The Development of a Web-based Content Management System for Business Organizations

by

Nurhayati Binti Abdul Razak

Dissertation submitted in partial fulfillment of
the requirements for the
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Bandar Seri Iskandar

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

**The Development of a Web-based Content Management System for Business
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A project dissertation submitted to the
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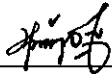(INFORMATION TECHNOLOGY)

Approved:

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(En. Khairul Shafee Kalid)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

June 2005

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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NURHAYATI BTE ABDUL RAZAK

ABSTRACT

This project describes the importance of content management system (CMS) to be used by any business organization to provide more dynamic content to attract and retain customers. The study analyzes the best features of content management system (CMS) can offer to the users and also ensure that the final product will cover both content availability and content quality including credibility, usability and utility. The analysis covers the use of content management system (CMS) in the internet web of a business organization for web publishing rather than to emphasize the usage of content management system (CMS) in the government website. This project will go through five (5) phases which includes Planning Phase, Analysis Phase, Design Phase, Development Phase, and Testing Phase. Findings from research have shown that there are literally hundreds of content management systems (CMS) in the marketplace at present, with having various capabilities and strengths for each of them. Perhaps that there is much more content management system (CMS), which provided by the vendors will completely ensure both the content availability and content quality. Finally, by having this applied research and system development project, hopefully it can create a better content management system (CMS) with additional features provided appropriately for any business organization that promote their products through website in supporting the creation and management of content in a collaborative environment.

ACKNOWLEDGEMENT

Bismillah Ar-Rahmani Ar-Raheem

In the Name of Allah, The Most Compassionate, the Most Merciful

In order to complete this report, I have been doing researches over internet and reading materials over content management system. in this The Development of a Web-based Content Management System for Business Organizations project, I would like to thank:

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ABBREVIATIONS AND NOMENCLATURES

CMS   :   Content Management System

CMA   :   Content Management Application

CDA   :   Content Delivery Application

WYSIWYG   :   What You See Is What You Get

CHAPTER 1

INTRODUCTION

1. INTRODUCTION

Recently, organizations are flooded with content, but that content does not become information and information does not turn into knowledge unless someone knows it is there, can get to it with minimal pain, and can repurpose it by creating new information from existing content. Essentially web-based media is one of the most important items a company has if it uses the internet to promote its image and products, and engage in electronic commerce. The content of the web site defines the corporate image and its presence to customers, employees, business partners, and distributors of its products. The accuracy of the information that is present is crucial to the way viewers perceive the company and its services. For this reasons, it is important for any business organization have their own effective approach to create and manage their content to be presented to the audiences.

1.1   Background of Study

The modern content management system (CMS) was invented in 1996 by c|net, the Internet news publishing company. The basic idea behind content management system (CMS) is to separate the management of content from design. This system (CMS) supports the creation, management, distribution, publishing, and discovery of corporate information. It covers the complete lifecycle of the pages on the site, from providing simple tools to create the content, through to publishing, and finally to archiving. It also provides the ability to manage the structure of the site, the appearance of the published pages, and the navigation provided to the users.

A content management system (CMS) typically contains two primary elements, which are the content management application (CMA) and the content delivery application (CDA). The CMA is a web interface that manages the creation, modification, and removal of content from a website. The information entered in the CMA will be stored in a database suitable for the amount of content and traffic the website will receive. The CDA compiles the page template and the dynamic content (the information entered through the CMS) and delivers it as a normal web page. The transfer from CMA to the content database happens immediately upon the submission of new content. Thus, the users could obtain the latest information from the web site in almost real-time.

1.1.1   Content Management

Content management is a vast challenge for every organization that offers information to customers, employees, vendors, and partners. To be useful and to meet the expectations of a huge number of different users, content must be

- Easy to find
- Accurate, up-to-date and continuously refreshed
- Complete enough for user's needs
- Well organized for quick search and retrieval
- Readable in the right languages
- Linked to other relevant content
- Targeted to each person's needs and levels of experience and knowledge

Furthermore, content management is about organizing, categorizing, and structuring information resources so that they can be stored, retrieved, published and reused in multiple ways.

1.2 Problem Statement

- Content needs to be stored many times because there has difficulties in reusing it in multiple times.
- It should go through a long process to get feedback or approval from multiple levels of managers because all the collected feedback is done manually without a system.
- Difficult to keep track what are the changes should be modified assigned by multiple levels of managers.

1.2.1 Problem Identification

Nowadays, contents are very important to any business organization, although for a small business organization. This means that contents are very important for all types of business organization not considering the size of the business itself. Most of the business organization that uses internet as their approach to promote their products and corporate image, can not maintain in providing accurate, up-to-date and comprehensive information to the viewers and customers. This is because they are not considering in using any productive approach to manage and use all the contents in systematic ways. By using manual activities to create a content at a time, which should go through multiple stages such as creating, followed by editing, approving, editing again for certain changes, approval by other managers until it comes to the publish stage, these steps will certainly take a long time to make the content writer to wait until the content life cycle is complete and the content posted to the website to be viewed by the customers and outsiders. Without a system that can manage the content life cycle processes, there always have some issue about reusing the content to create a new type of content. Some content can be lost if there is no archiving functionality and this can be a problem to the content writer to make a content that can be created based on the previous content. It should go the same processes again and this will increase the cost of time.

1.2.2 Significant of the Project

- **Improve information accuracy.** The overall quality of the information is to be improved. All pages should be accurate, frequently up-to-date, and comprehensive.

- **Reduce duplication of information.** Duplication of information across business units and platforms increases maintenance costs and error rates. Wherever possible, information should be stored once, and reused multiple times.

- **Improve customer experience.** The CMS should enhance the ability to provide a full-featured, rich environment for website visitors. This will include enhancements to the quality of the site, and the ease of use.

- **Reduce customer support costs.** Customer support requirements should be reduced, by providing more accurate and comprehensive information to customers.

- **Reduce publishing costs.** Many business manuals are still produced in paper form. Direct cost savings would be realized by replacing these with online resources.

1.3 Objectives and Scope of Study

The objective of this project is to enable the content writer, the reviewer and also the author to create and publish new content to the web site without requiring technical skills for all. It also has the aim to create a simple and easy-to-use-web-based content management system (CMS). It has to integrate well with the database in order to make the content management system (CMS) achieves the content availability and content quality.

The scope of this project is to study on the best requirement features a content management system (CMS) should have. This content management system (CMS) has the feature of overall process between the processes of submitting the content into an

approval process and having it posted to the web. Furthermore, this project intend to build an approval process or workflow functionality, which can be as simple as a link that emails new content to a single person for review, or a full-fledged web-based workflow process that includes multiple approvers and roles. By using this content management system (CMS), a site can be updated on a regular basis without having to go through long process. Besides that, it also has scheduling functionality to automatically publish or remove content at a predetermined date or time.

1.3.1 The Relevancy of the Project

This project is relevant to the organization that handle business information online and serving their customer via the technology. As more companies expand globally to serve new markets or to conduct business online with partners overseas, the need is growing for web sites, and their associated content, which are multilingual. A whole subset of content systems, called globalization software, has sprung up in the past year or two to support the needs of international E-commerce. The purpose of the content management project is likely to include ensuring the content is up-to-date and accurate, improve the effectiveness of the site, reduce duplication of content and improve content management processes.

1.3.2 Feasibility of the Project within the Scope and Time Frame

This project is focus on the organization that has requirement to communicate information to a wide audience and has rich-content to be delivered. A content management system (CMS) requires active involvement from authors that create contents, such as content writers, marketing people or public relation people. Reviewers checking content also involves in this project and last but not least is the end users who reading the content such as consumer or outsiders. This project will take fourteen (14) weeks starting from Jan 2005 until May 2005.

CHAPTER 2

LITERATURE REVIEW

2. LITERATURE REVIEW

2.1   The Importance of Content Management System

From the findings that have been gathered through multiple journals, content management system (CMS) would be valuable to anyone who has large quantities of content that need to be published and kept up-to-date online, whether they are news sites, e-commerce sites (e.g. Amazon.com), or corporate intranets. [1] It is important for an organization to maintain its credibility and also sales that it can gain from the complete and up-to-date information on the Web site. [3] The content management system (CMS) actually does not write good content, but it does clear away most of the clutter that distract the content writer from the task of writing good content. [1] Furthermore, it is increasingly necessary and useful for producing web sites to help standardized the look, feel and delivery of content on the site. CMS also able to handle the addition of new types of content to the site, handle new types of documents, change the templates, extends the database and add new types of permissions and work-flow rules. It is an application that the end-user can customize. [2] This system will save employees time for example that the employees able to spend 97 percent of the time on the 3 percent of information they need, and not spend 80 percent of their time looking for the 20 percent they need. [3] Besides, content management system (CMS) can automate the workflow processes required to develop, store and disseminate information from start to finish. [4] As stated by Tim Jenkins, [5] content management system (CMS) addresses the issues of inconsistency in business communications. Information may have differing versions depending on the distribution channels, or when the information was created. From all the finding information, it will be conclude that the importance of a content management system (CMS) is that it is used to collect, manage, and publish content, storing the content either as components or whole documents, while

maintaining dynamic links between components.

2.2 Features and Benefits of Content Management System

Larsen [6], in his article, acknowledged about the basic features and advanced features of content management system. The features of a basic content management system include:

- Content separated from design
- Management of content can be done by the content experts
- Content is stored in a repository
- Prior versions tracked functionality
- Locking functionality
- Granular security control
- Audit trails

Besides that, many content management systems have advanced features such as:

- Approval process (workflow)
- Search functionality
- Scheduling
- Syndication
- Multi-lingual support

There are many advantages when a company chooses to use a content management system to manage all their contents. The biggest benefits that an organization can obtain from a well implemented content management system include cost saving resulting from a more efficient content management and publishing process, faster turnaround time on content changes and finally, an improved website experience for the end users. Besides that, CMS actually important for the development and maintenance of a website and this will give many advantages to the users of a CMS in any organization. By using CMS also enable multiple people to submit content for their website. It provides the functionality of publish the content on timely publication and up-to-date information.

The CMS also can manage a large or content-rich website.

2.3   Companies that use the Open source CMS

- **Zope**

One commercial site [18], Boston.com, the web site of the Boston Globe, chose Zope to help them transition from an internally developed CMS. The company worked closely with Zope to develop what resulted in a highly customized version of the open source product. Eric Bauer, information architect at Boston.com says, "They were a big part of our installation. We had to extend the product in ways it hadn't been extended before. I don't think any of the existing Zope installations had our volume in terms of page views, but also in terms of content under management and how much is being changed in the course of a day."

- **eZ Publish**

Farstad [18], says it is precisely this flexibility that attracts companies to open source. Additionally, once you go with a popular open source product, you are not tied to the original developer of the product, making purchasing consulting and services more flexible and competitive. "If you want to make an extension or modification, you do not need to use the one and only vendor, you can use any consultancy company. For eZ publish, there are consultants all over the world specializing in eZ publish. You are free to choose any company with the competency to do the modification," Farstad says.

CHAPTER 3

METHODOLOGY

3. METHODOLOGY

- Planning Phase
  - Define project scope, objectives and problem statement
  - Initial planning for the project
- Analysis Phase
  - Fact-finding methods
    - Observation on the existing CMS features
    - Research on articles that related to CMS
  - Data Modeling and analysis
  - Develop DFD Model for the system
  - Develop ERD Model for database
  - Prioritize all the requirements
- Design phase
  - Design the System database
  - Design the System interface
- Development Phase
- Testing Phase

3.1 Procedure Identification

3.1.1 Planning Phase

The Planning Phase is initial project plan where there is need to plan what are the phases that this project will go through in order to finish and produce the final product. This phase is defining the project scope, the project objectives and also the problem statement.

3.1.2 Analysis Phase

The Analysis Phase is for the information gathering and analysis of all the requirements that needs to be considered for developing the product. This project use the fact-finding methods, which are observation and also research related to CMS. In the analysis phase also included the data modeling development which is Data Flow Diagram (DFD) model for the system and also Entity Relationship Diagram (ERD) for the system database. After the observation has been made, all the collected requirements should be prioritized to define the most important features that should be included in the CMS project.

3.1.3 Design Phase

For the next phase, which is Design Phase, involve with two parts, which are interface design phase and database design phase.

3.1.4 Development Phase

The Development Phase is the next step after the design phase, and it will be based on all the accurate information. This phase include the development of the front-end and back-end of the content management system (CMS). It is also the step for creating all the functionality for this content management system (CMS) Project.

3.1.5 Testing Phase

The last but not least is the Testing Phase where it needs to be done for ensuring that this project will meet all the objectives and also will solve all the problem statement listed.
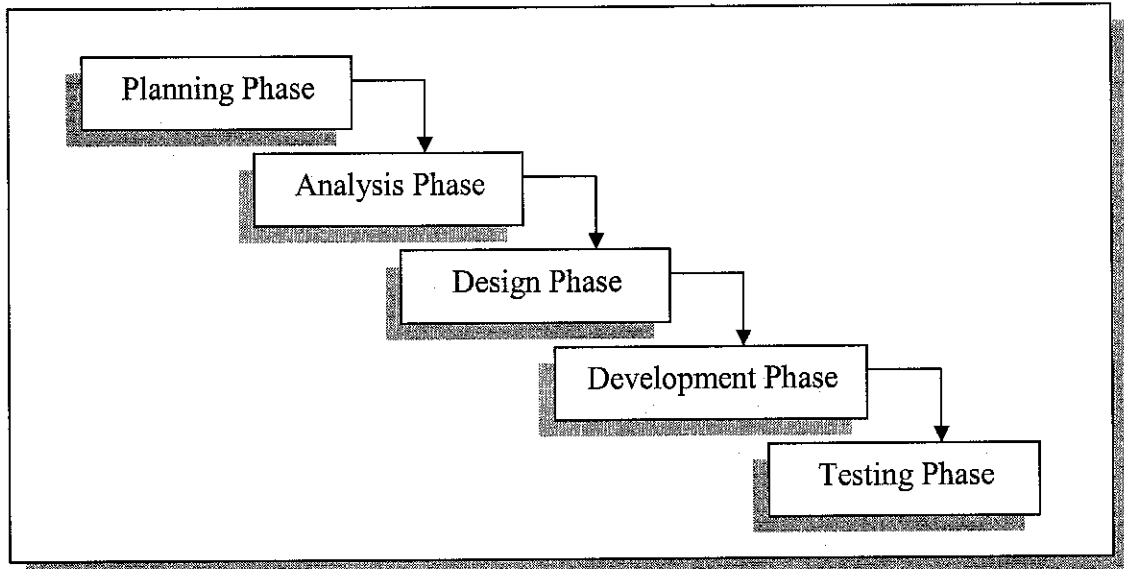
Figure 3.1   Frameworks for Content Management System Project

Figure 3.1 describes the flow of tasks in completing this project. It starts with the Planning Phase, followed by Analysis Phase, Design Phase, Development Phase and the Testing Phase. For this project, the testing Phase is not done because of the time constraints. Furthermore, it will involve the evaluation from companies that do not have content management system to manage and publish their huge content.

