A COMPARATIVE STUDY OF CONTENT MANAGEMENT SYSTEMS: JOOMLA, DRUPAL AND WORDPRESS

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ABSTRACT

CMS (Content Management System) is a software program that helps us to develop and maintain the website easier and faster way. These days there are several CMS available varying based on functionalities and platforms. Joomla, Drupal and Wordpress are the three most popular content management systems (CMS). All three are open source and built on PHP + MySQL and vary significantly in terms of features, capability, flexibility and ease of use. This paper discusses about comparative study of most widely used content management systems Joomla, Drupal and Wordpress. This study attempt to analyze each CMS on the basis of usage, design, performance, scalability, compatibility with different platforms, security purpose, and search engine visibility This study will help an individual or organization to choose an appropriate CMS for their specific web application and shows the good CMS will be helpful for users to include different features in the website using plugging and the widget.

Keywords: CMS, Drupal, Joomla, Wordpress

I. INTRODUCTION

CMS- Content Management System is a computer application. CMSs are mostly used to develop web application containing blogs, news, events and shopping. Many Govt. Organization, Corporate, Shopping and Marketing website use CMS. CMS is normally used to avoid to write the code. CMS provide the default structure of the website in which one has to create page, articles, news etc. and put the content in that and CMS automatically display the contents on the website. A content management system (CMS) is a stand-alone application to create, manage and the store content. As we know that a webpage's have text, graphics, photos, video, audio etc that display content or interacts with the user. CMS provides all above inbuilt features and many more.

II. JOOMLA

Joomla is a free open source content management system(CMS), which enables you to develop Web sites, web application and powerful online application that can also be used independently. Joomla is a class of Open Source CMSs written in scripting language PHP with using the techniques of OOP and MySQL database for the backend. Joomla provide us lots of inbuilt features that helps us to create or develop an attractive dynamic website with formatting features are like User Management, Media Manager, Languages Manager, Banner

Management, Contact, Polls, Search, Web Link, Content, Menu, Templates, Web services Management and Powerful Extensibility.

2.1 Joomla File Structure

It is essential to understand the directories and files structure in Joomla site. When Joomla is installed, there will be a default file structure either on the local machine or on the server. These days Linux server provides the one click installation or setup feature. Below is an example showing how each folder has all the important documentation structured and organized.

Joomla follow the Model-View-Controller (MVC) design pattern that separates the data gathering (Model), presentation (View) and user interaction (Controller) activities of a component from each other. Such separation allows for expanding or revising properties and methods of one section without requiring additional changes to the other sections. Joomla file loading system enables developers to work with separate files for controllers, views and models without worrying about placing the right file in the right place.
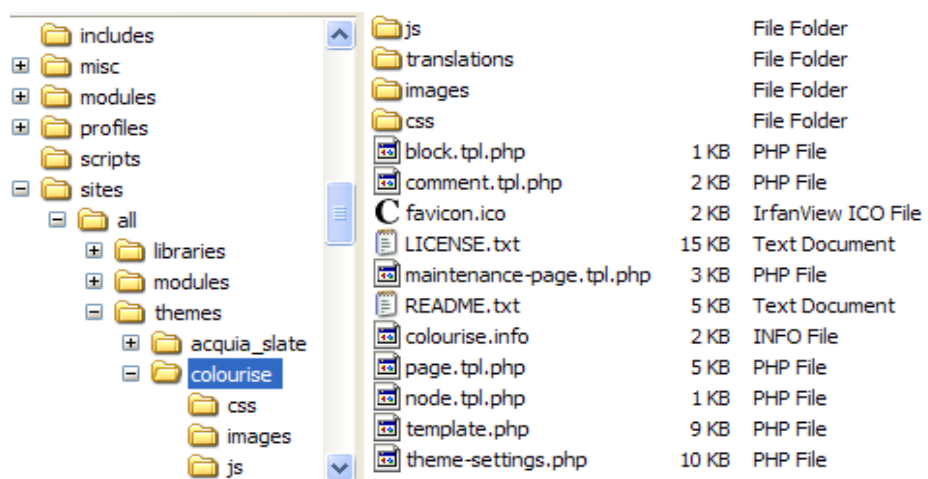
2.2 Joomla Core Features

1. Provide attractive graphical administrative interface.
2. Powerful WYSIWYG Editor.
3. Built-in site search engine.
4. Easy to create, publish, reorder and edit articles or pages with only clicks.
5. Easy to create menu, submenu, reordering and manipulation.
6. Preview the page content without publishing.
7. Content hierarchy structure fully editable and manageable.
8. Manage images from within system or externally through FTP.
9. Images banners, text rotation with impression and click counter.
10. Syndicate site contents in a variety of RSS formats.
11. No specialized tools or programming languages needed to update.
12. SEO Friendly URLs

III. DRUPAL

Drupal is an Open Source CMS written in PHP and uses MySQL, PostgreSQL or MS SQL for database. Drupal can be setup on Linux, Windows or Macintosh OS. It is distributed under GPL ("GNU General Public License") and is free to download. The architecture of the Drupal follows the PAC (Presentation-Abstraction Control). The architecture of Drupal is designed in such a way that the three different layers work independently and correlate with each other to give the final output. These three layers are the content which forms the website, the application algorithm that organizes this content for presentation, and the representation layer which is incorporated by the Drupal theme system. The webpage that comes to a viewer's browser goes through a sequential process in which Drupal modules take all the relevant content from the databases and then the theme gets ready for the final presentation. Unlike Joomla, Drupal's architecture does not follow the design pattern of MVC but instead follows the Presentation-Abstraction Control (PAC).

