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Enhancement of an online content management system: CLCloud.com

Amit Singh

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Enhancement of an online content management system: CLCloud.com

Abstract

The website under consideration for this project is <http://www.clcloud.com>. It represents the primary website of CL Cloud Computing Group, which provides consulting services to academic and business societies in the areas of web hosting, web designing, database management, computer networking, computer programming, enterprise resource planning, business intelligence, IT auditing etc. The website serves not only as the primary website for the company, but also hosts a number of other websites that manage content in order to accomplish the following:

1. Online submission of research papers
2. Access to published journals
3. Publications from other conferences
4. Websites from other organizations
5. Instructional resources

However, the website suffers various drawbacks in critical areas of web design and development. There is absence of a user authentication system, lack of a professional visual design and layout, and an inadequate navigational structure. Due to these issues and others as discussed in the project scope, the website fails to appeal to its intended audience and fulfill its purpose, which is to serve as a sound system for the student and business community using its web applications. The aim of this project is to enhance clcloud.com while addressing the issues with the existing system.

The gap between the existing system and the intended system provides an opportunity to study and implement various aspects of web design and development technologies.

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Department

Computer Information Systems

First Advisor

Huei Lee

Second Advisor

Sock Chung

ENHANCEMENT OF AN ONLINE CONTENT MANAGEMENT SYSTEM:
CLCLOUD.COM

By

Amit Singh

A Senior Project Submitted to the

Eastern Michigan University

Honors College

in Partial Fulfillment of the Requirements for Graduation

with Honors in Computer Information Systems

Approved at Ypsilanti, Michigan, on April 5, 2012

DR. HUEI LEE

Supervising Instructor

DR. SOCK CHUNG

Honors Advisor

DAVID E. MIELKE

Department Head

DR. REBECCA SIP

Honors Director

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Project Supervisor

I would like to thank Dr. Huei Lee, who has sponsored and supervised the ongoing process of clcloud.com's enhancement. Without your guidance, invaluable inputs and feedback this project would not have been made possible.

Dr. Huei Lee

Office: Room 418, Owen

Phone: 487- 4044

Email: huei.lee@emich.edu

Introduction

The website under consideration for this project is <http://www.clcloud.com>. It represents the primary website of CL Cloud Computing Group, which provides consulting services to academic and business societies in the areas of web hosting, web designing, database management, computer networking, computer programming, enterprise resource planning, business intelligence, IT auditing etc. The website serves not only as the primary website for the company, but also hosts a number of other websites that manage content in order to accomplish the following:

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However, the website suffers various drawbacks in critical areas of web design and development. There is absence of a user authentication system, lack of a professional visual design and layout, and an inadequate navigational structure. Due to these issues and others as discussed in the project scope, the website fails to appeal to its intended audience and fulfill its purpose, which is to serve as a sound system for the student and business community using its web applications. The aim of this project is to enhance clcloud.com while addressing the issues with the existing system¹. The gap between the

¹ Please note that for the purpose of this project report, the term “existing/ current system” shall refer to the old website, whereas “proposed system” shall refer to the new, enhanced system.

existing system and the intended system provides an opportunity to study and implement various aspects of web design and development technologies.

The next section outlines in detail the scope of enhancement of clcloud.com.

Project Scope

As mentioned previously, clcloud.com represents the primary web system of CL Cloud Computing Group, which provides consulting services to academic and business societies in a wide variety of areas. Since it represents the primary website of the group, a number of issues need consideration. Analysis of the existing system reveals that the website must be enhanced to address the following broad areas:

- **Security-** Clcloud.com is used by students and researchers to submit their work for academic conferences and journals hosted by CL Cloud Computing Group. It uses a PHP script to enable users to upload their work on the website, which is received in a MySQL database on the server. However, there is no secure authentication system in place. A visitor with malicious intent may exploit this drawback. For instance, a user may spam the website with unsolicited material instead of research papers resulting in a server downtime, or perhaps complete system failure. This requires a user-authentication system that validates a user before any web applications can be used.
- **Navigational Structure-** It is vital that the users of the website are able to easily navigate through it via clearly laid out links and text. Failure to have a good navigational structure would imply that users are unable to find exactly what they're looking for. Most likely, this would result in the website not retaining its audience.
- **Professional Visual Design and Functionality-** The website has been established primarily for the academic and professional community. The web

design should be a reflection of that and be able to engage its intended audience and clearly convey its purpose.

It would be an understatement to say that in the business world, first impressions matters significantly. For any group, business or academic, big or small, the website is usually the first interaction with its intended audience. The current website has a very rudimentary look designed created using HTML.

Also, the information being conveyed by a website needs to be made easily available. The current web design is unable to so due to an outdated design. Most users expect a layout similar to other professional website designs which is absent in the case of clcloud.com.