3.2   Tools Required

3.2.1   Software

- MySQL Database
- PHP
- Adobe Photoshop 7.0
- Macromedia Dreamweaver MX
- Paint Shop Pro 7
- KTML Lite (Macromedia extension)
- MX Kollection (Macromedia Extension)
- YellowTip webserver

3.2.2   Hardware

- Intel Pentium II processor (or equivalent 300 + MHz processor)
- Internet Connection and Internet Explorer™ 5.5 or newer.
- Microsoft Windows NT, 98 SE, Me, 2000, and XP
- 64 MB RAM

CHAPTER 4

RESULTS AND DISCUSSION

4. RESULTS AND DISCUSSION

4.1   Context Diagram for eZ_CMS
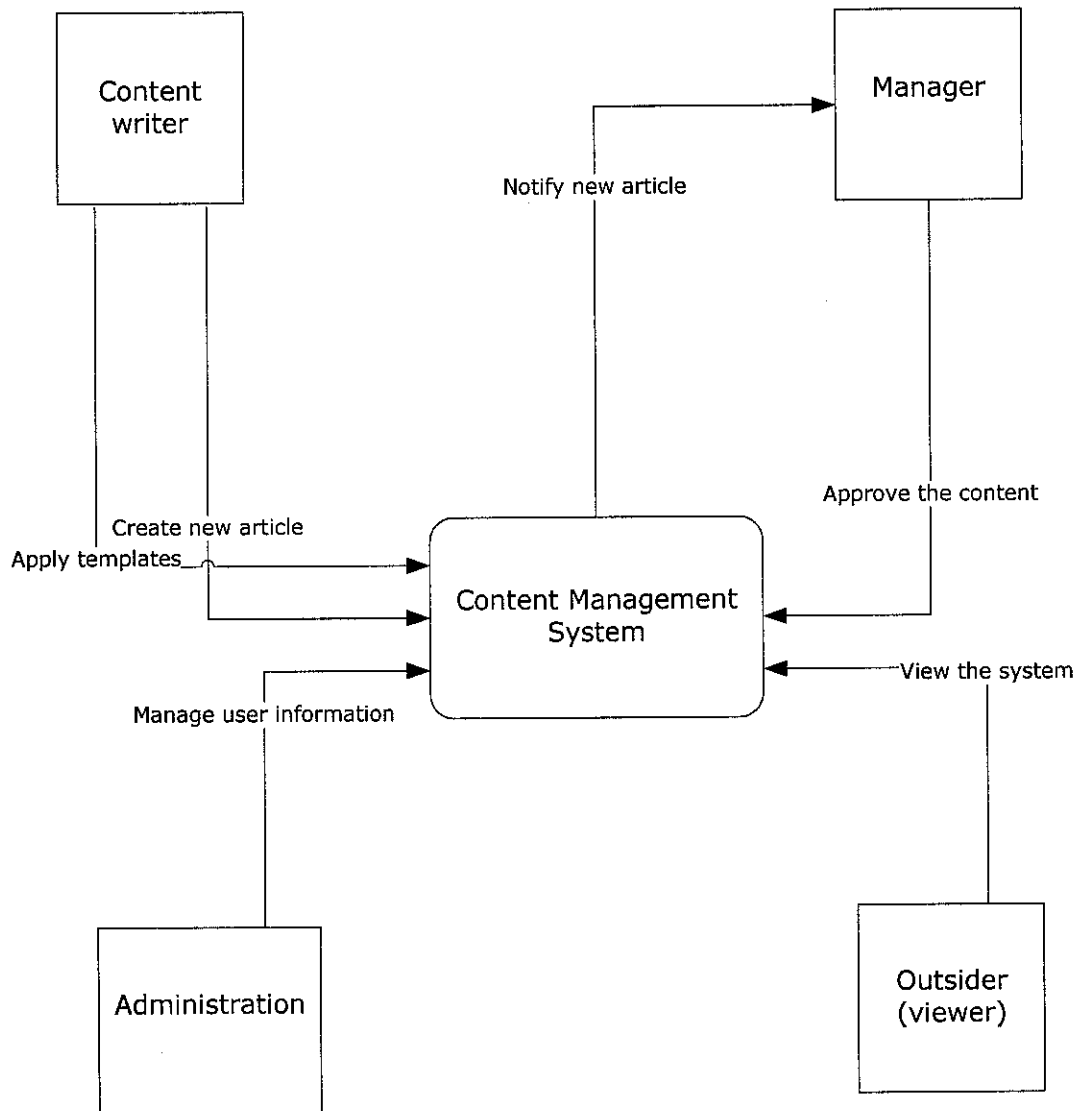
Figure 4.1   Context Diagram

Figure 4.1 shows that there are four entities that connect to the content management system, which are the content writers, managers, administrator and viewers. The content

writers can create a new content through content management system and also apply templates to that content. After the content has been created by the content writers, content management system will notify the new content to the managers, and managers will check the content and finally approved the content to be published to the website. The administrator will manage all the databases and the user information through the content management itself. Then, after the content has been approved by certain managers, it will be published to the website front page to be viewed by the viewers or outsiders.

4.2 Entity Relationship Diagram (ERD)

There are 36 tables of databases that are used in this content management system project. The full Entity Relationship Diagram (ERD) is describes in Figure 4.2. The figure shows the table name and also its relationship with other tables.
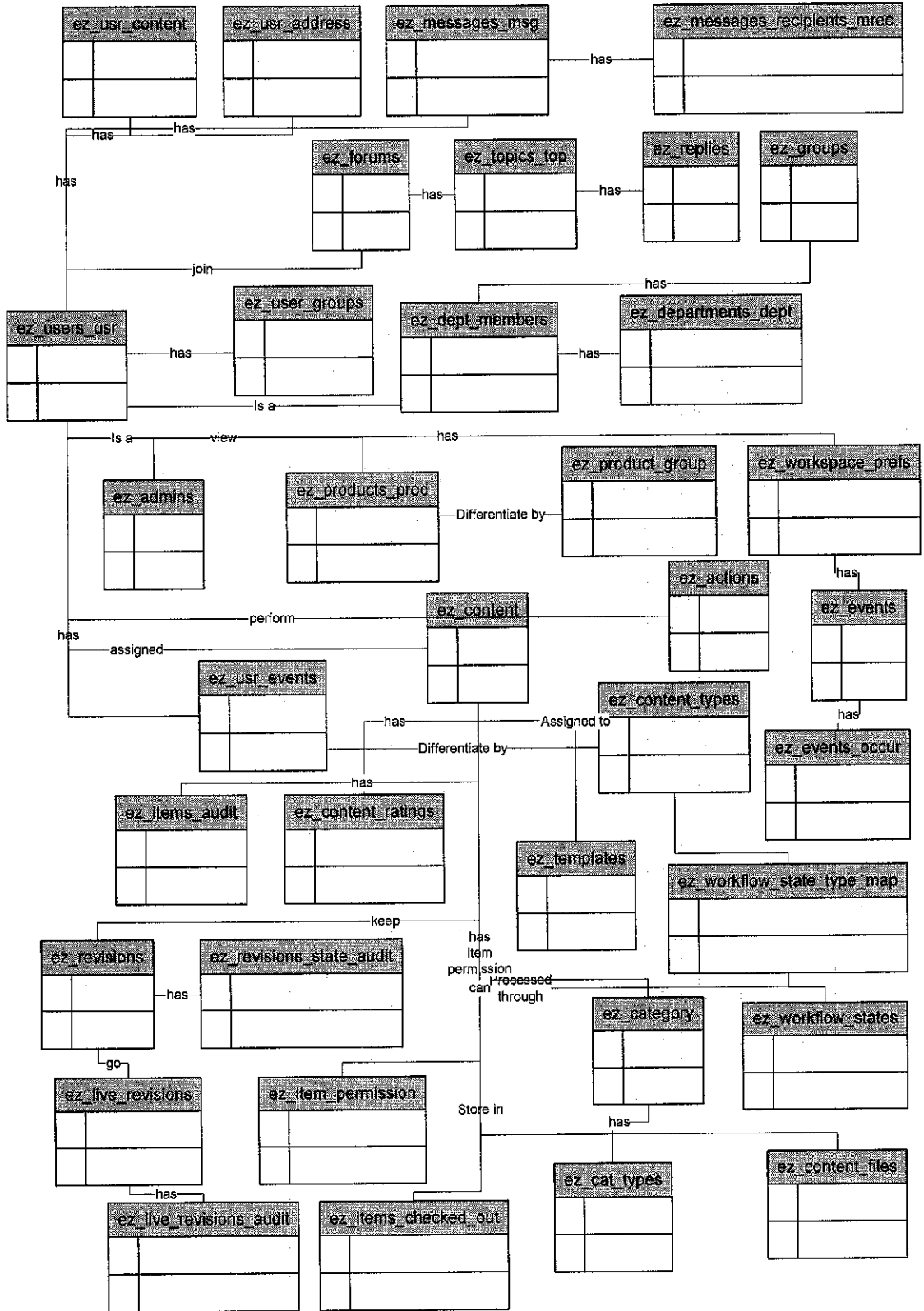
Figure 4.2 Simple Entity Relationship Diagram

15
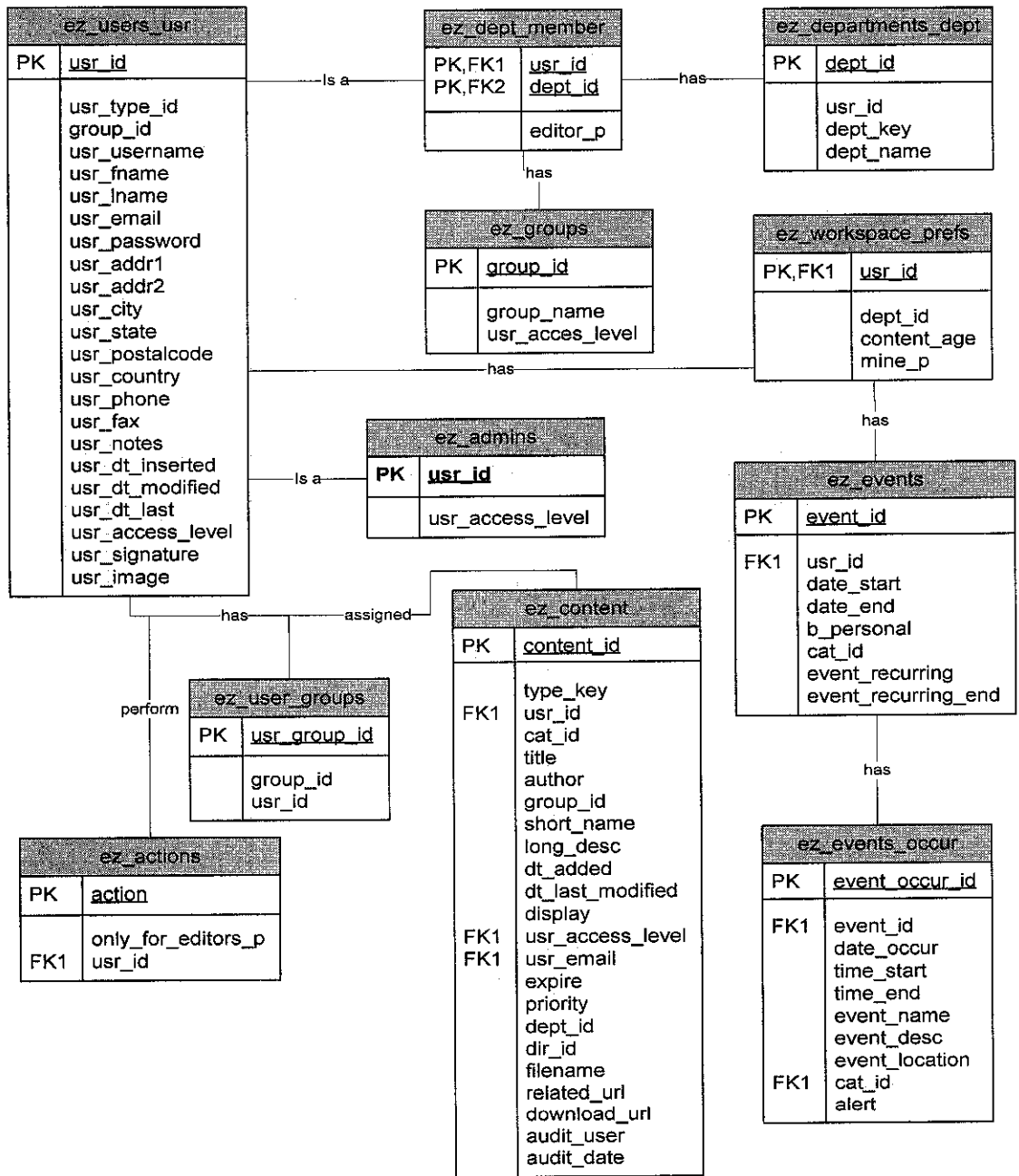
Figure 4.3 Entity Relationship Diagram (Detailed 1)

The detailed of this ERD is described further in Figure 4.3, 4.4, 4.5, and Figure 4.6. Figure 4.3 describes the detailed between the table named ez_users_usr, ez_dept_member, ez_department_dept, ez_groups, ez_workspace_prefs, ez_admins, ez_events, ez_content, ez_user_groups, ez_actions and also ez_events_occur.

ez_users_usr

PK	usr_id
	usr_type_id
	group_id
	usr_username
	usr_fname
	usr_lname
	usr_email
	usr_password
	usr_addr1
	usr_addr2
	usr_city
	usr_state
	usr_postalcode
	usr_country
	usr_phone
	usr_fax
	usr_notes
	usr_dt_inserted
	usr_dt_modified
	usr_dt_last
	usr_access_level
	usr_signature
	usr_image

ez_usr_events

PK	usr_events_id
FK1	usr_id
	id

ez_topics_top

PK	top_id
FK1	forum_id
FK1	usr_id
	last_usr_id
	top_subject
	top_message
	top_dt_added
	top_dt_last
	top_replies
	top_icon
	top_locked
	top_show_signature
	top_notify
	top_views

ez_forums

PK	forum_id
FK1	usr_id
	forum_name
	forum_desc
	forum_level
	forum_section
	topics
	forum_posts
	forum_display_order
	forum_icon

ez_products_prod

| PK	prod_id
	prod_id_name
	cat_id
	group_id
	prod_name
	prod_desc
	prod_long_desc
	prod_thumbnail
	image1
	image2
	seqno
	prod_dt_inserted
	prod_dt_modified
	b_personal
	prod_inserted_by
	prod_modified_by
	prod_display
	prod_dt_start
	prod_dt_end
FK1	usr_id

ez_replies

PK	reply_id
FK1	top_id
FK1	usr_id
	reply_message
	reply_dt_added
	reply_icon
	reply_show_signature
	reply_notify

ez_messages_msg

PK	msg_id
FK1	usr_id
	msg_subject
	msg_messages
	msg_dt_created
	msg_dt_read

ez_product_group

PK	prod_group_id
FK1	prod_id
	prod_group_name
	prod_group_desc
FK1	prod_long_desc
	prompt

ez_usr_address

PK	usr_address_id
FK1	usr_id
FK1	usr_fname
FK1	usr_lname
FK1	usr_email
FK1	usr_addr1
FK1	usr_addr2
FK1	usr_city
FK1	usr_state
FK1	usr_postalcode
FK1	usr_country
FK1	usr_phone
FK1	usr_dt_inserted

ez_usr_content

PK	usr_content_id
FK1	usr_id
	content_id

ez_messages_recipients_mrec

PK	mrec_id
FK1	msg_id
	usr_username

Relationships: has, join, view, has, has, has, has, Differentiate by, has

Figure 4.4   Entity Relationship Diagram (Detailed 2)

