



Building Websites

An ASET Colloquium by Kausalya and Nilesh
25th May 2012

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Techniques and Technologies used to build website

Part 2 :

Demo of making simple website using Web CMS :  Joomla

Part 1 : Techniques and Technologies

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1. What is a website ?

- ▶ Our face to the electronic world
- ▶ Collection of related pages – text, image, audio, video...
- ▶ Hosted on web server(s) accessible via internet
- ▶ Accessed through browsers using URLs – web address eg. <http://www.tifr.res.in>
- ▶ Collection of websites is the WWW – open standards
- ▶ Websites can be organised by functions
 - commercial (.com), government(.gov), organization (.org), geography(.in, .au)
- ▶ Types -
 - Static - Contents are unchanged with time
 - Dynamic - Sites Interact with users eg. irctc, amazon, ebay

2. Evolution of web technologies

- ▶ 1989 – Sir Tim Berners Lee founded WWW at CERN
- ▶ Early 90s – Text based Sites – Plain HTML
- ▶ Mid 90s – Table based pages & website builders
- ▶ Late 90s – Introduction of Flash & PHP
- ▶ 2000 – CSS hits the web
- ▶ Early to mid 2000s – Rise of Javascript
- ▶ Mid 2000s – Semantic web & XML
- ▶ Late 2000s – Web 2.0 & AJAX
- ▶ Current – Mobile web
- ▶ Details : <http://webdev.tifr.res.in/~ksri/aset/webtech.png>

3. Essential Requirements

1 : Domain Name

- ▶ The name of your site
 - www.tifr.res.in
 - indianrail.gov.in
- ▶ Other domains are
 - .biz .net .com .co.in .org
 - .au .gov.in
- ▶ Buy from web hosting providers and renew annually
~ ₹ 500 / Year

2 : Hosting

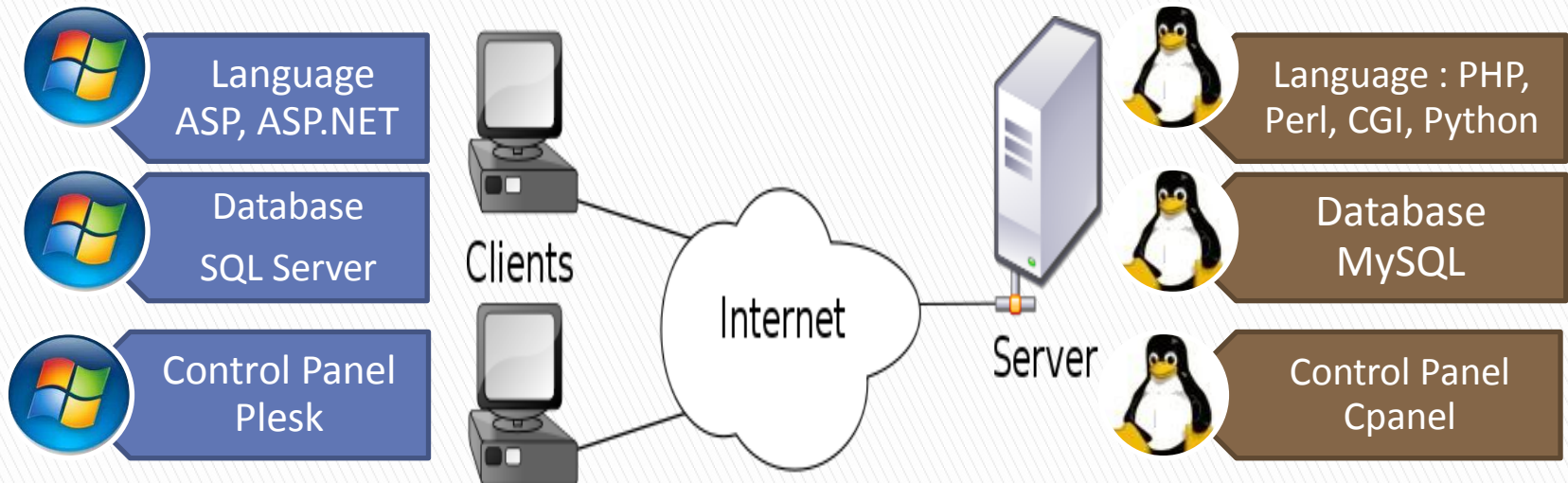
- ▶ Can be hosted in service provider's data center or in the organization.
- ▶ Depending on the content, bandwidth should be provisioned.
- ▶ Price based on plan and technology.
~ ₹ 1500 / Year

Domain name & Hosting space can be bought together or separately.

