diagram for function Manage Profile	36
Table 2.9 Function flow, normal and exceptions	36
Figure 2.33 Use Case diagram for function Manage Subscriptions	37
Table 2.10 Function flow, normal and exceptions	37
Figure 2.34 Use Case diagram for function Manage Subscriptions	38
Table 2.11 Function flow, normal and exceptions	38



2.2.10View / Post Forum	39
Table 2.12 Function flow, normal and exceptions	39
Table 2.13 Function flow, normal and exceptions	40
2.3 User Characteristics	41
2.4 Constraints	42
Table 2.15 Description of the constraints that can limit FICUS and how they affect	42
2.5 Assumptions and Dependencies	43
2.6 Apportioning of Requirements	43
3. Specific Requirements	44
Table 3.1 User's Access Levels and Requirements	44
3.1 External Interfaces	45
3.1.1 User Interfaces	45
3.1.2 Hardware Interfaces	46
3.1.3 Software Interfaces	46
3.1.4 Communications Interfaces	46
3.1.5 Memory Constraints	46
3.2 Functions	46
Figure 3.1 Administrator General Diagram	47
Figure 3.2 Customers General Diagram	48
Figure 3.3 Guest General Diagram	49
Figure 3.4 Activity diagram for Login function	50
Figure 3.5 Activity diagram for Manage Subscription function	51
Figure 3.6 Activity diagram for Manage Account function	52
Figure 3.7 Activity diagram for Manage Forum function	53
Figure 3.8 Activity diagram for Post News and Events function	54
Figure 3.9 Activity diagram for Forum Users function	55
Figure 3.10 Activity diagram for Scheduled Courses function	56
Figure 3.11 Activity diagram for Forum Validation function	57
3.3 Performance Requirements	62
3.3.1 Browser	62
3.3.2 Browser's Plug-ins	62
3.4 Logical Database Requirements	62
3.4.1 Phase 1 (Entities)	62
3.4.2 Phase 2 (Relation Matrix)	63
Table 3.3 Describe Database Entity Relations	63



3.4.3	Phase 3 (ERD First Draft)	63
	Figure 3.0.10 ERD First Draft, which shows relations between entities	63
3.4.4	Phase 4 (Cardinality)	64
	Figure 3.11 Cardinality diagram for one-one Account-Customer relation	64
	Figure 3.12 Cardinality diagram for one-many Account-Subscription relation	64
	Figure 3.13 Cardinality diagram for one-one Account-Forum relation	65
	Figure 3.14 Cardinality diagram for many-one Subscription-Courses relation	65
3.4.5	Phase 6 (ERD Draft with Primary Keys)	66
3.4.6	Phase 8 (Attributes Mapping)	66
3.4.7	Phase 9 (Final ERD)	67
	Figure 3.9 MySQL Database example for Joomla	67
3.5	Design constraints	68
3.6	Software System Attributes	68
3.6.1	Reliability	68
3.6.2	Availability	68
3.6.3	Security	68
3.6.4	Maintainability	68
3.6.5	Portability	68
3.7	Performance	69
4.	Change Management Process	69
5.	Document Approvals	70
6.	Index (Tables and Figures)	71



Software Requirements Specification (SRS)

1. Introduction

JJFN Group is a company compromised with the society, finding new and advance ways to improve communications and interaction between customers and business. Information technologies have become part of the daily life. JJFN Group combines the elements of simplistic designs and advance technology to bring your business to the future of communications. A superior customer experience defines the quality of your business. On JJFN Group, we define customer experience.

1.1 Purpose

The main purpose of this Software Requirements Specification (SRS) is to make the application understandable in order to avoid misconceptions of any kind from the gym's owner, managers, employees and customers, to the developer's team. It also helps the developer understand the user's needs. In addition, the SRS specifies the necessities for a Web Application (WebApp) and the methods to be used to ensure that each prerequisite has been met. This requirements pertaining to the WebApp and external interfaces may be presented in the SRS or in one or more Use Cases referenced from the SRS.

1.2 Scope

This WebApp will provide the customers of the enterprise L.O. Classic Gym the ability to access their accounts through the World Wide Web (WWW). It will allow the gym's customers to manage their personal account, gym's subscription, and browse the personal and physical training courses that the gym provides, for example Yoga classes, Aerobics, and other related courses. Gym customers will be able to add, remove or reserve these courses on their gym subscription scheduled, and pay or void their subscription. This would be particularly useful for L.O. Classic Gym, because there is an increasing amount of customers expected on the next five years and not enough staff to satisfy the customer needs of being oriented on the gym's or courses status, and being able to register the courses they are most interested on. Customers will interact with other customers through profiles and message board on the gym's social network. It will allow the gym's customer to get a faster, innovative and secure way to manage their gym accounts and at the same time get a quality customer experience.

On behalf of the gym's staff, they will be able to maintain informed the customers with updates of new and events of the gym. The staff can also have a confident accountability of the gym's incomes through the WebApp, and view the registrations lists. Registrations lists and databases are crucial for the making of decisions on the enterprise. They can determine to cancel any course for low tuition or open more sections of the offered course. They also will be able to read customers comments or posts on the message board or forum that will be provided, and moderate the information provide on it.



1.3 Definitions, Acronyms, and Abbreviations

The following tables define present different definitions (**Table 1.1**), acronyms (**Table 1.2**), and abbreviations (**Table 1.3**) used in this SRS. **Table 1.1** describes the definition of words that can be confusing or new. **Table 1.2** describes the acronyms and what it stands for. Finally, **Table 1.3** describes the abbreviations and what do they mean.

Table 1.1 Definitions

Word	Definition
System	Any software and peripheral devices that are necessary to make the computer function.
Web Application (WebApp)	An application accessed via a web browser over a network such as the Internet. It is also a computer software application that is coded in a browser-supported language (such as HTML, JavaScript, etc.) and reliant on a common web browser to render the application executable.
Use Case	Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases.
User Account	Identifies the WebApp users, such as gym's customers, and WebApp administrators, by a username. It is required to authenticate the user with a password for security logging access to its account.
Interface	Separates the methods of external communication from internal operation, and allows it to be internally modified without affecting the way outside entities interact with it.
Constraint	Impose conditions that the variables must satisfy.
Function	A programming paradigm that treats computation as the evaluation of mathematical functions and avoids state and mutable data.
Operation	Data processing in which the result is completely specified by a rule.
Software	A general term used to describe the role that computer programs, procedures and documentation play in a computer system.
Database	An integrated collection of logically related records or files which consolidates records into a common pool of data records that provides data for many applications.
Hardware	The physical components of a computer system.
Attribute	Define key properties of the application.
Solution	Synonym of application or software.
Forum	An online discussion site.



Word	Definition
Login	The process used in a system to control the individual access to the resources in a system.
Website	A collection of related web pages, images, videos or other digital assets that are addressed with a common domain name or IP address in an Internet Protocol-based network.
Browse	Navigation of objects.
ccBoard	Joomla forum service.
Internet	A global system of interconnected computer networks that use the standardized Internet Protocol Suite, serving billions of users worldwide.
News Feed	A data format used for providing users with frequently updated content.
Registry	Manages the registration of top-level internet domain names.
Web Browser	A software application for retrieving, presenting, and traversing information resources on the World Wide Web.
Server	Any combination of hardware or software designed to provide services to clients.
Username	A name used to gain access to a computer system.
Password	A secret word or string of characters that is used for authentication, to prove identity or gain access to a resource.
E-business	The utilization of information and communication technologies (ICT) in support of all the activities of business.
E-mail	A method of exchanging digital messages.
Decode	The reverse of encoding, which is the process of transforming information from one format into another.
Programming Language	An artificial language designed to express computations that can be performed by a machine, particularly a computer.
Wireless Area Network	That links two or more computers or devices using spread-spectrum or OFDM modulation technology based to enable communication between devices in a limited area.
Local Area Network	A computer network covering a small physical area, like a home, office, or small group of buildings, such as a school, or an airport.
Dial-Up	Form of Internet access via telephone lines.
Access Level	Permissions and the use of certain features given to certain users.
Upload	To send data as being copied and compiled to create a complete file.



Word	Definition
Profile	A collection of personal data associated to a specific user.
Ban	Decree that prohibits the registered user for accessing the web content.
Bandwidth	A measure of available or consumed data communication resources expressed in bit/s or multiples of it (kbit/s, Mbit/s etc).
Hack	Modification of a program or device to give the user access to features that was otherwise unavailable.
Hidden Field Manipulation	One of the most common hacking practices occurring against several e-commerce websites today.
Parameter Tempering	Attack based on the manipulation of parameters exchanged between client and server in order to modify application data, such as user credentials and permissions, price and quantity of products, etc.
Cookie Poisoning	Modifying the value of cookies before sending them back to the server.
Module	A software design technique that increases the extent to which software is composed from separate parts.
Video Feed	A regularly updated summary of videos as web content, along with links to full versions of that content.
Plug-in	A computer program that interacts with a host application (a web browser) to provide a certain, usually very specific, function "on demand".
Apache Server	A web server notable for playing a key role in the initial growth of the World Wide Web.
Linux	A generic term referring to Unix-like computer operating systems based on the Linux kernel.
MySQL	A relational database management system (RDBMS) which has more than 6 million installations.
Joomla	A content management system platform for publishing content on the World Wide Web and intranets as well as a Model–view–controller (MVC) Web Application Development framework.
Security Certificate	Creates a secure connection between a client and a server, over which any amount of data can be sent securely.
Social Network	A social structure made of individuals who are connected by one or more specific types of interdependency, such as friendship, kinship, financial exchange, dislike, sexual relationships, or relationships of beliefs, knowledge or prestige.



Word	Definition
Add-On	An optional computer software component that significantly enhances the functionality of the original unit

Table 1.2 Acronyms

Acronym	Definition
FICUS	Fast Innovation for Commerce Unified Systems
JJFN Group	Name of company founders and CEO: José Lecumberry, José Torres, Francis Hayes, Norberto Reyes
SRS	Software Requirement Specifications
WWW	World Wide Web
ISP	Internet Service Provider
URL	Uniform Resource Locator
WLAN	Wireless Local Area Network
LAN	Local Area Network
B2B	Business-to-Business
WAS	Web Application Security
LAMP	Linux, Apache, MySQL, PHP
HTTP	Hypertext Transfer Protocol
SQL	Structured Query Language
CMS	Content Management System

Table 1.3 Abbreviations

Abbreviations	Word
WebApp	Web Application
E-Business	Electronic Business
E-Mail	Electronic Mail

1.4 Reference

Information of topics and application mentioned on the SRS could be found on the following:

- FICUS: <http://ficus.xtilos.com/>
- IEEE: <http://www.ieee.org/>
- LINUX: <http://www.linux.org>
- Apache Server: <http://www.apache.org/>
- MySQL: <http://www.mysql.com/>
- PHP: <http://www.php.net/>



- Joomla: <http://www.joomla.org/>
- Wikipedia: <http://www.wikipedia.org/>
- Ace-Host: <http://www.ace-host.net/>

1.5 Overview

On section 2, there is description for the interfaces and the constraints of the WebApp development. It will also describe the potential user characteristics and the product functions and operations that the user will take advantage. In addition, this section describes the general factors that affect the product and its requirements.

Finally section 3, contains a description in details of all requirements that must be satisfy by the software. Designers will find the idea behind the external interfaces and which functions are going to be used. In addition, this section includes the performance and logical database requirements. Design constraints and hardware limitations are explained here. Also it's explained the software system attributes such as the reliability, availability, security, maintainability, and portability of our product.

2. Overall Description

Fast Innovation for Commerce Unified Systems (FICUS) is an application that provides business owners the ability to manage the availability of enrollment to their services, have up-to-date information of their customers, and provide relevant information of their customers. On the following sections, you'll find useful information to visualize and understand the concepts to be use on this software. Concepts like how the users, Administrators and Customers will interact with the product. The following figure, show the general features of the product.

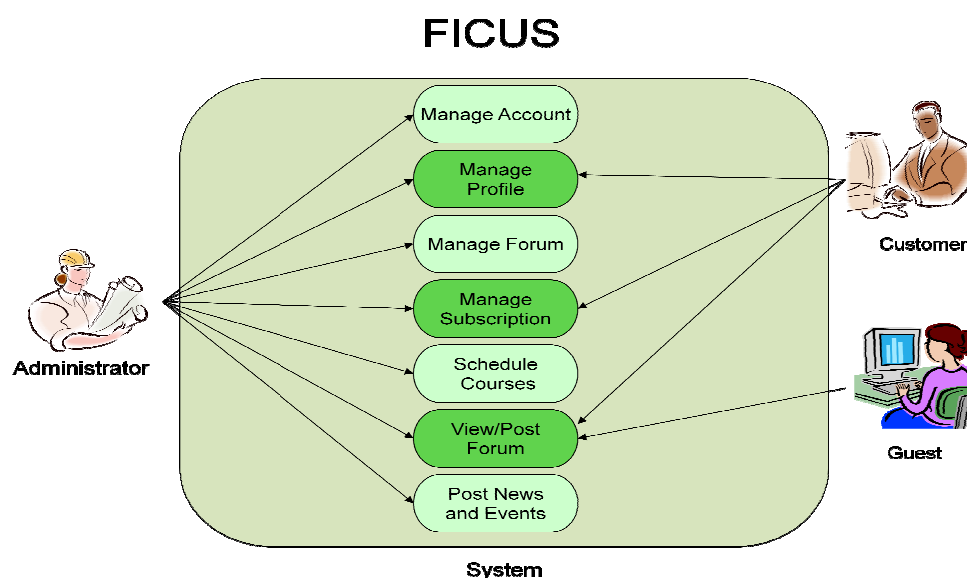


Figure 2.1 Describes the use-cases of the mayor functional areas and interactions



2.1 Product Perspective

The product, FICUS, is a Web Application (WebApp) solution for any business that needs an interactive class enrollment application. This WebApp is intended for customers that want to interact with the business services. This software will allow members to login to the business website. After login, the system allows customers to manage subscriptions by browsing courses, add, and remove them. Customers will also be able to pay their subscriptions tuition, post questions on a discussion forum. These questions can be answered by other members or administrators. In this world, where time is treasured, customers can manage their subscriptions and payments, without living the comforted of their houses.

The system also allows administrators to post news feeds, which will maintain customers informed of special offers and events. The forum and the news feed will provide the business a unified community or social network and a better customer service. The business manager will keep an up-to-date registry of its customers. This WebApp fulfills the necessity of business administrators to have a technology based business, and maintain effective communication with their customers. Also it allows the opportunity to expand their business to new communities.

For L.O. Classic Gyms customers and staff, this product can be managed from any computers or laptops with Internet Service Provider (ISP) and any certified Web browser. Users will access the WebApp through the Web Browser, entering the specified Uniform Resources Locator (URL), which will connect with the business server containing the application. There, they'll be able to create an account and/or enter their account username and password for login. Administrators will be able to manage accounts, moderate the forum, schedule courses, view accountability statements, and post news and events. Customers can manage their own accounts, their subscriptions, view and post messages or comments on the forum, pay and reserve courses, and interact with other customers on the business social network (see **Figure 2.1** for visual reference).

On the following sub-sections (**2.1.1 – 2.1.8**) describes the product perspective for FICUS. Section 2.1.1 explains the system interface that the WebApp utilize for execution. On section 2.1.2, there is a description for the user interfaces, complete with screenshots (**figures 2.2 – 2.11**) of how FICUS looks like for the determined user types such as Administrators, Customers and Guests, and which layout it has. Section 2.1.3 describes what the only hardware requirements for the system are, while section 2.1.4 explains the software interfaces that are needed. Also explained at section 2.1.5 is the communication interfaces between user's computer to FICUS server, and on 2.1.6 the memory constraints and limitations that are found on the system performance. Section 2.1.7 describes the operations execute by FICUS on a daily and/or weekly basis for performance optimization. Finally, section 2.1.8 explains the site, L.O. Classic Gym main building, adaptation requirements for the use of FICUS on present installation and what adaptations will be implemented for future modules on the system.



2.1.1 System Interfaces

FICUS will run on a standard computer web browser (e.g. Internet Explorer, and Mozilla Firefox). Web browsers are software applications for retrieving, presenting, and decoding information resources on WWW. The user will be able to browse easily thanks to an interactive graphic interface, provide by our software. The following is a description of the three types of *User Interfaces* that can access the application and the operations they can manage.

2.1.1.a Administrators

Administrators will be able to manage users' accounts, the forum and also post news and events on the website. When managing the user accounts, the administrator can remove a member, pull reports on member information and reset passwords. At the forum the Administrator can remove posts and add new topics. Also manages the information provided to the customers, like course schedule and availability. Figures 2.2 - 2.11 shows how administrators' interfaces will be. **Figure 2.2** shows the login user interface for the main homepage. Administrators will provide their login information which is a name used to gain access the system, the username, and a secret word to prove identity, the password. If the "Remember Me" option is checked, administrators don't have to provide the login information the next time the WebApp is executed. Also it is displayed the basic information of L.O. Classic Gym, and other content provided and uploaded to the graphical interface.