3.1 Drupal File Struture

3.2 Drupal Core Features

1. **Templates** – Easy to change the website template.

2. **Modules** - Install third party programs or functionalities very easily.

3. **Multiple-user** – Provide Multi-level permission user content creation and editing and enhance the security of web content.

4. **Multiple-level menu system** – Support the multiple level main menu, sub menu and nested submenu.

5. **Pages** – Easy to add /edit text, image, and other media content.

6. **Blog** – Also provide the full blog/articles with member comments capability functionality.

7. **Contact Form -** Provides the use of both personal and site-wide contact forms.

8. **Polls** - Provides the facilities to get votes on different topics in the form of MCQ.

9. **Search** - Provides site-wide keyword searching.

10. **Upload** - Allows users to upload and attach files to content.

11. **Statistics** - Provides Site Statistics Reporting.

12. **Taxonomy** - Provides the categorization of content

13. **FAQ Management** – FAQ module allows users, with appropriate permissions, to create question and answer pairs which they want displayed on the 'FAQ' page.

14. **Workflow Engine** - The Maestro module is a workflow engine/solution that will facilitate simple and complex business process automation.

15. **News Feed** - Provides syndicated content (RSS, RDF, and Atom feeds).

16. **Comment and Tracker** - Allow users to comment on and discuss published content and tracking of recent posts for users.

17. **Content translation** - Provide the translation of content in different language (This feature is an imperfect translation - Google translate feature is a better solution and easy to implement)

18. **Ping** – Provide the alert features when site is updated other sites when the site get the alerts of updation.

19. **Profile** –Easily add user and update user profile management.

20. **Trigger** - Provides the capability for actions to be generated on certain system events, such as when new content is created

21. **OpenID** – Allows users to log into the site using OpenID
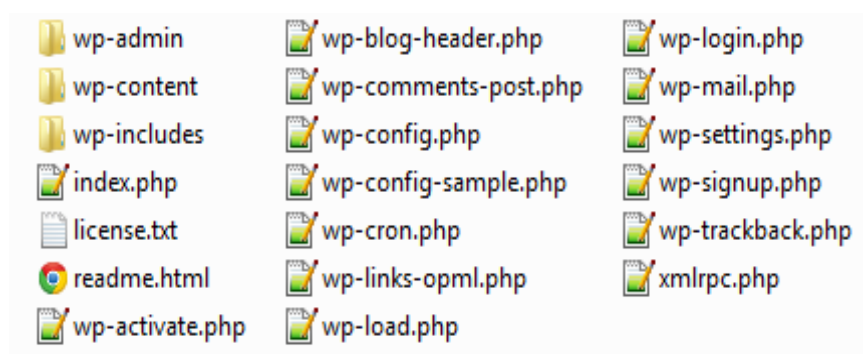
IV. WORDPRESS

Wordpress is a completely free tool used to create dynamic website. Originally, Wordpress was developed for creating a Blogging software.

4.1 What is a Blog ?

A blog is a type of website or part of a website that is maintained on regular basis by it owner reviews, opinions, and video. In the verb form "BLOGING" means to post to your blog.

WordPress is an open source blogging tool powered by PHP and MySQL. WordPress can be customized into a content management system. WordPress is easy to install and configure which allows businesses to set up and run a website or blog at a lower cost than hiring more web developers. WordPress provides good search engine optimization features which will help to increase the online presence of our company

4.2 Wordpress File Structure

4.3 Wordpress Core Features

1. **Simplicity** -Simplicity makes it possible for you to get online and get publishing, quickly.

2. **Flexibility-** you can create any type of website like blog or website, a business website, a professional portfolio, a government website, a magazine or news website, an online community, even a network of

websites.

3. **Easy to publish-** You can create Posts and Pages, format them easily, insert media, and with the click of a button your content is live and on the web.

4. **Publishing Tools** -Wordpress makes it easy for you to manage your content. Create drafts, schedule publication, and look at your post revisions. Make your content public or private, and secure posts and pages with a password.

5. **User Management-** Administrators manage the site, editors work with content, authors and contributors write that content, and subscribers have a profile that they can manage.

6. **Media Management-** Provide powerful media management with lots of media extensions

7. **Easy Theme System** - Wordpress have two default themes and there are theme directory with thousands of themes for you to create a beautiful website.

8. **Extend with Plugins-** Wordpress comes packed full of features for every user, for every other feature there's a plugin directory with thousands of plugins

9. **Multilingual** – Worpress support more than 70 languages.

10. **Importers** - Wordpress comes with importers for blogger, LiveJournal, Movable Type, TypePad, Tumblr, and WordPress. If you're ready to make the move, we've made it easy for you.