Figure 4.4 is detailed number two describing about the table of ez_users_usr, ez_usr_events, ez_topics_top, ez_forums, ez_products_prod, ez_replies, ez_messages_msg, ez_product_group, ez_usr_address, ez_usr_content and ez_messages_recipients_mrec.

ez_users_usr

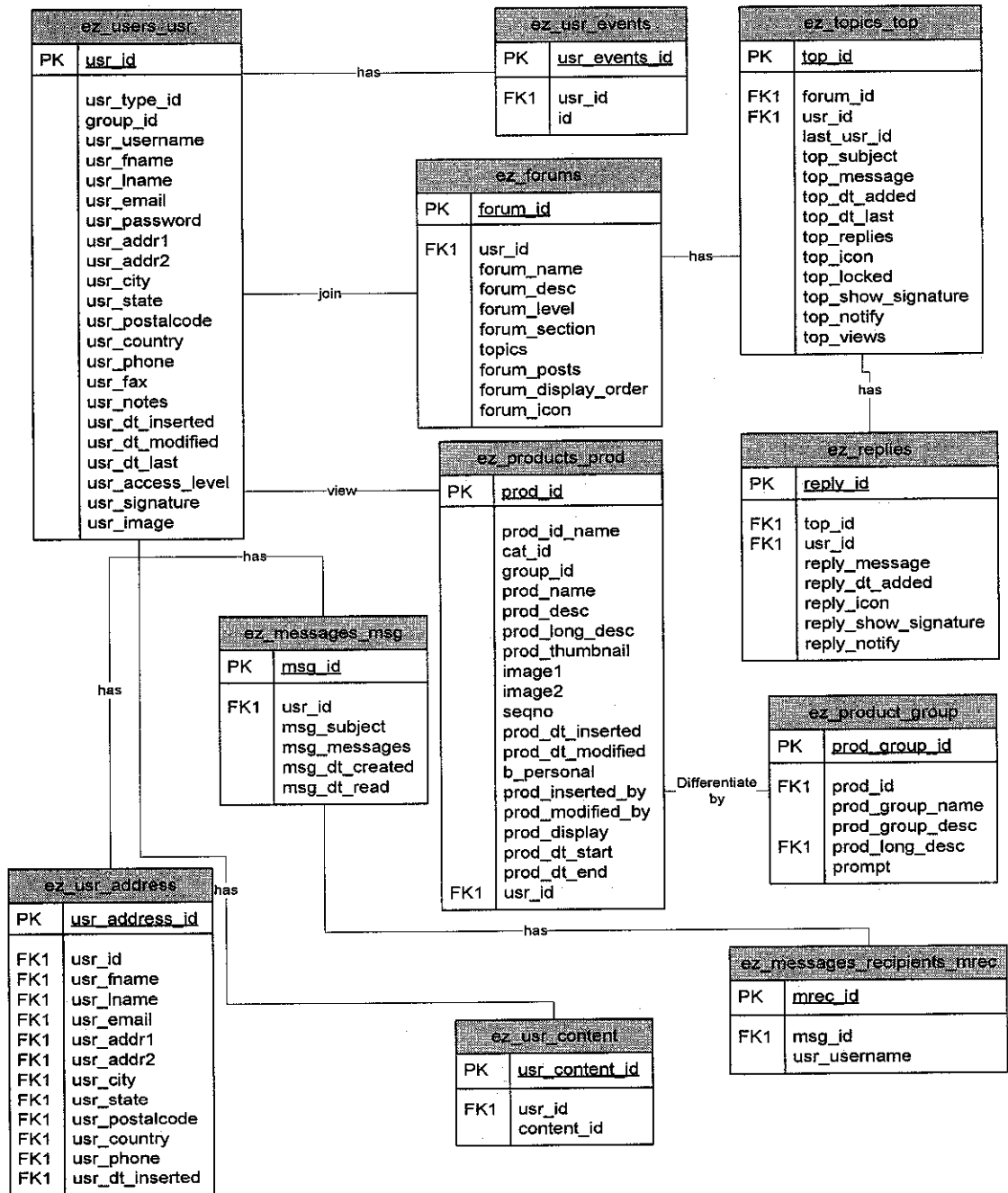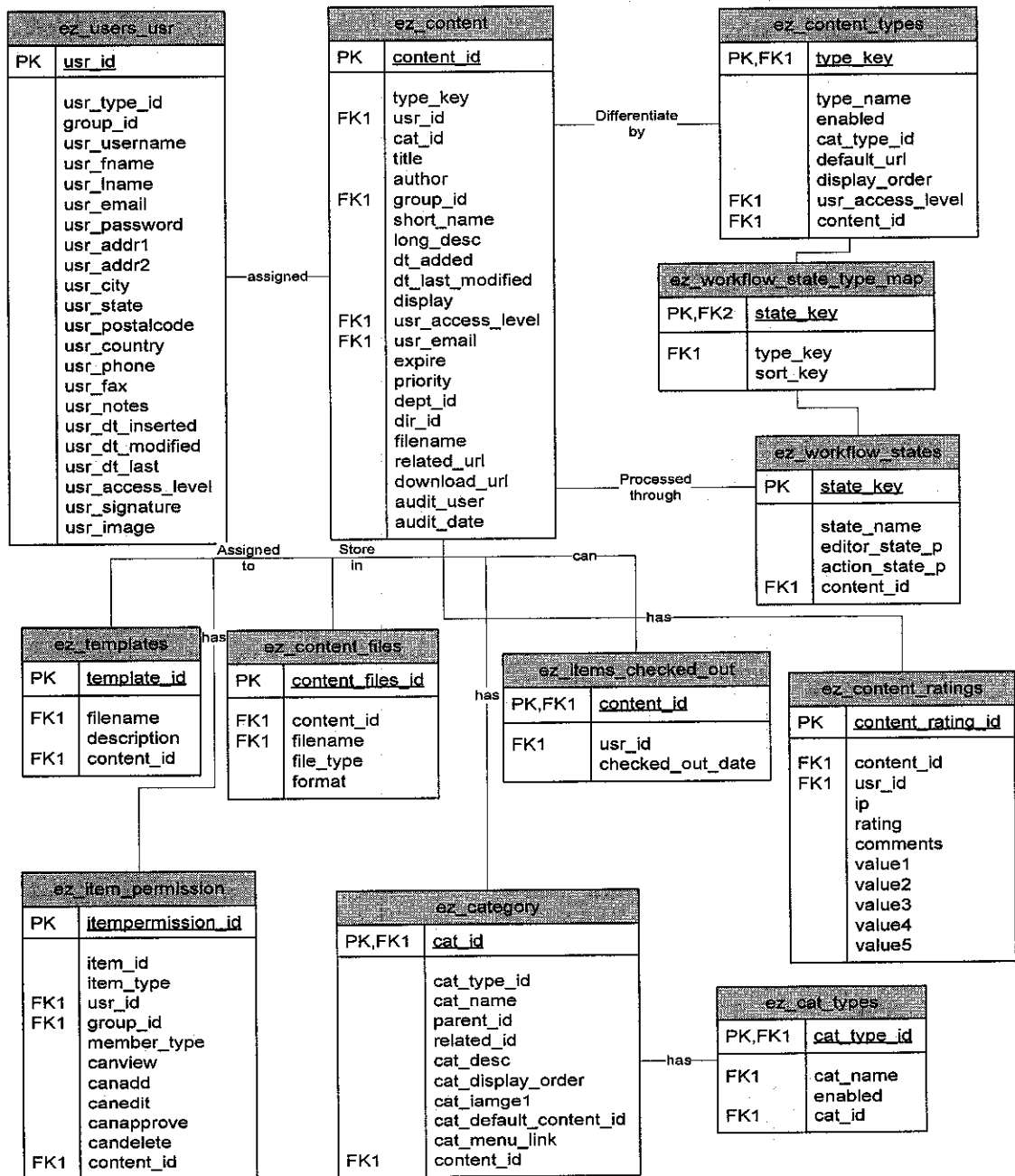| PK	usr_id
	usr_type_id
	group_id
	usr_username
	usr_fname
	usr_lname
	usr_email
	usr_password
	usr_addr1
	usr_addr2
	usr_city
	usr_state
	usr_postalcode
	usr_country
	usr_phone
	usr_fax
	usr_notes
	usr_dt_inserted
	usr_dt_modified
	usr_dt_last
	usr_access_level
	usr_signature
	usr_image

ez_content

PK	content_id
	type_key
FK1	usr_id
	cat_id
	title
	author
FK1	group_id
	short_name
	long_desc
	dt_added
	dt_last_modified
	display
FK1	usr_access_level
FK1	usr_email
	expire
	priority
	dept_id
	dir_id
	filename
	related_url
	download_url
	audit_user
	audit_date

ez_content_types

PK,FK1	type_key
	type_name
	enabled
	cat_type_id
	default_url
	display_order
FK1	usr_access_level
FK1	content_id

ez_workflow_state_type_map

PK,FK2	state_key
FK1	type_key
	sort_key

ez_workflow_states

PK	state_key
	state_name
	editor_state_p
	action_state_p
FK1	content_id

ez_templates

PK	template_id
FK1	filename
	description
FK1	content_id

ez_content_files

PK	content_files_id
FK1	content_id
FK1	filename
	file_type
	format

ez_items_checked_out

PK,FK1	content_id
FK1	usr_id
	checked_out_date

ez_content_ratings

PK	content_rating_id
FK1	content_id
FK1	usr_id
	ip
	rating
	comments
	value1
	value2
	value3
	value4
	value5

ez_item_permission

PK	itempermission_id
	item_id
	item_type
FK1	usr_id
FK1	group_id
	member_type
	canview
	canadd
	canedit
	canapprove
	candelete
FK1	content_id

ez_category

PK,FK1	cat_id
	cat_type_id
	cat_name
	parent_id
	related_id
	cat_desc
	cat_display_order
	cat_iamge1
	cat_default_content_id
	cat_menu_link
FK1	content_id

ez_cat_types

PK,FK1	cat_type_id
FK1	cat_name
	enabled
FK1	cat_id

Relationships: Differentiate by; assigned; Assigned to; Store in; Processed through; can; has

Figure 4.5   Entity Relationship Diagram (Detailed 3)

Figure 4.5 shows the detailed of ERD between the table named ez_users_usr, ez_content, ez_content_types, ez_workflow-state_type_map, ez_workflow_states, ez_templates, ez_content_files, ez_items_checked_out, ez_content_ratings, ez_item_permission, ez_category and ez_cat_types.
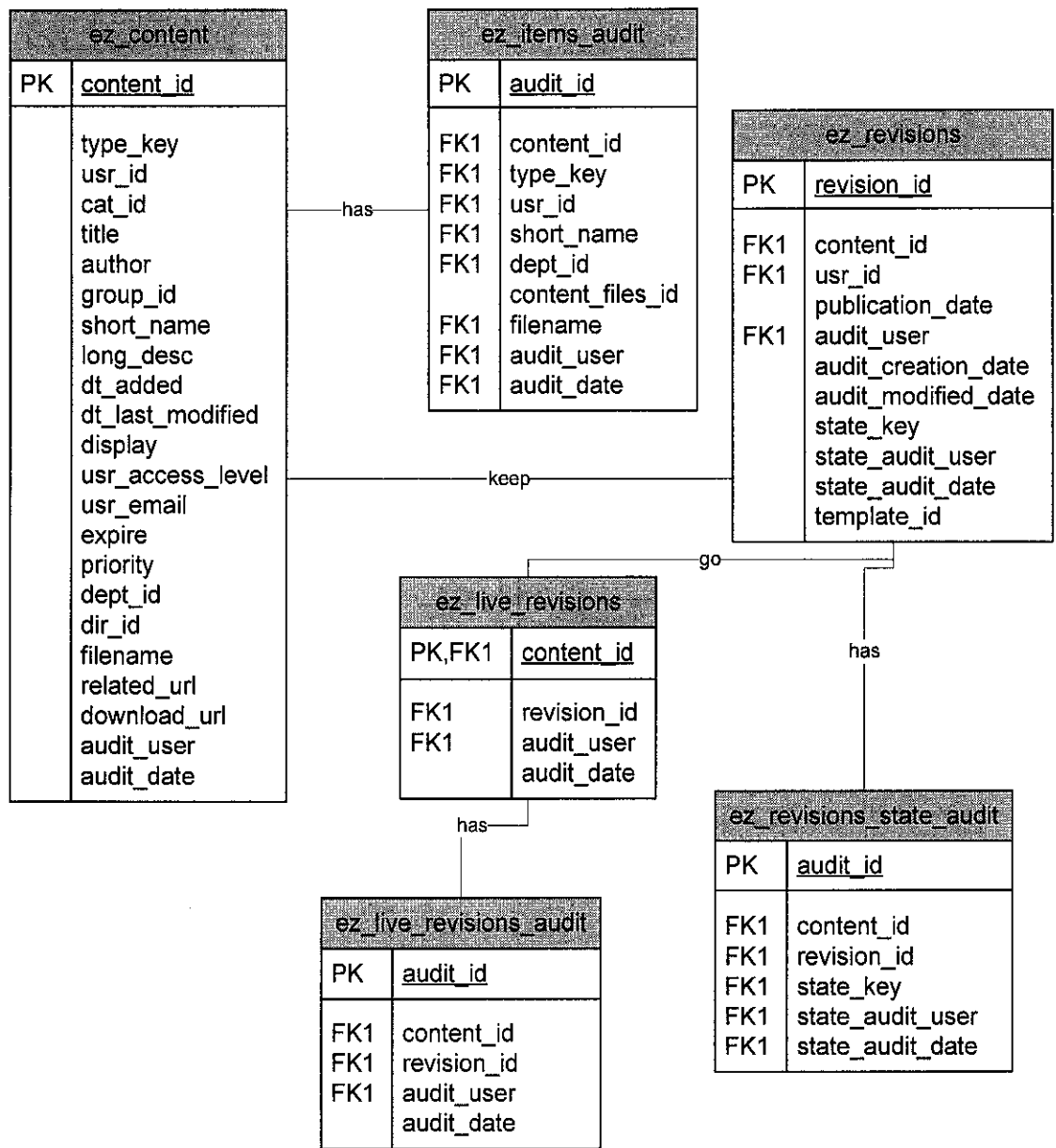
ez_content

PK	content_id
	type_key
	usr_id
	cat_id
	title
	author
	group_id
	short_name
	long_desc
	dt_added
	dt_last_modified
	display
	usr_access_level
	usr_email
	expire
	priority
	dept_id
	dir_id
	filename
	related_url
	download_url
	audit_user
	audit_date

ez_items_audit

PK	audit_id
FK1	content_id
FK1	type_key
FK1	usr_id
FK1	short_name
FK1	dept_id
	content_files_id
FK1	filename
FK1	audit_user
FK1	audit_date

ez_revisions

PK	revision_id
FK1	content_id
FK1	usr_id
	publication_date
FK1	audit_user
	audit_creation_date
	audit_modified_date
	state_key
	state_audit_user
	state_audit_date
	template_id

ez_live_revisions

PK,FK1	content_id
FK1	revision_id
FK1	audit_user
	audit_date

ez_live_revisions_audit

PK	audit_id
FK1	content_id
FK1	revision_id
FK1	audit_user
	audit_date

ez_revisions_state_audit

PK	audit_id
FK1	content_id
FK1	revision_id
FK1	state_key
FK1	state_audit_user
FK1	state_audit_date

Relationships: has, keep, go, has

Figure 4.6   Entity Relationship Diagram (Detailed 4)

The last figure in this chapter, which is Figure 4.6, describes six tables with their relationships. The tables named ez_content, ez_items_audit, ez_revisions, ez_live_revisions, ez_live_revisions_audit, and ez_revisions_state_audit.