4. Technologies

Windows hosting Server (IIS)

Linux hosting Server (Apache)



One can have

- Dedicated server (Faster but Expensive)
- Virtually Private Server
- Shared server (Economic but Slower)

5. Coding / Scripting Languages

Browser-side

HTML

CSS

Javascript
AJAX

XML

Minimum
Requirement
to Build
Website

Dynamic
Website

Data storage
and transfer

Server Side

PHP,
Python
Perl, CGI



ASP
ASP.NET



JSP



5a. Simple Examples

- ▶ [Plain HTML](#)
- ▶ [HTML with CSS](#)
- ▶ [HTML with CSS using class](#)
- ▶ [Javascript](#)
- ▶ [PHP](#)




- ▶ <html><body>
- ▶ <?php
- ▶ \$mycolor = \$_POST['submit'];
- ▶ if (\$mycolor == "Colorful")
- ▶ {
- ▶ echo "<h1 style=\"color: red\"> Red Color</h1>";
- ▶ echo "<h1 style=\"color: green\"> Green Color</h1>";
- ▶ echo "<h1 style=\"color: blue\"> Blue Color </h1>";
- ▶ goto samepage;
- ▶ }else{
- ▶ echo "<h1 style=\"color: black\"> Red Color</h1>";
- ▶ echo "<h1 style=\"color: black\"> Green Color</h1>";
- ▶ echo "<h1 style=\"color: black\"> Blue Color </h1>";
- ▶ goto samepage;
- ▶ }{samepage:?>
- ▶ <form action="" method="POST">
- ▶ <input type="submit" name="submit" value="Colorful"></input>
- ▶ <input type="submit" name="submit" value="Black"></input>
- ▶ </form><?php}
- ▶ ?></body></html>

6. Content Management Systems (CMS)

▶ CMS

- Publishing, editing & modification of content
 - Remote site maintenance
 - No in-depth knowledge of markup / programming languages
- ▶ Runs on Windows and Linux servers
- ▶ Requires Database to store contents of the site
- ▶ Thousands of extensions to extend Functionality
- ▶ Easily customizable as per need
- ▶ Learn WebCMS than Coding - much easier

Content Management System ...