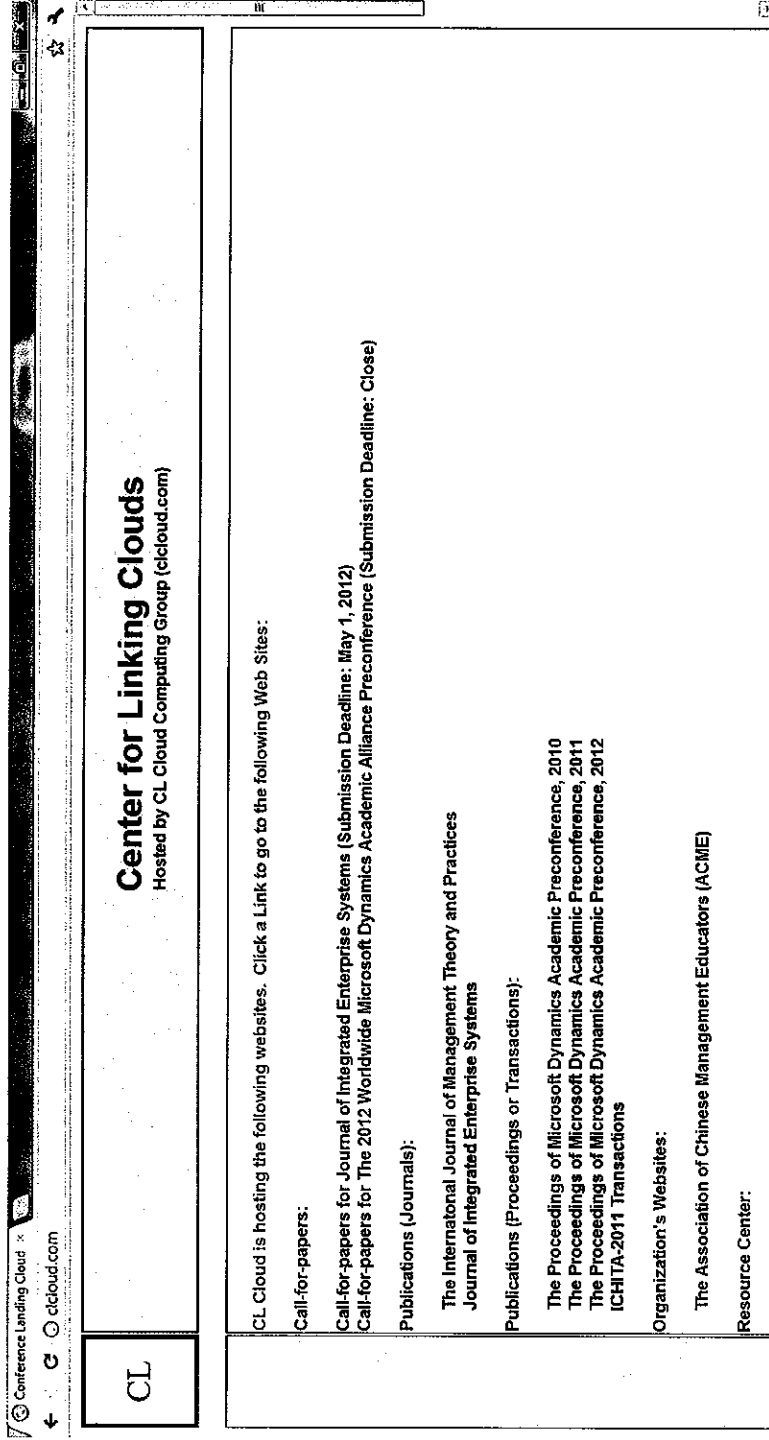
- **Search Engine Optimization-** The more a website appears in the search results, the more users and visitors it is likely to have. Increasing the *visibility* of the website is established using search engine optimization. The idea involves editing the website's code to increase clcloud.com's relevance to certain keywords. Currently, clcloud.com does not use any SEO techniques.
- **Social Media Optimization-** Organizations are increasingly using social media to augment traditional methods of gaining attention of a larger audience. It is being used by an ever increasing number of websites. In the existing system there is prospect to make a provision for social media marketing.
- **Web Page Interoperability-** Based on the latest web standards, the web pages of the website must to be viewable in any compatible browser. This property is referred to as web interoperability. The code for the new system shall be written in XHTML 1.0 and conforming to the respective web standards.

The pages that follow contain screenshots of the existing system in support of the above analysis.

In light of the issues and possible improvements identified, the following has been proposed for this project:

Enhance and expand the capabilities of the existing system and integrate it with the existing platform.

The Existing System



As can be seen in the screenshot, the current system is a rudimentary design in HTML.

Instructional Resources for Microsoft Dynamics Products

About CL Cloud Computing Group:

CL Cloud Computing Group provides consulting services for academic and business societies in the areas of Web Hosting, Web Design, Database, Computer Networking, Computer Programming, Information Security, Enterprise Resource Planning (ERP), Business Intelligence (BI), and IT Auditing.

President:

Kuo Lane Chen, Ph.D.
Associate Professor
School of Computing
University of Southern Mississippi
Hattiesburg, MS 39406

Board of Directors:

Huei Lee, Ph.D.
Professor of CIS & SCM
Eastern Michigan University
Ypsilanti, MI 48187

Clarence Lee
Master of Science
Electrical Engineering & Computer Science
Massachusetts Institute of Technology
Cambridge, MA 02139

Location:

Canton, MI, 48187 (USA)
E-mail: chenku60@yahoo.com

Canton, MI 48187, United States T: (734)844-3973 e-mail: chenku60@yahoo.com

(In continuation of the previous page)

Technologies Used

The following tools have been used for the development of the proposed system:

Software

1. Apache HTTP Server 2.2² - An open-source web server software that provides HTTP services. It contains a PHP processor module that interprets PHP code and generates web pages.
2. PHP 5.4.0³ - PHP is a server-side scripting language. Code written in PHP is embedded into HTML code to generate dynamic content. Like Apache HTTP Server, PHP is free software.
3. MySQL Server 5.5⁴ - An open-source relational database management system
4. phpMyAdmin⁵ - Free software that provides a web interface to manage MySQL databases.
5. WampServer⁶ - Open-source software that serves as a development environment in Windows. WampServer may be used for creating web applications in Apache, PHP and MySQL.
6. Adobe Photoshop CS5 - Software used for photo-editing.

² <http://httpd.apache.org/>

³ <http://windows.php.net/>

⁴ <http://www.mysql.com/>

⁵ http://www.phpmyadmin.net/home_page/index.php

⁶ <http://www.wampserver.com/en/>

7. FileZilla- Secured File Transfer Protocol software used for transferring code to a remote server.
8. Corel Draw X5- Software used to develop graphics and templates to be included in the proposed web design.