4.3   Design User Interface

There are three types of users that can use this content management system. The users are content writer, manager or editor and also administrator. The administrator can login through the content management system with admin username and also admin password. Besides that, the administrator can manage the entire database and all the updated information through the PHPMyAdmin. The login page for the administrator is shown in Figure 4.7.
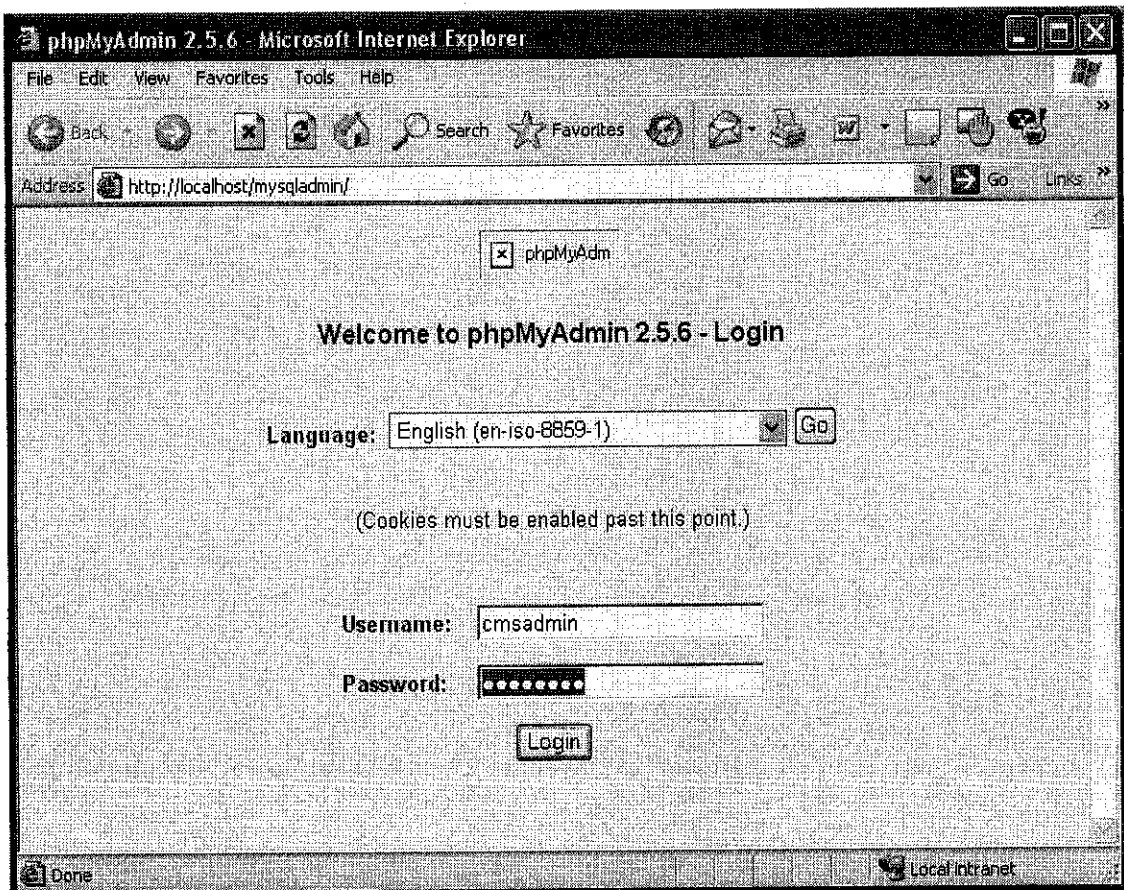
Figure 4.7   Administrator phpMyAdmin Login Page.

Figure 4.8 shows the list of tables contains in finalez_db database. It contains 36 tables as describes in the Entity Relationship Diagram session.
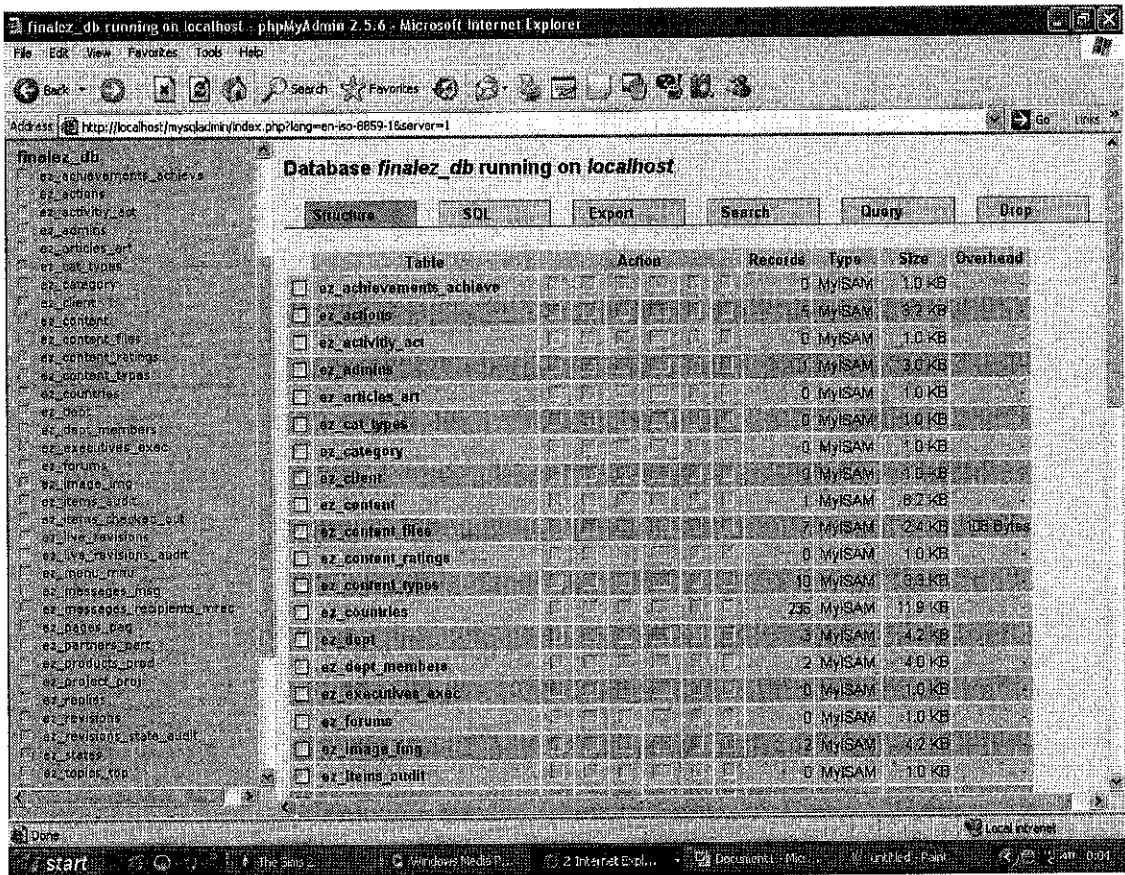
Figure 4.8   List of tables in finalez_db database.

In the PHPMyAdmin page, the administrator can perform insert operation to insert all the information into the database. Administrator also has full authority to manage all the content and also modify the content through this page.
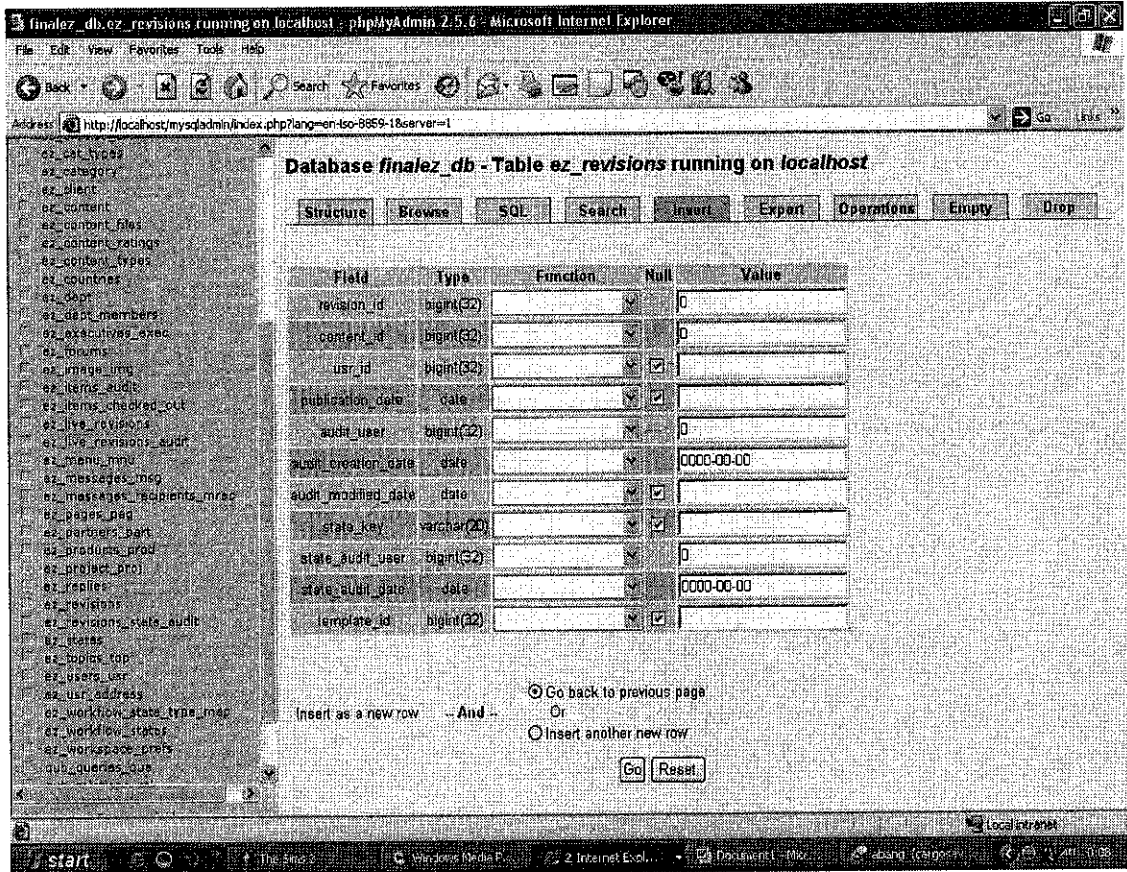
Figure 4.9   PHPMyAdmin Insert Page.

Each table contain in this database can be viewed in detailed in the structure page. Below is the figure that shows the detail of ez_revisions table.
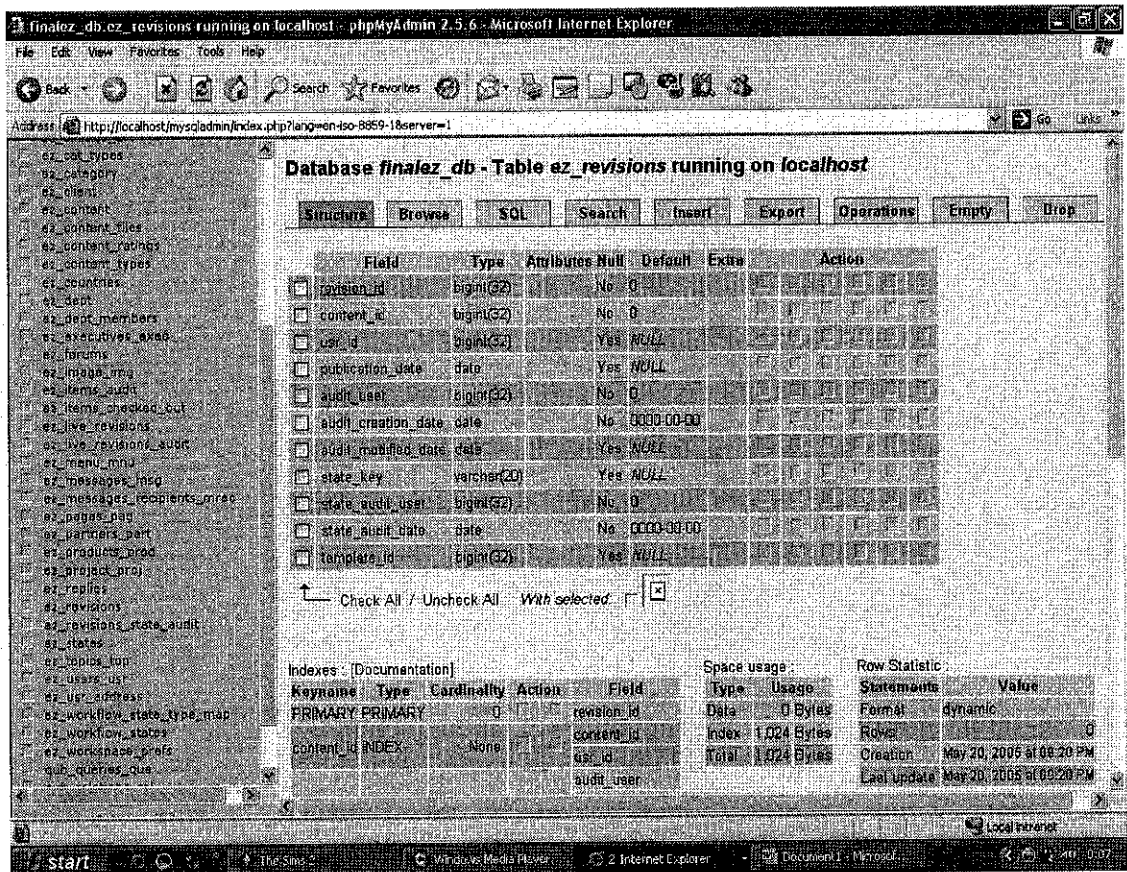
Figure 4.10   ez_revisions Detail Table Page.