- ▶  DotNetNuke, Umbraco
- ▶  Joomla, Drupal, Wordpress
- ▶  OpenCMS, Magnolia

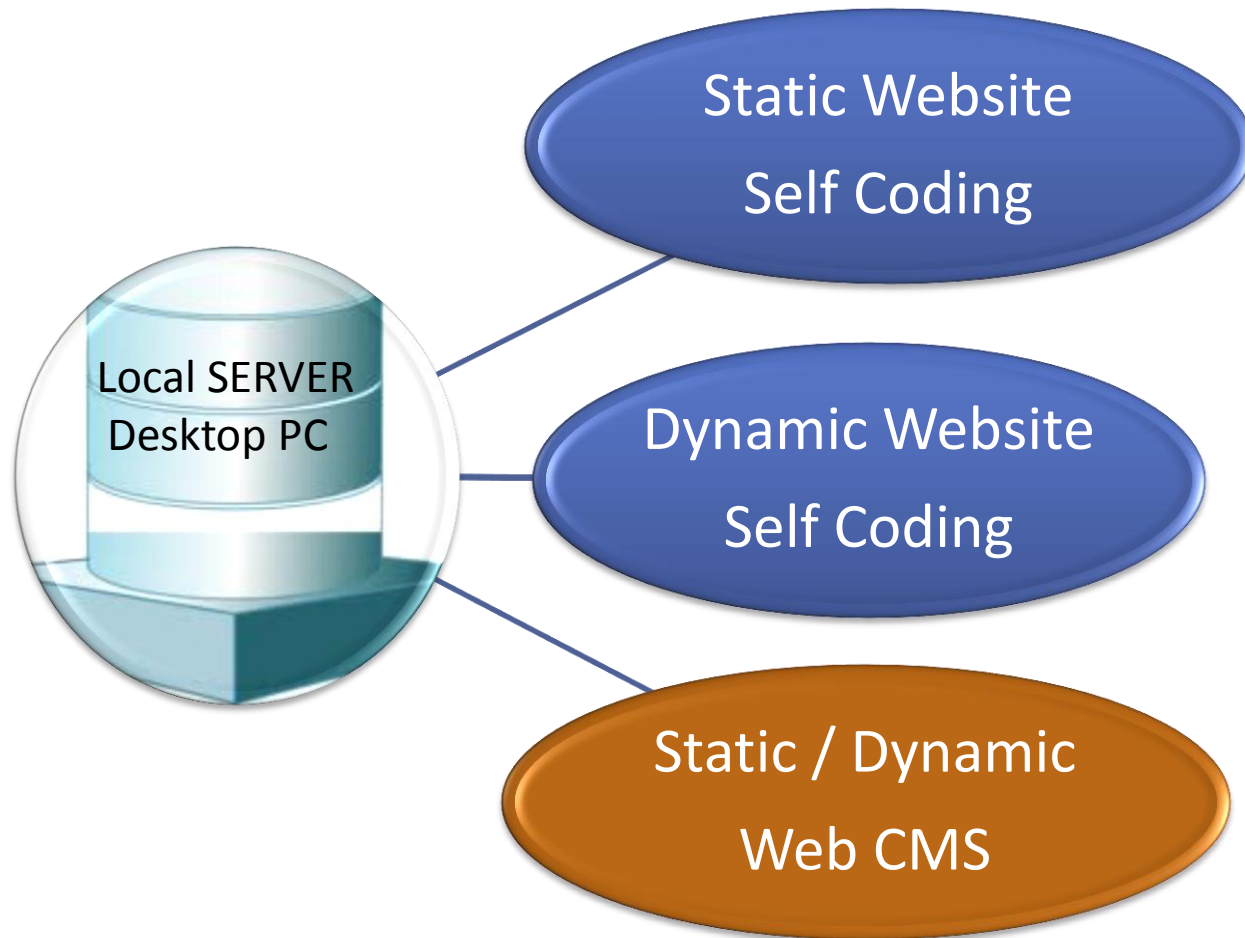
Types	Purpose	Example
Web CMS	Web site	Joomla, Drupal, Wordpress
Learning CMS	Paperless Online Courses	Moodle, aTutor, DokeOS
Enterprise / Document CMS	Workflow and Business Process Management	Oracle ECM, IBM Suite, Microsoft SharePoint, Twiki

7. Which is my CUP of Tea ?

- ▶ Would you like to work with Windows or Linux ?
- ▶ Open source OR Proprietary Technology ?
- ▶ Whether your site will be Static or Dynamic ?
- ▶ Whether you have few pages or much more ?
- ▶ What kind of additional functionality you require ?
- ▶ Are you a Beginner / Intermediate / Expert ?
- ▶ Would you like to go with Web CMS OR code yourself

Depending upon answers, you can select your website design strategy.

8. Options for you for site development



Minimum Requirement to Develop Site

Static Self Coding	Static / Dynamic Self – Coding	Static / Dynamic WebCMS
HTML / HTML5	HTML / HTML5	HTML / HTML5
CSS2 / CSS3	CSS2 / CSS3	CSS2 / CSS3
	Client Side e.g. Javascript , AJAX ...	
	Server Side e.g. PHP, ASP, JSP ...	
	Database e.g. MySQL , SQL Server ...	

Whatever Technique / Technology you use, you need to know HTML and CSS

Static / Dynamic Site using WebCMS



Linux Live Server



Windows Live Server



Resources for site development on PC using PHP & Web CMS



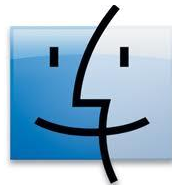
LAMP Local Server



WAMP Local Server



Joomla!