Hardware

1. Windows 7 PC
2. Dedicated Server Hardware with Server OS (Linux/Windows Server 2008/Unix)
3. Broadband Router

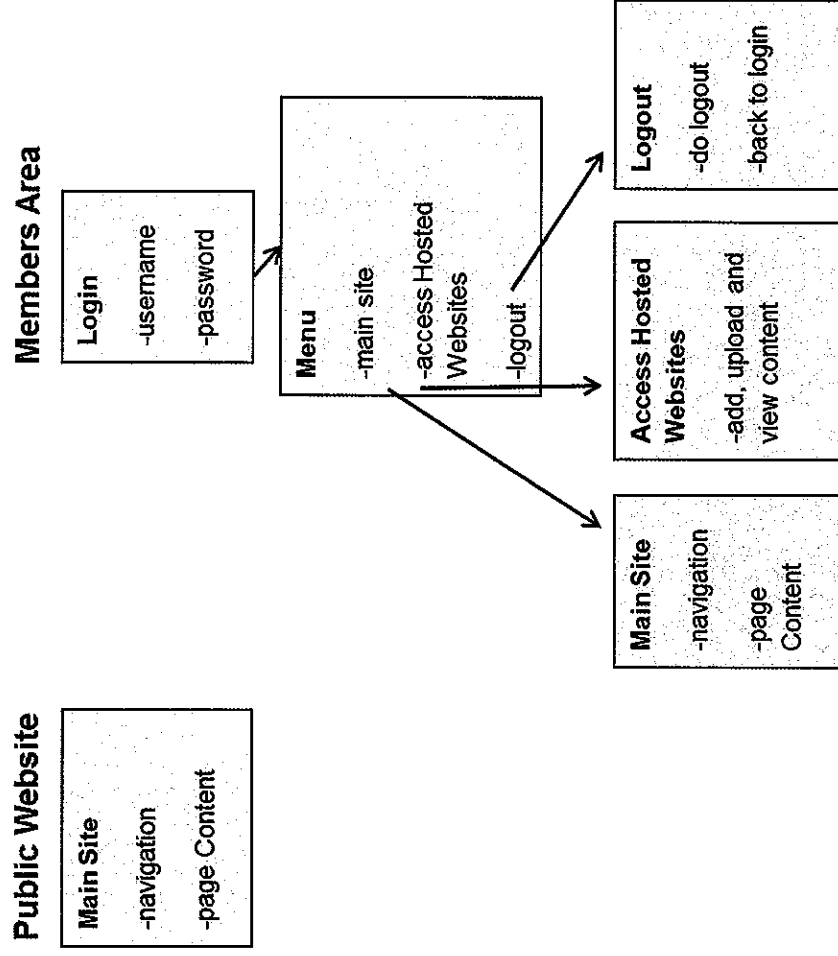
Users

The primary intended users of the system are:

1. Academic and practitioner researchers- The website provides a way for researchers to submit their work, access journals, publications and other resources, obtain details of other academic conferences etc.
2. Students- The website serves as a source of information for students through various published journals and instructional resources.

Blueprint for Proposed Content Management System

The following diagram describes the blue print of the proposed system:



Description

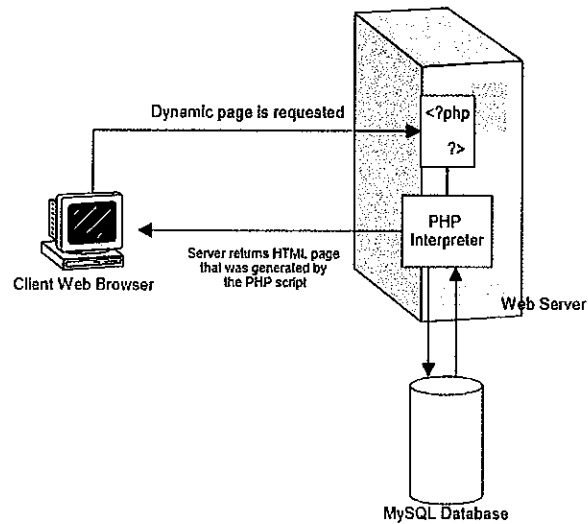
The diagram on the previous page shows the website being divided conceptually into two areas: public and members. The aim of this design is to make the system secure while retaining the desired navigational structure for the website. The public area contains content that is accessible to any visitor, member or not. Accessing the members' area however, requires registration and then log-in in. Content in the members' area refers to the other websites being hosted on the primary one. These websites have been classified into the following broad categories:

- Call for Papers
- Publications (Journals)
- Publications (Proceedings and Transactions)
- Organization's Websites
- Resource Center

While in the public area, a visitor can access all other content *except* the links under these categories. Since these website links provide access to web applications that can be used to upload data, placing them in the member's area has been done to secure the system.

Integration Model

The following diagram represents the graphical model of integration:



clcloud.com Integration Model

The following components can be described for CL Cloud's *new* integration model:

- Apache HTTP Server 2.2
- PHP 5.4.0
- MySQL Server 5.5
- phpMyAdmin

Description of the Integration Model

Any visitor with interest in the website would visit the homepage of the website. This would display in the client's browser the public area of the website (script: index.php), where the visitor can access general information about the company. However, to visit information and/or access applications restricted to members, the visitor must log-in, or register in case they haven't previously.

In order to *register*, the PHP script runs on the Apache Server and establishes a connection to a MySQL database and populates it with the new username and an encrypted password. For a *log-in*, the script will check the entered username and password against the records in the database. Once the authentication is successful, the server generates content *dynamically* and the client browser can see it in their browser as XHTML pages.

The Proposed System

Center for Linking Clouds

localhost/index.php

CENTER FOR LINKING CLOUDS

Housed by CL Cloud Computing Group

Login | Register

HOME | ABOUT US | SERVICES | TEAM | CONTACT US

consulting services for *and*

Web Hosting, Web Design, Database, Computer Networking,
Computer Programming, Information Security, Enterprise Resource
Planning (ERP), Business Intelligence (BI), and IT Auditing

Welcome to Center for Linking Clouds! We're hosting the following websites. Please click a link to visit a website.

CALL FOR PAPERS PUBLICATIONS (JOURNALS) PUBLICATIONS (PROCEEDINGS & TRANSACTIONS) ORGANIZATION'S WEBSITES RESOURCE CENTER

The User Authentication System

The web applications hosted on clcloud.com have been secured by a user authentication system. The new application features a log-in system created using PHP code in the pages and users information stored in a MySQL database. It is required that the user be registered and logged-in before accessing the website under the categories: call for papers, publications (journals), publications (proceedings and transactions), organization's websites and resource center. The login/ register buttons have been located appropriately in the top-right corner above the menu. If the user is new, the register form can be filled up. Appendix A contains the PHP script for the registration system and can be described as follows:

1. User fills in the registration form and submits it.
2. A connection to the MySQL database is established.
3. The PHP script would check for any errors such as:
 - a. The username already exists
 - b. Fields left blank
 - c. Passwords don't match

An appropriate error would be displayed for the respective situation.

