Web Content Management in Universities Using Joomla!: Freedom All Together

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Abstract

This paper describes a live project carried out towards the development of a dynamic web site of University Institute of Information Technology, H.P. University, Shimla, using Joomla! an open source web content management software as a pilot project. The main objective of developing this pilot was to explore the versatility of an open source web Content Management Software as a precursor to handle web content of a full blown website of Himachal Pradesh University Shimla including its library and student services. The experience gained and power & versatility of the Joomla! explored to develop the dynamic web site of the institute are discussed in the paper as a case study particularly in the ease of installing and managing the web content both static and dynamic by non-technical man power in universities, libraries and administration. The hints and guidelines to undertake such a task are also provided.

Keywords: WCMS, Joomla, Apache, XAMPP, WYSIWYG, PHP, MYSQL, HTML, ICT

1.   Introduction

One of the major challenges of information managers in knowledge domain such as librarians in Universities, colleges and institutions, is to provide easily accessible information to the targeted audience in a seamless manner via the internet and the intranet. This role has evolved in the last one and a half decade because of huge influence which the information and communication technology (ICT) has made leading to a more proactive role which has to be played by the library professionals and information managers.

The major task involved in this direction is to manage huge content, which is at their disposal waiting to reach out to the stakeholders. One of the paths adopted by these information managers is to look for a cost effective, reliable, up gradable and easy to manage web content management software. As the name suggests such software is an application, which is used to manage web content in its entirety. Desire remains that it should meet the expectations of technical, academic and professional expectations. Invariably the search lands them in the hands of an out sourcing agency through very costly proprietary content management software with complete dependence for content loading and management on the vendor, a sort of what is known as predatory vendor lock-in. In recent years an answer to this slavery has emerged in the form of open source soft wares leading to freedom in the form of lower software costs**,** simplified license management, lower hardware costs, scaling/consolidation potential, ample support, escape vendor lock-in, unified management, quality software, etc.

Lately out of many such applications Joomla! has emerged as a favourite open source web content management system with the information and library professionals which has almost all the desirable ready made features to meet all their web portal needs, with relative ease of use with no prior knowledge of programming languages, web development or mark up languages to create and manage web content.

2.   Features of a Typical Web Content Management System

A typical web content management system (WCMS) consists of following features [1]:

Front End and Back End: The front end is the view of the website - what the visitors and the logged-on users see in a web browser. The back end is the administration layer of the website for the administrator to do configuration, maintenance, cleaning, creation of statistics, and new content creation.

Configuration Settings**:** These **s**ettings which apply to the entire website control the title text in the browser window, passwords for search engines, switches that permit or forbid logging on to the site, switches that switch the entire page offline or online, and many other functions.

Access Rights: This provides a hierarchy of authorities for an effective and secure administration of existing resources by providing people involved with usernames and passwords with different access rights controlled by a super administrator with full rights. The other users may include authors, editors and other members of the team who may be involved in the development of different types of contents.

Content: Content can be simple text, a picture, a table, a link, a piece of music, or a combination of everything depending on the basic structure of the web site.

Templates: Templates provide an editable visual format in which content is embedded aesthetically. It offers the choice of colors, character fonts, character sizes, background pictures, spacing, and partitioning of the page i.e. a complete layout for giving a characteristic appearance of the page.

Extensions (Components): A web content management system should have the feature of expandability for future growth and changing requirements in the form of components for a single functionality, such as newsletter maintenance, online forms, database manager with the corresponding business logic of respective page.