MAMP Local Server



WORDPRESS

Resources for site development on PC using .NET and WebCMS



- ▶ Microsoft's **Free** and **extremely powerful** website design tool
- ▶ IIS Server, SQL Server Database, .NET framework
- ▶ Supports .asp,.aspx, html, xml, css, javascript, vbscript
- ▶ **Surprisingly supports PHP code with PHP based web CMS**
- ▶ Download and install CMS of your choice through Webmatrix



9. Points to consider

- ▶ Contents should be up to date and accurate
- ▶ Every site must have a search utility
- ▶ Website should take minimum time to load
 - Split web page in files and call upon need
 - Avoid too many images on any page
 - Images should be web optimized i.e. < 20KB
- ▶ Easy Navigation Menu
- ▶ Font size should be readable & colors pleasant
- ▶ Minimal Vertical scrolling as far as possible

10. Going Live

- ▶ Once site is locally developed, use FTP client to upload site to the live server like WinSCP, FileZilla
- ▶ Website hosting companies also provides file upload utility. ZIP your site, UPLOAD and Unzip. That's it.
- ▶ For WebCMS like Joomla, particular piece of software is used to zip, upload and install site – akeeba.

11. TIFR website

- ▶ Dynamic website built on Joomla Web CMS



- ▶ Integrated with
 - In-house developed dynamic applications like
 - ❖ People Finder (PHP / MySQL)
 - ❖ Notice Board (PHP / MySQL)
 - ❖ TIFR Science News (PHP / MySQL)
 - Adopted and customised dynamic application
 - ❖ Calendar of events (Python / Zope DB)

12. Other Websites using Web CMS in TIFR

Using Joomla



Using Drupal



13. Website Security

- ▶ **BACKUP , BACKUP and BACKUP Periodically**
- ▶ Keep Operating System updated
- ▶ Keep Application Software updated
- ▶ Keep Antivirus Software updated
- ▶ Use authentication & authorization for accessing sensitive data
- ▶ Follow password policy strictly (min. 8 chars, AA, aa, 12, @#)
- ▶ Provide links to trusted sites only
- ▶ Use scp for file transfers & SSL for emails
- ▶ Hosting : Look for VPS (Shared < VPS < Dedicated)
- ▶ Check your website security with professional scanners before publishing

Part 2 : Building Simple Website Using Joomla

1. Define Joomla
2. About Joomla
3. How Joomla displays contents as site ?
4. Joomla Architecture
5. Typical Joomla Page
6. Joomla Frontend and Backend
7. Start making site
8. Recommended Extensions for Joomla
9. References