The information contain in the table can be described in the browse page of PHPMyAdmin. Figure 4.11 shows the information contains in ez_actions table.
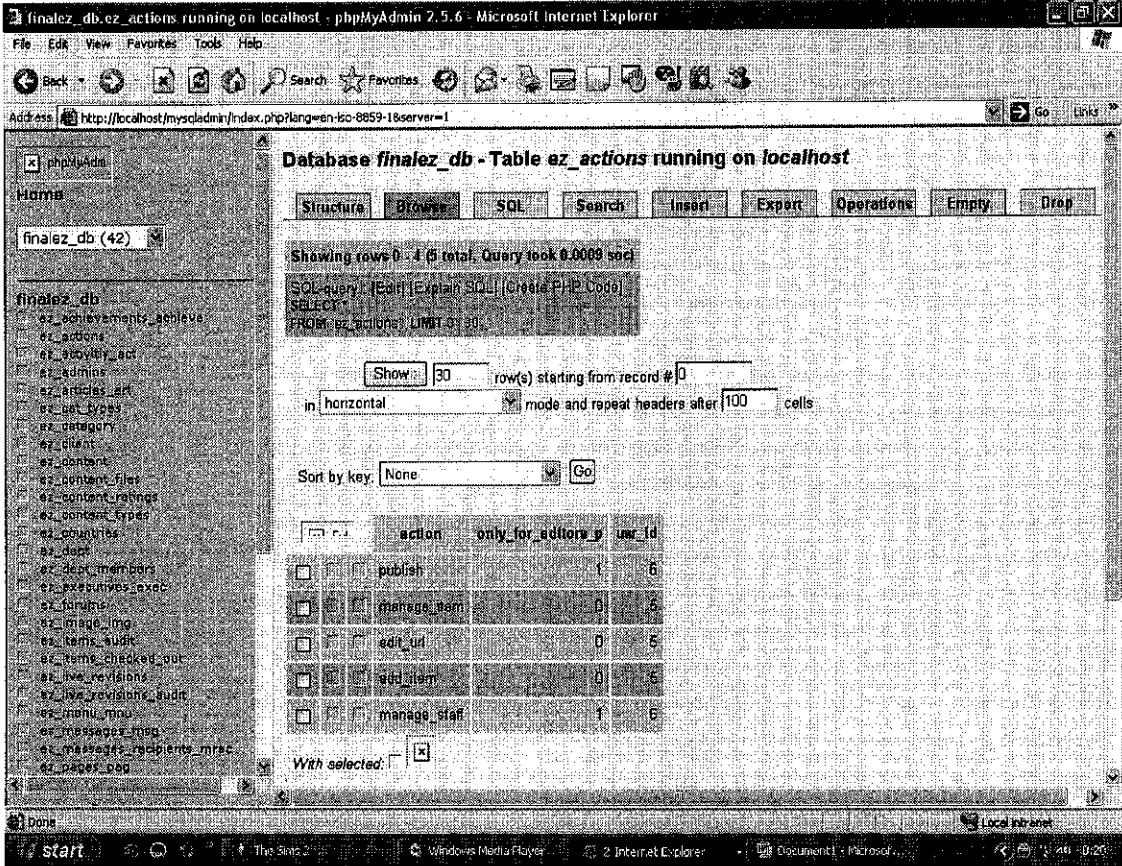
Figure 4.11   PHPMyAdmin Browse Page

The user need to login first before using the eZ_CMS content management system. Figure 4.12 shows the login page for every user that using this system.
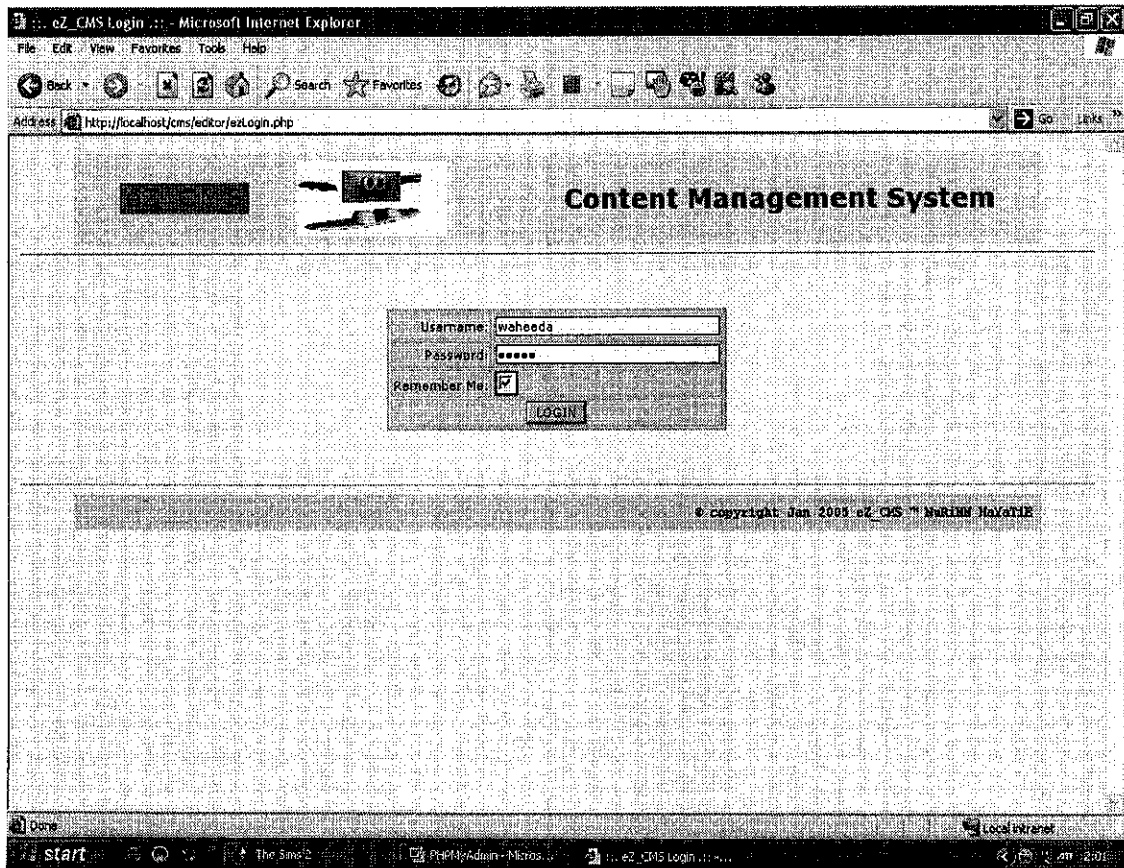
Figure 4.12   eZ_CMS Login Page.

After signing in the eZ_CMS, the user will be directed to the user workspace preferences page. In this page, it welcomes the user by mentioning the username of the user and also access level of each user. There are three levels of users, which are one (1) for the administrator, two (2) for the normal user and three (3) for the editor or manager of every department. This page will display the content that has been created through this eZ_CMS and also its status. This is described in the Figure 4.13.
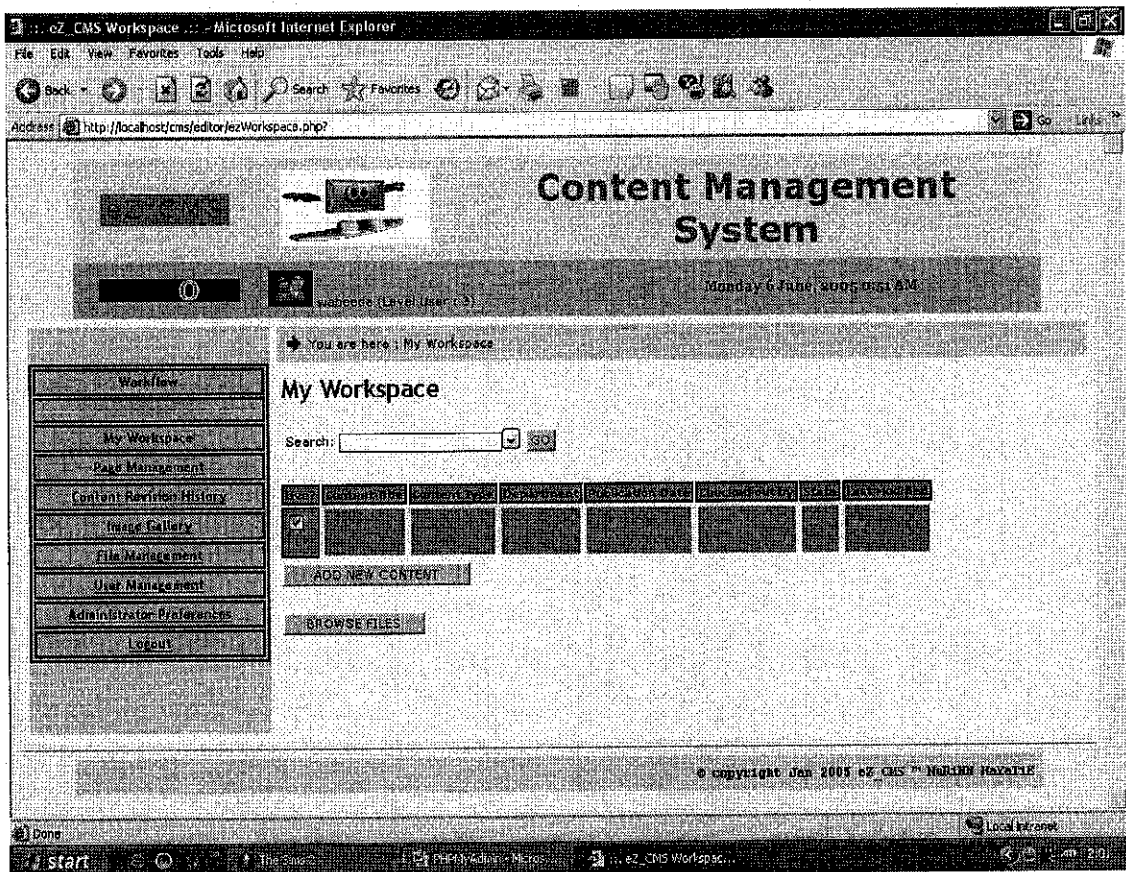
Figure 4.13   eZ_CMS Workspace Preferences Page.

Figure 4.14 shows the entire field that a user needs to fill up with necessary information to create content. This page has the functionality of a calendar and also WYSIWYG Editor to create a new content.
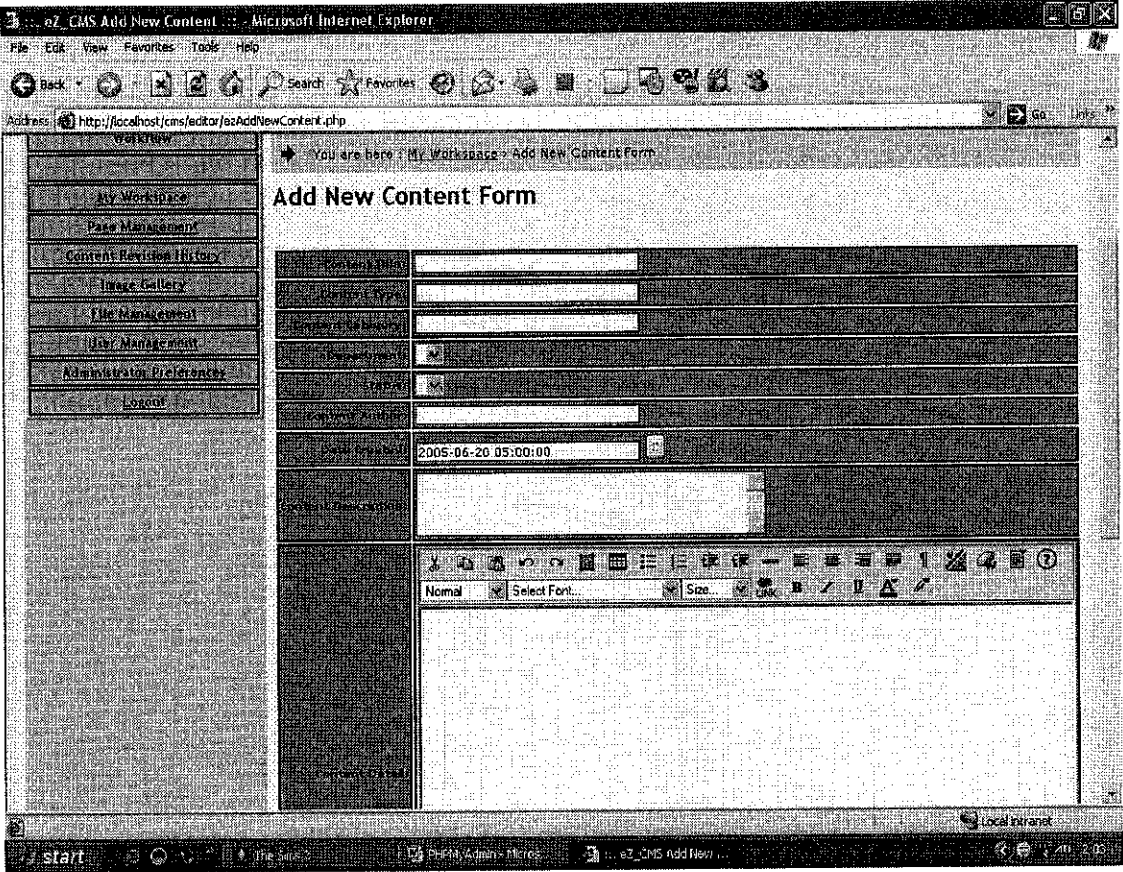
Figure 4.14 eZ_CMS Add New Content Form Page.

Page Management is the second link that has in eZ_CMS main menu. This page displays the page information list and it provide the user with update and delete button at each list of page contain in this eZ_CMS. User also can create new page by clicking the Add New Record button at this page. For viewing the detail of each page, the user need to scroll down the page and click at every link of the title page to go to the detail information of the page. The Page Management is for the user to manage the entire page that will contain in the front page of the website. This is described in Figure 4.15.
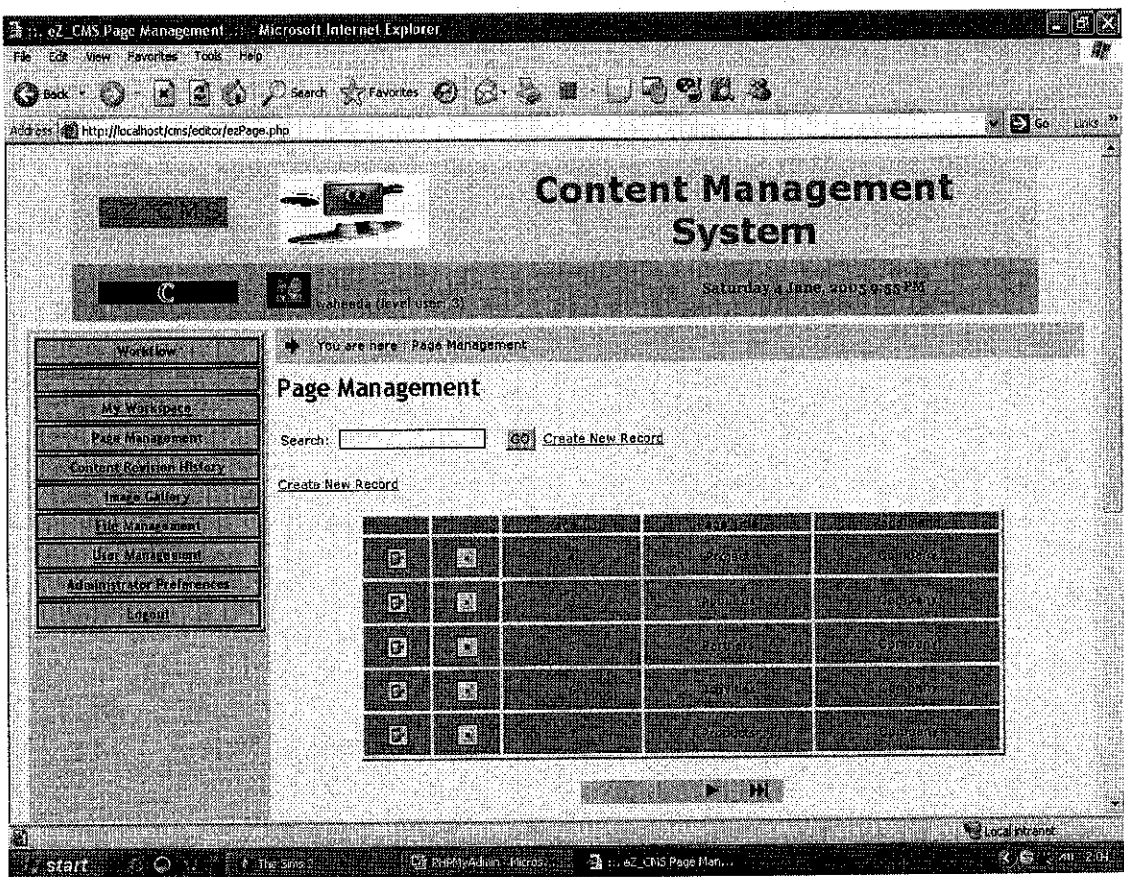
Figure 4.15   eZ_CMS Page Management Page.