Joomla! has all the desirable features, with extensions being added by a vast community of distributed developers, as listed below [1,2,3,4,5,6]:

- ♦ Free source code
- ♦ Multilingual front end
- ♦ Simple workflow system
- ♦ Administration interface that is separated from the homepage
- ♦ Caching mechanism to secure fast page creation with favorite pages
- ♦ Banner management
- ♦ Simple, expandable template, and component system
- ♦ Simple, but powerful template system (HTML, CSS, PHP) without a complicated template language
- ♦ Data manager for uploading and administering data
- ♦ Publication system for content

♦ Content summaries in RSS format

♦ What you see is what you get(WYSIWYG) editor for content

♦ System of evaluation for contents

♦ Wastepaper basket

♦ Search-engine-friendly URLs

♦ Hierarchical user groups

♦ Simple visitor statistics

♦ Simple polling

3.   Technologies needed to work with Joomla!

To proceed to work with Joomla! and make it functional one requires that the web server, or the service provided by the web host, meets the **minimum requirements.** These are [7]:

♦ PHP 4.3.x or above: http://www.php.net

♦ MySQL 3.23.x or above: http://www.mysql.com

♦ Apache 1.13.9 or above: http://www.apache.org

A brief description of each one of these and what they perform is given below.

3.1 APACHE

The **Apache HTTP Server**, commonly referred to simply as Apache, is a web server notable for playing a key role in the initial growth of the World Wide Web and developed by an open community of developers. It is one of the leading open source web servers and is the favoured choice of internet service providers in terms of functionality, performance and availability for a variety of operating systems including Microsoft Windows and Linux.

3.2 PHP (Hypertext Preprocessor)

PHP is a reflective computer programming language originally designed for producing dynamic web pages through scripts which can be embedded in

HTML. PHP is used mainly in server-side scripting, but can be used from a command line interface or in standalone graphical applications. It is a free software by the Free Software Foundation. PHP can be deployed on most web servers and on almost every operating system and platform free of charge.

3.3 MySQL

MySQL is a multithreaded, multi-user SQL database management system. The basic program runs as a server providing multi-user access to a number of databases. MySQL is popular for web applications and acts as the database component of the LAMP, MAMP, and WAMP platforms (Linux/Mac/Windows-Apache-MySQL-PHP/Perl/Python). Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Wikipedia runs on MediaWiki software, which is written in PHP and uses a MySQL database.

MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, and is available under General Public License.

4.   Implementing the technical requirements: A Preconfigured Approach

There are two ways in which these requirements can be fulfilled. First way is to install all the three components individually. The second option is to use a preconfigured package such as **WAMP** or **XAMPP** the two of which have been creating a complete development environment with the ingredients like Apache, MySQL, PHP, Perl, and various extensions.

We tried both the ways and found that installing all the components separately and then configuring them with each other was a difficult as well as cumbersome task where as installing a pre-configured package was easy and less time consuming. Moreover, using these pre-configured packages is easy and they even provide additional

functionalities. A brief description of the one we used is given below.

4.1 XAMPP

XAMPP is a free, cross-platform web server, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP's name is an abbreviated form for X (any of four different operating systems: Microsoft Windows, Linux, Sun Solaris and Mac OS X), Apache, MySQL, PHP and Perl. It has been released under the GNU General Public License and acts as a free, easy-to-use web server capable of serving dynamic pages. It is a favourite for web development projects.

XAMPP only requires one zip, tar or exe file to be downloaded and run, and very little configuration of the various components that make up the web server is required. XAMPP is regularly updated to incorporate the latest releases of Apache/MySQL/ PHP and Perl. It also comes with a number of other modules, including phpMyAdmin, which provides a easy way to manage the data stored in MySQL, File Zilla, which is a open source FTP client and Mercury Mail which is an SMTP and POP3 mail server. For its simplicity, it is also taunted as lazy man's WAMP/LAMP installation. XAMPP can be installed on a fly and requires only a small fraction of the time necessary to download and configure the separate programs.

Figure. 1   http://www. joomlacode. org.

5. Downloading and installing Joomla!

Once XAMPP is installed, one is ready for the installation of Joomla! (Fig 1)

5.1 Downloading Joomla!

The main distribution files for Joomla! can be downloaded from http://www.joomlacode.org. The file will be a compressed archive, which needs to be uncompressed or untarred or unzipped by using a utility. This should be available either locally or on one's host server. There are many freely available e.g. WinZip or WinRAR. Fig 1 shows the screen shot of the joomla code website.