1. Define Joomla

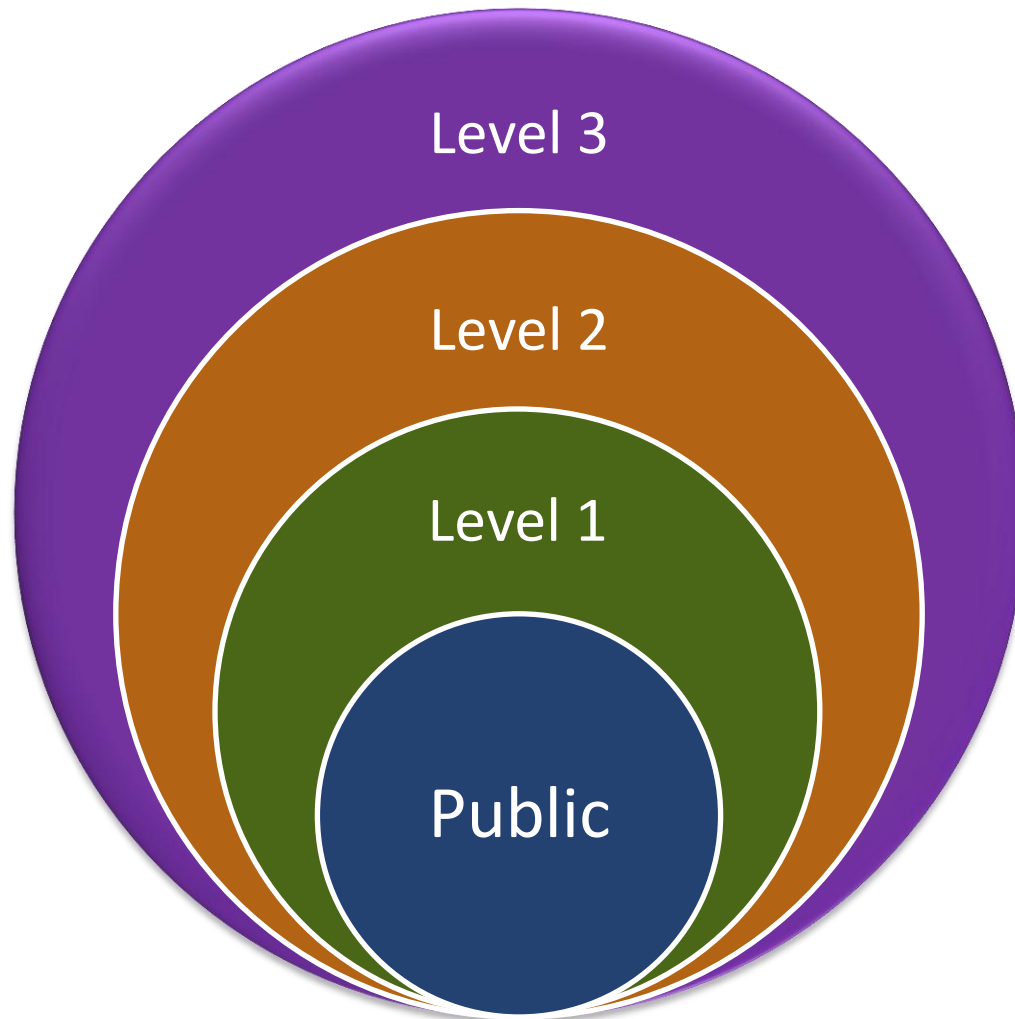
$$Y = F(x)$$

$$\text{Website} = \img alt="Joomla logo" data-bbox="458 445 542 556"/> (\text{Contents})$$