4. Once the script clears the fields of any errors, the password is encrypted using the following command:

```
$_POST['pass'] = md5 ($_POST['pass']);
```

The md5() function calculates the md5 of the entered password, which is a 128-bit hash value. For example, for a password 'test', the function calculates:

“098f6bcd4621d373cade4e832627b4f6”. MD5 is one-way hashing algorithm i.e. it cannot be reversed. Therefore, if an intruder were to get access in to the database, the passwords would not be revealed.

5. The username and encrypted password then populate the table ‘users’ in the database. In this manner, a new record is created in the database containing a unique combination of a username and password table every time a new user registers.

Once registered, the user can log-in using the credentials and access the hosted websites in the members’ area. Appendix B shows the PHP script for the log-in system and can be described as follows:

1. A connection to the MySQL database is established.
2. Checks if a login cookie is present.
3. If there is, then the scripts redirects to the members’ area.
4. In case the login cookie is absent, the user is shown the log-in form. The form must be filled-in and submitted.
5. If any field is left empty, an error is displayed.
6. When the username and password fields are filled in correctly, the PHP script will check the entered username and password against the record created in the MySQL database. An appropriate warning/ error is displayed if:
 - a. Username doesn’t exist
 - b. Password is wrong
7. After the username and password is checked successfully against the database records, the script will set cookies:

```
setcookie(ID_my_site, $_POST['username'], $hour);
```

```
setcookie(Key_my_site, $_POST['pass'], $hour);
```

8. After the cookies are set, the user will be redirected to the members' area.
9. While logged-in, all the secured pages will be checked for a cookie before being loaded.
10. Appendix C contains the logout script. If the user chooses to log-out, the script destroys the cookie.

Web Design of the Proposed System Menu



HOME | ABOUT US | SERVICES | TEAM | CONTACT US

As shown in the diagram, the new design features a menu from which the user can select an option and easily find the information being looked for. The menu has the following options:

- About the company
- Product and services offered by the company
- The team
- Contact information
- Any important notifications that can be viewed in the 'notifications' box
- Follow the website on social media websites Facebook and Twitter

In order to make navigation through the website easier, a miniature version of the menu has been provided at the bottom of each page. Appendix F shows the other pages that can be accessed via the new menu.

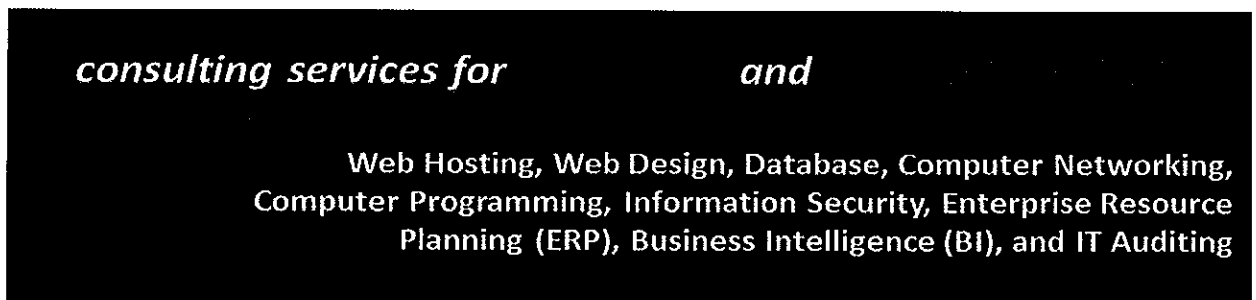
Central Panel

Welcome to Center for Linking Clouds! We're hosting the following websites. Please click a link to visit a website.

CALL FOR PAPERS	PUBLICATIONS (JOURNALS)	PUBLICATIONS (PROCEEDINGS & TRANSACTIONS)	ORGANIZATION'S WEBSITES	RESOURCE CENTER
<ul style="list-style-type: none"> • <i>Journal of Integrated Enterprise Systems</i> (Submission Deadline: May 1, 2012) • <i>The 2012 Worldwide Microsoft Dynamics Academic Alliance Preconference</i> (Submission Deadline: Close) 	<ul style="list-style-type: none"> • <i>The International Journal of Management Theory and Practices</i> • <i>Journal of Integrated Enterprise Systems</i> 	<ul style="list-style-type: none"> • <i>Microsoft Dynamics Academic Preconference, 2010</i> • <i>Microsoft Dynamics Academic Preconference, 2011</i> • <i>Microsoft Dynamics Academic Preconference, 2012</i> • <i>ICHTA - 2011, Transactions</i> 	<ul style="list-style-type: none"> • <i>The Association of Chinese Management Educators (ACME)</i> 	<ul style="list-style-type: none"> • <i>Instructional Resources for Microsoft Dynamics Products</i>

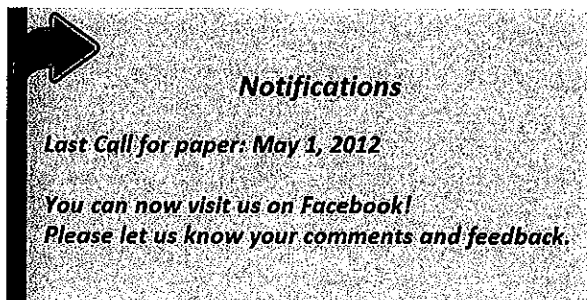
The websites being hosted by CL Cloud have been organized into five major sections. The central panel has been created in a tabular format as shown in the picture. This new design lays more emphasis on the websites being hosted, and also provides a more organized layout making it easier for the user to comprehend. One can find the link being looked for with ease. However, access to these hosted websites is limited to registered members since they need to be secure.