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Figure 4.16 shows the Page Management after it has been scroll down.
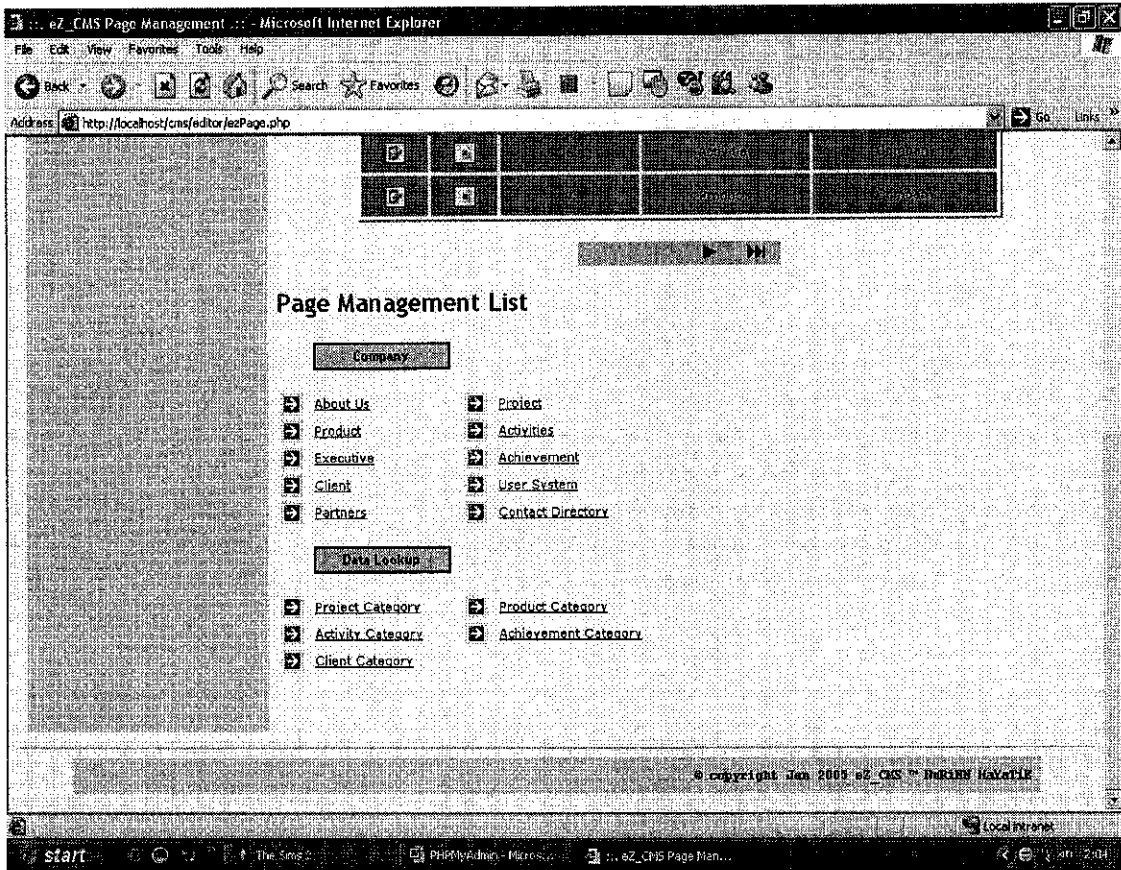
Figure 4.16   eZ_CMS Page Management Page after Scroll Down.

Figure 4.17 show the detail of field to be filled up by the user in order to create new page. This page contains the WTSIWYG Editor.
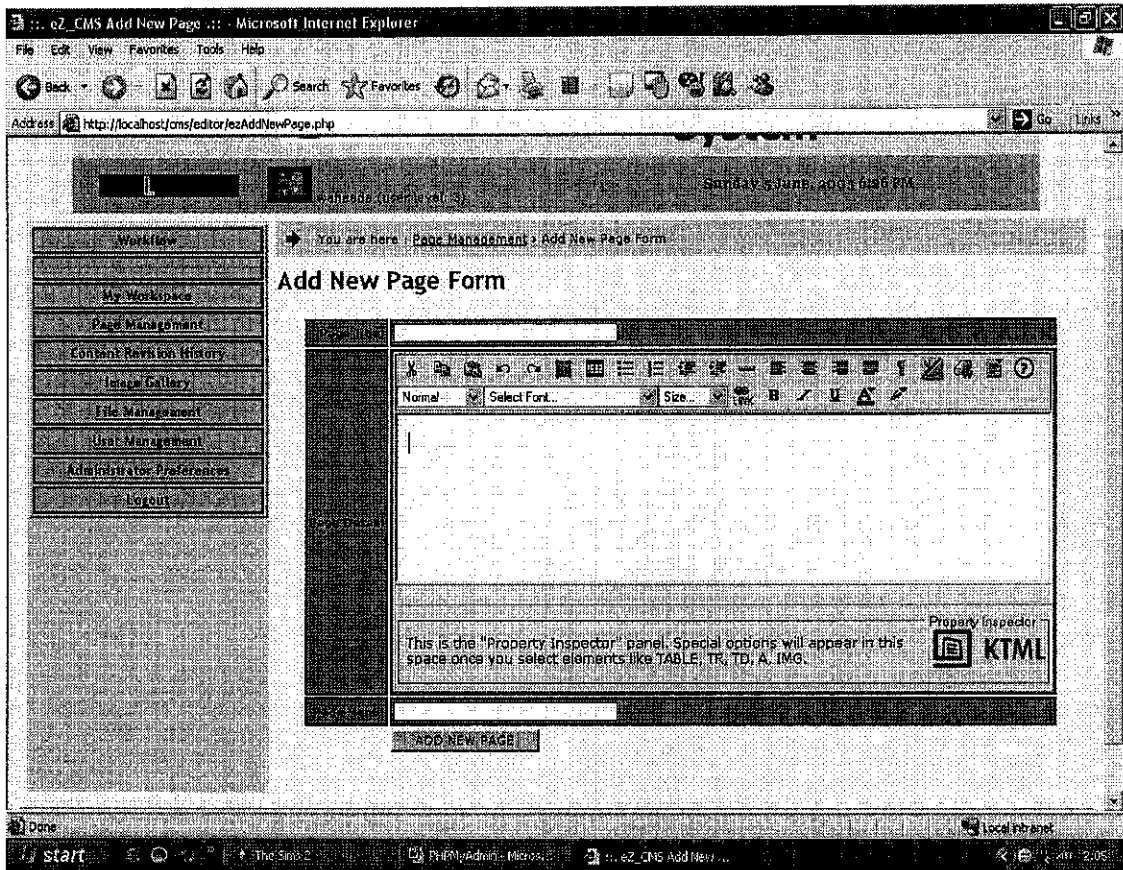

Figure 4.17   eZ_CMS Add New Page Form Page.

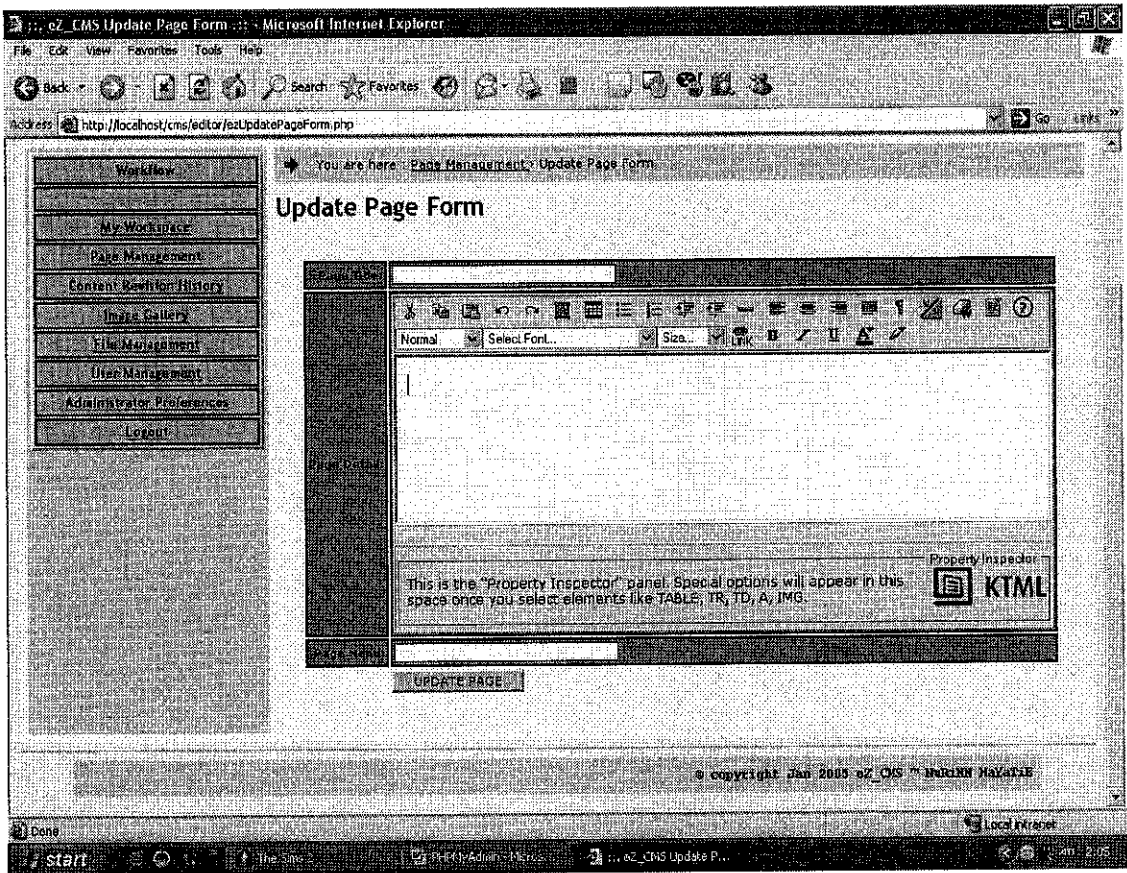Figure 4.18 shows the update page form page in order for the user to update or edit the content that has been created.

Figure 4.18   eZ_CMS Update Page Form Page.

Figure 4.19 shows the delete page where it gives the confirmation to the user that the page selected to be deleted has been successfully deleted from the database record.
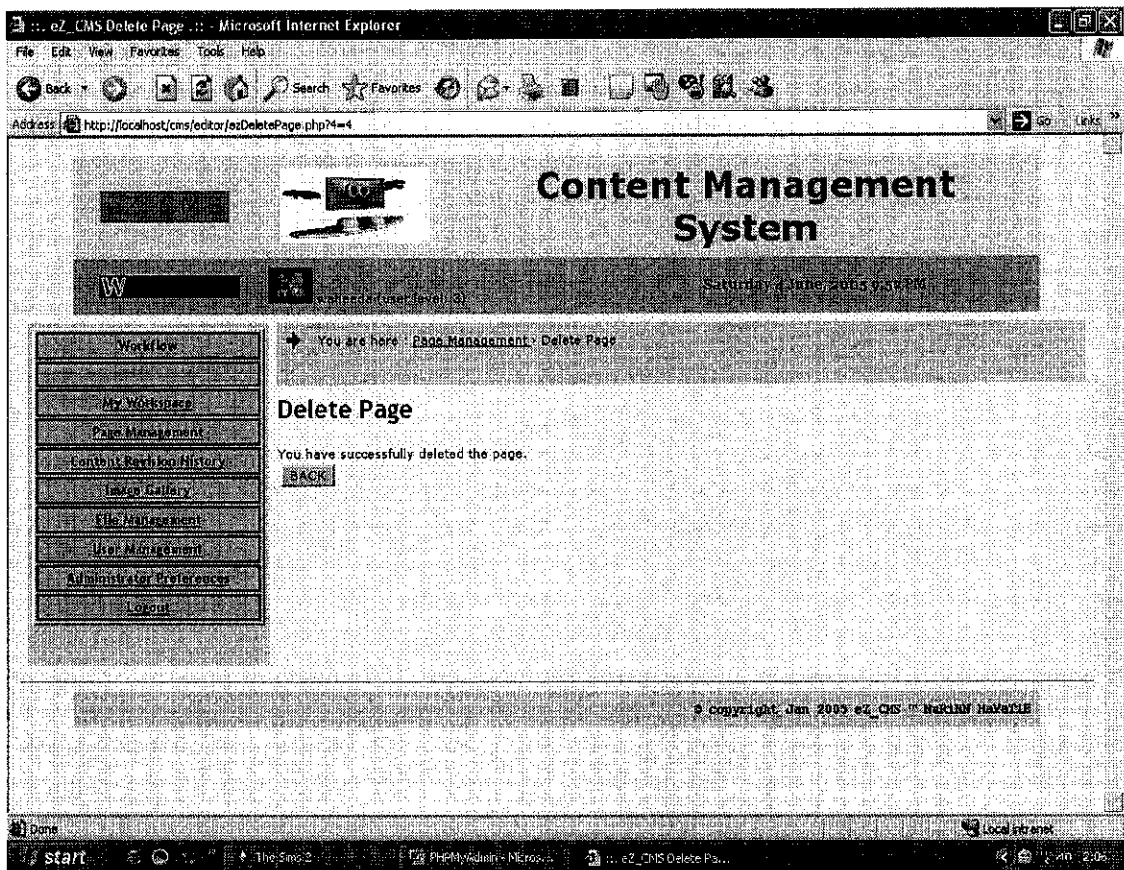

Figure 4.19   eZ_CMS Delete page.

Every page contain in this eZ_CMS has their own page detail. This is for viewing the content profile and overview. For example is the Product Profile page describes in Figure 4.20.
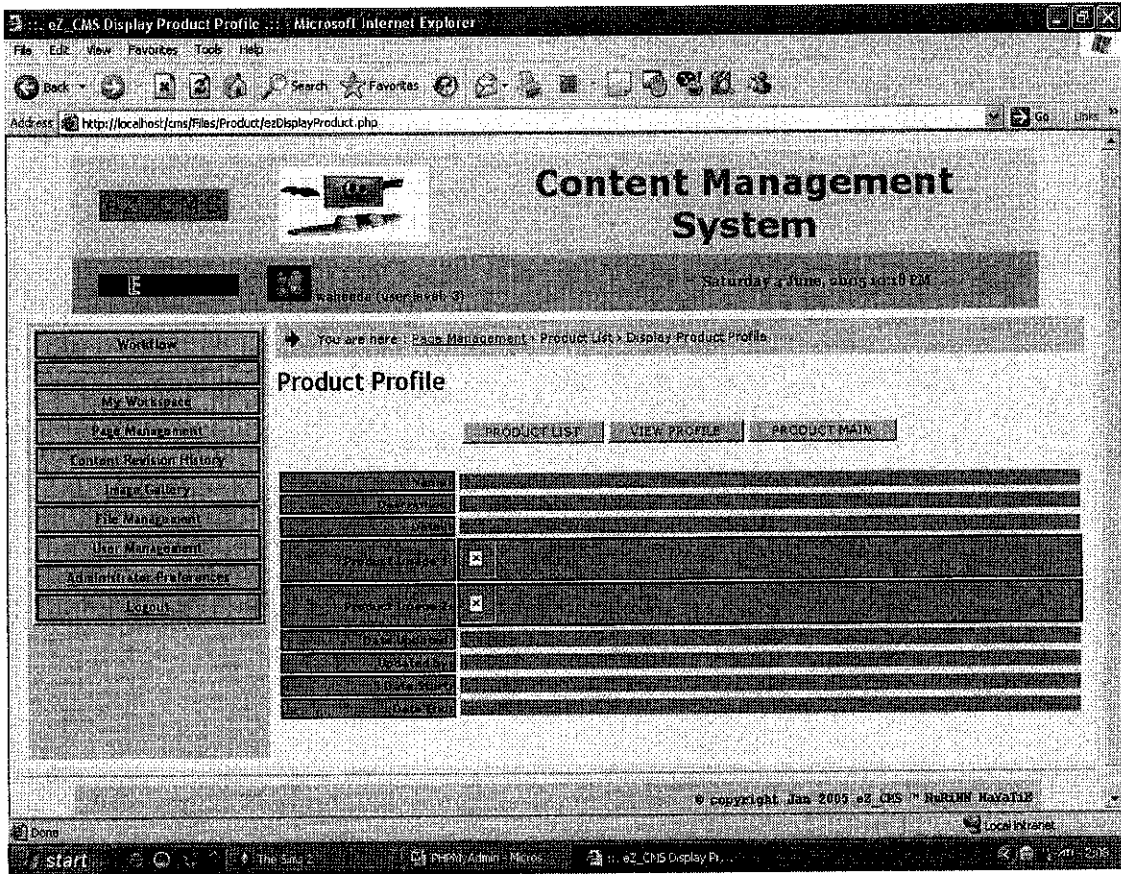

Figure 4.20   eZ_CMS Product Profile Page.