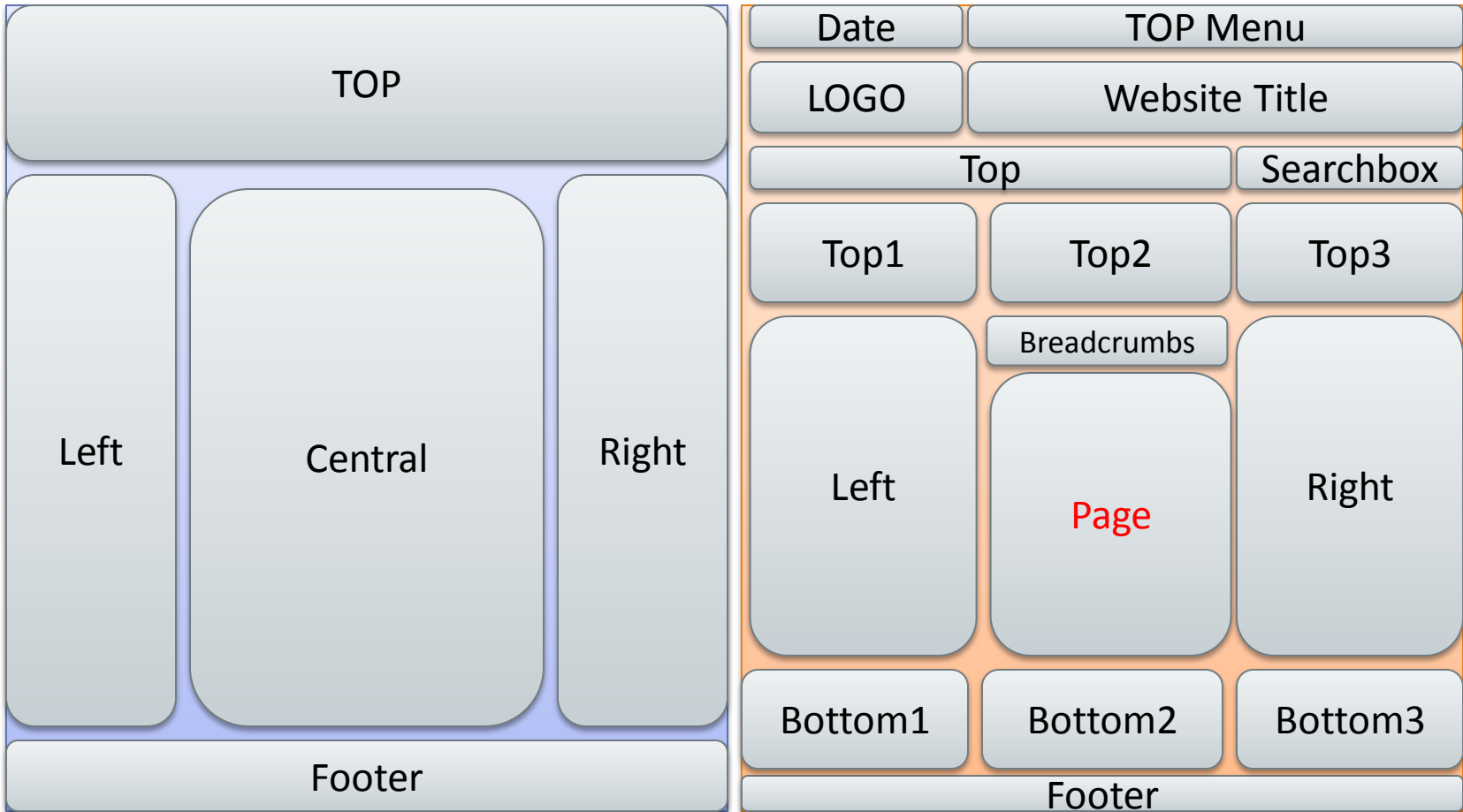
2. About Joomla

- ▶ Joomla is **PHP** and **MySQL** based **Completely Open Source** Web content management system
- ▶ **User Access Level Control** for protected contents
- ▶ Core functionality can be **enhanced** and **extended** by large number of **free** and **commercial** extensions
- ▶ Site complexity varies from **Simple Static** to fully functional **Online Shops**
- ▶ Need **LITTLE** patience at beginning to understand the framework