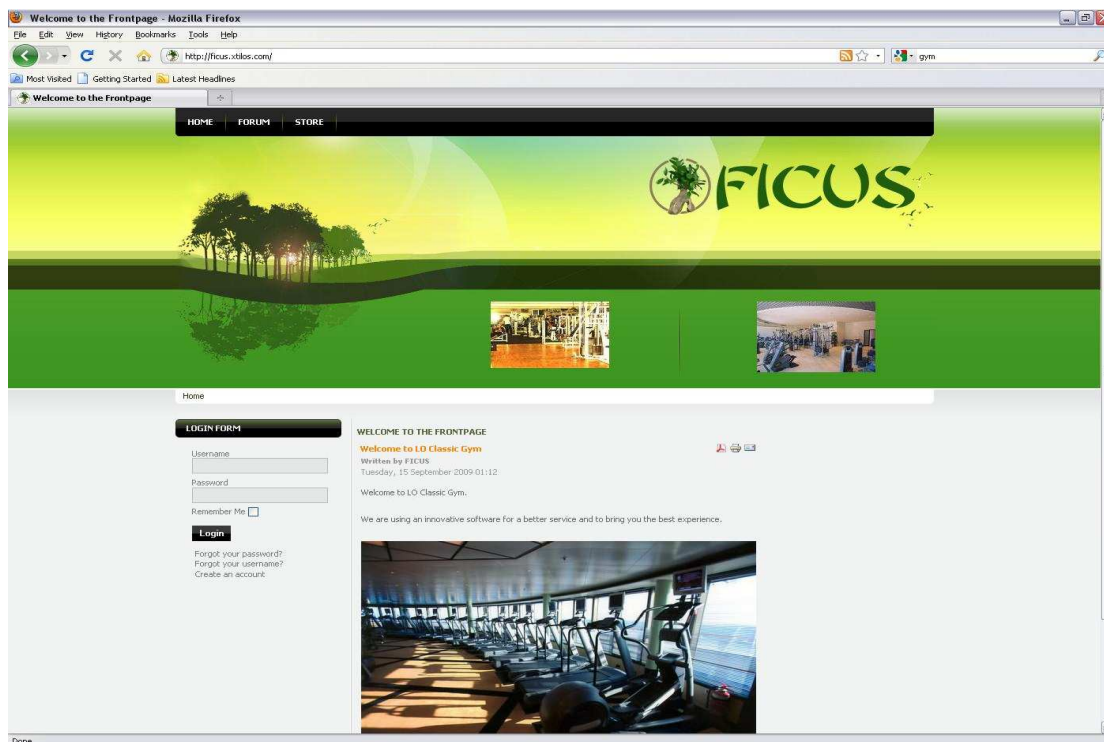


Figure 2.2 Administrators homepage login interface, for a live preview visit <http://ficus.xtilos.com>



Figure 2.3 shows the login accounts managing and creation interface Administrators will have access to. There users must provide the required information, for authentication purpose, that is going to be safely added to FICUS database. The required information for registration includes name, username, e-mail, and password. Password must be eight (8) characters or more, including numbers (0-9) and letters (A-Z). Password must be entered twice for verification. Administrators can edit any of this information for every user.

Figure 2.3 Administrators Create Account interface

Figure 2.4 shows the course available subscriptions interfaces. Administrators can view, add, delete or edit course information. Also they will be prompted to print class subscription lists.

Figure 2.4 Administrators Courses interface



Figure 2.5 shows the current gym subscriptions options interface. Administrators can view, add, delete or edit subscriptions' details or information. There will be specified details of each subscription and can browse through any product offered.

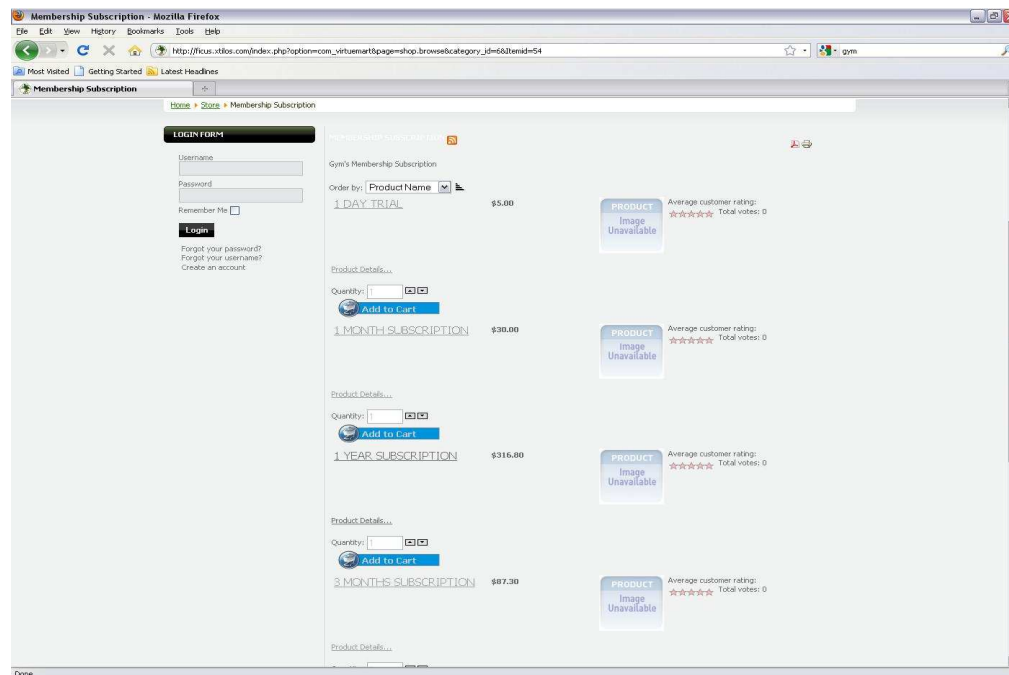


Figure 2.5 Administrators Subscriptions interface

Figure 2.6, shows the create profile interface. Administrators can view, add, delete or edit profiles detail or information of any user not meeting the terms of policy and conduct required by gym's managers. A profile contains gender, pictures, and other personal information provided by users.

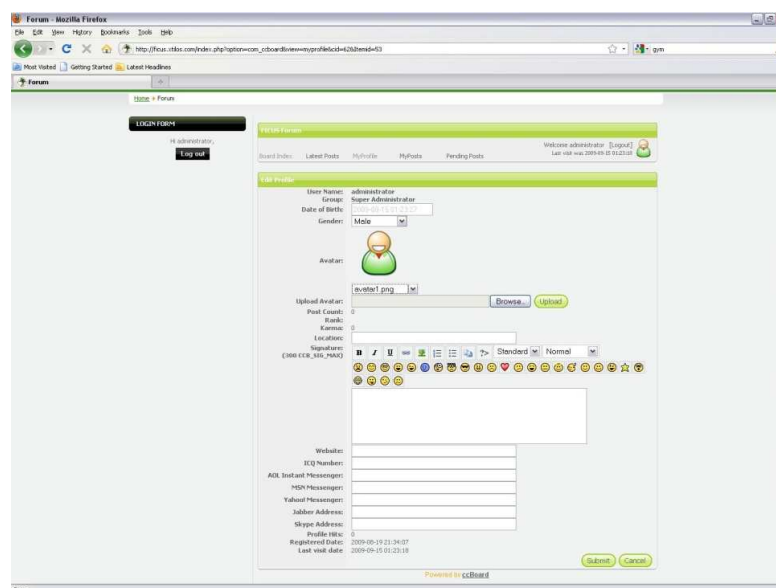


Figure 2.6 Administrators Create Profile interface



Figure 2.7 shows the forum interface. Administrators can view, add, delete or edit forum posts or information of any user not meeting the terms of policy and conduct required by gym's managers for the forum. Also they will assist any customer that needs information or guide on any page of the WebApp. Finally, they will ban any user violating the forum policy of conduct, temporary or permanent.

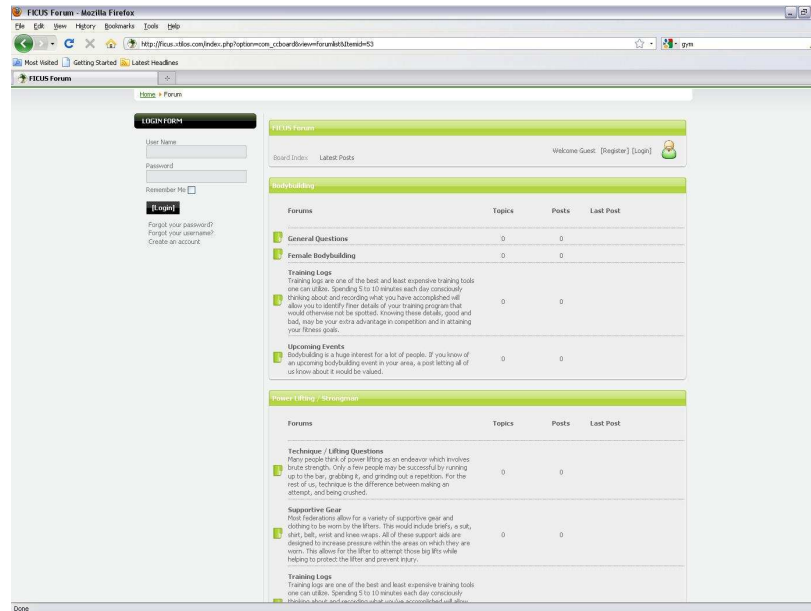


Figure 2.7 Administrators Forum interface

Figure 2.8 shows the administrators management menu interface. From here Administrators can go directly to the section of the webpage they will edit. They will be the only users with access to this interface. They will encounter detailed information on each section they can manage or edit.

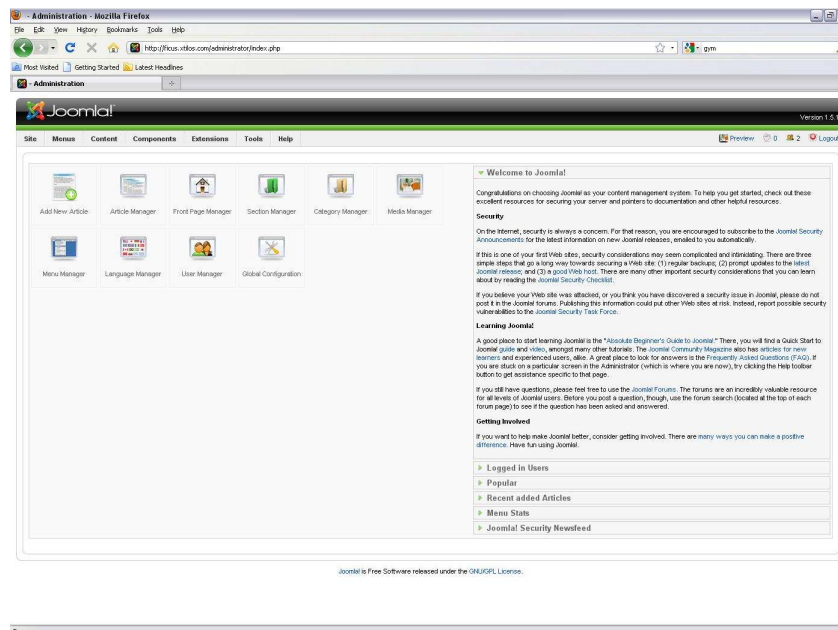


Figure 2.8 Administrators Management Menu interface



Figure 2.9 shows the administrators forum manager interface. From here Administrators can go directly to the section of the forum they will edit. They will be the only users with access to this interface. They will encounter detailed information on each forum section they can manage or edit.

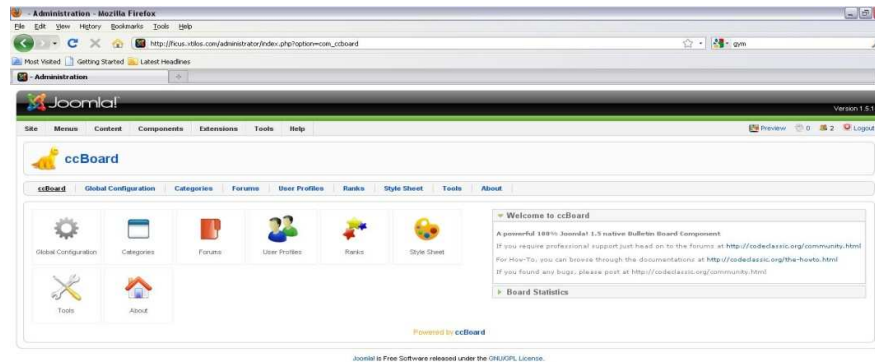


Figure 2.9 Administrators Forum Manager interface

Figure 2.10 shows the administrators user manager interface. From here Administrators can add users or go directly to the user they will edit or delete. They will encounter detailed information on each user they can manage or edit and a password reset option.

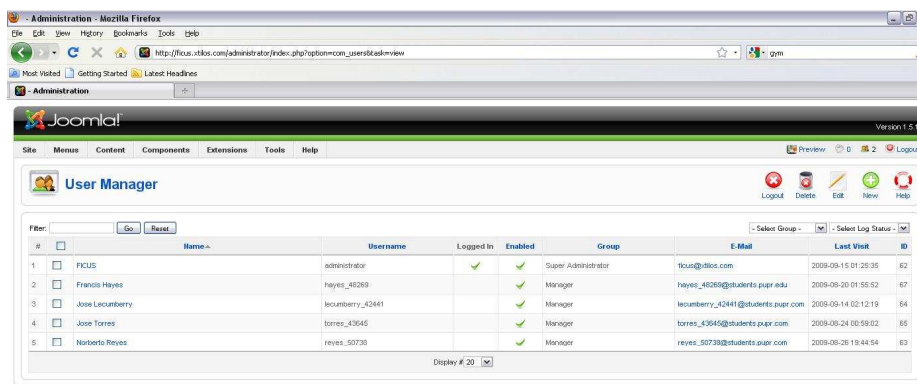


Figure 2.10 Administrator User Manager Interface

[illegible]

2.1.1.b Customers

The screenshot shows the FICUS website interface. At the top, there is a navigation bar with links: HOME, LOGIN, and STORE. Below this is a large banner image featuring a stylized green landscape with trees and the FICUS logo. The logo consists of a green circle with a tree inside, followed by the word "FICUS" in a large, green, serif font. Below the banner, there are two small inset images: one showing a gym interior with treadmills and another showing a person using a treadmill. The main content area contains a login form with the following elements:

- A heading "WELCOME TO THE FRONTPAGE" in bold.
- A subheading "Welcome to 3.0 Classic Gym" in a smaller font.
- A subheading "Welcome to FICUS" in a smaller font.
- A subheading "Welcome to Register Gym (2008-12-12)" in a smaller font.
- A subheading "Welcome 3.0.0 Classic Gym" in a smaller font.
- A paragraph "We are using an innovative software for a better service and to bring you the best experiences."
- A large image of a gym interior with treadmills and a person using a treadmill.

Below the heading "WELCOME TO THE FRONTPAGE", there is a login form with the following fields and buttons:

- A button labeled "COUNTRY" in a dark box.
- A text input field for "Username".
- A text input field for "Password".
- A checkbox labeled "Remember Me".
- A button labeled "Login" in a dark box.

Below the login form, there are three links:

- Forgot your password?
- Forgot your username?
- Create an account

Date: October 29, 2009



Figure 2.13, shows the create accounts interface Customers, will have access to. There users must provide the required information, for authentication purpose, that is going to be safely added to FICUS database. Registration information includes name, username, e-mail, and password. Password must be eight (8) characters or more, including numbers (0-9) and letters (A-Z). Password must be entered twice for verification.

Figure 2.13 Customer Create Account interface

Figure 2.14 shows the courses available subscriptions interfaces. Customers can view, add, or remove courses from their subscriptions. The can print a course curriculum, and a gym equipment list, if any, they will use on the course. Customers can access from here a Checkout to pay for their tuition.

Figure 2.14 Customers Courses interface



Figure 2.15 shows the current gym subscriptions options interface. Customers can view, add, or delete their subscriptions. There will be specified details of each subscription and can browse through any product offered. Customers can access from here a Checkout to pay for their tuition.