5.2 Installing Joomla!

Joomla can be installed locally or remotely. Assuming that XAMPP has been installed and configured to meet the requirements of Joomla, unzip the distribution file into a directory under one's web server root. In windows OS, this is typically c:\xampp\htdocs and /usr/local/xampp/htdocs on a UNIX system but it may vary on hosted servers and between different brands of operating systems. To install remotely one must check the facilities on the host regarding control panel software and connection resources and users own skill [7].

5.2.1   Pre Installation Check

Assuming one has a working Apache web server, with PHP and a MySQL Database, one is on the way to installing Joomla!. When one has finished uploading the files and folders, go to the homepage (like http://www.sitename.com or http:// sitename.com/joomla_folder) in case of remote installation and to the folder in root directory where Joomla! files were extracted (like http://localhost/ joomla_folder) in case of local installation. One should now see a pre-installation check page generated by Joomla!

If one does not see the Check page one needs to verify the following:

♦ Was everything uploaded to the web site?

♦ Did one remove (and back up) the old web site?

♦ Does one really have an Apache / MySQL / PHP Web server?

♦ Does one have a configuration.php file in the Joomla directory?

If everything checks out OK, and one still does not see the Check page, try: http://www.sitename.com/joomla_folder   /installation/index.php. This is the direct address for the Check page in case of local installation. If it doesn't show up, or one sees a lot of errors and techno mumbo-jumbo, one probably does not have an Apache / MySQL / PHP Web server.

The pre-installation check page is in three parts. The first checks that one's system is able to run Joomla!. The second part checks some PHP settings. The third part checks several file and directory permissions. If everything checks out OK click the Next button. If there are some items highlighted in red, one needs to ask the web service provider to correct them. If it is not possible to correct them on one's own, one can still click Next, and see what happens. The next page displays the license for Joomla. If one agrees with the terms and condition, click the checkbox next to I Accept the GPL License and the click the Next button. One will not be able to proceed unless one agrees to the license terms.

5.2.2 Installation-Step 1

The next page configures the MySQL database which is Step 1 of the installation process. Step 1 of the installation deals with the configuration of the MySQL database. Enter the configuration of MySQL Database. The hostname of database is usually localhost. This means the database server is running on the same computer as web server. On occasions where localhost is not a usable database server, one will need to contact administrator.

Host providers, using control Panel, usually allows one to set up his own User Name, Password, and Database Name. Again, if in any doubt consult your host provider for this information. The option to Drop Existing Tables in the nominated database as is the option to Backup Old Tables is given. For a first time installation, one should leave both of these blank. One may also Install Sample Data. If this is one's first Joomla! installation, we recommend to check this option as one will find the benefit when one gets to look around site for the first time. When one has entered one's database information correctly, click the Next button. Confirm the database information when asked.

5.2.3 Installation - Step 2

Step 2 is simply a page where one enters the name of the site. This will appear in the Global Configuration.

Enter a name for the site and click the "Next" button. One should note that special characters are usable in this information area.

5.2.4 Installation - Step 3

Step 3 is a page to confirm the installation directory, the url to the Joomla site, one's email address and the administrator password.

The email address is for Super Administrator email. This user account is automatically created. The password one enters will be used for their "admin" account. The username for the Super Administrator is "admin". One may change the randomly generated password if one desires.

The permission settings will be used while installing Joomla itself, by the Joomla addon-installers and by the media manager. If one is unsure what flags shall be set, leave the default settings at the moment. One can still change these flags later in the site's global configuration.

Click the "Next" icon. The final page confirms the status of the installation and the Super Administrator login name and password.

5.2.5 Installation - Step 4

The final page allows one to copy information for the configuration.php file.

Copy the configuration file data. One can either paste it directly into the configuration.php-dts file on the server and rename that file configuration.php, or create a separate configuration.php file and upload it to the Joomla! root directory. One only needs to copy and paste the data if the installation has not created the configuration.php file for you. However, it does no harm to keep a note of this information in a local file for future reference.

