Certified Joomla Developer Sample Material

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1. INTRODUCTION

Joomla is a free and open-source content management framework (CMF) for publishing web content. It is built on a model–view–controller web application framework that can be used independently of the CMS.

Joomla is written in PHP, uses object-oriented programming (OOP) techniques (since version 1.5) and software design patterns, stores data in a MySQL, MS SQL (since version 2.5), or PostgreSQL (since version 3.0) database, and includes features such as page caching, RSS feeds, printable versions of pages, news flashes, blogs, polls, search, and support for language internationalization.

1.1. CMS and Joomla evolution

CMS

A content management system (CMS) is a computer program that allows publishing, editing and modifying content as well as maintenance from a central interface. Such systems of content management provide procedures to manage workflow in a collaborative environment. These procedures can be manual steps or an automated cascade. CMSs have been available since the late 1990s.

CMSs are often used to run websites containing blogs, news, and shopping. Many corporate and marketing websites use CMSs. CMSs typically aim to avoid the need for hand coding but may support it for specific elements or entire pages.

Web Content Management System

A web content management system (WCMS) is a software system that provides website authoring, collaboration, and administration tools designed to allow users with little knowledge of web programming languages or markup languages to create and manage website content with relative ease. A robust Web Content Management System provides the foundation for collaboration, offering users the ability to manage documents and output for multiple author editing and participation.

Most systems use a content repository or a database to store page content, metadata, and other information assets that might be needed by the system.

A presentation layer (template engine) displays the content to website visitors based on a set of templates, which are sometimes XSLT files.

Most systems use server side caching to improve performance. This works best when the WCMS is not changed often but visits happen regularly.
Administration is also typically done through browser-based interfaces, but some systems require the use of a fat client.

A WCMS allows non-technical users to make changes to a website with little training. A WCMS typically requires a systems administrator and/or a web developer to set up and add features, but it is primarily a website maintenance tool for non-technical staff.

Features

A web content management system is used to control a dynamic collection of web material, including HTML documents, images, and other forms of media. A CMS facilitates document control, auditing, editing, and timeline management. A WCMS typically has the following features -

- ✓ Automated templates - Create standard output templates (usually HTML and XML) that can be automatically applied to new and existing content, allowing the appearance of all content to be changed from one central place.
- ✓ Access control - Some WCMS systems support user groups. User groups allow user to control how registered users interact with the site. A page on the site can be restricted to one or more groups. This means an anonymous user (someone not logged on), or a logged on user who is not a member of the group a page is restricted to, will be denied access to the page.
- ✓ Scalable expansion - Available in most modern WCMSs is the ability to expand a single implementation (one installation on one server) across multiple domains, depending on the server's settings. WCMS sites may be able to create microsites/web portals within a main site as well.
- ✓ Easily editable content - Once content is separated from the visual presentation of a site, it usually becomes much easier and quicker to edit and manipulate. Most WCMS software includes WYSIWYG editing tools allowing non-technical users to create and edit content.
- ✓ Scalable feature sets - Most WCMS software includes plug-ins or modules that can be easily installed to extend an existing site's functionality.
- ✓ Web standards upgrades - Active WCMS software usually receives regular updates that include new feature sets and keep the system up to current web standards.
- ✓ Workflow management - workflow is the process of creating cycles of sequential and parallel tasks that must be accomplished in the CMS. For example, one or many content creators can submit a story, but it is not published until the copy editor cleans it up and the editor-in-chief approves it.
- ✓ Collaboration - CMS software may act as a collaboration platform allowing content to be retrieved and worked on by one or many authorized users. Changes can be tracked and authorized for publication or ignored reverting to old versions. Other advanced forms of collaboration allow multiple users to modify (or comment) a page at the same time in a collaboration session.
- ✓ Delegation - Some CMS software allows for various user groups to have limited privileges over specific content on the website, spreading out the responsibility of content management.
- ✓ Document management - CMS software may provide a means of collaboratively managing the life cycle of a document from initial creation time, through revisions, publication, archive, and document destruction.
- ✓ Content virtualization - CMS software may provide a means of allowing each user to work within a virtual copy of the entire web site, document set, and/or code base. This enables changes to multiple interdependent resources to be viewed and/or executed in-context prior to submission.
- ✓ Content syndication - CMS software often assists in content distribution by generating RSS and Atom data feeds to other systems. They may also e-mail users when updates are available as part of the workflow process.
- ✓ Multilingual - Ability to display content in multiple languages.