Joomla User Level Access Control

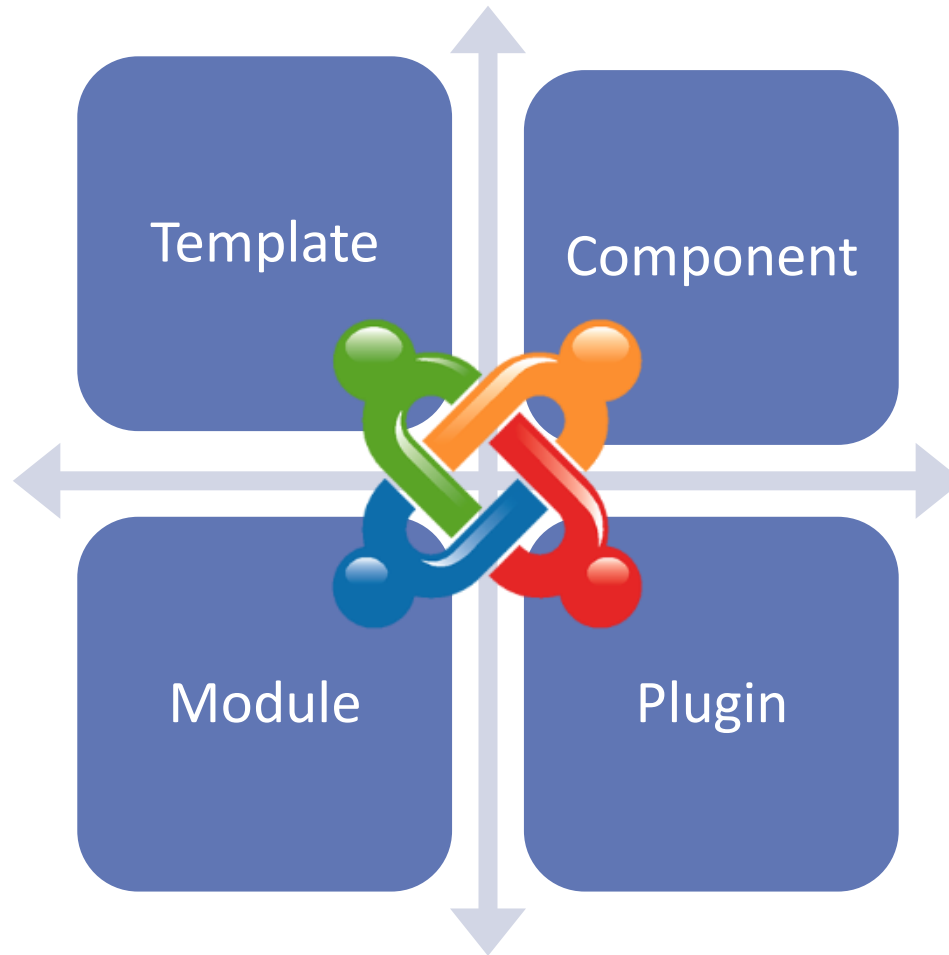


3. Content as site



MODULE POSITIONS

4. Joomla Architecture 1



4. Joomla Architecture 2

▶ Template :

1. Look, Feel, Typography, Fonts
2. Layout (2 or 3 columns) and Module positions eg. yoonano

▶ Component :

1. Most extensive & powerful add-on with Front and Backend
2. Only one component can appear on the same page. eg. imageslider

▶ Module :

1. Lightweight blocks – enhance functionality
2. Multiple Modules can appear on the same page eg. menus

▶ Plugin :

1. Smallest extension to add more functionality
2. Many of them work in background eg. CacheCleaner

5. Typical Joomla Page

The screenshot shows a Joomla! website home page with several components and modules highlighted. A red box highlights the Joomla! logo and tagline "...because open source matters". A red box highlights a news article titled "Yesterday all servers in the U.S. went out on strike in a bid to get more RAM and better CPUs. A spokes person said that the need for better RAM was due to some fool increasing the front-side bus speed. In future, busses will be told to slow down in residential motherboards." A red box highlights the navigation menu with items "About Joomla!", "Features", "News", and "The Community". A red box highlights the "Home" button and a "search..." input field. A red box highlights the "MODULE" section containing a "Main Menu" with items like "Home", "Joomla! Overview", "Joomla! License", "More about Joomla!", "FAQ", "The News", "Web Links", and "News Feeds". A red box highlights the "TEMPLATE" section containing "Latest News" (Content Layouts, The Joomla! Community, Welcome to Joomla!, Newsflash 4, Newsflash 5) and "Popular" (Joomla! Overview, Extensions, Joomla! License Guidelines, Welcome to Joomla!, What's New In 1.5?). A red box highlights the "COMPONENT" section containing a "Welcome to the Frontpage" article by Administrator, dated Thursday, 12 October 2006 11:00. The article text states: "Joomla! is a free open source framework and content publishing system designed for quick creating highly interactive multi-language Web sites, online communities, media portals, blogs and eCommerce applications." Below the article is a "Powered by Joomla! version 1.5" logo and a paragraph: "Joomla! provides an easy-to-use graphical user interface that simplifies the management and publishing of large volumes of content including HTML, documents, and rich media. Joomla! is used by organisations of all sizes for Public Websites, Intranets and Extranets and is supported by a community of thousands of users." A red box highlights the "Key Concepts" section with items "Extensions" and "Content Layouts". A red box highlights a "read more... >>" link labeled "PLUGIN". A red box highlights the "Polls" section titled "Joomla! is used for?" with radio button options: "Community Sites", "Public Brand Sites", "eCommerce", "Blogs", "Intranets", "Photo and Media Sites", and "All of the Above!". "Vote" and "Results" buttons are also visible.