Figure 4.21 shows the Image Gallery page where it is one of the main menu link in eZ_CMS. This page will view all the image contains in the folder image. User can download new image if they want.
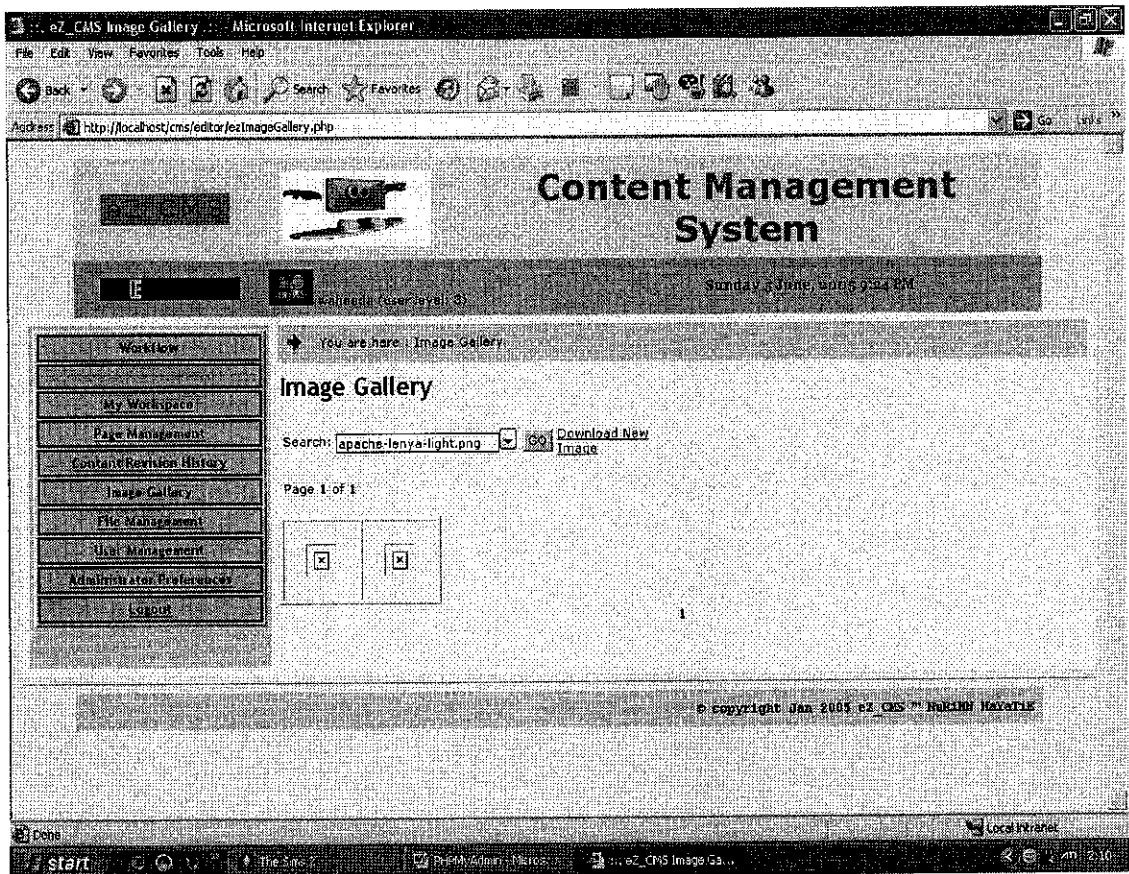

Figure 4.21 eZ_CMS Image Gallery Page.

Figure 4.22 shows the field that needs to be filled up by the user in order to upload new image to be viewed or used in this eZ_CMS system.
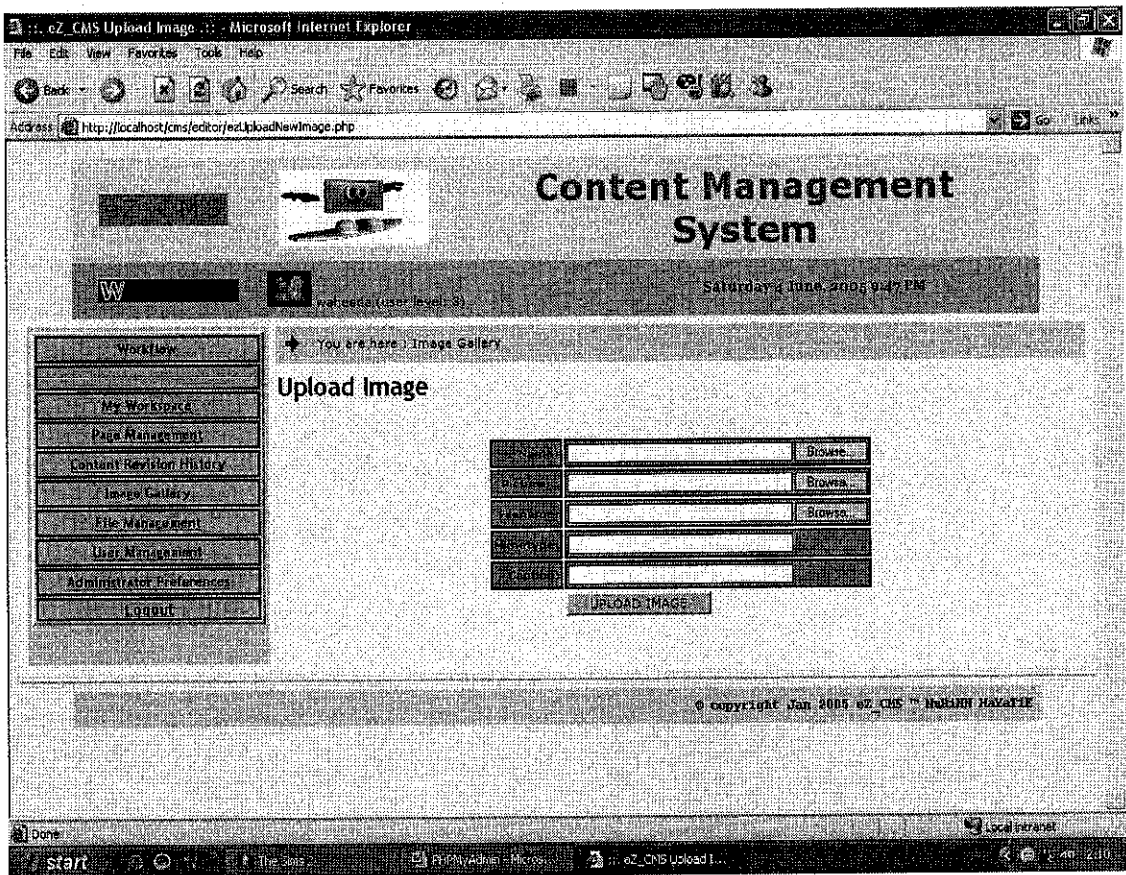

Figure 4.22   eZ_CMS Upload Image Page.

Figure 4.23 shows the File Management Page that displays the list of file contain in the eZ_CMS system. The user can delete the listed file at this page or upload new file by clicking the upload new file button.
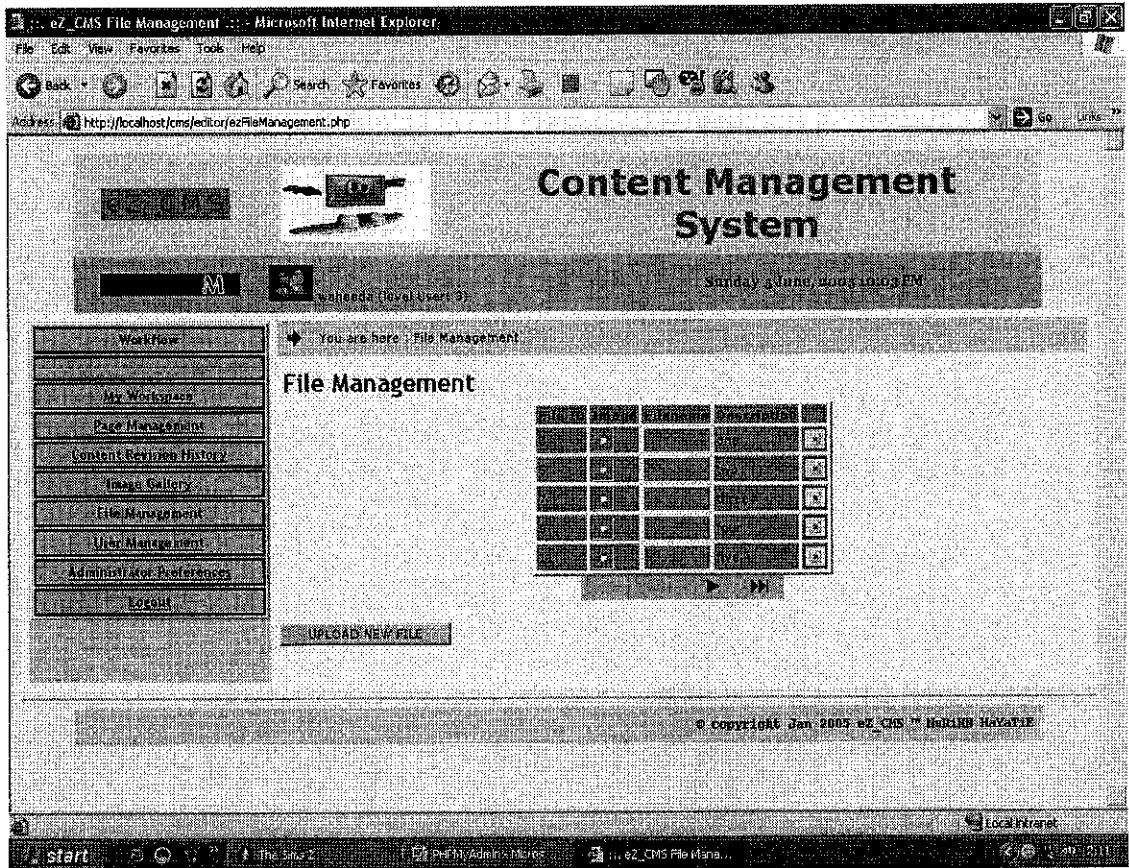

Figure 4.23 eZ_CMS File Management Page.

Figure 4.24 shows the upload files page where the user can upload new file to be included in this eZ_CMS system.
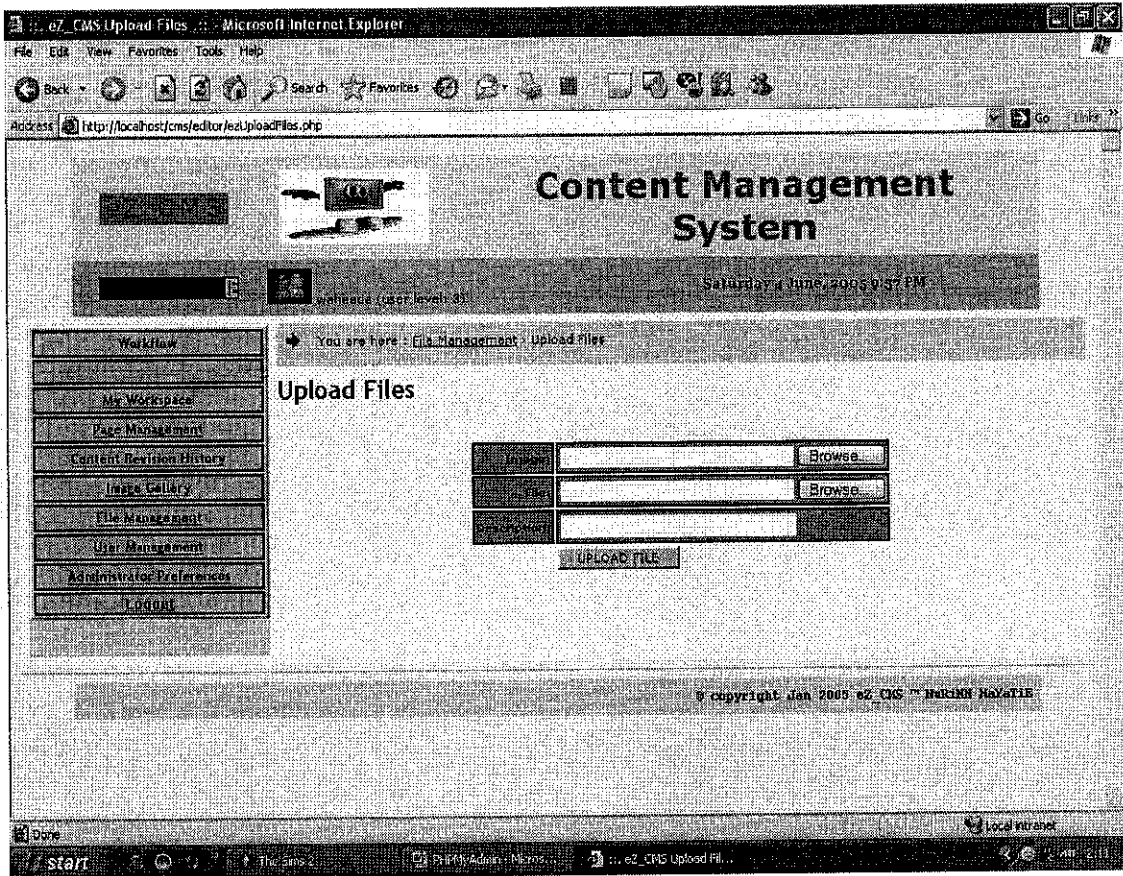

Figure 4.24   eZ_CMS Upload Files Page.