Do not forget your Super Administrator login name and password as it is not possible to enter the admin section without this. If one loses this information, one must restart the complete set up procedure.

For security reasons one is reminded to delete the installation folder, and then refresh the page. Until this is done, Joomla will not work.

There are two buttons that will take one to either the Joomla Site or the Site Administrator. If this is the first installation click the "View Site" button. One should see new Joomla site.

Take a moment to explore some menu options. When one is ready, click the "Administrator" link in the Main Menu. Enter the user name and password as one saw them on the Step 4 page. If this is not the first time then one will know what to do next.

The set up has now been completed, and one is ready to **Joomla! .**

6.   Thinking About the Content the Joomla! Way

Before one can go to Joomla!, it will be worthwhile to spend some time to think about the content of a typical web site.   Even if one has to get one's web portal ready from some service provider, one needs to apply a thought on what is technically called a site map, which is indeed a map of requirements of the website. It can be in the form of a flowchart or a table to visualize the main sections, categories and contents as desired in the website or a web portal. **Sections** are containers that hold one or more Categories,. **Categories** are containers that hold one or more Content Items, **Content** Items are the articles that make up the actual website content [4]. This is precisely the way Joomla! works. Thinking in this way also helps one to identify which matter has to go as static content and what content has to go as dynamic content. An article is assigned to a category, category is assigned to a section. When one is sure about with the content structure, one creates menu items, and links these to the content to facilitate browsing. A menu item can indicate any of the three members of this hierarchical structure. If a menu item links to a container i.e. to a category or a section, the surfer of the website is presented with a list of items contained in that container. This is how the content of the website of the present case study related to University Institute of Information Technology(UIIT), Himachal Pradesh University, Shimla was built as shown in the Table 1.[8]

Table 1 Defined content of the UIIT web site			
Sections	**Categories**	**Items**	**Remarks**
About Us	- Aims and Objectives - Our Mission - About Shimla - Messages	Aims_file, Objective_file, mission_statement_file, shimla_history_file, shimla_weather_file, director_message_file etc.	Static Pages
Admission	- Entrance Examination - Sample Questions - Syllabus - Seats Criteria - Examination Centers	Schedule_file, rules_file, centres_file, maths_samp_file, physics_samp_file,Sem1_syll_file, sc_seats_file, etc.	Static Pages
Facilities	- Library - Labs - Guest House - Health Center	Separate files for each category	Static Pages
Academics	- Courses offered - Faculty	Separate files for each category	Static Pages
Placements	- Resume of students - Past record - Visiting companies	Separate files for each category	Static pages
Forums	- IT forum - Cultural Forum	Separate files for each category	Static pages and blogs
News	- Institute News - University News	Separate files for each category	Static web pages
Guest Book	- Fill in item	e-mail/remarks file	On line form
Flash Gallery	- Annual Dinner - Annual Fest - Prize Distribution	Separate items for each category	Picture and flash video files
Results	- Entrance Exams - Sessionals - Term end examination	Separate items for each category	Database driven pages
Attendance	- Theory - Labs	Separate items for each category	Database driven pages

In addition to this there can be tabs such as search tab and links tab facilitating search of complete web site and providing important links to targeted audience.

7.   Choosing Look and feel: Templates

Focus upto this point has been on content and not the look and feel. Content has already been defined. Content does not contain any of the elements of look and feel.
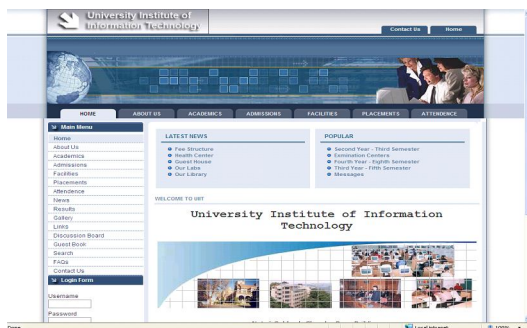

Figure 2 Home Page of UIIT Website

Designing a template is a fairly technical and tricky business and to create a web site on the fly means choosing freely-available open source templates, to take care of color, fonts, lay out etc. and concentrate only on the content. These templates come in cascaded style sheet (CSS) format Fig. 2 & 3 [8] show the screen shots of the pages of UIIT website.