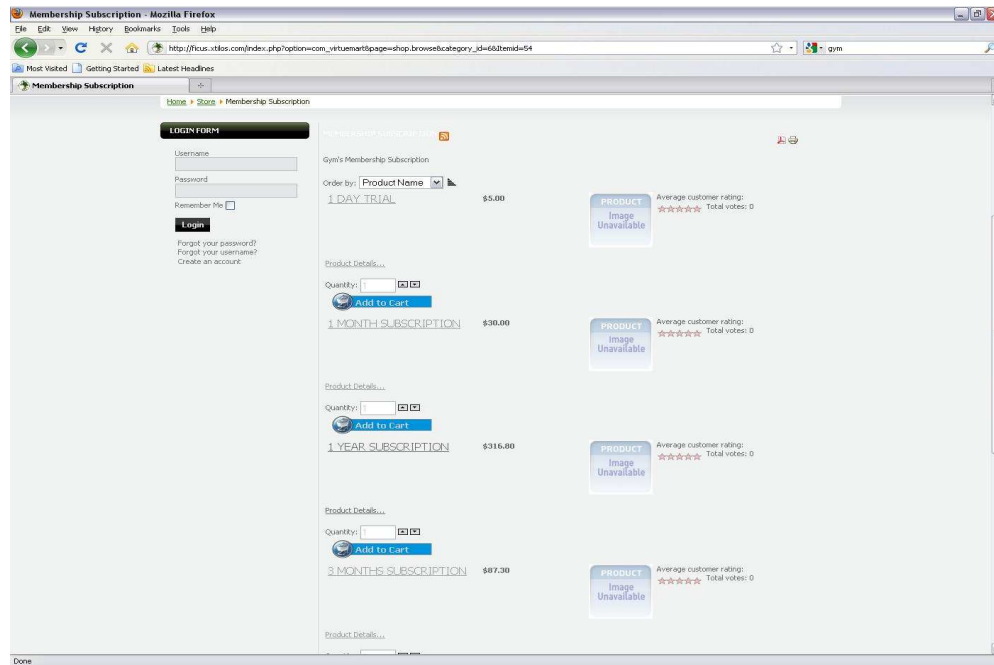


Figure 2.15 Customers Subscriptions interface

Figure 2.16, shows the create profile interface. Customers can view, add, delete or edit profiles detail or information. A profile contains gender, pictures, and other personal information provided by users. Customers can browse other users' profiles and interact with them through the social network.

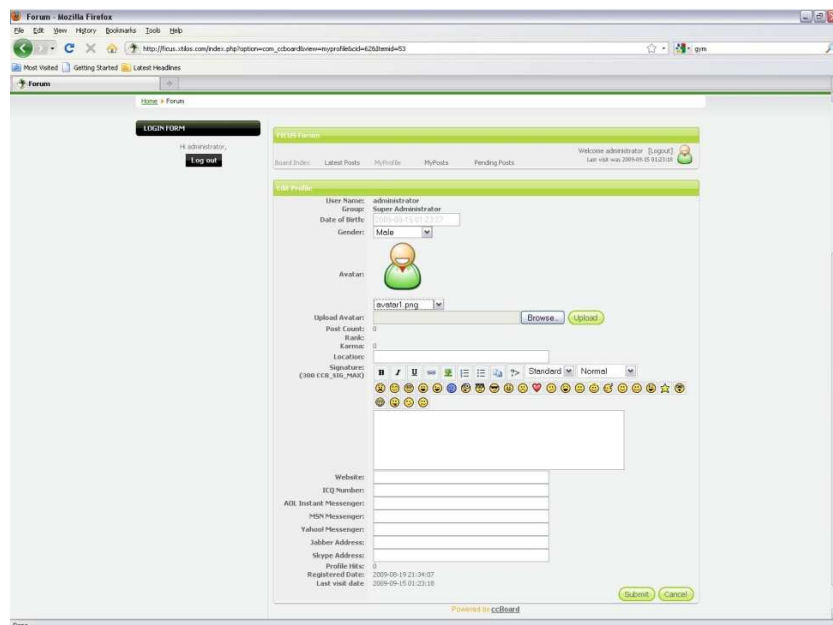


Figure 2.16 Customers Create /View Profile interface



Figure 2.17 shows the forum interface. Customers can view, add, delete or edit their own forum posts or information. Also they will be assisted by any administrator if they need information or guide on any page of the WebApp. Finally, they will be banned, they violated the forum policy of conduct, temporary or permanent.

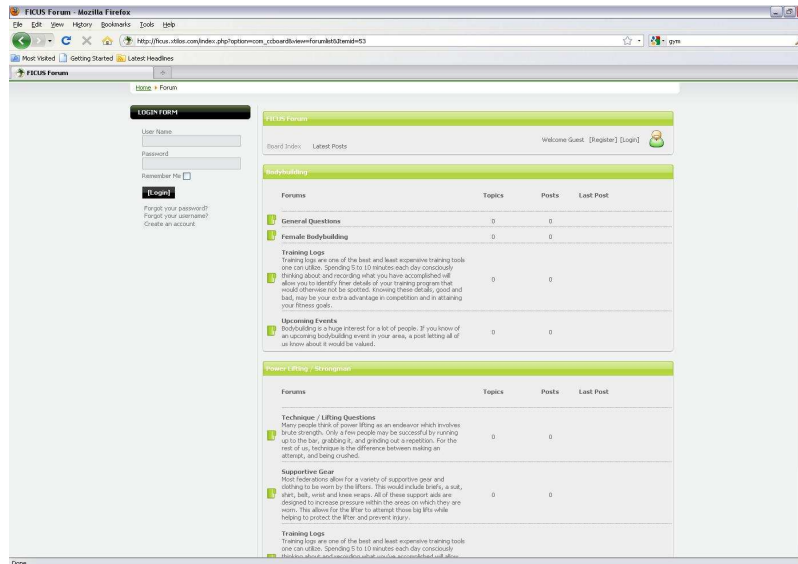


Figure 2.17 Customers Forum interface

2.1.1.c Guest

Guests are visitors that will browse the courses but cannot reserve or subscribe to them; view the forum and the news. A guest doesn't provide any information, but has restricted access to WebApp. **Figures 2.18 - 2.22** show examples of how administrators' interfaces will look like. **Figure 2.18** shows the main homepage. Guests can view and read limited webpage content. They can request a registration account to become Customers. Guests can interact with some links.

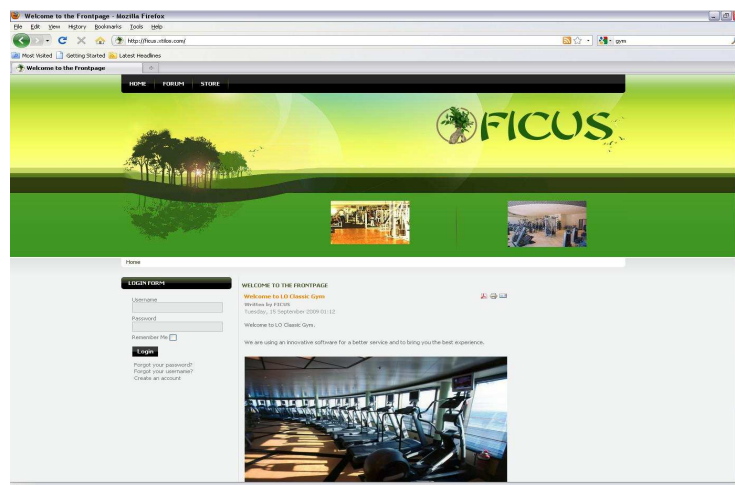


Figure 2.18 Guest homepage login interface, for a live preview visit <http://ficus.xtilos.com>



Figure 2.19 shows the request registration accounts interface Guest, will have access to. There users must provide the required information, for authentication purpose, that is going to be safely added to FICUS database. Registration information includes name, username, e-mail, and password. Password must be eight (8) characters or more, including numbers (0-9) and letters (A-Z). Password must be entered twice for verification.

Figure 2.19 Guest Request Registration Account interface

Figure 2.20 shows the courses available subscriptions interfaces. Guests can only view the course information. They can print the course information.

Figure 2.20 Guest Courses interface



Figure 2.21 shows the current gym subscriptions options interface. Guests can only view the different subscription information. They can print the subscription information.

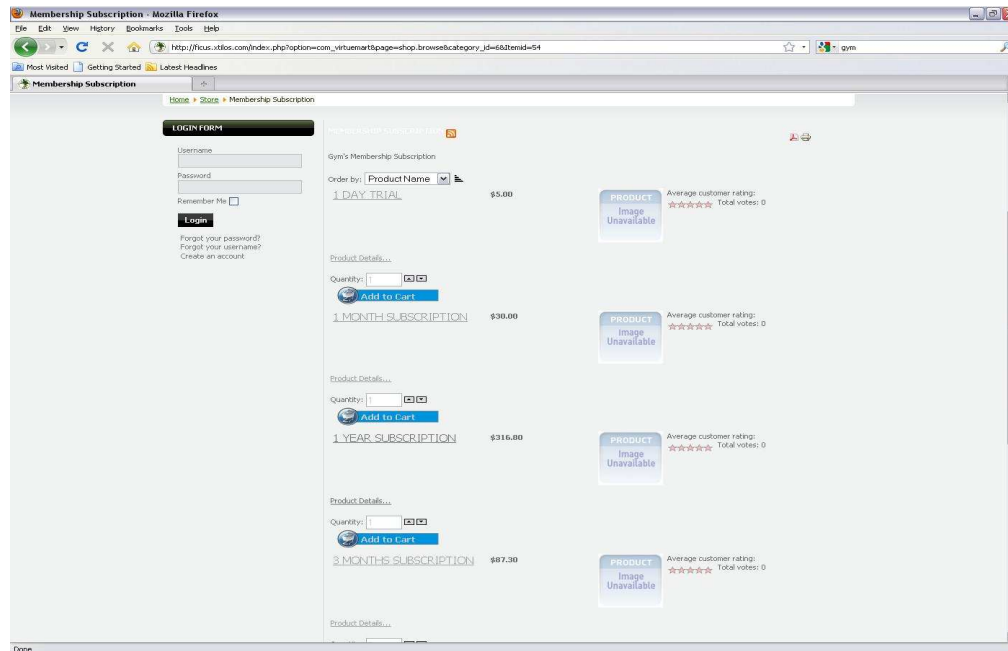


Figure 2.21 Guest Subscriptions interface

Figure 2.22 shows the forum interface. Guests can only view forum posts or information. They can print forum posts or information.

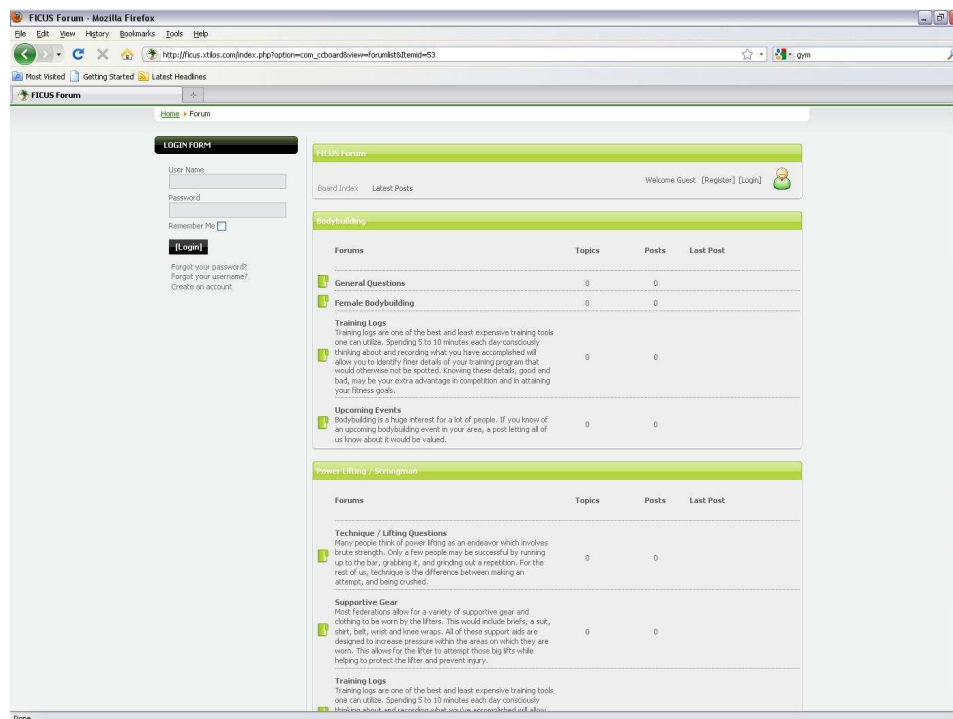


Figure 2.22 Guest Forum interface



2.1.2 Hardware Interfaces

For customers, FICUS doesn't require any hardware interface other than the standard computer components (keyboard, mouse and monitor) and a connection to the internet. For L.O. Classic Gym, initially FICUS will run from an external web server. On the future, the gym will need a server installed on-site and media equipment as computers, for customers browsing from the gym, and audio/video capture device for Live Streaming options on the future. This will also require network hardware as switches and network cables, depending on the structure.

2.1.3 Software Interfaces

FICUS requires that the user have installed on his computer a Web Browser. Web Browsers let users browse Internet pages, such as FICUS. It decodes the programming language for Web Application and show the content on it. There exist many web browsers. The following table (**Table 2.1**) describes the most used web browsers and where to download them:

Table 2.1 Software Interfaces based on the most frequently used web browsers

Name	Mnemonic	Latest Version	Source
Windows Internet Explorer	IE	8.0 (2009)	Microsoft Corporation http://www.microsoft.com/windows/internet-explorer/default.aspx
Mozilla Firefox	FFOX	3.5.3 (2009)	Mozilla Corporation http://www.mozilla.com/en-US/firefox/personal.html
Camino	CAM	1.6.9 (2009)	The Camino Project http://www.caminobrowser.org/
Google Chrome	CHR	3.0.195.20 (2009)	Google http://www.google.com/chrome
Safari	SAF	4.0.3 (2009)	Apple Inc. http://www.apple.com/safari/
Opera	OPE	10.00 (2009)	Opera Software ASA http://www.opera.com/

2.1.4 Communications Interfaces

The application will use the user's computer communication interface to connect to the Internet. It can communicate with the system through their Wireless Area Network (WLAN), Local Area Network (LAN), Dial-Up or any other Internet Service Provider (ISP). FICUS users will need Internet connection.



2.1.5 Memory Constraints

This application will run on the user's computers internet browser. Therefore the memory constraints will be the specific requirements of the internet browser of the user. This will be based on the operating system and browser that the user will be utilizing.

2.1.6 Operations

FICUS server operates a backup and recovery systems a daily basis. In case that something unusual happens, the backup system can keep safe the data for recovery. The time to load the recovery on the system takes an approximate of five (5) to ten (10) minutes. This guarantee that the system and the information will be available on the instant the customer wants to access it.

Joomla, a content management system platform for publishing content on WWW, gets an update weekly, guarantying information and system security for your business. There is also a restriction depending on the privileges that the user has. FICUS supports three kinds of users (1) Administrators, (2) Customers and (3) Guests. Administrators have privileges for every access level on FICUS, so they can access the databases, and modify any webpage information for maintenance. Customers have restricted access; they can only modify their account options and profile and manage only their subscriptions. Guests can only view public content and are not enable to make any change on anything.

2.1.7 Site Adaptation Requirements

The users can access FICUS through a computer with Internet connection, which requires that the site where the system is implemented, have at least three (3) computers available for customers to manage their subscription from the site. Also it requires an ISP and a LAN modem for a network distribution an Internet access on the site. On a future version, a server and web cams will be installed for further requirements.

2.2 Product Functions

This product provides different functions for the users. Different access levels of users enable different function, depending on the operations the user is allowed to do. The following table (**Table 2.2**), and sections **2.2.1 - 2.2.3** provide a high level summary of the functions that the product will perform, from the user's point of view: Finally, sections **2.2.4 - 2.2.10** describe each of the functions.

Table 2.2 Product function access levels and descriptions.

Function	Access Level	Description
Manage Accounts	Administrators	Access to any account content, and enable to modify it. It can also cancel memberships.
	Customers	Access only to their account content and modify it or cancel.
Manage Forum	Administrators	Manage forum content, post or edit messages and ban users.
Post News and	Administrators	Manage content of the main page, upload pictures, update



Function	Access Level	Description
Events		calendars, news, offers and events.
Schedule Courses	Administrators	Schedule new courses or delete courses offered by the business. Scheduled courses are available for customers to subscribe.
Manage Profile	Administrators	Manage and edit any profile content on any user profile. It can also ban user accounts.
	Customers	Manage and edit only their profile content.
Manage Subscriptions	Administrators	Manage and edit any customer subscriptions.
	Customers	Manage, edit, cancel and/or pay their selected subscriptions.
View/Post Forum	Administrators	View and post messages on the forum.
	Customers	View and post messages on the forum.
	Guest	View unrestricted sections of the forum.

2.2.1 Administrator's Functions

Administrators are users that will have access to all FICUS functions. Their extended functions access is to the WebApp content management. They will manage the information and content provide by them and every other user, on any of FICUS functions. They will have full privileges to FICUS database, which includes add, delete, insert, modify or update any field on the database. The following use-case diagram, **Figure 2.23**, shows how Administrators are related to every function on FICUS.

Figure 2.23 Administrator functions (Use Case Diagram)



2.2.2 Customer's Functions

Customers are users that will have access to limited FICUS functions. They will manage only the information and content provide by them on their functions. They will manage their own accounts, profiles, subscriptions, and their messages posted on the forum. They can modify or update on FICUS database, only the fields inserted by them, through a friendly user interface. The following use-case diagram, **Figure 2.24**, shows how Customers are related to their permitted functions on FICUS.