- ✓ Versioning - Like document management systems, CMS software may allow the process of versioning by which pages are checked in or out of the WCMS, allowing authorized editors to retrieve previous versions and to continue work from a selected point. Versioning is useful for content that changes over time and requires updating, but it may be necessary to go back to or reference a previous copy.

Types

There are three major types of WCMS - offline processing, online processing, and hybrid systems. These terms describe the deployment pattern for the WCMS in terms of when presentation templates are applied to render web pages from structured content.

- ✓ Offline processing - These systems, sometimes referred to as "static site generators", pre-process all content, applying templates before publication to generate web pages. Since pre-processing systems do not require a server to apply the templates at request time, they may also exist purely as design-time tools.
- ✓ Online processing - These systems apply templates on-demand. HTML may be generated when a user visits the page or it is pulled from a web cache. Most open source WCMSs have the capability to support add-ons, which provide extended capabilities including forums, blog, wiki, web stores, photo galleries, contact management, etc. These are often called modules, nodes, widgets, add-ons, or extensions. Add-ons may be based on an open-source or paid license model.
- ✓ Hybrid systems - Some systems combine the offline and online approaches. Some systems write out executable code (e.g., JSP, ASP, PHP, ColdFusion, or Perl pages) rather than just static HTML, so that the CMS itself does not need to be deployed on every web server. Other hybrids operate in either an online or offline mode.

Advantages

- ✓ Low cost - Some content management systems are free, such as Drupal, eZ Publish, TYPO3, Joomla, and WordPress. Others may be affordable based on size subscriptions. Although subscriptions can be expensive, overall the cost of not having to hire full-time developers can lower the total costs. Plus software can be bought based on need for many CMSs.
- ✓ Easy customization - A universal layout is created, making pages have a similar theme and design without much code. Many CMS tools use a drag and drop AJAX system for their design modes. It makes it easy for beginner users to create custom front-ends.
- ✓ Easy to use - CMSs are designed with non-technical people in mind. Simplicity in design of the admin UI allows website content managers and other users to update content without much training in coding or technical aspects of system maintenance.
- ✓ Workflow management - CMSs provide the facility to control how content is published, when it is published, and who publishes it. Some WCMSs allow administrators to set up rules for workflow management, guiding content managers through a series of steps required for each of their tasks.
- ✓ Good For SEO - CMS websites are also good for search engine optimization (SEO). Freshness of content is one factor that helps, as it is believed that some search engines give preference to website with new and updated content than websites with stale and outdated content. Usage of social media plugins help in weaving a community around blog. RSS feeds which are automatically generated by blogs or CMS websites can increase the number of subscribers and

readers to site. URL rewriting can be implemented easily which produces clean urls without parameters which further help in SEO. There are plugins available that specifically help with website SEO.

Disadvantages

- ✓ Cost of implementations - Larger scale implementations may require training, planning, and certifications. Certain CMSs may require hardware installations. Commitment to the software is required on bigger investments. Commitment to training, developing, and upkeep are all costs that will be incurred for enterprise systems.
- ✓ Cost of maintenance - Maintaining CMSs may require license updates, upgrades, and hardware maintenance.
- ✓ Latency issues - Larger CMSs can experience latency if hardware infrastructure is not up to date, if databases are not being utilized correctly, and if web cache files that have to be reloaded every time data is updated grow large. Load balancing issues may also impair caching files.
- ✓ Tool mixing - Because the URLs of many CMSs are dynamically generated with internal parameters and reference information, they are often not stable enough for static pages and other web tools, particularly search engines, to rely on them.
- ✓ Security - CMS's are often forgot about when hardware, software, and operating systems are patched for security threats. Due to lack of patching by the user, a hacker can use unpatched CMS software to exploit vulnerabilities to enter an otherwise secure environment. CMS's should be part of an overall, holistic security patch management program to maintain the highest possible security standards.