8.   Accessing Joomla! Functions

All the Joomla! functions are accessed through Joomla! administration control panel. To access Joomla! administration control panel, one can use the website address (or the full address of the folder in which one has installed Joomla!) followed by / administrator. For example, if the website address is www.sitename.com, to access Joomla! one would normally type: www.sitename.com/administratorThis brings one to the Joomla! login page for
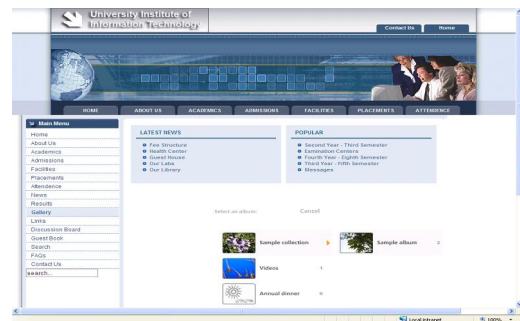

Figure 3 Flash Gallery of the UIIT website

Figure 4 Joomla! Control Panel

authentications and takes one to Joomla! administration home page. From here one can access all Joomla! functions. This page is also known as control Panel. It has four distinct options in the form of menu bar, quick link buttons, control panel buttons and other screen buttons. There are different managers available in the control panel button for managing different tasks. For example a section is created using section manager, a category is created using category

manager, a media item is created using media manager, contents items using content manager, menus are managed using menu manager and template are managed using template manager. Through these managers one can, based on the site content structure, create a website. Fig. 4 shows the screen shot of the Joomla! control Panel.

9.   Building database driven pages in Joomla!

In simple language this implies displaying information stored in a database on a web page.

This requires basic knowledge of relational database engine MySQL, and server side scripting language, which is available in XAMPP. In the case study, result and attendance are two database driven pages. This require design of four tables viz Students
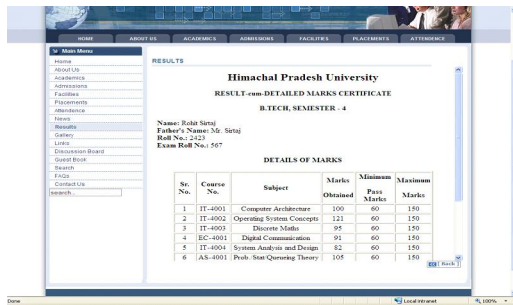

Figure 5 Screen Shot of displayed result

table, Courses table, Attendance table (One for each Semester), Result (One for each Semester) with appropriate fields defined in these. Once these tables are there in the form of a database say student_info, the next step is to connect the database to the web page which is done through a PHP function call :

    mysql_connect(<address>, <username>, <password>);

Where

<address> =IP address or hostname of the computer on which the MySQL server software is running ("localhost" if running on the same computer as the Web server software)

<username>= MySQL user name

<password> =one used to connect to the MySQL server.

The mysql_connect function returns a number that identifies the connection that has been established which is stored in a variable named $dbcnx

$dbcnx = mysql_connect("localhost", "root", "mypasswd");

The next step, once a connection is established, is to select the database one wants to work with. Let's say we want to work with the Student information database we created named student_info. Another function call to select data base in PHP is

mysql_select_db("student_info", $dbcnx);

This function call has two arguments namely the name of the database and connection identifier.

After database connection MySQL query is created followed by display of records, The complete code in PHP is given in Appendix- A. Fig. 5 shows the screen shot of the displayed results.[8]

10. Extensions to Joomla!:Adding Components

Best part of the free and open source community is that in any project it keeps on adding extensions to enlarge its scope. Same is true of the members of the Joomla! community who produce Joomla! components on a continuous basis, which can be downloaded from http://extensions.joomla.org/ or http://developer.joomla.org. A few of these are easy book-a joomla! guest book component, Expose Flash Gallery – a flash based tool for eye catching slide shows.