Header and Image



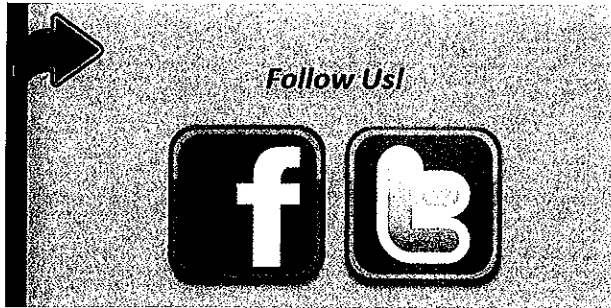
The new header and a central image are aimed at not only providing a more aesthetic look, but also instantly conveying the purpose of the website and its intended users. The distinct color scheme chosen has been kept consistent throughout the design of the website.

Notifications Box



This box has been added on the homepage to display any notifications that need the visitor's attention.

'Follow Us' Box



This box has been added on the homepage and provides links to the social media pages of CL Cloud. This is aimed at gathering attention of a wider audience with the use of social media optimization.

Search Engine Optimization

- Use of `<meta />` tags- The `<head> </ head>` tags for each page in the website contain `<meta />` tags that describe its content and relevant keywords for that respective page. This makes the relevance of those pages to the keywords and content in organic results of search engines.
- Sitemap- An important way for a website to communicate with website is through the use of sitemaps. The sitemap on a single page shows how the website is structured, its sections and how they are linked. The sitemap, an XML file has been uploaded on the server along with other pages. Please refer to appendix E for the sitemap.

Web Page Interoperability

The code for the new system has been written in XHTML 1.0 and validated as “XHTML 1.0 transitional”, i.e. it conforms to the latest standards in the language. This can be confirmed by validating the script using services such as <http://validator.w3.org/>.

Confirming to coding standards is essential to make the web page cross browser compatible. The new system can thus be viewed in most new web browsers such as Chrome, Mozilla Firefox and Internet Explorer.

Conclusion

The new system for clcloud.com has been established using open-source technologies being used by the previous system and thus can be easily integrated with the existing platform. This provides a great opportunity to expand the capabilities of the system even further.

The enhancement of the system has been achieved within the constraints that bind all information technology projects: time, cost and scope. Managing these constraints involves making trade-offs between the three which poses certain limitations on a project. Taking that into consideration, the following improvements may be considered in the future:

Shopping cart- Currently, access to resources on the website is free of cost. As the usage of the website increases over time and several members are added, cost of the maintenance of the system would likely go up. It may become viable to charge users for access to resources and online ordering of publications. For this purpose, a 'shopping cart' may be developed. The revenue from this may then be used for maintenance of the system.

Member Relationship Management- Currently, notifications of upcoming events such as conferences and call for papers is done by externally sending out emails to existing members. This is feasible since the number of members is low. However, as the number of users increase, the need of an automated system will arise to manage this scenario.

Appendix A

registration.php⁷

```
<?php
// Connects to your Database
mysql_connect("clicloud.db.8343077.hostedresourc.com", "clicloud", "Cloud1234"
) or die(mysql_error());
mysql_select_db("clicloud") or die(mysql_error());

//This code runs if the form has been submitted
if (isset($_POST['submit'])) {
    //This makes sure they did not leave any fields blank
    if (!$POST['username'] | !$POST['pass'] | !$POST['pass2']) {
        die('You did not complete all of the required fields');
    }

    // checks if the username is in use
    if (!get_magic_quotes_gpc()) {
        $_POST['username'] = addslashes($_POST['username']);
    }

    $usercheck = $_POST['username'];
    $check = mysql_query("SELECT username FROM users WHERE username = '
    $usercheck'");
    or die(mysql_error());
    $check2 = mysql_num_rows($check);

    //if the name exists it gives an error
    if ($check2 != 0) {
        die('Sorry, the username '.$_POST['username'].' is already in use.'
        );
    }

    // this makes sure both passwords entered match
    if ($_POST['pass'] != $_POST['pass2']) {
        die(header("Location: registration.php"));
    }

    // here we encrypt the password and add slashes if needed
    $_POST['pass'] = md5($_POST['pass']);
    if (!get_magic_quotes_gpc()) {
        $_POST['pass'] = addslashes($_POST['pass']);
        $_POST['username'] = addslashes($_POST['username']);
    }

    // now we insert it into the database
    $insert = "INSERT INTO users (username, password) VALUES ('".$_POST[
    'username']. "', '".$_POST['pass']."'");
    $add_member = mysql_query($insert);
    header("Location: registration1.php");
    exit();
}

?>

<?php
}
else
{
```

⁷ Due to practical constraints, the complete code has not been included in this report's appendix.

Appendix B

login.php

```
<?php
// Connects to your Database
mysql_connect("cloud.db.8343077.hostedresource.com", "cloud", "Cloud1234"
) or die(mysql_error());
mysql_select_db("cloud") or die(mysql_error());

//Checks if there is a login cookie
if(isset($_COOKIE['ID_my_site']))
//if there is, it logs you in and directes you to the members page
{
    $username = $_COOKIE['ID_my_site'];
    $pass = $_COOKIE['Key_my_site'];
    $check = mysql_query("SELECT * FROM users WHERE username = '
$username'") or die(mysql_error());
    while($info = mysql_fetch_array( $check ))
    {
        if ($pass != $info['password']){
        }
        else
        {
            header("Location: m_index.php");
            exit();
        }
    }
}

//if the login form is submitted
if (isset($_POST['submit']))
{
    // if form has been submitted
    // makes sure they filled it in
    if(!$_POST['username'] | !$_POST['pass'])
    {
        die('You did not fill in a required field.');
```

```
    }

    // checks it against the database
    if (!get_magic_quotes_gpc())
    {
        $_POST['username'] = addslashes($_POST['username']);
    }

    $check = mysql_query("SELECT * FROM users WHERE username = '".$_POST[
'username']."'") or die(mysql_error());
    //Gives error if user dosen't exist
    $check2 = mysql_num_rows($check);

    if ($check2 == 0)
    {
        die('That user does not exist in our database.');
```

```
    }
    while($info = mysql_fetch_array( $check ))
    {
        $_POST['pass'] = stripslashes($_POST['pass']);
        $info['password'] = stripslashes($info['password']);
```