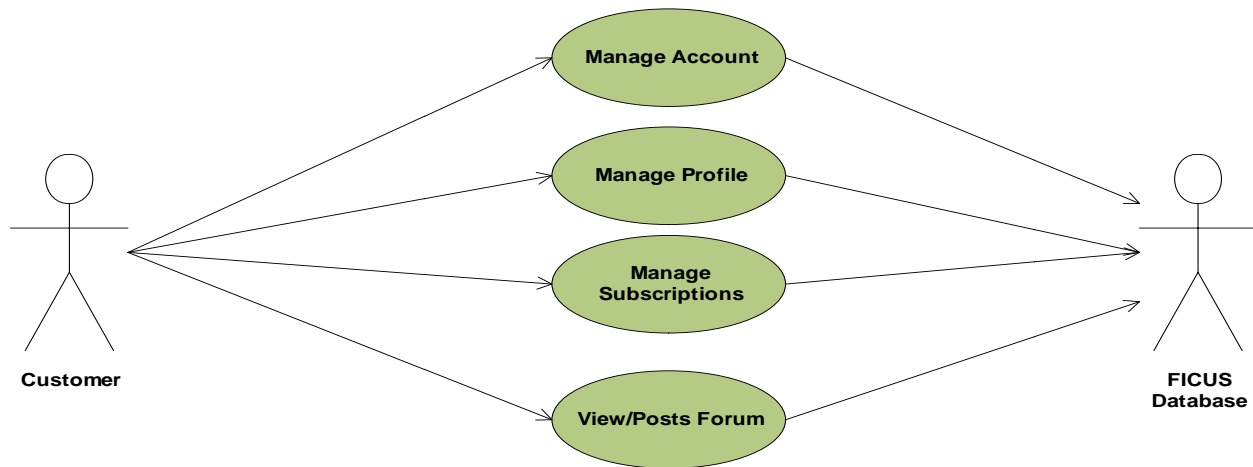


Figure 2.24 Customer functions (Use Case Diagram)

2.2.3 Guest's Functions

Guests are users that will have access to limited FICUS functions. They will only view the website information and content, news and events, provide by FICUS Administrators. They will only enter the forum to view posted messages. The following use-case diagram, **Figure 2.25**, shows how Guests are related to their permitted functions on FICUS.

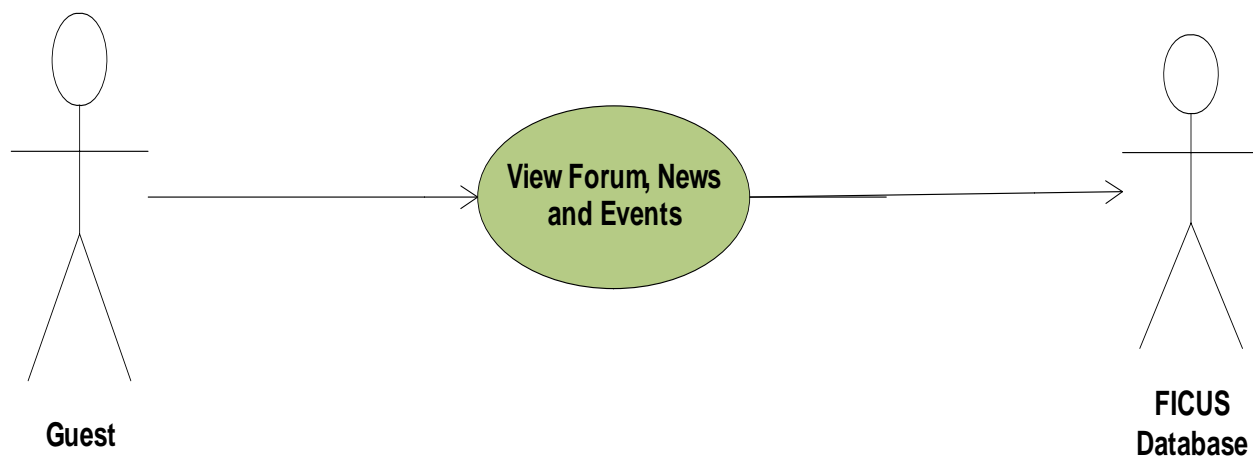


Figure 2.25 Guest functions. (Use Case Diagram)



2.2.4 Manage Accounts

Administrators will be able to access any account to enable or modify it. Also, they will ban user accounts and cancel memberships. **Figure 2.26** shows the relation between the Administrators and Customers, and how they interact with FICUS database.

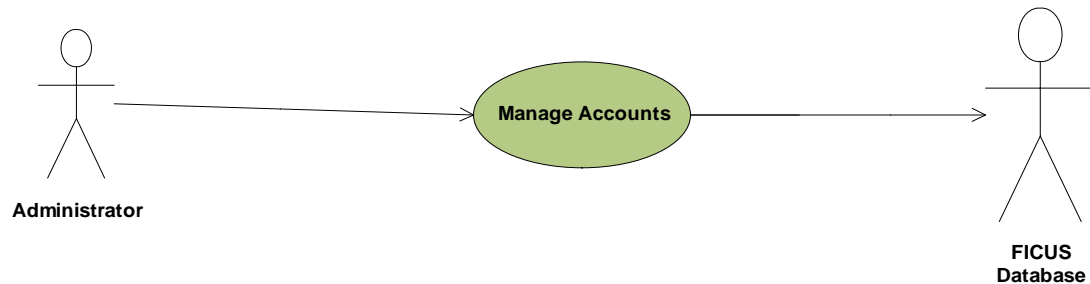


Figure 2.26 Use Case diagram for function Manage Accounts

Table 2.3 Function flow, normal and exceptions

#	Administrator Normal Flow	Exception 1	Exception 2
1	Administrator log in to FICUS interface.	Customer log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the administrator.	FICUS database will provide the appropriate access level to the customer.	FICUS security will provide the protection needed so no intruder can log to the database.
3	The administrator will choose Manage Accounts from the menu	The customer will choose Manage Accounts from the menu.	The guest will only be allowed to choose view forum from the menu.
4	Based on the privilege access on FICUS the administrator will be able to perform the following functions view, add, ban, modify or cancel a subscription.	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through the membership details and modify it as needed.	

Based on the privilege access on FICUS the user will be able to perform the following functions.
Administrator – The Administrator will be able to view, add, ban, modify or cancel a subscription.
Customer – The customer can browse through the membership details and modify it as needed.



Customers will access their accounts and modify them as needed. **Figure 2.27** shows the relation between the Administrators and Customers, and how they interact with FICUS database.

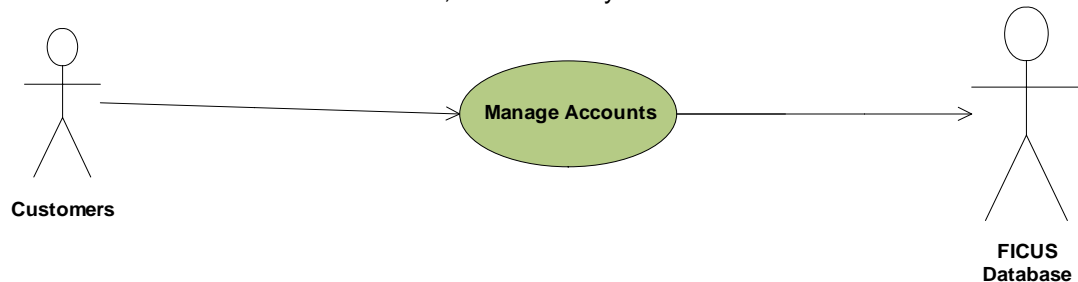


Figure 2.27 Use Case diagram for function Manage Accounts

Table 0.4 Function flow, normal and exceptions

#	Customer Normal Flow	Exception 1	Exception 2
1	Customer log in to FICUS interface.	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the customer.	FICUS database will provide the appropriate access level to the administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The customer will choose Manage Accounts from the menu.	The administrator will choose Manage Accounts from the menu	The guest will only be allowed to choose view forum from the menu.
4	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through the membership details and modify it as needed.	Based on the privilege access on FICUS the administrator will be able to perform the following functions view, add, ban, modify or cancel a subscription	

Based on the privilege access on FICUS the user will be able to perform the following functions.
Administrator – The Administrator will be able to view, add, ban, modify or cancel a subscription.
Customer – The customer can browse through the membership details and modify it as needed.



2.2.5 Manage Forum

Administrators will be able to manage any forum content, post or edit messages. The administrator can also ban users if required. **Figure 2.28** shows how Administrators interact with FICUS database.

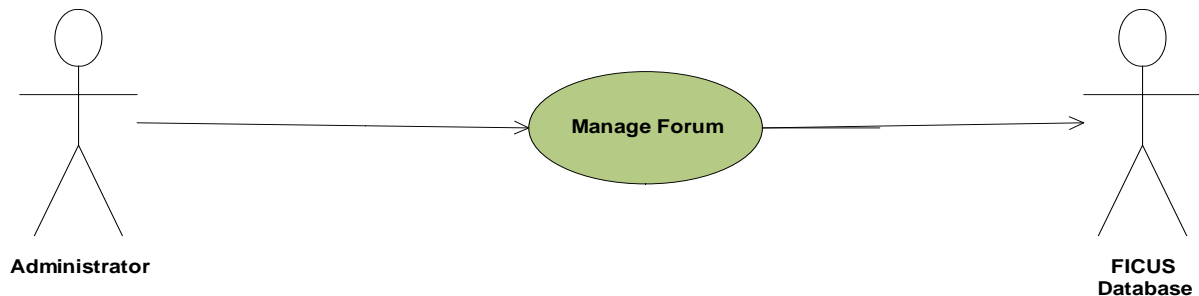


Figure 2.0.18 Use Case diagram for function Manage Forum

Table 0.5 Function flow, normal and exception

#	Administrator Normal Flow	Exception
1	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the Administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The Administrator will choose Manage Forum from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to perform the following functions: view, post, edit, and ban.	

1. The Administrator will chose from a menu one of the following case to:
 - a. View – to view any forum content.
 - b. Post - to add any topic or post to the forum board.
 - c. Edit- to modify any topic or posted message on the forum board.
 - d. Ban – to ban a user if required.



2.2.6 Post News and Events

The administrator is able to manage content of the main page, upload pictures, and update calendars, news, offers and events. **Figure 2.29** shows how Administrators interact with FICUS database.

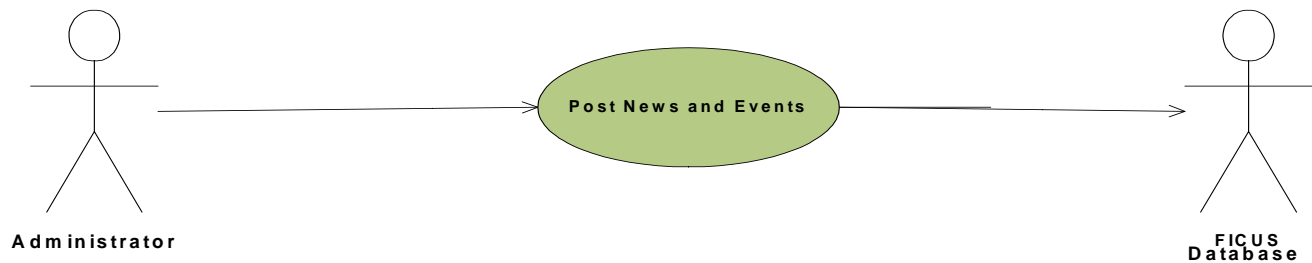


Figure 2.29 Use Case diagram for function Post News and Events

Table 0.6 Function flow, normal and exceptions

#	Administrator Normal flow	Exception 1
1	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS will provide the appropriate access level to the Administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The Administrator will choose Post News and Events from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to perform the following links: content, pictures, calendar, news, offers, and events.	

The Administrator will chose from a menu one of the following cases to:

- Content – to modify the content of the main page. .
- Pictures – to add, modify or delete any picture from the main page.
- Calendar – to add, modify or delete calendar events.
- News – to add, modify or delete any news section in the main page.
- Offers – to add, modify or delete any offer from the offers section on the main page.
- Events – to add, modify or delete any upcoming event.



2.2.7 Schedule Courses

The administrator is able to schedule upcoming courses or delete cancelled courses offered by the business. Before this use case can be initiated, the administrator has already initialized the database.

Figure 2.30 shows how Administrators interact with FICUS database.

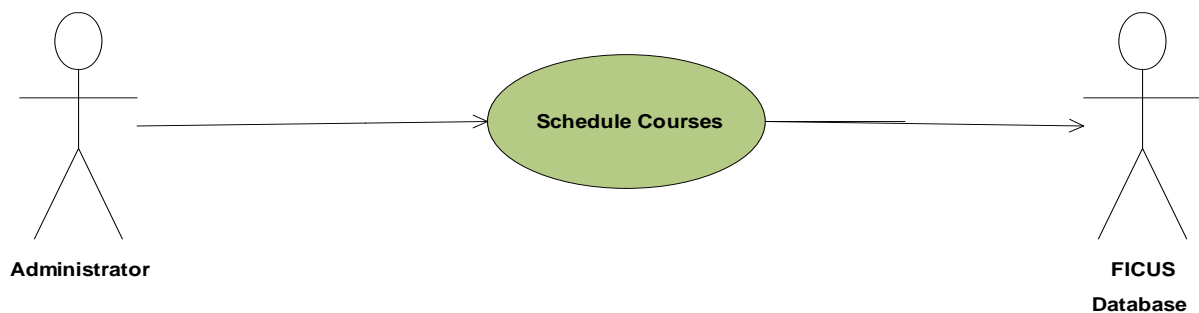


Figure 2.30 Use Case diagram for function Schedule Courses

Table 2.7 Function flow, normal and exceptions

#	Administrator Normal flow	Exception 1
1	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS will provide the appropriate access level to the user.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The Administrator will choose Schedule from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to perform the following functions: add, modify, delete	

The Administrator will chose from a menu one of the following cases to:

- Add – to add new courses that will be available on the web page.
- Modify – to change any published course.
- Delete – to remove any course that will not be available.



2.2.8 Manage Profile

The administrator is able to access any profile and change or delete details from it. **Figure 2.31** shows how users interact with FICUS database.

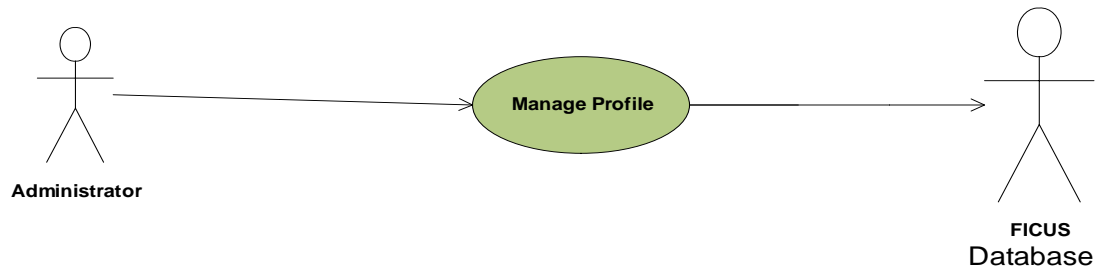


Figure 2.31 Use Case diagram for function Manage Profile

Table 2.8 Function flow, normal and exceptions

#	Administrator Normal flow	Exception 1	Exception 2
1	Administrator log in to FICUS interface.	Customer log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the administrator.	FICUS database will provide the appropriate access level to the customer.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The administrator will choose Manage Profile from the menu	The customer will choose Manage Profile from the menu.	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to perform the following functions view, modify or delete a profile.	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through their profile details and modify them as needed.	

Before this use case can be initiated, the administrator has already initialized the database. Based on the privilege access on FICUS the user will be able to perform the following functions.

- a. Administrator – The Administrator will be able to view, modify or delete details from any given user.
- b. Customer – The customers can browse through their profile details and modify them as needed.



The customers can access their profiles and modify them as needed. **Figure 2.32** shows how users interact with FICUS database.

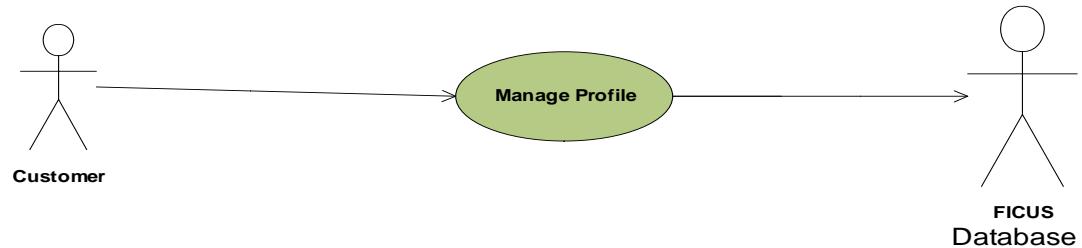


Figure 2.32 Use Case diagram for function Manage Profile

Table 2.9 Function flow, normal and exceptions

#	Customer Normal flow	Exception 1	Exception 2
1	Customer log in to FICUS interface.	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the customer.	FICUS database will provide the appropriate access level to the administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The customer will choose Manage Profile from the menu.	The administrator will choose Manage Profile from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through their profile details and modify them as needed.	Based on the privilege access on FICUS the administrator will be able to perform the following functions view, modify or delete a profile.	

Before this use case can be initiated, the administrator has already initialized the database.
Based on the privilege access on FICUS the user will be able to perform the following functions.

- a. Administrator – The Administrator will be able to view, modify or delete details from any given user.
- b. Customer – The customers can browse through their profile details and modify them as needed.



2.2.9 Manage Subscriptions

The administrator is able to manage, edit or delete any customer subscription. **Figure 2.33** shows how users interact with FICUS database.