11. Conclusion

To conclude we see Joomla! as a very powerful Content Management System(CMS), most suited to meet the requirements of an Information Manager/ Librarian in any university or institute without much technicality and comparative ease. It can be used to develop an elaborate web portal free from the clutches of proprietary software.

Technology, Himachal Pradesh University, Shimla, Librarian and Himachal Pradesh University, Shimla, while exploring the capabilities of Joomla! as a Content Management System.

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Appendix-A

PHP Code for the Results Page

```php
</head>
<body>
<p>
 <?php
// open connection
$connection = mysql_connect('localhost', 'root', '')
or die (' <P>Unable to connect to the " .
"database server at this time.</P>');
// select database
mysql_select_db('uiitdata') or die ('<P>Unable to locate the " .
"database at this time.</P>');
// create query
$RollNo=$_POST["Exam_Roll_No"];
$Sem=$_POST["Semester"];
$Rtable=Result_Sem.$Sem;
$query = "SELECT * FROM Students WHERE Exam_Roll_No=$RollNo";
$result = mysql_query($query)
or die ("Error in query: $query. " . mysql_error());
if (mysql_num_rows($result)==0){
        echo("Roll Number not found");
        exit();
}
echo '<h2 align="center">Himachal Pradesh University</h2>
<palign="center"><strong>RESULT-cum-DETAILED MARK SCERTIFICATE </strong></p>
 <p align="center"><strong>B.TECH, SEMESTER - '. $Sem . '</strong></p>';
// Display the records
while ($row = mysql_fetch_array($result) ) {
        echo "<strong>Name: </strong>";
        echo $row["Name"];
        echo "<br/>";
        echo "<strong>Father's Name: </strong>";
        echo $row["Father_Name"];
        echo "<br/>";
        echo "<strong>Roll No.: </strong>";
        echo $row["Roll_No"];
        echo "<br/>";
        echo "<strong>Exam Roll No.: </strong>";
        echo $row["Exam_Roll_No"];
}
$query = "SELECT Course_Code, Course_Name FROM Courses WHERE Semester=$Sem";
$result = mysql_query($query)
or die ("Error in query: $query. " . mysql_error());
```

```
while ($crow[] = mysql_fetch_row($result));

$query = "SELECT * FROM $Rtable WHERE Exam_Roll_No=$RollNo";
// execute querys
$result = mysql_query($query)
or die ("Error in query: $query. " . mysql_error());
if (mysql_num_rows($result) == 0)
{
        // print error message
        echo '<BR> <h3 align="center">Records Not Found </h3>';
        exit();
}
echo '<p align="center"><strong>DETAILS OF MARKS</strong></p>';
echo '<table width="520" border="1" align="center">';
while($row = mysql_fetch_row($result))
 {
  echo '<tr>
   <th scope="col">Sr. No.</th>
   <th scope="col">Course No.</th>
   <th scope="col">Subject</th>
   <th scope="col"><p>Marks</p>
   <p>Obtained</p></th>
   <th scope="col"><p>Minimum</p>
   <p>Pass Marks</p></th>
   <th scope="col"><p>Maximum </p>
   <p>Marks</p></th>
  </tr>
  <tr>
   <td><div align="center">1</div></td>';
   echo '<td><div align="center">' . $crow[0][0] . '</td>';
   echo '<td><div align="center">' . $crow[0][1] . '</td>';
   echo '<td><div align="center">' . $row[1] . '</td>';
   echo '<td><div align="center">60</div></td>
    <td><div align="center">150</div></td>
  </tr>
  <tr>
   <td><div align="center">2</div></td>';
   echo '<td><div align="center">' . $crow[1][0] . '</td>';
   echo '<td><div align="center">' . $crow[1][1] . '</td>';
   echo '<td><div align="center">' . $row[2] . '</td>';