11. **Freedom** -Wordpress is licensed under the GPL which was created to protect your freedoms. You are free to use WordPress in any way you choose: install it, use it, modify it, distribute it.

12. **Community-** Wordpress has a vibrant and supportive community.

See the comparison chart below for more insight into the differences in these top content management systems Joomla, Wordpress and Drupal.

	Joomla	**WordPress**	**Drupal**
Website	joomla.org	WordPress.org	drupal.org
Latest version	3.4.1	4.1.1	7.36
License	Open Source	Open Source	Open Source
Supported databases	MySQL, PostgreSQL	MySQL	MySQL, PostgreSQL
Platform	PHP	PHP	PHP
Security			
Content Approval	✅	✅	✅
Email Verification	✅	✅	✅
Granular Privileges	✅	✅	✅
Authentication methods	LDAP, Custom	LDAP (plugin), Custom	LDAP (plugin), NTLM (plugin), Custom
Session Management	✅	❌	✅
SSL Compatible	✅	✅	✅
Login History	✅	❌	✅

	Joomla	WordPress	Drupal
Modifications History	✗	✗	✓
Support			
Commercial Support	✓	✓	✗
Developer Community	✓	✓	✓
Public Forum	✓	✓	✓
Plugin API	✓	✓	✓
Features			
Drag & Drop Content	✓	✓	✗
Image Resizing	✓	✓	✗
Multiple Upload	✓	✓	✗
Spellchecker	✗	✓	✗
Style Wizard	✗	✗	✗
Subscriptions	✗	✗	✗
Undo	✗	✓	✓
WYSIWYG Editor	✓	✓	✗
Extensible User Profiles	✓	✗	✓
Interface Localization	✓	✓	✓
Performance			
Caching	✓	✗	✗
Load Balancing	✓	✓	✓
Database Replication	✓	✗	✓
Static Content Export	✗	✗	✗
Multilingual Content	✗	✗	✓
Multi-Site Deployment	✗	✓	✓
RSS (Content Syndication)	✓	✓	✓
Management			
Advertising Management	✓	✗	✗
Content Scheduling	✓	✓	✗
Inline Administration	✓	✗	✓
Sub-sites / Roots	✓	✓	✓
Themes / Templates	✓	✓	✓
Web Statistics	✓	✗	✓
Web-based Translation	✗	✓	✓

	Joomla	WordPress	Drupal
Management			
Workflow Engine	✗	✗	✓
Interoperability			
FTP Support	✓	✗	✓
UTF-8 Support	✓	✓	✓
XHTML Compliant	✓	✓	✓
Built-in Applications			
Blog	✓	✓	✓
Contact Management	✓	✗	✗
Forum (Discussion)	✗	✗	✓
Document Management	✗	✗	✓
FAQ Management	✓	✗	✓
File Distribution	✗	✗	✗
Graphs and Charts	✗	✗	✗
Help Desk / Bug Reporting	✗	✗	✗
Job Postings	✗	✗	✗
Link Management	✓	✓	✗
Mail Form	✓	✗	✗
My Page / Dashboard	✓	✓	✗
Photo Gallery	✗	✓	✗
Search Engine	✓	✓	✓
Polls	✓	✗	✓
User Contributions	✓	✓	✓
Web Services Front End	✓	✗	✓
SEO Features			
Metadata	✓	✓	✓
SEO Friendly URLs	✓	✓	✓
Site Map	✗	✗	✗

4.4 So Which CMS is Right for You?

It's a difficult question to answer. Apples and oranges are both fruit, but it's hard to quantify one feature or another that makes either better. The same holds true for Joomla, Drupal and WordPress. It's easy for site creators to be passionate about one CMS or the other, depending upon the requirements of the user and ease

of individual usage, anyone can be use as CMS. However perusal of the data available on the net, Wordpress has more uses as compared to Joomla and Drupal

V. CONCLUSIONS

Wordpress, Joomla and Drupal are the three most popular content management systems (CMS). All three are open source and built on PHP + MySQL. All three vary significantly in terms of features, capability, flexibility and ease of use. Joomla enables you to build a site with more structural stability and content than Wordpress, and has a fairly intuitive interface. If user want a standard website with standard capabilities – a blog, a static/dynamic front-end, a forum, etc. then use Joomla. Joomla is also a good option for small to mid-tier e-commerce stores and want something more powerful for organizational use, consider Drupal. WordPress is often called a 'mini CMS'. It isn't nearly as powerful or capable as Drupal or Joomla, but is easy enough for any lay user. Use WordPress if the user want a simple, easy to use blogging solution that looks good and can accommodate multiple authors easily. If a user is building a much more complex site, though, he should turn to Drupal first. Though it's harder to learn, it has much more flexibility to scale a site in terms of complexity. It also has the ability to scale up into very complex sites to be used for a variety of business needs. Free and often powerful, open source content management systems can help you create a powerful website on a limited budget. Wordpress and Joomla are well suited to build smaller sites quickly, while Drupal support robust and complex functionality. Each CMS platform has a very strong developer community.

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