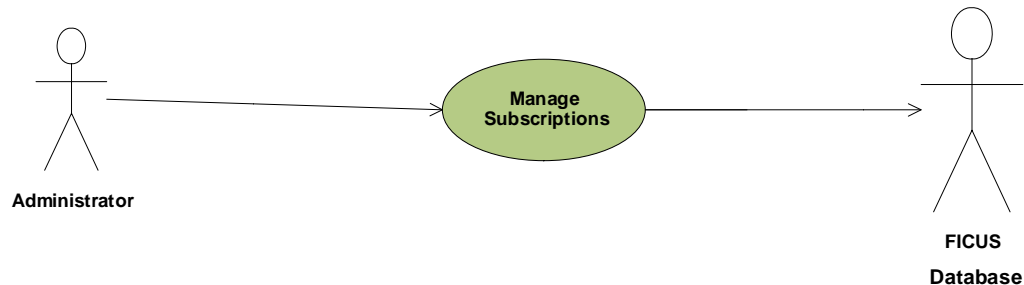


Figure 2.33 Use Case diagram for function Manage Subscriptions

Table 2.10 Function flow, normal and exceptions

#	Administrator Normal flow	Exception 1	Exception 2
1	Administrator log in to FICUS interface.	Customer log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the administrator.	FICUS database will provide the appropriate access level to the customer.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The administrator will choose Manage Profile from the menu	The customer will choose Manage Profile from the menu.	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to perform the following functions view, modify or delete a profile.	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through their profile details and modify them as needed.	

The user will choose Manage Subscriptions from the menu. Based on the privilege access on FICUS the user will be able to perform the following functions.

- a. Administrator – The Administrator will be able to view, modify or delete any given user subscription.
- b. Customer – The customers can browse through the courses, enroll, drop or also pay for any enrolled course.



The customers are able to add, edit, cancel and/or pay their selected subscriptions. **Figure 2.31** shows how users interact with FICUS database.

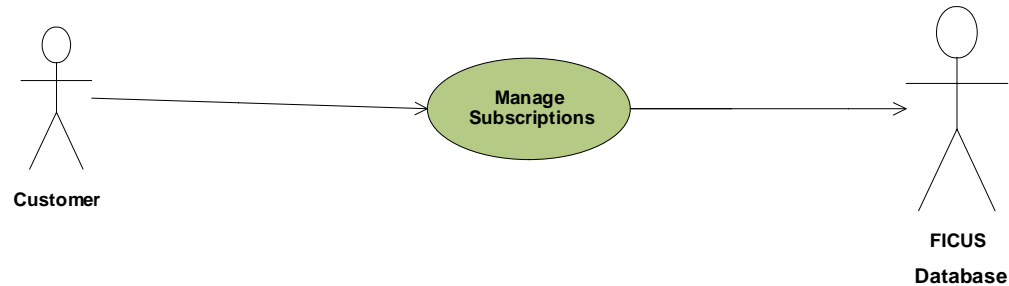


Figure 2.34 Use Case diagram for function Manage Subscriptions

Table 2.11 Function flow, normal and exceptions

#	Customer Normal flow	Exception 1	Exception 2
1	Customer log in to FICUS interface.	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the customer.	FICUS database will provide the appropriate access level to the administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The customer will choose Manage Profile from the menu.	The administrator will choose Manage Profile from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the customer will be able to perform the following functions browse through their courses, enroll, drop or also pay for any enrolled course.	Based on the privilege access on FICUS the administrator will be able to view, modify or delete any given user subscription.	

The user will choose Manage Subscriptions from the menu. Based on the privilege access on FICUS the user will be able to perform the following functions.

- a. Administrator – The Administrator will be able to view, modify or delete any given user subscription.
- b. Customer – The customers can browse through the courses, enroll, drop or also pay for any enrolled course.



2.2.10 View / Post Forum

All the users can view the forum. Only customers and administrators can post messages on the forum. **Figure 2.34** shows how Administrators interact with FICUS database.

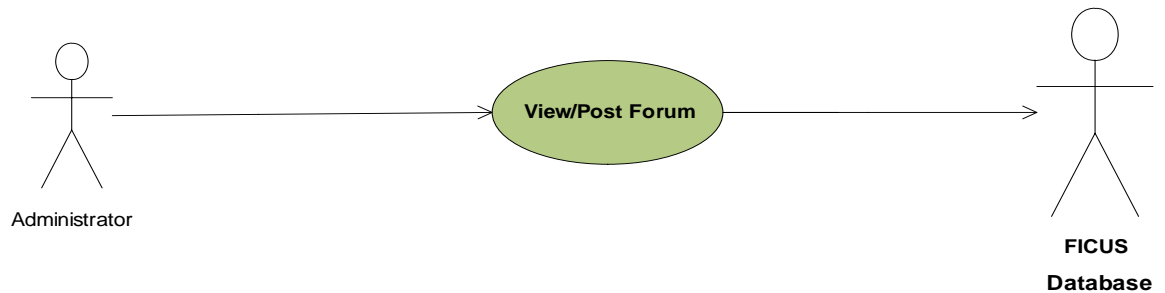


Figure 2.34 Use Case diagram for function View / Post Forum

Table 2.12 Function flow, normal and exceptions

#	Administrator Normal flow	Exception 1	Exception 2
1	Administrator log in to FICUS interface.	Customer log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the administrator.	FICUS database will provide the appropriate access level to the customer.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The administrator will choose Forum from the menu	The customer will choose Manage Profile from the menu.	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the administrator will be able to view, modify or delete any given post in the forum.	Based on the privilege access on FICUS the customer will be able to perform the following functions view the forum, or modify and delete their post in the forum.	

The Administrator will chose from a menu one of the following cases to:

- View – to view any forum content.
- Post - to add any topic or post to the forum board.
- Edit- to modify any topic or posted message on the forum board.

Note: Only logged users will be able to browse restricted sections of the forum.



All the users can view the forum. Only customers and administrators can post messages on the forum. **Figure 2.35** shows how Customers interact with FICUS database.

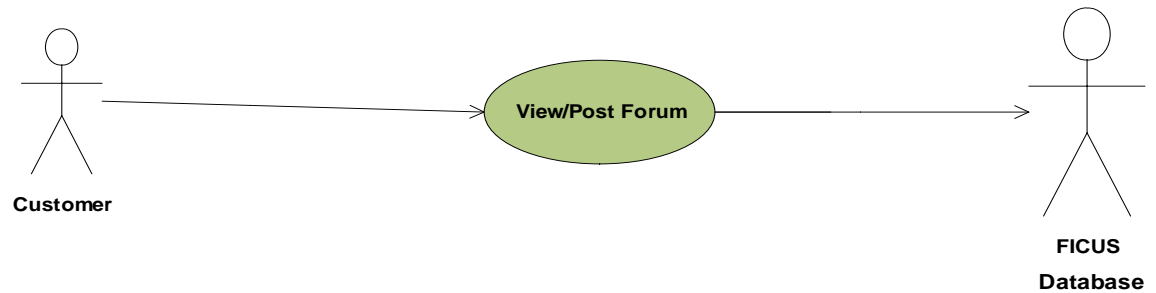


Figure 2.35 Use Case diagram for function View / Post Forum

Table 2.13 Function flow, normal and exceptions

#	Customer Normal flow	Exception 1	Exception 2
1	Customer log in to FICUS interface.	Administrator log in to FICUS interface.	Guest tries to log in to FICUS interface.
2	FICUS database will provide the appropriate access level to the customer.	FICUS database will provide the appropriate access level to the administrator.	FICUS security will provide the protection needed, with this no trespasser can log in the database.
3	The customer will choose Manage Profile from the menu.	The administrator will choose Forum from the menu	The guest will only be allowed to view the main menu or choose view the forum.
4	Based on the privilege access on FICUS the customer will be able to perform the following functions view the forum, or modify and delete their post in the forum.	Based on the privilege access on FICUS the administrator will be able to view, modify or delete any given post in the forum.	

The Customer will chose from a menu one of the following cases to:

- View – to view any forum content.
- Post - to add any topic or post to the forum board.
- Edit- to modify any topic or posted message on the forum board.

Note: Only logged users will be able to browse restricted sections of the forum.



2.3 User Characteristics

The following table (**Table 2.14**) describes the level of experience, technical expertise and environment FICUS users should have:

Table 2.14 Recommended user characteristics and level of expertise

User	Environment	Level of Experience	Technical Expertise
Administrator	Constant	High or medium	<ul style="list-style-type: none">• Moderate computer and Internet operations• Webpage management and browsing• Forum management• Business knowledge• Profile management• E-business knowledge
Customer	Occasional	Medium or low	<ul style="list-style-type: none">• Basic computer and Internet operations• Forum operations• Profile management• E-business knowledge• Webpage browsing
Guest	Occasional	Medium or low	<ul style="list-style-type: none">• Basic computer and Internet operations• Webpage browsing

User Level of Experience (**Table 2.14 Reference**)

- **High** – Programmers, administrators, advance Internet users
- **Medium** – Managers, trainers, costumers, Internet frequent user, E-business knowledge
- **Low** – New Internet users, basic or no knowledge on E-business or profile management



2.4 Constraints

The designing of this product is made by the consideration of different limitations or constraints that affect or limit the creativity or path FICUS would take to its realization. The following table (**Table 2.15**) describes the limitations and constraints considerate by JJFN Group:

Table 2.15 Description of the constraints that can limit FICUS and how they affect

Constraint	Description	Influence
Internet Connection	<ul style="list-style-type: none">• User doesn't have an ISP• ISP server is down or on maintenance• Low bandwidth	FICUS depends completely of an Internet connection. If the user doesn't have a proper connection, the application wouldn't work as efficient as expected.
Administration	<ul style="list-style-type: none">• No constant maintenance of the site• Improper supervision• Improper use of privileges	There are some functions or tasks FICUS can't execute by it. Administrators should be constant on the site management. Administrators have to maintain a high ethical manifestation on public content.
System Resources	Hardware requirements for the web browser Inefficient web browser design	FICUS depends of a reliable web browser. If the computer hardware doesn't fulfill the web browser specify requirements, it could malfunction and not work properly. If the web browser design is inefficient, some web pages resources wouldn't be available.
E-Business Legal Issues	Copywriting and publishing is a reflection of how the business is viewed to the rest of the world	It could have long lasting negative business consequences for the that cannot be easily repaired
Intellectual Property	There are potential areas for revealing trade secrets or intellectual property if proper B2B ethical behavior is not followed	It will become more difficult to figure out who you can trust online; with all the unethical, illegal, and Internet marketing and online advertising frauds and E-business email scams



Constraint	Description	Influence
Web Application Security (WAS)	Avoid inadvertent release of confidential or sensitive information, comply with regulatory mandates, minimize risks to users and the institution and ensure the availability of critical applications.	Hacking techniques such as hidden field manipulation, parameter tampering, and cookie poisoning can be easily deployed, resulting in stolen customer data, denial of services, and the complete shut-down of the site.
Interface to Web Browsers	FICUS depends of a Web Browser for its execution	Without a Web Browser the Web Application will not start

2.5 Assumptions and Dependencies

FICUS is intended to be use on Puerto Rico and United States territories, where regulation laws of Web Security and business are a standard, although it can be used worldwide with various adaptations of language and user preferences customization, which are provided by the Content Management System (CMS) and optional computer software component, or add-ons, that significantly enhances the functionality of Joomla, once it is installed. The language of the software interface is English, with an understandable vocabulary for the users. It requires the user to know Basic English and with Web vocabulary.

Users must have a computer system with a web browser. FICUS depends heavily of the Web Browser the users have installed. If the computer does not fulfill the web browser's requirements or a good ISP the product would not work as intended. This product also depends on the constant maintenance of the user assign as Administrator. If the business urges that this product fulfill any of the explained assumptions or dependencies, changes must be made on this design.

2.6 Apportioning of Requirements

FICUS is designed on consideration of the business requirements. It'll be completed, at least the basic and priority functions and requirements. The remaining requirements will be completed after the first version of the application. The following table (**Table 2.16**) lists the remaining business requirements for FICUS and when are they going to be implemented:



Table 2.16 Explains the business requirement that will be implemented after product delivered

Pending Requirement	Implementation
An extension of the online store, where Customers can order health products and trainer accessories	1 month after product delivered
A live chat, that Customers can use to communicate with Administrators for registration or payment assistant	2 months after product delivered
A module where Customers can calculate their progress on the gym, by entering a log of their weekly weight, this module also suggest routines and diets base on the results and physical condition	5 months after product delivered
A live cam, where Customers can register on online courses and take the aerobics routines and courses through the video feed, live. It requires hardware implementation of cams and servers on the location	12 months after product delivered
A radio station where customers can listen to workout music while they do their routine	12 months after product delivered

3. Specific Requirements

FICUS will grant customers of L.O. Classic Gym access to their online personal account. This online account will let the member's login or register to the gym web page. This WebApp will use a stack of free software's and open source Linux, Apache, MySQL and PHP, also known as LAMP applications, used to run dynamic web page or server. Also the forum board will be created using ccBoard, a Joomla extension that contains components, modules, and plug-ins for Joomla, version 1.5.

Customers will be able to Add/View forum messages, manage their subscriptions, and schedule courses. Also they will create profiles that will help them related with others, to create a friendly Social Network. Administrators will have extra privileges to maintain the web page up-to-date like, adding news, courses, deleting courses and managing the forum by closing post or removing unwanted post. The following table (**Table 3.1**) specifies the requirements of the web page users:

Table 3.1 User's Access Levels and Requirements

Function	Access Level	Requirements
Manage Accounts	Administrator	Administrators have highly secured access to any account content will be granted to the administrator enabling him to modify it. It can also
	Customer	



Function	Access Level	Requirements
		cancel memberships if desired. Customers access to their account content enabling them to modify it or cancel.
Manage Forum	Administrator	Highly secured access to the administrator only will allow him to manages forum content, post or edits messages and ban users.
Post News and Events	Administrator	Highly secured access to the administrator only will allow him to manage content of the main page, upload pictures, update calendars, news, offers and events.
Schedule Courses	Administrator	Highly secured access to the administrator only will allow him to schedule new courses or delete courses offered by the business.
Manage Profile	Administrator Customer	Secure access to both users will be available granting them the ability to manage and edit only their profile content. Highly secured access to the administrator only, will allow him to edit any profile content on any user profile.
Manage Subscriptions	Administrator Customers	Secure access to both users will be available granting them the ability to manage, edit, cancel and/or pay their selected subscriptions. Administrators will be allowed to edit any customer subscriptions.
View/Post Forum	Administrator Customer Guest	Grant access to all users enabling them to View the forum. Enable only the customers and administrators to post on the forum.

3.1 External Interfaces

3.1.1 User Interfaces

This application will have a web interface. Therefore all the functionality of the application will be accessed via the mouse or the keyboard. Below are some screenshots of the FICUS interface. From the tab menu on the website all of the main functions of the application can be accessed. Once the user is logged different types of security will be displayed. Based on the different types of security the application will display different functions and screens.

- **Administrators** - will be able manage users accounts
- **Customers** - needs to register first
- **Guest** - a visitor that can view unlocked content



3.1.2 Hardware Interfaces

FICUS doesn't require any hardware interfaces. As specified in section 2.1.3. FICUS will only require the standard computer components (keyboard, mouse and monitor) and Internet connection.

3.1.3 Software Interfaces

FICUS backend runs on an Apache server which is running on a Linux server. Although it can run on different versions of Linux it is recommended that the version specified on this SRS should be used. The database will also run on the same server as the web server and MySQL will be used as the preferred database. Joomla! will also be used on the backend server to administer the content and the database. It is also highly recommended that the latest version of Linux, Apache and MySQL are used.

3.1.4 Communications Interfaces

This application will use HTTP to manage all non sensitive information traffic and will use https to manage the sensitive information of the customers. A secure certificate will be needed to establish a secure connection to the server.

3.1.5 Memory Constraints

There are no specific memory constraints for FICUS. As it uses the user Web Browser the requirements will be the memory requirements of the operating system and the requirements of the Web Browser.

3.2 Functions

Users will manage content and access WebApp information through various functions that provides the data path that the system will ride. It's a series of algorithms that guides through a secure path the data. The following Activity Diagrams on figures (Figure 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, and 3.11) describes the activity path that FICUS will take. The tables (Table 3.1 and Table 3.2) below the figure 3.8 specify the description of the activity diagrams.