Appendix C

logout.php

```
<?php
    $past = time() - 100;
    //this makes the time in the past to destroy the cookie
    setcookie(ID_my_site, gone, $past);
    setcookie(Key_my_site, gone, $past);
    header("Location: login.php");
?>
```


Appendix D

m_index.php

```
<?php
    // Connects to your Database
    mysql_connect("clcloud.db.8343077.hostedresource.com", "clcloud", "Cloud1234"
    ) or die(mysql_error());
    mysql_select_db("clcloud") or die(mysql_error());

    //checks cookies to make sure they are logged in
    if(isset($_COOKIE['ID_my_site']))
    {
        $username = $_COOKIE['ID_my_site'];
        $pass = $_COOKIE['Key_my_site'];
        $check = mysql_query("SELECT * FROM users WHERE username = '$username'"
        )or die(mysql_error());
        while($info = mysql_fetch_array( $check ))
        {
            //if the cookie has the wrong password, they are taken to the
            login page
            if ($pass != $info['password'])
            {
                header("Location: login.php");
            }

            //otherwise they are shown the admin area
            else
            {
                }
            }
        }
    }

    else
    //if the cookie does not exist, they are taken to the login screen
    {
        header("Location: login.php");
    }
?>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="description" content="consulting, academic, business, societies" />
<meta name="keywords" content="journals, call for papers, resource center" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="main_icon.ico" />
<title>Center for Linking Clouds, Canton, MI </title>
<link rel="stylesheet" type="text/css" href="style.css" />

</head>
<body>
```

```

<div class = "container">
  <div class= "image_link">
    <img src = "images/main.png" class = "new" height = "190px" width = "1000px"
      alt = "Cl Cloud" />
    <div class = "align-right1"><a href=logout.php>Logout</a></div>
  </div>

  <div class = "menu">
    <ul>
      <li><a href="m_contact.php">CONTACT US</a>&nbsp;&nbsp;&nbsp;</li>
      <li><a href="m_team.php">TEAM</a> &nbsp;&nbsp;&nbsp;|&nbsp;&nbsp;&nbsp;</li>
      <li><a href="m_service.php">SERVICES</a> &nbsp;&nbsp;&nbsp;|&nbsp;&nbsp;&nbsp;</li>
      <li><a href="m_about.php">ABOUT US</a> &nbsp;&nbsp;&nbsp;|&nbsp;&nbsp;&nbsp;</li>
      <li><a href="m_index.php">HOME</a>&nbsp;&nbsp;&nbsp;|&nbsp;&nbsp;&nbsp;</li>
    </ul>
  </div>

  <div class = "container1">
    
    <div class = "welcome">
      Welcome to Center for Linking Clouds! We're hosting the following
      websites. Please click a link to visit a website.
    </div><br/>

    <table class = "table" >
      <tr>
        <td>
          <ul>
            <li><a href="http://clcloud.com/chita/default.htm">Journal of
              Integrated Enterprise Systems(Submission Deadline: May 1, 2012)
            </a></li><br/>
          </ul>
        </td>

        <td>
          <ul>
            <li><a href="http://www.myacme.org/ijmtp/"> The International
              Journal of Management Theory and Practices</a></li><br/>
          </ul>
        </td>

        <td>
          <ul>
            <li><a href="http://clcloud.com/dynaa2010/default.htm">
              Microsoft Dynamics Academic Preconference, 2010</a></li><br/>
          </ul>
        </td>

        <td>
          <ul>
            <li><a href="http://www.myacme.org/"> The Association of

```

```

        Chinese Management Educators (ACME) </a></li>
      </ul>
    </td >

    <td>
      <ul>
        <li><a href="http://clcloud.com/dynaa/default.htm">
          Instructional Resources for Microsoft Dynamics Products</a></li>
      </ul>
    </td>
  </tr>

  <tr>
    <td>
      <ul>
        <li><a href="http://clcloud.com/DYNAA2012/default.htm">The
          2012 Worldwide Microsoft Dynamics Academic Alliance
          Preconference (Submission Deadline: Close) </a></li>
      </ul>
    </td>

    <td>
      <ul>
        <li><a href="http://clcloud.com/JIES/">Journal of Integrated
          Enterprise Systems</a></li>
      </ul>
    </td>

    <td>
      <ul>
        <li><a href="http://clcloud.com/dynaa2011/default.htm">
          Microsoft Dynamics Academic Preconference, 2011</a></li><br/>
        <li><a href="http://clcloud.com/dynaa2012p/default.htm">
          Microsoft Dynamics Academic Preconference, 2012</a></li><br/>
        <li><a href="http://clcloud.com/chita/trans/">ICHITA-2011
          Transactions</a></li>
      </ul>
    </td>

    <td>

    </td>

    <td>

    </td>
  </tr>
</table>

<table class = "not_table" cellspacing = "0px" >
  <tr>
    <td class = "cell">

```

```
<h2>Notifications</h2>
<p class = "notification">Last Call for paper:<font color = "red">
May 1, 2012</font><br/><br/>
You can now visit us on Facebook! <br/>
Please let us know your comments and feedback.</p>
</td>

<td class = "cell">
<h2>Follow Us!</h2>
<a href="http://www.facebook.com/clcloudcomputing"><img src=
"images/facebook.jpeg" width="130" height="130" alt="facebook"
border = "none" /></a>
<a href="http://twitter.com/#!/clcloud1"><img src=
"images/twitter.jpeg" width="130" height="130" alt="twitter" border
= "none" /></a>
</td>
</tr>
</table>
</div><br/>

<center></center><br/>

<div class = "footer">
<a href="m_index.php">Home</a> | <a href="m_about.php">About us</a> | <a href
="m_service.php">Services</a>
| <a href="m_team.php">Team</a> | <a href="m_contact.php">Contact Us</a><br/>
<font size = "2px">Copyright &copy; 2012 CL Cloud. All Rights Reserved.</font>
</div>
</div>
</body>
</html>
```

service.php

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="description" content="services, Cl, cloud" />
<meta name="keywords" content="consulting, academic, business, societies" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="main icon.ico" />
<title>Center for Linking Clouds, Canton, MI </title>
<link rel="stylesheet" type="text/css" href="style.css" />