   echo '<td><div align="center">60</div></td>
    <td><div align="center">150</div></td>
  </tr>
  <tr>
   <td><div align="center">3</div></td>';
```

```
echo '<td><div align="center">' . $crow[2][0] . '</td>';
echo '<td><div align="center">' . $crow[2][1] . '</td>';
echo '<td><div align="center">' . $row[3] . '</td>';
 echo '<td><div align="center">60</div></td>
 <td><div align="center">150</div></td>
</tr>
<tr>
 <td><div align="center">4</div></td>';
echo '<td><div align="center">' . $crow[3][0] . '</td>';
echo '<td><div align="center">' . $crow[3][1] . '</td>';
echo '<td><div align="center">' . $row[4] . '</td>';
 echo '<td><div align="center">60</div></td>
 <td><div align="center">150</div></td>
</tr>
<tr>
 <td><div align="center">5</div></td>';
echo '<td><div align="center">' . $crow[4][0] . '</td>';
echo '<td><div align="center">' . $crow[4][1] . '</td>';
echo '<td><div align="center">' . $row[5] . '</td>';
 echo '<td><div align="center">60</div></td>
 <td><div align="center">150</div></td>
</tr>
<tr>
 <td><div align="center">6</div></td>';
echo '<td><div align="center">' . $crow[5][0] . '</td>';
echo '<td><div align="center">' . $crow[5][1] . '</td>';
echo '<td><div align="center">' . $row[6] . '</td>';
 echo '<td><div align="center">60</div></td>
 <td><div align="center">150</div></td>
</tr>
<tr>
 <td colspan="6"><div align="center"><strong>Practicals/drawing/Design
 </strong> </div>
 <div align="center"></div> <div align="center"></div> <div align="center"></div>
       <div align="center"></div> <div align="center"></div> <div align="center"></div> </
td>
</tr>
<tr>
 <td><div align="center">7</div></td>';
echo '<td><div align="center">' . $crow[6][0] . '</td>';
echo '<td><div align="center">' . $crow[6][1] . '</td>';
echo '<td><div align="center">' . $row[7] . '</td>';
 echo '<td><div align="center">40</div></td>
 <td><div align="center">100</div></td>
</tr>
```

```
 <tr>
  <td><div align="center">8</div></td>';
 echo '<td><div align="center">' . $crow[7][0] . '</td>';
 echo '<td><div align="center">' . $crow[7][1] . '</td>';
 echo '<td><div align="center">' . $row[8] . '</td>';
  echo '<td><div align="center">40</div></td>
  <td><div align="center">100</div></td>
 </tr>
 <tr>
  <td><div align="center">9</div></td>';
 echo '<td><div align="center">' . $crow[8][0] . '</td>';
 echo '<td><div align="center">' . $crow[8][1] . '</td>';
 echo '<td><div align="center">' . $row[9] . '</td>';
  echo '<td><div align="center">40</div></td>
  <td><div align="center">100</div></td>
 </tr>
 <tr>
  <td><div align="center">10</div></td>';
 echo '<td><div align="center">' . $crow[9][0] . '</td>';
 echo '<td><div align="center">' . $crow[9][1] . '</td>';
 echo '<td><div align="center">' . $row[10] . '</td>';
  echo '<td><div align="center">40</div></td>
  <td><div align="center">100</div></td>
 </tr>
 <tr>
  <td colspan="3"><div align="center"><strong>TOTAL
  </strong></div>
  <div align="center"></div> <div align="center"></div> <div align="center"></div> </td>';
 echo '<td><div align="center">' .

 ($row[1]+$row[2]+$row[3]+$row[4]+$row[5]+$row[6]+$row[7]+$row[8]+$row[9]+$row[10])
         . '</div></td>';
  echo '<td><div align="center"><strong>520</strong></div></td>
  <td><div align="center"><strong>1300</strong></div></td>
 </tr>';
 }
 echo '</table>';

// once processing is complete
// free result set
mysql_free_result($result);
// close connection
mysql_close($connection);
?>
```