ACTIVITY DIAGRAM: Administrator General Diagram

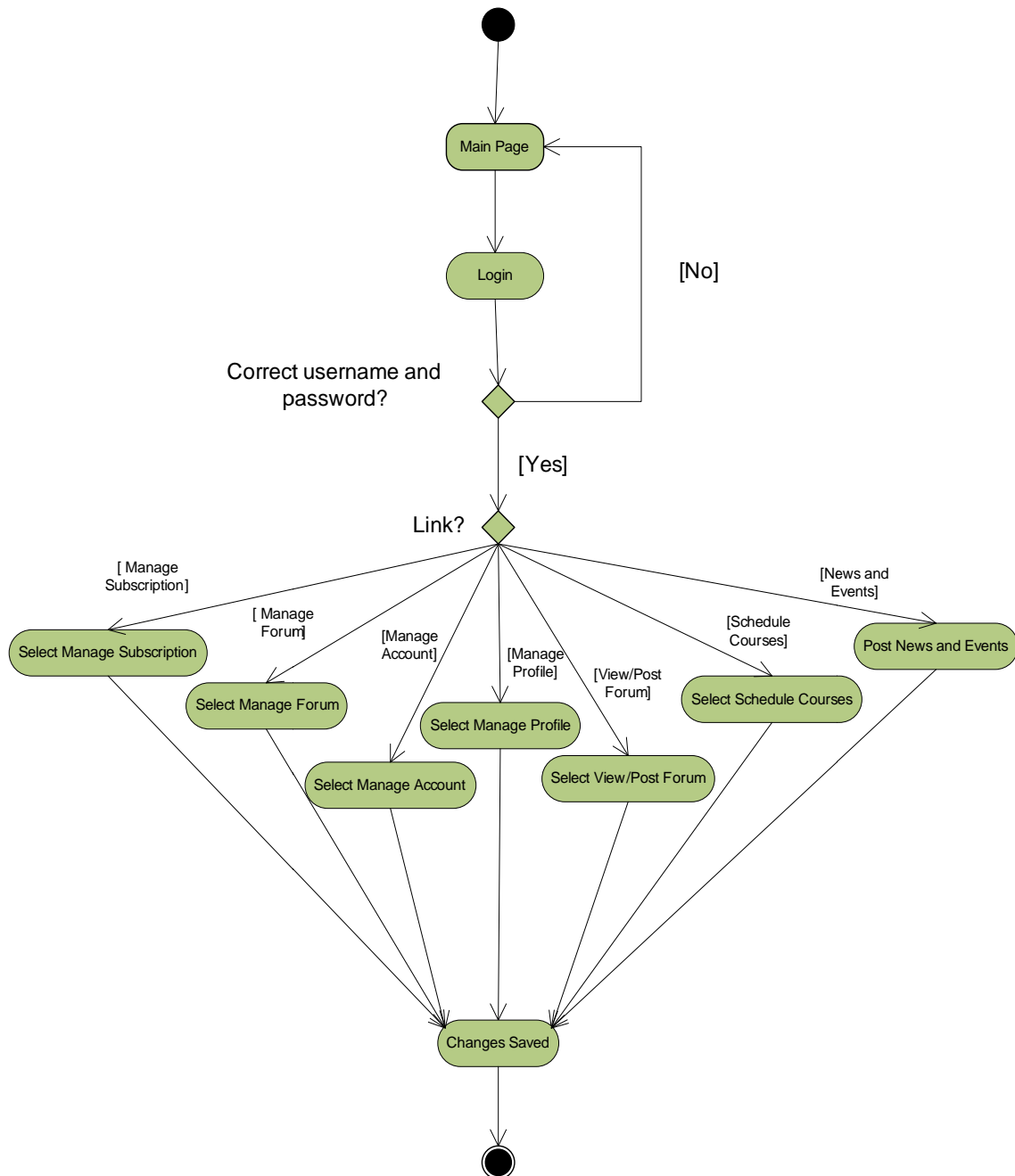


Figure 3.1 Administrator General Diagram



ACTIVITY DIAGRAM: Customers General Diagram

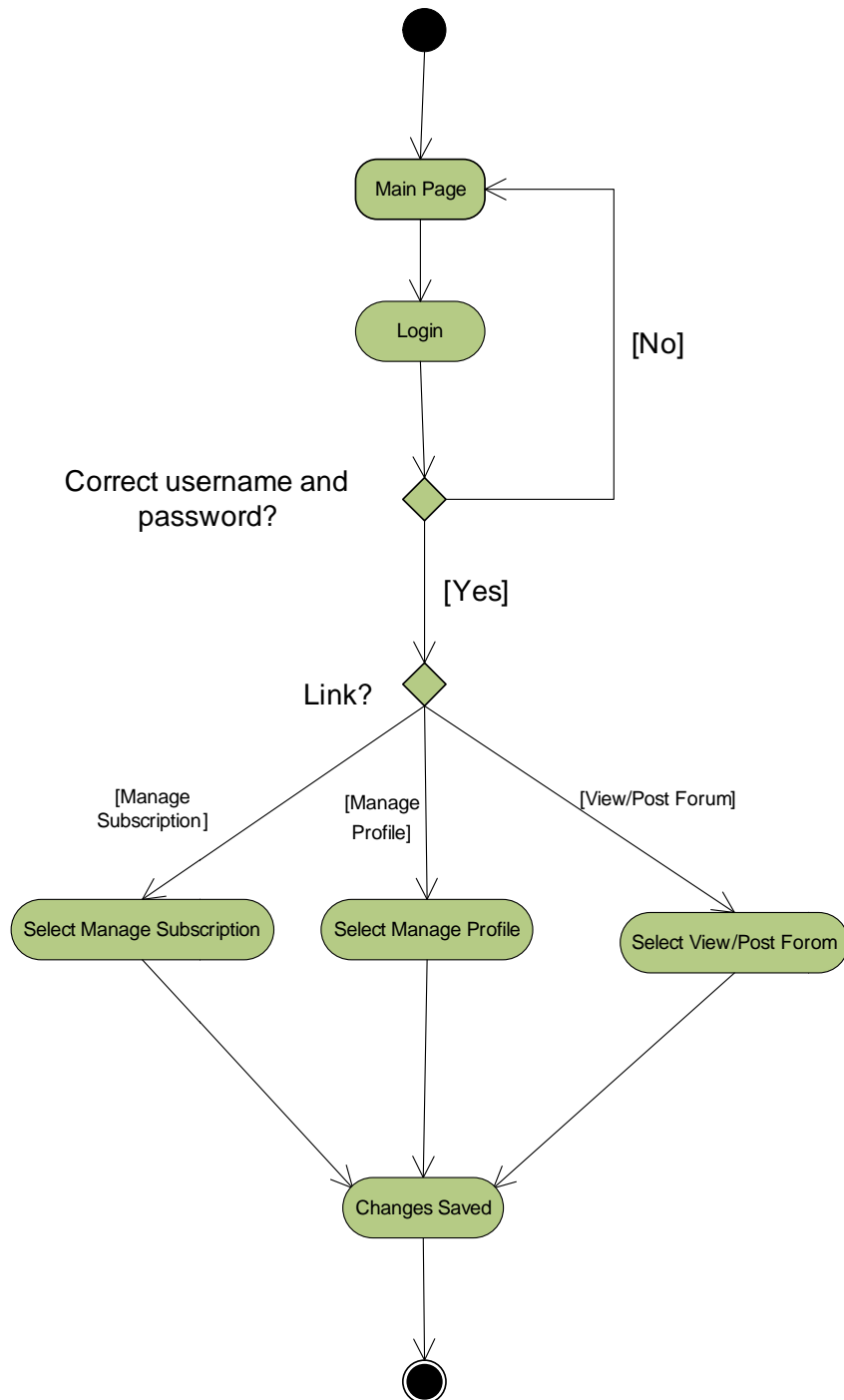


Figure 3.2 Customers General Diagram



ACTIVITY DIAGRAM: Guest General Diagram

Figure 3.3 Guest General Diagram



ACTIVITY DIAGRAM: Login Function

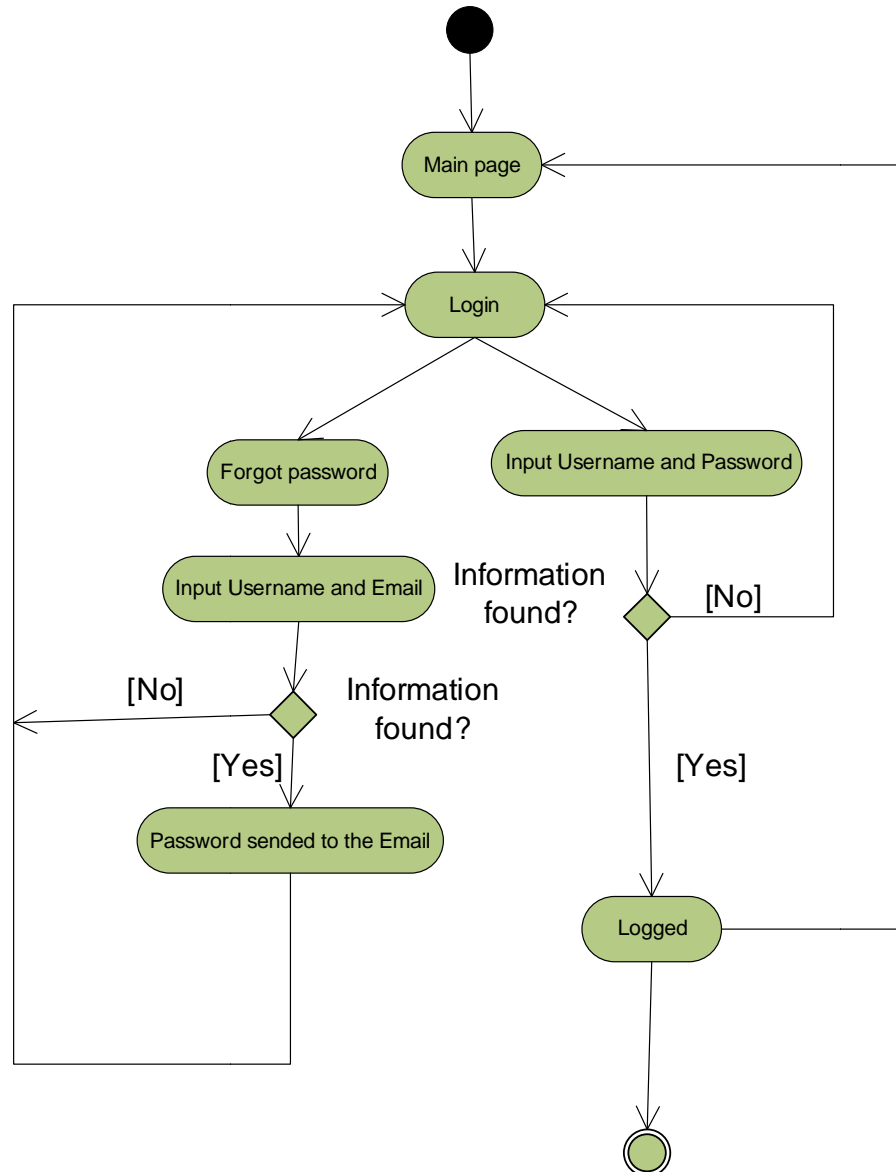


Figure 3.4 Activity diagram for Login function



ACTIVITY DIAGRAM: Manage Subscription

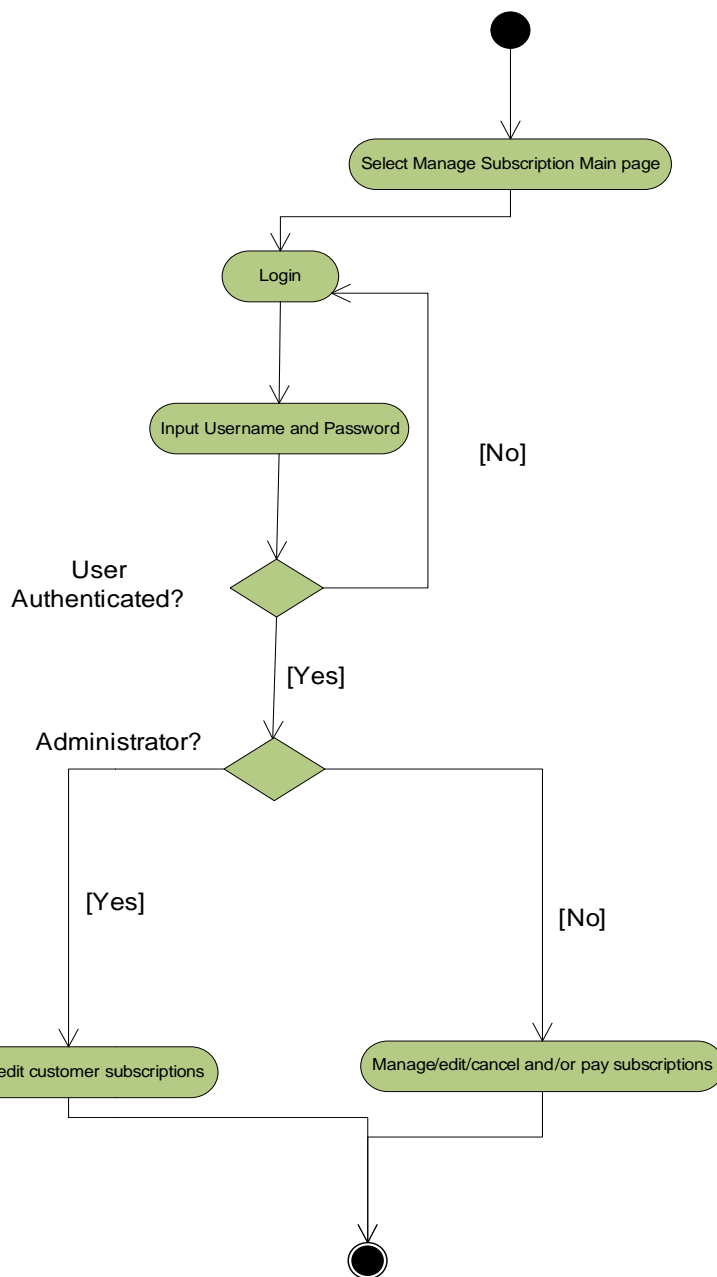


Figure 3.5 Activity diagram for Manage Subscription function



ACTIVITY DIAGRAM: Manage Account

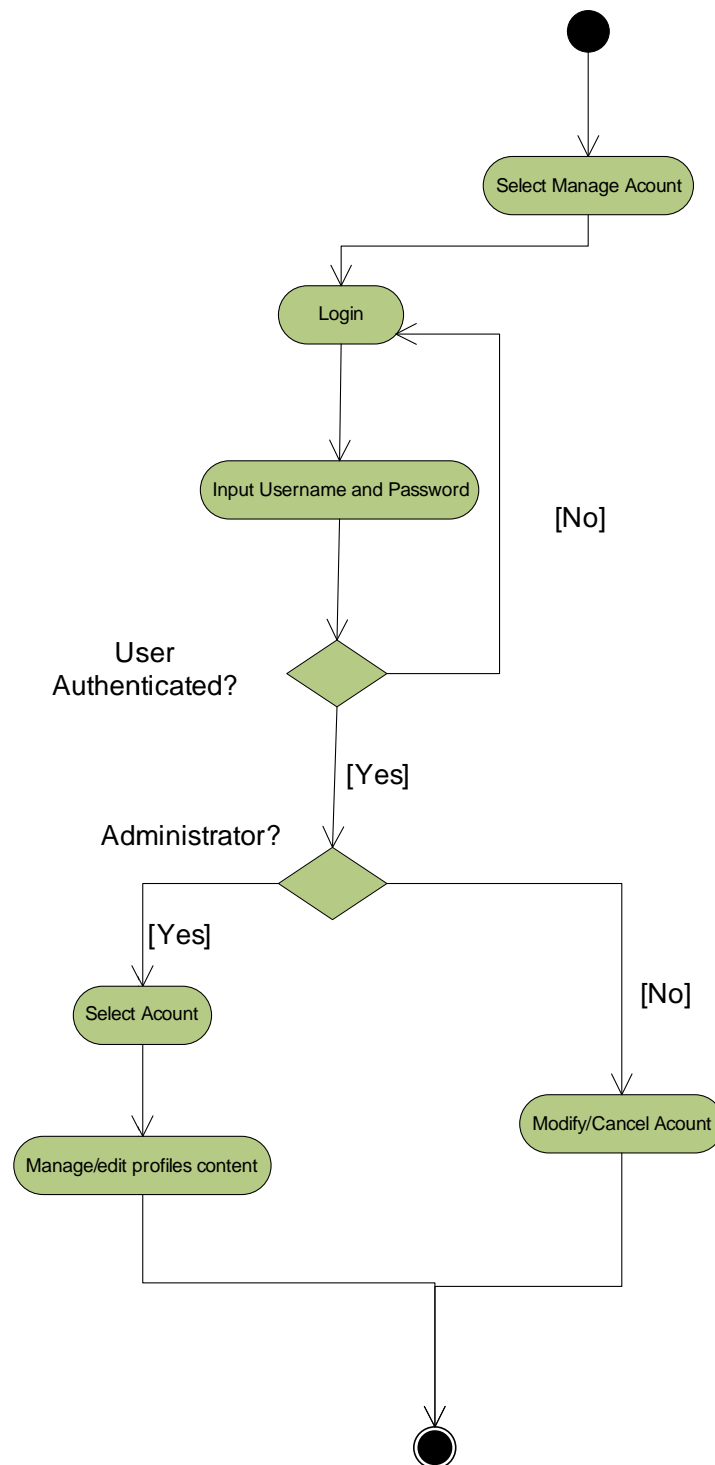


Figure 3.6 Activity diagram for Manage Account function



ACTIVITY DIAGRAM: Manage Forum

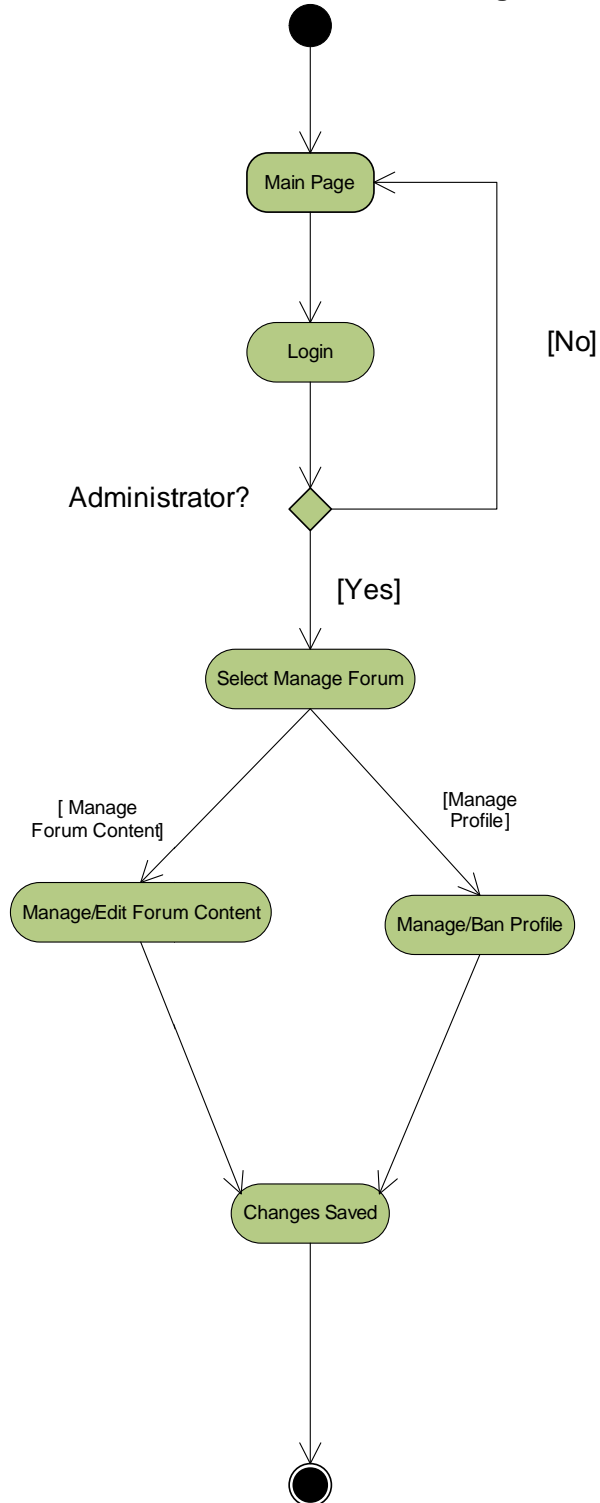


Figure 3.7 Activity diagram for Manage Forum function



ACTIVITY DIAGRAM: Post News and Events

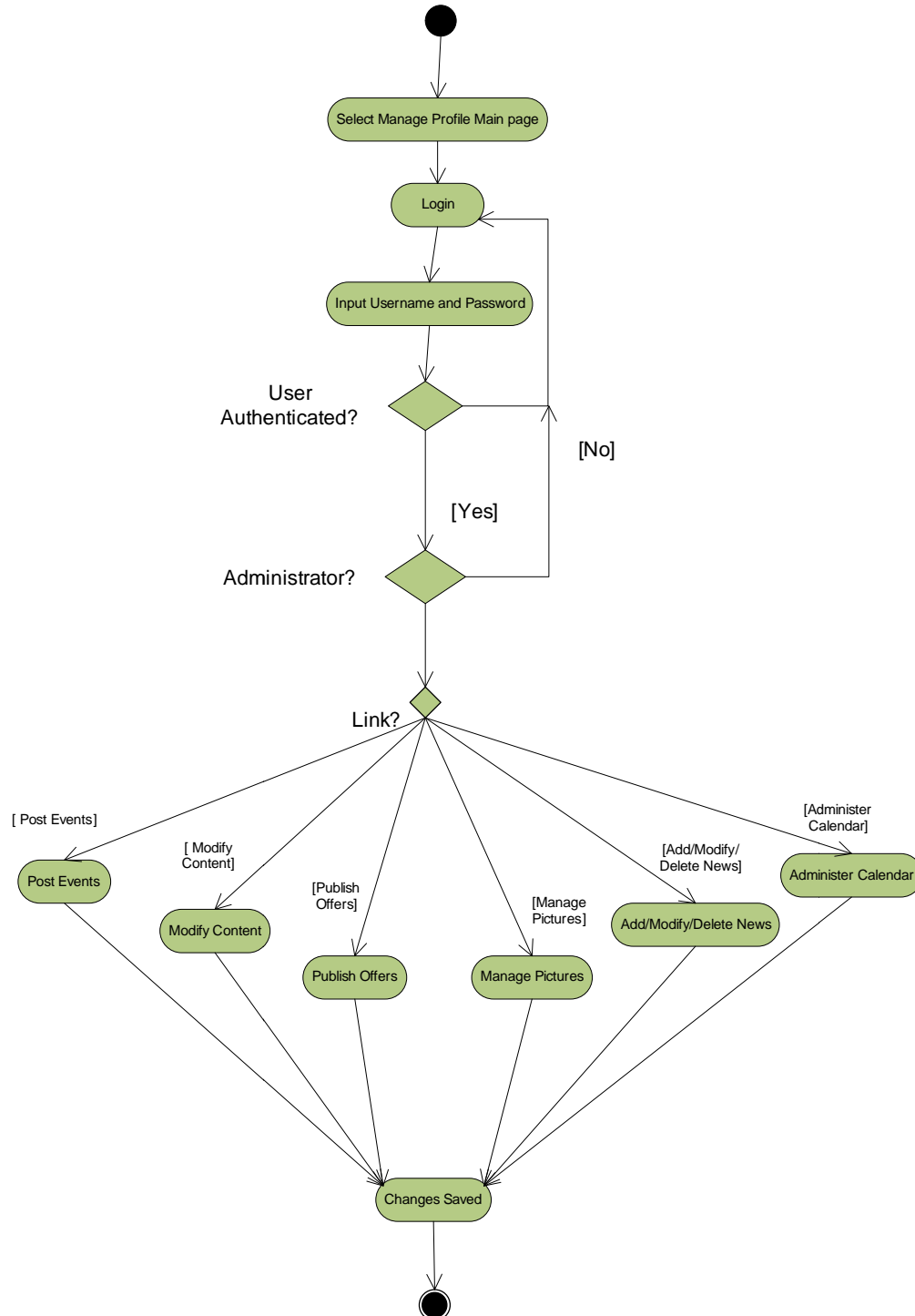


Figure 3.8 Activity diagram for Post News and Events function



ACTIVITY DIAGRAM: Forum Users

Figure 3.9 Activity diagram for Forum Users function



ACTIVITY DIAGRAM: Scheduled Courses

Figure 3.10 Activity diagram for Scheduled Courses function



ACTIVITY DIAGRAM: Forum Validation

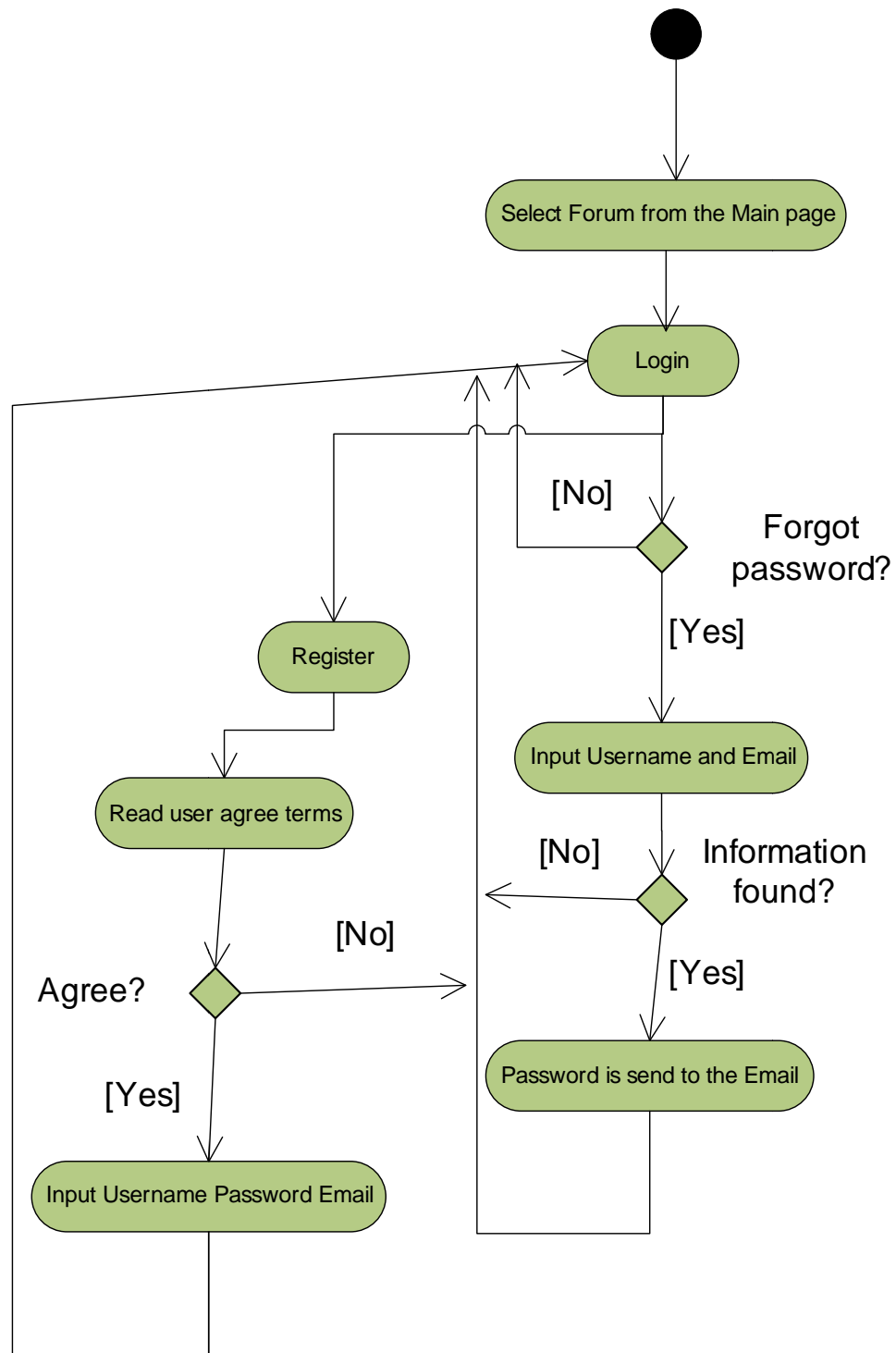


Figure 3.11 Activity diagram for Forum Validation function



Table 3.2 General Diagram descriptions

Activity Diagrams	Access Level	Step-By-Step Description
General Diagram (Figure 3.1)	Administrator	<ol style="list-style-type: none">1. The user enter FICUS main page.2. The user select from main menu login function.3. User inserts the username and password.4. FICUS will provide high security to verify if the information is correct.5. FICUS will provide the appropriate access level to the user.6. The administrator can choose one of the following functions: manage account, manage profile, manage forum, manage subscription, schedule courses, view/post forum, post news and events.
General Diagram (Figure 3.2)	Customer	<ol style="list-style-type: none">1. The user enter FICUS main page.2. The user select from main menu login function.3. User inserts the username and password.4. FICUS will provide high security to verify if the information is correct.5. FICUS will provide the appropriate access level to the user.6. The Customer can choose one of the following functions: manage profile, manage subscription, view/post forum.
General Diagram (Figure 3.3)	Guest	<ol style="list-style-type: none">1. The guest will only be allowed to view the main menu or choose view the forum.



Table 3.3 Step-by-Step Function descriptions

Function	Access Level	Step-By-Step Description
Login (Figure 3.4)	Administrator Customer	<ol style="list-style-type: none">1. The user enter FICUS main page.2. The user select from main menu login function.3. User insert the username and password4. FICUS will provide high security to verify if the information is correct.5. FICUS will provide the appropriate access level to the user.6. If information incorrect send the user back to login menu with notification. <p>In addition Forgot password.</p> <ol style="list-style-type: none">1. User select forgot password from login menu.2. User inserts the username and email.3. FICUS will provide high security to verify if the information is correct.4. FICUS will send the information to the user email.5. Send the user back to the login menu
Manage Accounts (Figure 3.5)	Administrator	<ol style="list-style-type: none">1. The user logs on to FICUS.2. FICUS will provide the appropriate access level to the user.3. The user will choose Manage Accounts from the menu.4. Based on the privilege access on FICUS the user will be able to perform the following functions.5. The Administrator will be able to view, add, ban, modify or cancel a subscription. .
	Customer	<ol style="list-style-type: none">1. The user log on to FICUS.2. FICUS will provide the appropriate access level to the user.3. The user will choose Manage Accounts from the menu.4. Based on the privilege access on FICUS the user will be able to perform the following functions.5. The customer can browse through the membership details and modify it as needed.
Manage Forum (Figure 3.6)	Administrator	<ol style="list-style-type: none">1. The user log on to FICUS.2. FICUS will provide the appropriate access level to the user.3. The user will choose Manage Forum from the menu.4. The Administrator will:<ol style="list-style-type: none">a. Manage/Edit - any topic or posted message on the forum board.b. Ban - to ban a user if required.



Function	Access Level	Step-By-Step Description