User Management is one of the features that should be included in this eZ_CMS system. Figure 4.25 shows the User Management List page to display all the listed users that are using this eZ_CMS system.
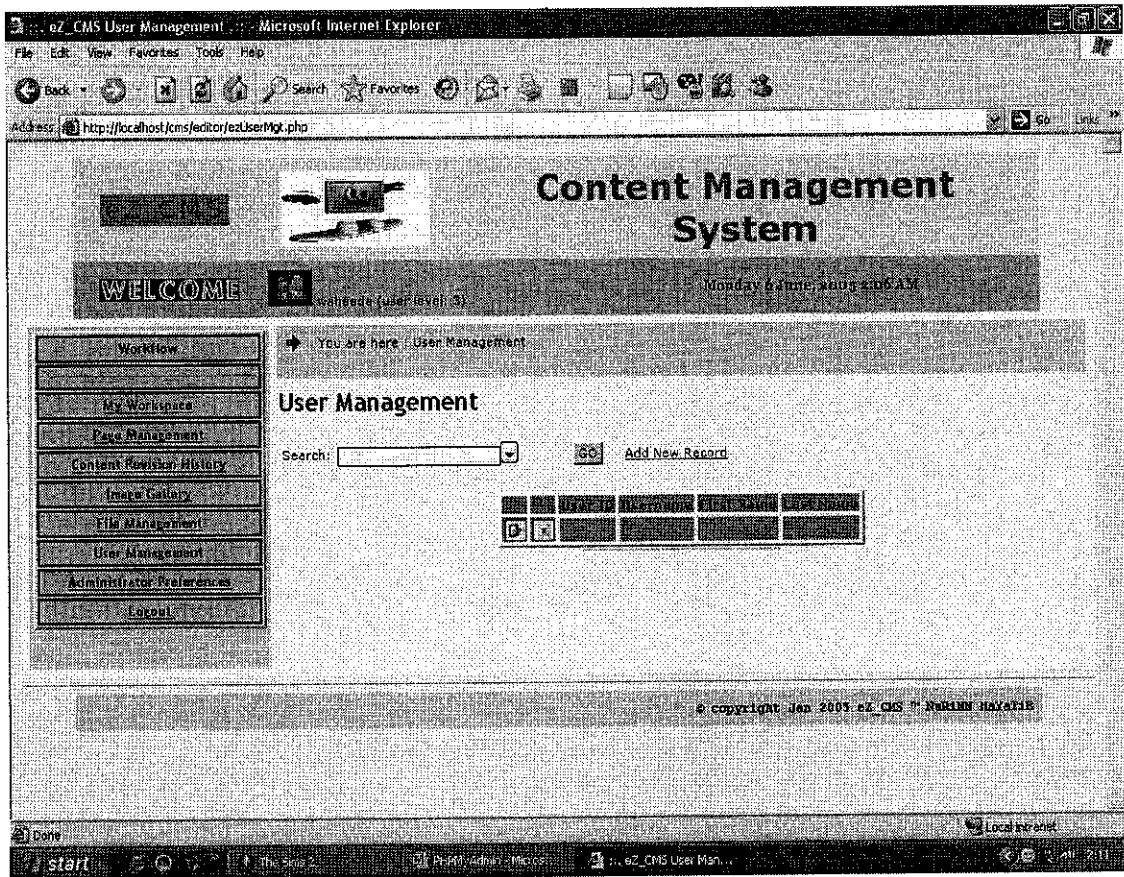
Figure 4.25   eZ_CMS User Management Page.

Figure 4.26 shows Add New User Form which required users to insert new information according to the field provided in this form. There are three parts that need to be filled up by the user, which are the user information detail, user department detail and also the action detail which describes the actions that can performed by all the users.
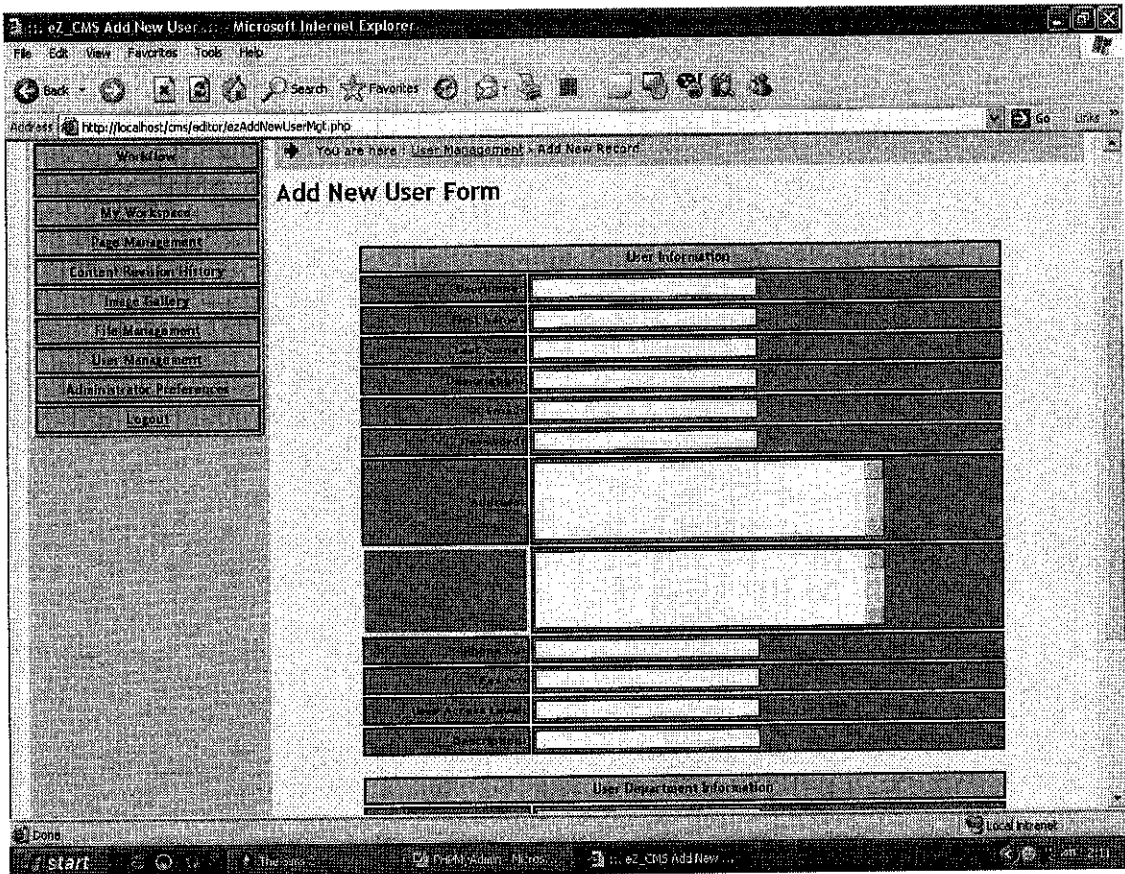

Figure 4.26   eZ_CMS Add New User Form Page.

4.4 Findings

Information gathering has been performed to gather all the requirements needed in developing this project. For this project, a method that is used is fact-finding. As define in the System Analysis and Design Methods book, fact-finding is the formal process of using research, interviews, questionnaires, sampling and other techniques to collect information about problems, requirements and preferences. Two techniques have been selected to be used in this project, which are research and observation.

The first technique, which is research, has been done through internet and also from the content management system Journal. Some findings from the research are focusing on analyzing the existing content management system.

For the observation method, there is one way that have been perform in order to get the results that explain all the best requirement features that a content management system should have. For the first step, general observation has been done, where it listed six (6) existing open source content management system products with their respective description and also their general features. The selected existing content management system products are as follows:

- Apache Lenya
- Campsite
- eZ Publish
- Midgard
- phpWebsite
- Typo3

After the features has been listed according to the product name, another step is perform, which is to find the common features that appear in every products. It defines the number of occurrences for each feature listed in every product. For the first step the information is describes in the table 1.1.

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Six (6) samples of existing open source content management system products have been selected for features comparison. This comparison shows what exactly a CMS has for its functionality and from this observation also determine the common features of the existing CMS.

Findings from this observation show that there are thirteen (13) requirements for the CMS features. The requirements are listed as follows:

- Revision control
- Scheduling
- Built-in search engine
- Authoring
- Workflow, content approval
- Layout, template, design
- WYSIWYG Editor
- User Management
- Gallery
- Security
- Article translation, multilingual availability
- Calendar
- Web-based administration

The common features according to the six (6) selected CMS products, is presented accordingly to their occurrences in every product. These show that the features have their own priority to every CMS products. According to the table below, it shows that a good content management system should have the layout, template or the design feature. This is because this feature contain in almost the existing content management system products. Then, followed by the built in search engine and workflow or content approval functionality, which contain in three (3) existing CMS products from six (6) products listed. From this table also determines that there are many features that contain in only two (2) existing CMS products, where the impotencies are questionable. The features are

authoring, calendar, gallery, revision control, scheduling and WYSIWYG editor. Features that have small number of occurrences are article translation, security, user management and web based administration.

Table 4.1   Common Features Of existing CMS according to their occurrences in every CMS product.

Requirement Features	No of Occurrences
layout, template, design	5
built in search engine	3
workflow, content approval	3
authoring	2
calendar	2
gallery	2
revision control	2
scheduling	2
WYSIWYG editor	2
article translation	1
security	1
user management	1
web based administration	1

4.5   Discussion

All the thirteen (13) requirements features of CMS that have been collected through the observation method should be prioritized to determine their importance to this project. To prioritize all the requirement features, it needs to be categorizing into some main functionality. The categories are in terms of security, ease of use, management, flexibility, and built in application.

From the findings, it shows that every feature has their own priority and this priority should be placed according to the importance.

As group in five (5) categories, the features should be structured as the following table:

Table 4.2   Management Functionality

Management	No of Occurrences
layout, template, design	5
workflow	3
authoring	2
scheduling	2
web based administration	1

Table 4.3   Built in Application Functionality

Built in Application	No of Occurrences
built in search engine	3
calendar	2
gallery	2
user management	1

Table 4.4   Security Functionality

Security	No of Occurrences
content approval	3
revision control	2

Table 4.5   Ease of Use Functionality

Ease of Use	No of Occurrences
WYSIWYG editor	2

Table 4.6   Flexibility Functionality

Flexibility	No of Occurrences
article translation	1

Below are the lists of main features for this Content Management System Project:

- Layout / Template / Design
- Workflow / Content Approval
- Scheduling
- Built-in Search Engine
- Calendar
- Gallery
- Revision control
- WYSIWYG Editor
- Security

As for extra features, the lists are as follows:

- Web Based Administration
- Article Translation in terms of language

This Content Management System project has its own benefits and advantages rather than the other existing CMS products. This is because, this project develop with combination features from all the selected existing CMS products. Furthermore, it is a simple Content Management System that easy to use and it allows an article to go through the consistent workflow until it is ready to be published on the web.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5. CONCLUSION AND RECOMMENDATIONS

5.1   Conclusion

In conclusion, content management systems (CMS) are relatively new in the market, and while many are still not familiar with them, they have the potential to dramatically simplify the maintenance of both websites and intranets. Good content management system (CMS) can help manage, centralize, and organize the corporate content assets. From the strong platform, it can provide a reliable, scalable, and secure way of presenting the enterprise content assets to web-based audience. In the next decade, hope that content management system (CMS) can evolve into fairly intelligent applications that are not only highly interpretive in managing and providing content but are also conversant with other content management systems.

From all the combination features, this content management system (CMS) , eZ_CMS, will provide better management of a content to be published to the web and also present better benefits and advantages rather than other existing CMS products. It provide the user a better organization of managing a content such as the module of user management, file management, content editor and also easy to use and flexibility functionality. This project will be able to come out with the best features of content management system (CMS) and hopefully that it will achieve its goals and also solve all the problem statement listed.

5.2   Recommendations

5.2.1   Suggested Future Work for Expansion and Continuation

Since this is the development of simple web-based content management system, there is much more functionality should be included in this project. There are many enhancement can be build upon this first version of eZ_CMS.

Below are the listed enhancement features that can be included in this project:

- Provide "cultural adaptation", which may include adjusting a Web site's terminology, look, and feel to suit local norms. The technology can also help companies extend a consistent brand image across global sites, and often included workflow capabilities so that content developed in one location can be easily deployed on sites hosted around the world.

- Format Management functionality, which allows documents, including legacy electronic documents and scanned paper documents, to be formatted into HTML or Portable Document Format (PDF) for the Web site.

- In terms of security, there can be enhanced with additional feature of problem notification where it can notify any problems that occur during the user used the system for storing, editing, creating or publishing any content.

- This project can be upgrade in terms of its support, where it will be more convenience for user to use it. Some of the support that can be included is online help, public forum, public mailing lists and also user's conference.

- Some of ease of use features also can be add on such as drag and drop content, macro language, image resizing, and also server page language.

- There is little management functionality in this system, and some enhancement can be made regarding the management functionality to make the user feel that this Content Management System can help them in term of managing all the items contained in this Content Management System. the management of this system can be add on some new enhancement features such as advertising management, assets management, clipboard, and web statistics.

- In terms of flexibility, continuation of multi-site deployment and multi-lingual content integration functionality can be add on to make the system useful foe any time at any condition.

- In terms of built-in application, this system can be enhanced by including other built-in application such as blog, chat, database report, discussion/forum, document management, FAQ management, graph and chart, help desks and also surveys.

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APPENDICES

CMS FEATURES OBSERVATION RESULT

Table 6.1   List of existing CMS products with different features

No	Name	Scope	Features	Comments
1	Apache Lenya	Open Source CMS	Revision Control	XML-centric architecture allows for content delivery targeted to the capabilities of various devices.
			Scheduling	
			Built-in Search Engine	
			Separate Staging Areas	
			Authoring	
			Workflow	
			Internalization	
			Layout	
			Site Management	
			Security	
2	Campsite	Open Multilingual Web Publishing tool for news site	Advanced Editorial Interface	Designed for medium-to-large-size news publications.
			Management of Article Translations	
			New-WYSIWYG feel	
			Cut and Paste from Other Editor into Campfire	
			Automatic Archive Creation	
			Search Engine	
			Built-in Subscription System	

No.	Name	Type	Features	Description
3	eZ Publish	Professional Open Source CMS	Easy Localization of User Interface; Article Publication and Management; Workflow System; Advertising with Statistics; Bug Handling and Reporting; Calendar; Contact List; To-Do Module; File Manager; Moderated Forums; Link Manager; News Feed Importing; Poll Module for Creating User Polls; Session Module for Keeping Track of Users and Their Preferences; Statistics Module for Information About Page Views and Visitors; Shopping Cart and Wishlist; User Management; Template and Design; Gallery	For Web Publishing, intranets and e-commerce.
4	Midgard	Reliable, Stable, and	Web-based Authoring; Separation of content and layout	For small organizational

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#	Name	Type	Features	Purpose
		Flexible Open Source CMS	Easy 'Edit This Page' interface	site to huge eGoverment Portals and Web Application.
			Tree based CM	
			WYSIWYG Editing	
			Arranging Content in Folders	
			Image Asset Management	
			Content Approvals	
			Scheduled Publication	
			Content Locking	
			Revision History and roll-back	
			Accessibility	
5	phpWebsite	Web-site CMS	Easy, Web-based administration	
			Flexible Layout Control	
			Topic-based announcements	
			Interactive and Personalized content	
			Full Featured Event Calendar	
			Customized User Experience	
			Browser based page creation	
6	Typo3	Open Source CMS	Content stored in database	For enterprise purposes on Web and Intranet
			Password protection	
			SQL searching of Database	
			Templates	
			Serving of different content based upon browser type, IP number or other	

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criteria
Automatic resizing of images
online content editing
uploading of files through browser interface