5. Front End



Department of Condensed Matter Physics
and Materials Science

HOME BACKGROUND SEMINARS QUICKLINKS CONTACTUS

Tuesday, 1 May 2012

DCMPMS Homepage

The Department of **Condensed Matter Physics and Materials Science** carries out a wide range of frontier research activities which include:

- Superconductivity and Magnetism
- Spin Glasses
- Heavy Fermions
- Giant Magnetoresistance
- Single Crystal Growth of Rare Earth Intermetallics
- High Resolution Photoemission Spectroscopy, XPS, UPS, ARPES
- Spin Resolved Photoemission Spectroscopy (SRPES)
- High Resolution Electron Energy Loss Spectroscopy
- Transport properties in High Magnetic Fields and Low Temperatures
- Physics of Nanomaterials
- Semiconductor Quantum Well Structures
- Transmission Elec
- Surface Studies us
- Organic and Amol
- Ultrafast Optoelect
- Tera Hertz Spectr
- Nuclear Magnetic
- Raman Spectrosc
- Mossbauer Spectro

DCMPMS MEMBERS

- ▶ Faculty Members
- ▶ Adjunct Members
- ▶ Research Scholars
- ▶ Post Doc Fellows
- ▶ JRF and SRF
- ▶ Scientific Staff
- ▶ Technical Staff
- ▶ Administrative Staff

DCMPMS SITE SEARCH

Search String

VISITORS COUNTER

<http://www.tifr.res.in/~dcmpms>

5. Back End

The screenshot shows the Joomla! Administration interface. At the top, there's a navigation bar with 'Administration' and the Joomla! logo. Below it, a menu bar includes 'Site', 'Users', 'Menus', 'Content', 'Components', 'Extensions', and 'Help'. On the right, visitor statistics show 0 Visitors and 1 Admin. The main content area is divided into two columns. The left column, titled 'Quick Icons', contains a grid of 18 icons for various administrative tasks: Add New Article, Article Manager, Category Manager, Media Manager, Menu Manager, User Manager, Module Manager, Extension Manager, Language Manager, Global Configuration, Template Manager, Edit Profile, Checking Joomla! update status, Updates are available!, Backup required!, and Joomla! is up to date. The right column, titled 'Last 5 Logged-in Users', contains a table with columns for Name, Location, ID, Last Activity, and Logout. The first entry is Niles Kulkarni, Administrator, ID 42, with a last activity of 2012-05-01 05:24:14. Below the table are links for 'Top 5 Popular Articles' and 'Last 5 Added Articles'.

Joomla! 2.5.4

Joomla! 2.5.4

Joomla!® is free software released under the GNU General Public License.

<http://www.tifr.res.in/~dcmpms/administrator>

Monday, May 28, 2012

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6. Start making a Simple site

- ▶ Install Wamp server (for windows user)
- ▶ Create Database, User and Password (phpMyAdmin)
- ▶ Install Joomla
- ▶ Start Customizing Joomla
- ▶ After site is developed locally
 1. Download Akeeba Component and Kickstart utility from Akeeba site
 2. Archive site and upload archive & kickstart.php to live server
 3. Run <http://www.domain.com/kickstart.php>

7. Recommended Extensions for Joomla

- ▶ Editors : JCE and Joomla CK
- ▶ Site backup and install : Akeeba
- ▶ Image Gallery : Phoca Gallery
- ▶ Dropdown menus : Icetheme
- ▶ Joomla Cache Cleaner : Cache Cleaner
- ▶ Site Search : ITP Google Search
- ▶ Joomla Free Templates : Google
- ▶ PHP, JavaScript Code : Sourcerer
- ▶ For other various types <http://extensions.joomla.org/>

8. References

Best Learning Resource

- ▶ <http://www.w3schools.com/>

Free Stuff for HTML / CSS

- ▶ CSS Menu <http://css3menu.com/>
- ▶ Image Gallery <http://visuallightbox.com/>
- ▶ Dynamic Drive <http://www.dynamicdrive.com/>

For Joomla

- ▶ Joomla <http://www.joomla.org>
- ▶ Joomla Extensions <http://extensions.joomla.org/>

Thank You !