Post News and Events (Figure 3.7)	Administrator	<ol style="list-style-type: none"> 1. The user log on to FICUS. 2. FICUS will provide high security to verify if the information is correct. 3. If information incorrect send the user back to login menu with notification. 4. FICUS will provide the appropriate access level to the user. 5. The Administrator can take the following actions: <ol style="list-style-type: none"> a. Post events b. Modify content c. Publish offers d. Manage pictures e. Add/modify/delete new f. Administer calendar
Schedule Courses (Figure 3.8)	Administrator	<ol style="list-style-type: none"> 1. The user enters FICUS main page. 2. The user log on to FICUS. 3. FICUS will provide high security to verify if the information is correct. 4. If information incorrect send the user back to login menu with notification. 5. The user will choose Courses from the menu. 6. The Administrator will go to: Add or Modify/Delete. 7. If add new courses that will be available on the web page is selected, user needs to enter course information 8. Verify all the data entry 9. If all data its correct add course else send back to enter course information. 10. If modify/delete published course is selected 11. User needs to select the course 12. User decide to modify or delete 13. If modify user must enter course data 14. Verify all the data entry 15. If all data its correct add course else send back to enter course information. 16. If delete, user select course and remove it.



Function	Access Level	Step-By-Step Description
Manage Profile (Figure 3.9)	Administrator Customer	<ol style="list-style-type: none">1. The user will choose Profile from the menu and log on to FICUS.2. FICUS will provide the appropriate access level to the user.3. Based on the privilege access on FICUS the user will be able to perform the following functions.<ol style="list-style-type: none">a. Administrator – The Administrator will be able to view, modify or delete details from any given user.b. Customer – The customers can browse through their profile details and modify them as needed.
Manage Subscriptions (Figure 3.10)	Administrator Customers	<ol style="list-style-type: none">1. The user will choose Manage Subscriptions from the menu.2. The user log on to FICUS.3. FICUS will provide the appropriate access level to the user.4. Based on the privilege access on FICUS the user will be able to perform the following functions.<ol style="list-style-type: none">a. Administrator – The Administrator will be able to view, modify or delete any given user subscription.b. Customer – The customers can browse through the courses, enroll, drop or also pay for any enrolled course.
View/Post Forum (Figure 3.12)	Administrator Customer Guest	<ol style="list-style-type: none">1. The user enter FICUS main page.2. The user select from main menu forum.3. The user can browse the posts on the forum as guest.4. In order to post a message the users need to log into FICUS forum.5. User insert the username and password6. FICUS will provide high security to verify if the information is correct.7. FICUS will provide the appropriate access level to the user.8. If information is incorrect user is sent back to login menu with notification.9. Once logged the user will be able to view, post or edit post on forum.



3.3 Performance Requirements

3.3.1 Browser

It is recommended that the user have the latest version of the browser; older browsers might not compile the website as expected. If the user is not the administrator of the PC that is using, there might be restrictions to the browser that he/she cannot manage, although they can be done by their systems administrator.

3.3.2 Browser's Plug-ins

It is recommended that the user have installed the latest version of common browser's plug-ins such as Adobe's Flash Player, Adobe's Shockwave Player, and Sun's Java technology. Some functions of this plug-ins might be needed on the site by launch or later.

3.4 Logical Database Requirements

For the database we are using, MySQL, compatible 100% with the CMS FICUS it is using. Every extension installed on Joomla will create tables and will read/write on them information. The database contains tables for user information/contents, extensions, modules and all that is in need of the database. Every extension has capabilities to read from the database and has the rights to modify if necessary. The database will be constantly in use, because it will store every configuration and content of the site. L.O. Classic Gym requirements and FICUS infrastructure helps describes and design FICUS database.