Joomla Evolution

Joomla was the result of a fork of Mambo on August 17, 2005. At that time, the Mambo name was trademarked by Miro International Pvt. Ltd., who formed a non-profit foundation with the stated purpose of funding the project and protecting it from lawsuits. The Joomla development team claimed that many of the provisions of the foundation structure went against previous agreements made by the elected Mambo Steering Committee, lacked the necessary consultation with key stakeholders and included provisions that violated core open source values.

Joomla developers created a website called OpenSourceMatters.org (OSM) to distribute information to users, developers, web designers and the community in general. Project leader Andrew Eddie wrote a letter that appeared on the announcements section of the public forum at mamboserver.com. A little more than one thousand people had joined OpenSourceMatters.org within a day, most posting words of encouragement and support, and the website received the Slashdot effect as a result. Miro CEO Peter Lamont gave a public response to the development team in an article titled "The Mambo Open Source Controversy – 20 Questions With Miro". This event created controversy within the free software community about the definition of "open source". Forums at many other open source projects were active with postings for and against the actions of both sides.

In the two weeks following Eddie's announcement, teams were re-organized, and the community continued to grow. Eben Moglen and the Software Freedom Law Center (SFLC) assisted the Joomla core team beginning in August 2005, as indicated by Moglen's blog entry from that date and a related OSM announcement. The SFLC continue to provide legal guidance to the Joomla project.

On August 18, Andrew Eddie called for community input on suggested names for the project. The core team indicated that it would make the final decision for the project name based on community input. The core team eventually chose a name that was not on the list of suggested names provided by the community. On September 22, the new name, "Joomla" was announced. It is the anglicised spelling of the Swahili word jumla meaning "all together" or "as a whole" which also has a similar meaning in at least Arabic and Urdu. On September 26, the development team called for logo submissions from the community and invited the community to vote on the logo; the team announced the community's decision on September 29. On October 2, brand guidelines, a brand manual, and a set of logo resources were published for the community's use.

Joomla won the Packt Publishing Open Source Content Management System Award in 2006, 2007, and 2011.

On October 27, 2008, PACKT Publishing announced that Johan Janssens was the "Most Valued Person" (MVP), for his work as one of the lead developers of the 1.5 Joomla Framework and Architecture. In 2009 Johan Janssens received the "Most Valued Person" award for his role as Joomla architect and development coordinators.

Joomla Version History

Joomla 1.0 was released on September 22, 2005 as a re-branded release of Mambo 4.5.2.3 that combined other bug and moderate-level security fixes.

Joomla 1.5 was released on January 22, 2008, and the latest release of this version was 1.5.26 on March 27, 2012. This version was the first to attain long-term support (LTS); such versions are released each three major or minor releases and supported until three months after the next LTS version is released. April 2012 marks the official end-of-life of Joomla 1.5; with Joomla 3.0 released, support for Joomla 1.5 faded away in April 2013.

Joomla 1.6 was released on January 10, 2011. This version adds a full access control list functionality plus, user-defined category hierarchy, and admin interface improvements.

Joomla 1.7 was released on July 19, 2011, six months after 1.6.0. This version adds enhanced security and improved migration tools.

Joomla 2.5 was released on January 24, 2012, six months after 1.7.0. This version is a long term support (LTS) release. Originally this release was to be 1.8.0, however the developers announced August 9 that they would rename it to fit into a new version number scheme in which every LTS release is an X.5 release. This version was the first to run on other databases besides MySQL. Support version is extended until the end of 2014.

Joomla 3.0 was released on September 27, 2012. Originally, it was supposed to be released in July 2012; however, the January/July release schedule was uncomfortable for volunteers, and the schedule was changed to September/March releases. On December 24, 2012, it was decided to add one more version (3.2) to the 3.x series to improve the development life cycle and extend the support of LTS versions. This will also be applied to the 4.x series.

Joomla 3.1 was released on April 24, 2013. Release 3.1 includes several new features including tagging.

Joomla 3.2 was released on November 6, 2013. Release 3.2 highlighting Content Versioning.

Joomla 3.3 was released on April 30, 2014. Release 3.3 features improved password hashing and microdata and documentation powered by MediaWiki Translate extension.