</head>

<body>

  <div class = "container">
    <div class= "image link">
      <img src = "images/main.png" class = "new" height = "190px" width =
"1000px" alt = "Cl Cloud" />
      <div class = "align-right"><a href="login.php">Login</a> &nbsp; | &nbsp;
      <a href="registration.php">Register</a>
      </div>
    </div>

    <div class = "menu">
      <ul>
        <li><a href="contact.php">CONTACT US</a> &nbsp; &nbsp; </li>
        <li><a href="team.php">TEAM</a> &nbsp; | &nbsp; </li>
        <li><a href="service.php">SERVICES</a> &nbsp; | &nbsp; </li>
        <li><a href="about.php">ABOUT US</a> &nbsp; | &nbsp; </li>
        <li><a href="index.php">HOME</a> &nbsp; | &nbsp; </li>
      </ul>
    </div>

    <div class = "container1">
      

      <div class = "text1">
        CL Cloud Computing Group provides consulting services for academic and
        business societies in a wide variety of specialized services, namely:
      </div>

      <div class = "text">
        <ul>
          <li>Web Hosting</li>
          <li>Web Designing</li>
          <li>Databases</li>
          <li>Computer Networking</li>
          <li>Computer Programming</li>
          <li>Information Security</li>
          <li>Enterprise Resource Planning (ERP)</li>
          <li>Business Intelligence (BI)</li>
          <li>IT Auditing</li>
        </ul>
      </div>
    </div>
  </div>
</body>
</html>
```

```

        </ul>
        <br/>
        In addition to the above mentioned services, CL Cloud also hosts
        various websites providing access to valuable
        information for academic societies through journals, publications and
        other resources. Please visit our home page for more.
        <br/>

    </div>
    <br/><br/><br/><br/><br/><br/>

    <table class = "not_table" cellspacing = "0px" >
        <tr>
            <td class = "cell">
                <h2>Notifications</h2>
                <p class = "notification">Last Call for paper:<font color =
                "red"> May 1, 2012</font><br/><br/>
                You can now visit us on Facebook! <br/>
                Please let us know your comments and feedback.</p>
            </td>

            <td class = "cell">
                <h2>Follow Us!</h2>
                <a href="http://www.facebook.com/clcloudcomputing"><img src=
                "images/facebook.jpeg" width="130" height="130" alt="facebook"
                border = "none" /></a>
                <a href="http://twitter.com/#!/clcloud1"><img src=
                "images/twitter.jpeg" width="130" height="130" alt="twitter"
                border = "none" /></a>
            </td>
        </tr>
    </table>
</div>

<br/>
<center></center>
<br/>

<div class = "footer">
    <a href="index.php">Home</a> | <a href="about.php">About us</a> | <a href
    ="service.php">Services</a>
    | <a href="team.php">Team</a> | <a href="contact.php">Contact Us</a><br/>
    <font size = "2px">Copyright &copy; 2012 CL Cloud. All Rights Reserved.
    </font>
</div>
</div>

</body>
</html>

```

about.php

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="description" content="about, Cl, cloud" />
<meta name="keywords" content="consulting, academic, business, societies" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="main icon.ico"/>
<title>Center for Linking Clouds, Canton, MI </title>
<link rel="stylesheet" type="text/css" href="style.css" />

</head>

<body>

  <div class = "container">
    <div class= "image_link">
      <img src = "images/main.png" class = "new" height = "190px" width =
"1000px" alt = "Cl Cloud" />
      <div class = "align-right"><a href="login.php">Login</a> &nbsp; | &nbsp;
      <a href="registration.php">Register</a>
      </div>
    </div>

    <div class = "menu">
      <ul>
        <li><a href="contact.php">CONTACT US</a> &nbsp; &nbsp; </li>
        <li><a href="team.php">TEAM</a> &nbsp; | &nbsp; </li>
        <li><a href="service.php">SERVICES</a> &nbsp; | &nbsp; </li>
        <li><a href="about.php">ABOUT US</a> &nbsp; | &nbsp; </li>
        <li><a href="index.php">HOME</a> &nbsp; | &nbsp; </li>
      </ul>
    </div>

    <div class = "container1">
      

      <div class = "text">
        CL Cloud Computing Group provides consulting services for academic and
        business societies in the areas of Web Hosting,
        Web Design, Database, Computer Networking, Computer Programming,
        Information Security, Enterprise Resource Planning (ERP) ,
        Business Intelligence (BI), and IT Auditing.

        <br/><br/><br/><br/>

        For further information, please write to us at: <a href =
        "mailto:chenku60@yahoo.com">chenku60@yahoo.com</a>
      </div>

      <br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/><br/>
      <br/>
      <table class = "not_table" cellspacing = "0px" >
        <tr>
```

```
<td class = "cell">
  <h2>Notifications</h2>
  <p class = "notification">Last Call for paper:<font color =
  "red"> May 1, 2012</font><br/><br/>
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<td class = "cell">
  <h2>Follow Us!</h2>
  <a href="http://www.facebook.com/clcloudcomputing"><img src
  ="images/facebook.jpeg" width="130" height="130" alt=
  "facebook" border = "none" /></a>
  <a href="http://twitter.com/#!/clcloud1"><img src=
  "images/twitter.jpeg" width="130" height="130" alt=
  "twitter" border = "none" /></a>
</td>
</tr>
</table>
</div>

<br/>
<center></center>
<br/>

<div class = "footer">
  <a href="index.php">Home</a> | <a href="about.php">About us</a> | <a href
  ="service.php">Services</a>
  | <a href="team.php">Team</a> | <a href="contact.php">Contact Us</a> <br/>
  <font size = "2px">Copyright &copy; 2012 Cl. Cloud. All Rights Reserved.
  </font>
</div>

</div>

</body>
</html>
```


contact.php

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="description" content="contact, Cl, cloud" />
<meta name="keywords" content="consulting, academic, business, societies" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="main_icon.ico" />
<title>Center for Linking Clouds, Canton, MI </title>
<link rel="stylesheet" type="text/css" href="style.css" />