L.O. Classic Gym management requires designated information for their documentations. The government requires them to provide name, sex, address, birthdates and telephones, for communications purpose. For account creation FICUS requires for each user a username, password, and email, The system will relate the FICUS accounts with customers memberships through customer's ID. FICUS also store information of the courses the customers are subscribed. Forum providers require us an account number for authentication with the message board service. FICUS will also maintain a list for courses. The following Entity Relation Diagram (ERD), sections 3.4.1 through 3.4.9 describes critical phases on the database design, and how this requirements helps create a fully functional database.

3.4.1 Phase 1 (Entities)

Entities determine the primary content of the database. Due to L.O. Classic Gym and FICUS specific requirements it is determine that the main content tables on FICUS Database, which are for a) **Customer**, b) **Account**, c) **Subscriptions**, d) **Courses** and e) **Forum**.



3.4.2 Phase 2 (Relation Matrix)

Entity tables create relations which unify the database on a complete systems. Due to L.O. Classic Gym and FICUS specific requirements, it is understood that Customer relates to Account, Account relates to Forum, while Courses are related to Account through Subscriptions. The following table, **Table 3.4**, describes relations between FICUS database entities.

Table 3.3 Describe Database Entity Relations

	Customer	Account	Subscriptions	Courses	Forum
Customer		Specify by			
Account	Specifies		Subscriber		Login
Subscriptions		Subscriber		Subscribe to	
Courses			Subscribe to	Subscribes	
Forum		Login			

3.4.3 Phase 3 (ERD First Draft)

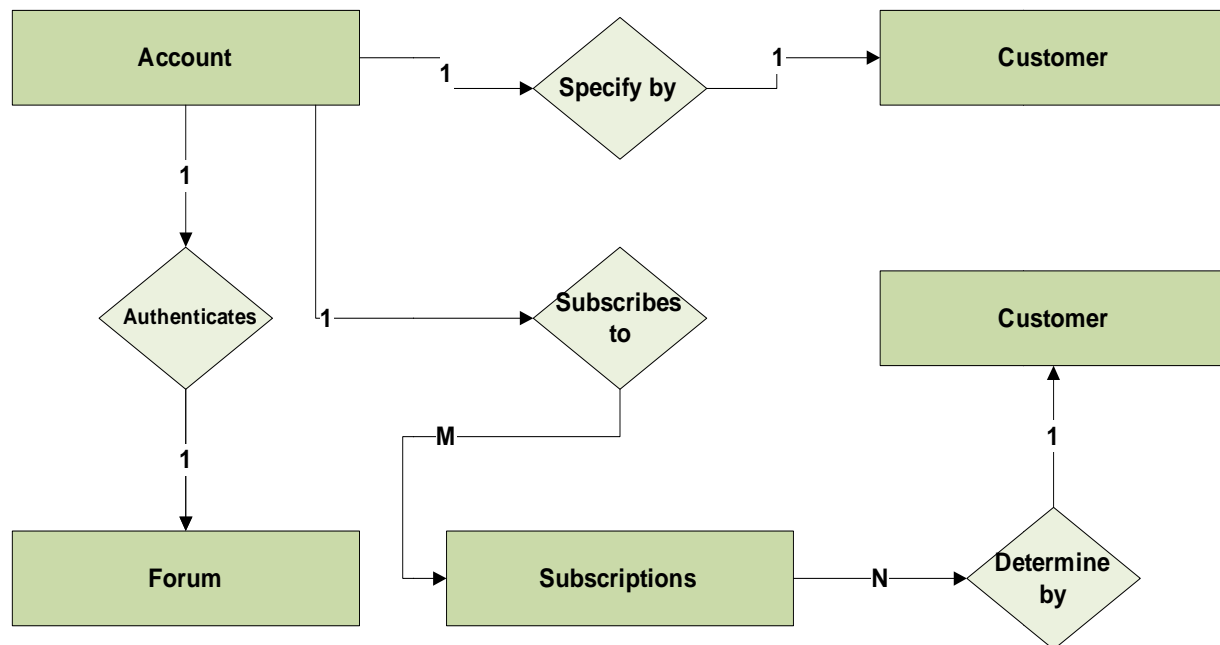


Figure 3.0.10 ERD First Draft, which shows relations between entities



3.4.4 Phase 4 (Cardinality)

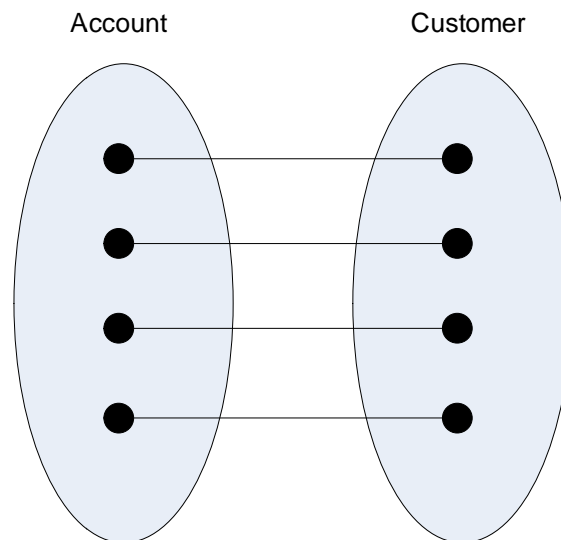


Figure 3.11 Cardinality diagram for one-one Account-Customer relation

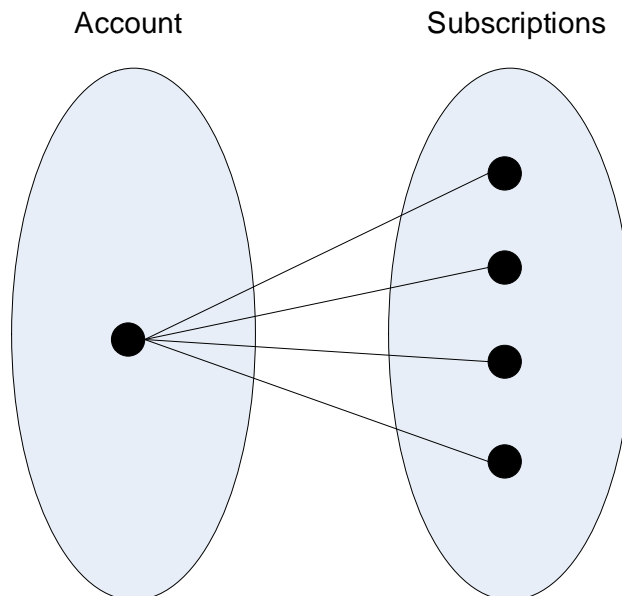


Figure 3.12 Cardinality diagram for one-many Account-Subscription relation

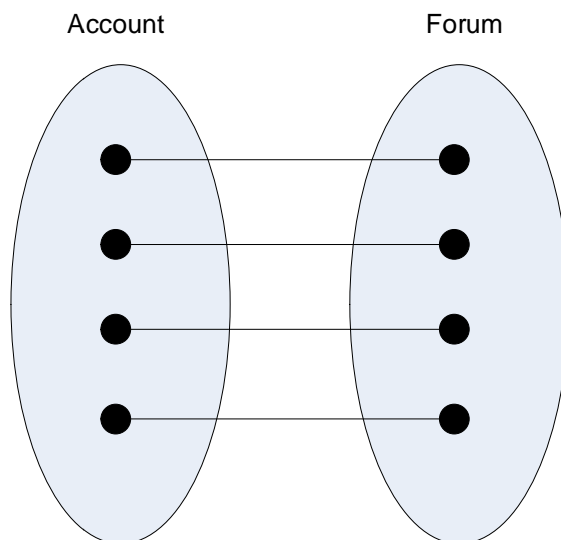


Figure 3.13 Cardinality diagram for one-one Account-Forum relation

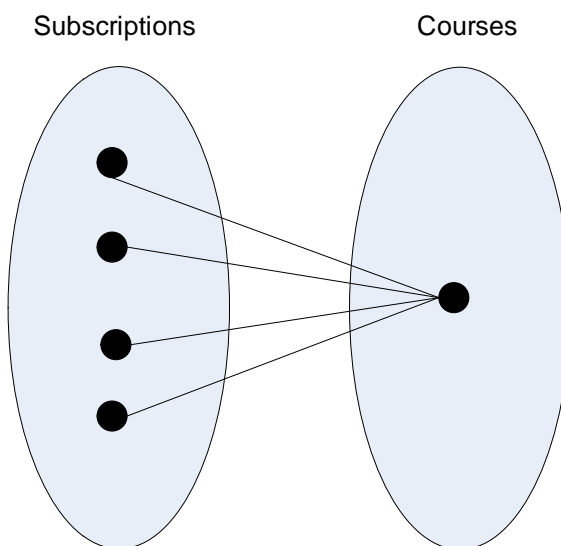


Figure 3.14 Cardinality diagram for many-one Subscription-Courses relation



3.4.5 Phase 6 (ERD Draft with Primary Keys)

3.4.6 Phase 8 (Attributes Mapping)

Department	Employee	Project	Dependent
<u>dnumber</u>	<u>ssn</u>	<u>pnumber</u>	<u>essn</u>
dname	name	pname	<u>dependentname</u>
mgrssn	bdate	plocation	sex
mgrstardate	sex	dnum	bdate
	address		relationship
	dno		
	superssn		
	salary		
	class		

DeptLocation	WorksOn
<u>dnumber</u>	<u>essn</u>
<u>dlocation</u>	<u>pno</u>
	hours



The diagram illustrates the following tables and their attributes:

- DeptLocation**: dnumber, dlocation
- Department**: dnumber, dname, mgrssn, mgrstartdate
- Employee**: ssn, name, bdate, sex, address, dno, superssn, salary, class
- WorksOn**: essn, pno, hours
- Project**: pnumber, pname, plocation, dnum
- Dependent**: dependentname, essn, sex, bdate, relationship

Relationships are indicated by lines with cardinalities:

- DeptLocation** (1) to **Department** (1): 1:1 relationship.
- Employee** (1) to **Department** (1): 1:1 relationship.
- Employee** (1) to **WorksOn** (M): 1:M relationship.
- Employee** (M) to **Dependent** (M): M:M relationship.
- WorksOn** (N) to **Project** (1): N:1 relationship.

Figure 3.9 MySQL Database example for Joomla



3.5 Design constrains

FICUS will be working and depending on Open Source software; Joomla, MySQL, APACHE and Linux. Joomla will run additional software called extensions that are also Open Source running on the GNU General Public License (GPL). As we are working on open sourced software most of them aren't as developed as proprietary software. If client requires a specific function that the software in used doesn't have, it might have to be program from scratch or ordered to proprietary software.

3.6 Software System Attributes

3.6.1 Reliability

At the time of delivery the software will be completed. It will provide a powerful tool for any gym. The gym will provide a new kind of experience to its present and future clients. By the time of delivery it will be tested in various ways to test its reliability. It will be tested on bandwidth, user capabilities, user content, speed, and the amount of information it can handle.

3.6.2 Availability

The system will be available twenty four hours, the seven days of the week (24/7). Gym managers will need to host its site on a very reliable server. We will recommend before the time of delivery very different choices and decide with the client which one is the best for the business. Most of these hosting companies have support 24/7 therefore the site will be running always, except on scheduled maintenance. The support for the gym's site will be available only in the gym's working hours.

3.6.3 Security

The software will handle some delicate information; therefore, its security is one the biggest priority. All delicate information of the user is encrypted in the database. By delicate information we mean user password, credit card, etc. Joomla is tested every day for every security hole and on the system maintenance the software will be contently updated as necessary. Also the server where the system is hosted might need to be secured, at this moment most of the hosting companies provide a very good security for its clients. Guests will require registering to access most of the site; we require registration for the site security and surveillance.

3.6.4 Maintainability

The client might need to contract a person to manage the website, when the five (5) years support contract finish, JJFN Group will provide constant support and maintenance as needed. The back-end interface is user friendly and documentation will be provided to the client at the time of delivery.

3.6.5 Portability

FICUS will be running 24/7 on the web, and can be accessed by any operating system that has a web browser and internet connection. Users will only need their username, and password to access, from any



computer, the application. Therefore, portability of this WebApp is worldwide, through the Internet.

3.7 Performance

On this software is highly efficient. With a fast internet connection and a modern computer, the page will display in, approximately, three (3) seconds. The page can be seen by as many users as the server support at a time, from hundred and fifty (150) through two-hundred and fifty (250).

4. Change Management Process

JJFN Group is always open for new ideas and concepts. If the client wish to modify any of the information on this design or wish to add or implement new modules and requirements on the future, please call or send us an e-mail to the following:

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d) José H. Torres Torres

P: (787) 586-9897

E: torres_43645@students.pupr.edu



5. Document Approvals

All parts should sign this document if approve as part of the contract. Sign as proof that you read and agree with the content on this document.

Luis Ortiz
President of L.O. Classic Gym

Signature: _____

Francis J. Hayes Vélez
Art CEO / Programmer / Computer Engineer

Signature: _____

José M. Lecumberry Jimenez
Design CEO / Programmer / Senior Computer Engineer

Signature: _____

Norberto R. Reyes Díaz
Marketing CEO/ Programmer / Computer Engineer

Signature: _____

Jose H. Torres Torres
Conceptual CEO/ Programmer / Computer Engineer

Signature: _____



6. Index (Tables and Figures)

Table 1.1 Definitions	9
Table 1.2 Acronyms	12
Table 1.3 Abbreviations	12
Figure 2.1 Describes the use-cases of the mayor functional areas and interactions	13
Figure 2.2 Administrators homepage login interface, for a live preview visit http://ficus.xtilos.com	15
Figure 2.3 Administrators Create Account interface	16
Figure 2.4 Administrators Courses interface.....	16
Figure 2.5 Administrators Subscriptions interface	17
Figure 2.6 Administrators Create Profile interface.....	17
Figure 2.7 Administrators Forum interface.....	18
Figure 2.8 Administrators Management Menu interface	18
Figure 2.9 Administrators Forum Manager interface	19
Figure 2.10 Administrator User Manager Interface.....	19
Figure 2.11 Administrator File Manager interface.....	20
Figure 2.12 Customers homepage login interface, for a live preview visit http://ficus.xtilos.com	20
Figure 2.13 Customer Create Account interface	21
Figure 2.14 Customers Courses interface	21
Figure 2.15 Customers Subscriptions interface	22
Figure 2.16 Customers Create /View Profile interface.....	22
Figure 2.17 Customers Forum interface	23
Figure 2.18 Guest homepage login interface, for a live preview visit http://ficus.xtilos.com	23
Figure 2.19 Guest Request Registration Account interface.....	24
Figure 2.20 Guest Courses interface	24
Figure 2.21 Guest Subscriptions interface.....	25
Figure 2.22 Guest Forum interface	25
Table 2.1 Software Interfaces based on the most frequently used web browsers	26
Table 2.2 Product function access levels and descriptions.	27
Figure 2.25 Guest functions. (Use Case Diagram).....	29
Figure 2.26 Use Case diagram for function Manage Accounts	30
Table 2.3 Function flow, normal and exceptions.....	30
Figure 2.27 Use Case diagram for function Manage Accounts	31
Table 2.4 Function flow, normal and exceptions.....	31
Table 2.5 Function flow, normal and exception	32
Table 2.6 Function flow, normal and exceptions.....	33
Table 2.7 Function flow, normal and exceptions	34
Figure 2.31 Use Case diagram for function Manage Profile	35
Table 2.8 Function flow, normal and exceptions	35
Figure 2.32 Use Case diagram for function Manage Profile.....	36
Table 2.9 Function flow, normal and exceptions	36
Figure 2.33 Use Case diagram for function Manage Subscriptions	37
Table 2.10 Function flow, normal and exceptions	37
Figure 2.34 Use Case diagram for function Manage Subscriptions	38
Table 2.11 Function flow, normal and exceptions	38
Table 2.12 Function flow, normal and exceptions	39
Table 2.13 Function flow, normal and exceptions	40
Table 2.15 Description of the constraints that can limit FICUS and how they affect.....	42
Table 3.1 User's Access Levels and Requirements	44
Figure 3.1 Activity diagram for Login function.....	50



Figure 3.2 Activity diagram for Manage Subscription function.....	51
Figure 3.3 Activity diagram for Manage Account function	52
Figure 3.4 Activity diagram for Manage Forum function	53
Figure 3.5 Activity diagram for Post News and Events function	54
Figure 3.6 Activity diagram for Forum Users function.....	55
Figure 3.7 Activity diagram for Scheduled Courses function	56
Figure 3.8 Activity diagram for Forum Validation function	57
Table 3.3 Describe Database Entity Relations	63
Figure 3.0.10 ERD First Draft, which shows relations between entities	63
Figure 3.11 Cardinality diagram for one-one Account-Customer relation	64
Figure 3.12 Cardinality diagram for one-many Account-Subscription relation	64
Figure 3.13 Cardinality diagram for one-one Account-Forum relation.....	65
Figure 3.14 Cardinality diagram for many-one Subscription-Courses relation	65
Figure 3.9 MySQL Database example for Joomla.....	67