1.2. Joomla Support structure

The home site for official Joomla Documentation is docs.joomla.org. This WikiMedia based site is full of great resources on all kinds of things! Spend some time wandering around there and user will definitely learn something new, no matter what experience level is.

The Official Joomla Installation Guide - If user wants to install Joomla manually on a file server, you'll need some detailed, step by step instructions. The best place to start is the official Joomla Installation Manual.

1.3. Joomla Terminology

- ✓ Open Source - Joomla is an "open source" project. "Open Source " refers to software where the source code is publicly available, and people are free to develop it, extend it, modify it, and redistribute it. Joomla is a solid member of the open source software community.
- ✓ Extensions - A Joomla extension is an add-in to Joomla that in some way "extends" the core function. Extensions fall into one of three categories - components, modules, and plug-ins. There is a single "hub" of information about Joomla extensions. The Joomla Extensions Directory (often called "JED") provides a categorized index of Joomla extensions with descriptions, demos, user reviews, and links to download the extensions. The Joomla Extensions Directory is located at http - //extensions.joomla.org.
- ✓ Component - A component is a program or application that is built on the Joomla framework that generates and presents a page. There are many "core" components built into Joomla, and many "third party" components that can be added to a Joomla site to extend its power. A lot of Joomla website development involves selecting the right component to do what user want.
- ✓ Joomla components can present a single article, a series of articles around a given topic, a blog type presentation, an index of articles, a site map, a photo gallery, a list of news feeds or the content of the news feeds, a downloads directory, a calendar, a podcast manager, .. all kinds of things! The ability to add components to Joomla provides a lot of power and makes it relatively easy to develop a versatile website. Only one component can be on a page at a time, and it is responsible for presenting the "main body" of the page.
- ✓ Module - A module can be thought of as a "mini-component." It performs side functions outside of the primary component on a given page, and it shows it's result above, below, or to the side of the main body component. It manages sidebars, for example. There are modules that can do about anything user might need on a website. Joomla comes with "core" modules and there are hundreds and hundreds of third party modules. Modules are often used to display menus, banners, lists, and the like. Modules have "positions." A position is a pre-defined location defined by Joomla template. They are usually given descriptive names like "left", "right", "header", "footer", "top", "bottom," and "user1," "user2," etc. Learning how to place

the right module in the right place is a key Joomla skill. And, a lot of the "tuning" or "customization" of a Joomla site involves coordinating modules.

- ✓ Mambot / Plugin - A Joomla Plugin (formerly called "Mambots") are parts of the Joomla site that perform a specific function. They generally extend the functionality of the core content component in some ways. Most plug-ins work behind the scene of Joomla site.
- ✓ Template - A template is the part of Joomla that provides the layout and design of site. It coordinates bringing the various parts of Joomla together into a "hopefully" visually attractive way. It determines the "look and feel" of website, defining the fonts, colors, graphics, and page layout. For many people, a template IS their website. One very nice thing about Joomla, though, is that it separates the content from the look and feel. If user change Joomla template, user change the look and feel of the entire site, no matter if it has 5 pages or 5,000 pages. It is a very powerful asset to the system. Most people do not develop their own templates from scratch, as it is a fairly complex task. Generally, user would look for a template from a template provider or template library that is basically what user want, and then user customize that template with logo, graphics, etc. There are a lot of free Joomla templates available. Some of them are quite good, while others are basically junk. In addition, there is a thriving group of commercial template developers that provide professional templates for sale.
- ✓ Content - In Joomla, content refers to everything available via website. it can be an article, an mp3, a video, a link to another website, a graphic or photo. But generally, when we refer to content, we mean an "article" that is displayed on a page on website. Content can be organized at three levels.
  - ✓ First of all, the content is contained in "content items" or "articles."
  - ✓ Then, the content items are grouped together into categories.
  - ✓ And categories are grouped into sections.

  So, Joomla site must have at least one section, which must have at least one category, before user can create the first article. Generally, however, you'll have enough content to create a number of sections and categories to help segment content into more manageable blocks.
- ✓ Section - A section is the highest level of Joomla content. Sections contain categories, and categories contain content items.
- ✓ Category - Below sections are categories. articles or "content items" are contained in categories.