</head>

<body>

  <div class = "container">
    <div class= "image_link">
      <img src = "images/main.png" class = "new" height = "190px" width =
        "1000px" alt = "Cl Cloud" />
      <div class = "align-right"><a href="login.php">Login</a> &nbsp; | &nbsp;
        <a href="registration.php">Register</a>
      </div>
    </div>

    <div class = "menu">
      <ul>
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        <li><a href="team.php">TEAM</a> &nbsp; | &nbsp;</li>
        <li><a href="service.php">SERVICES</a> &nbsp; | &nbsp;</li>
        <li><a href="about.php">ABOUT US</a> &nbsp; | &nbsp;</li>
        <li><a href="index.php">HOME</a> &nbsp; | &nbsp;</li>
      </ul>
    </div>

    <div class = "container1">
      

      <div class = "text5">
        We are located at: Canton, MI, 48187 (USA)
        <br/><br/>
        <iframe width="950" height="400" frameborder="0" scrolling="no"
          marginheight="0" marginwidth="0"
          src=
            "http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&
            mp;q=Canton,+MI&aq=2&
            oq=canton&sll=32.220696,-98.202263&sspn=0.164686,0.338173&ie
            =UTF8&hq=&hnear=Canton,+Wayne,
            +Michigan&t=m&z=13&iwloc=A&ll=42.308644,-83.482116&output=embed"></iframe><br />
      </div>
    </div>
  </div>

```

```

<br/>
<table class = "not_table" cellspacing = "0px" >
  <tr>
    <td class = "cell">
      <h2>Notifications</h2>
      <p class = "notification">Last Call for paper:<font color =
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        "images/facebook.jpeg" width="130" height="130" alt="facebook"
        border = "none" /></a>
      <a href="http://twitter.com/#!/clcloud1"><img src=
        "images/twitter.jpeg" width="130" height="130" alt="twitter"
        border = "none" /></a>
    </td>
  </tr>
</table>
</div>
<br/>
<center></center>
<br/>
<div class = "footer">
  <a href="index.php">Home</a> | <a href="about.php">About us</a> | <a href
    ="service.php">Services</a>
  | <a href="team.php">Team</a> | <a href="contact.php">Contact Us</a><br/>
  <font size = "2px">Copyright &copy; 2012 CL Cloud. All Rights Reserved.
  </font>
</div>
</div>

</body>
</html>

```

team.php

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="description" content="team, Cl, cloud" />
<meta name="keywords" content="consulting, academic, business, societies" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="main_icon.ico" />
<title>Center for Linking Clouds, Canton, MI </title>
<link rel="stylesheet" type="text/css" href="style.css" />

</head>

<body>

  <div class = "container">
    <div class= "image_link">
      <img src = "images/main.png" class = "new" height = "190px" width =
        "1000px" alt = "Cl Cloud" />
      <div class = "align-right"><a href="login.php">Login</a> &nbsp;| &nbsp;
        <a href="registration.php">Register</a>
      </div>
    </div>

    <div class = "menu">
      <ul>
        <li><a href="contact.php">CONTACT US</a> &nbsp;&nbsp;&nbsp;</li>
        <li><a href="team.php">TEAM</a> &nbsp;| &nbsp;</li>
        <li><a href="service.php">SERVICES</a> &nbsp;| &nbsp;</li>
        <li><a href="about.php">ABOUT US</a> &nbsp;| &nbsp;</li>
        <li><a href="index.php">HOME</a> &nbsp;| &nbsp;</li>
      </ul>
    </div>

    <div class = "container1">
      

      <div class = "text3">President:</div>
      <div class = "text4">
        <h5>Kno Lane Chen, Ph.D.</h5>
        Associate Professor<br/>
        School of Computing<br/>
        University of Southern Mississippi<br/>
        Hattiesburg, MS 39406<br/>
      </div>

      <div class = "text3">Board of Directors:</div>

      <div class = "text4">
        <h5>Huei Lee, Ph.D.</h5>
        Professor of CIS &amp; SCM<br/>
        Eastern Michigan University<br/>
        Ypsilanti, MI 48187
      </div>
    </div>
  </div>
```

```

<div class = "text4">
  <h5>Clarence Lee</h5>
  Master of Science<br/>
  Electrical Engineering & Computer Science<br/>
  Massachusetts Institute of Technology<br/>
  Cambridge, MA 02139
</div>
<br/>

<table class = "not_table" cellspacing = "0px" >
  <tr>
    <td class = "cell">
      <h2>Notifications</h2>
      <p class = "notification">Last Call for paper:<font color =
        "red"> May 1, 2012</font><br/><br/>
      You can now visit us on Facebook! <br/>
      Please let us know your comments and feedback.</p>
    </td>

    <td class = "cell">
      <h2>Follow Us!</h2>
      <a href="http://www.facebook.com/clcloudcomputing"><img src=
        "images/facebook.jpeg" width="130" height="130" alt="facebook"
        border = "none" /></a>
      <a href="http://twitter.com/#!/clcloud1"><img src=
        "images/twitter.jpeg" width="130" height="130" alt="twitter"
        border = "none" /></a>
    </td>
  </tr>
</table>
</div>

<br/>
<center></center>
<br/>
<div class = "footer">
  <a href="index.php">Home</a> | <a href="about.php">About us</a> | <a href
    ="service.php">Services</a>
  | <a href="team.php">Team</a> | <a href="contact.php">Contact Us</a><br/>
  <font size = "2px">Copyright &copy; 2012 CL Cloud. All Rights Reserved.
  </font>
</div>
</div>

</body>
</html>

```

Appendix E

```
<?xml version="1.0" encoding="UTF-8"?>
<urlset
  xmlns="http://www.sitemaps.org/schemas/sitemap/0.9"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.sitemaps.org/schemas/sitemap/0.9
    http://www.sitemaps.org/schemas/sitemap/0.9/sitemap.xsd">

  <url>
    <loc>http://people.emich.edu/asingh8/</loc>
    <changefreq>weekly</changefreq>
    <priority>1.00</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/login.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/registration.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/contact.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/team.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/service.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/about.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
  <url>
    <loc>http://people.emich.edu/asingh8/index.php</loc>
    <changefreq>weekly</changefreq>
    <priority>0.80</priority>
  </url>
</urlset>
```

Appendix F

