**Module 8**

**Web Technology and Libraries**

**Unit 1**

**Website Development**

**Learning objectives**

* To provide an overview of the history and development of the Internet
* To explain different aspects of world wide web
* To elaborate on the criteria of website evaluation
* To develop a website for an educational institutional library

**Introduction**

The Internet is considered as one of the greatest inventions of the mankind. It has become an integral part of our life and we are heavily depending on it for our day-to-day activities. The life without Internet is not imaginable in our personal as well as professional lives.

The Internet plays a very vital role in education by facilitating cost effective and affordable quality education, providing effective and interactive teaching-learning tools and in many other ways.

However, having dependent on Internet that much have we ever thought of who invented this revolutionary stuff and what are the technologies behind it? In this Unit, we will learn the basics of Internet and how to develop a website for an educational institution library.

**Origin and Development of Internet**

In simple terms, the Internet is a global network of computers formed by ‘interconnecting’ many small and big computer networks across the world. In fact, nobody invented Internet in its current form. It gradually grew up as a global network from a small network of four computers in USA called ARPANET (Advanced Research Project Agency Network). The ARPANET was established by the US government for storing and sharing defence-related information in1969. It was established as a de-centralized network and the same resources were simultaneously stored in more than one computer in the network so that if one part of the system fails the rest can still function. This was to make sure of survival of the network even during unforeseen events and disasters like war. It may be noted that during that period USA was expecting an aerial attack from Soviet Union and Japan. Another feature of the ARPANET was its ability to connect and communicate with computers devices with different configurations. In the early 1980’s, the National Science Foundation Network (NSFNET), a network of universities and research institutes in USA joined with ARPANET followed by many other academic and research networks across the world. Eventually, ARPANET withdrew from the network.

Different tools and techniques were invented to store and share resources on the Internet over the years. These include e-mail, file transfer protocol (ftp), telnet, Usenet news, gopher and world wide web. Of these, the emergence of world wide web in 1990’s was a turning point in the revolutionary growth of the Internet. The web with its user-friendly nature and flexible features over shadowed other resources and services on the Internet till that time. Eventually, services like gopher and UseNet disappeared, telnet and ftp side lined and email reshaped into a web-based format. Thus, today, the Web occupies the major portion of the Internet.

**Today, any devices even our fridge and washing machine can be connected to the Internet. This technology is known as Internet Of Things (IOT)**

**Who owns the Internet?**

We have earlier learned that the Internet is grown from the four server computers of ARPANET. Later, many small and big computer networks joined the network established by the ARPA. Though ARPA came out of the network many others have linked with it thus becoming a global network. Each one of the network on the Internet has its own identity. However, there no agency to control the Internet as a whole as nobody owns it

**Internet Society**: Though nobody owns and control the Internet, a non-profit American organization by name Internet Society established in 1992 is responsible for overseeing the formulation of policies on access and standards on Internet.

**Internet Engineering Task Force (**IETF): The IETF is a global community of network designers, operators, vendors, and researchers who deals with the Internet architecture and the smooth operation of it.

**Internet Service Provider:** An Internet service provider in short, ISP is an organization that provides Internet connectivity to persons and organizations. Examples include BSNL, Reliance, Airtel etc.

**Server computers and Client Computers**

As discussed earlier, the Internet is a network of computers spread across the world. Computers on the Internet are of two types: server computers and client computers. The server computers are the systems which store information and services. The client computers are the computers using which we for accessing and using the resources and services stored in the server computers. Thus, when you are downloading an application form from an Institution website, you are actually retrieving a copy of the application form stored in the server computer of that Institution. Your computer, that is the computer you used for downloading the application form is called Client Computer.

**Web Server:** In fact, the term ‘Server Computer’ is a very generic one. Depending on the nature of resources and services provided on the Internet like Gopher, Usenet, Telnet, Ftp and Web, the server computers will have different server application programmes such as Gopher Server, Usenet Server etc. Thus, Webserver is the software application for managing web resources on a server computer. As we know, today majority of internet resources are on webservers.

**Web Browser:** Earlier we have learnt that the computers using which we access the Intern is called Client Computer. In fact, in order to access the web content stored on the web servers on the Internet, the computer needs to have a software application called Web browser. Thus, a web browser is the software application for accessing the web. E.g. Google Chrome, Mozilla Firefox, Internet Explorer (now replaced by Microsoft Edge) etc.

**Web Pages:** In web servers, the resources and services are organized in the form of specialized computer files called web pages. The major characteristic feature of the web pages is that they can be linked to other web pages in the same web server or to other page(s) located in servers elsewhere in the world. Webpages are made using a very simple computer coding language known as hypertext mark-up language or in short, html. The web was invented by Mr. Tim Berners-Lee, a British computer scientist in 1993 as a part of his research project.

**Website Address**: The location of a particular website on the Internet is uniquely identified by its address called as website address. e.g. [www.riemysore.ac.in](http://www.riemysore.ac.in) is the official website address of the Regional Institute of Education, Mysuru. A website address is online equivalent of our postal address.

**Domain Name**: The Website address is technically known as domain name. Usually, an Internet server computer is identified by a series of unique numbers assigned to it known as IP address. An IP address is like 203.164.168.22. It is difficult for a human being to remember an IP address of a site which is in the form of a string of numbers and access it. To resolve this issue the domain name system was developed. The domain name has to be registered before you using it. Also, it should be unique as two websites cannot have the same domain name.

**Uniform Resource Locator or URL**: A Uniform Resource Locator is used to locate a resource on the internet. Sometimes, it is used as synonymous to a web address. A URL consists of multiple parts.

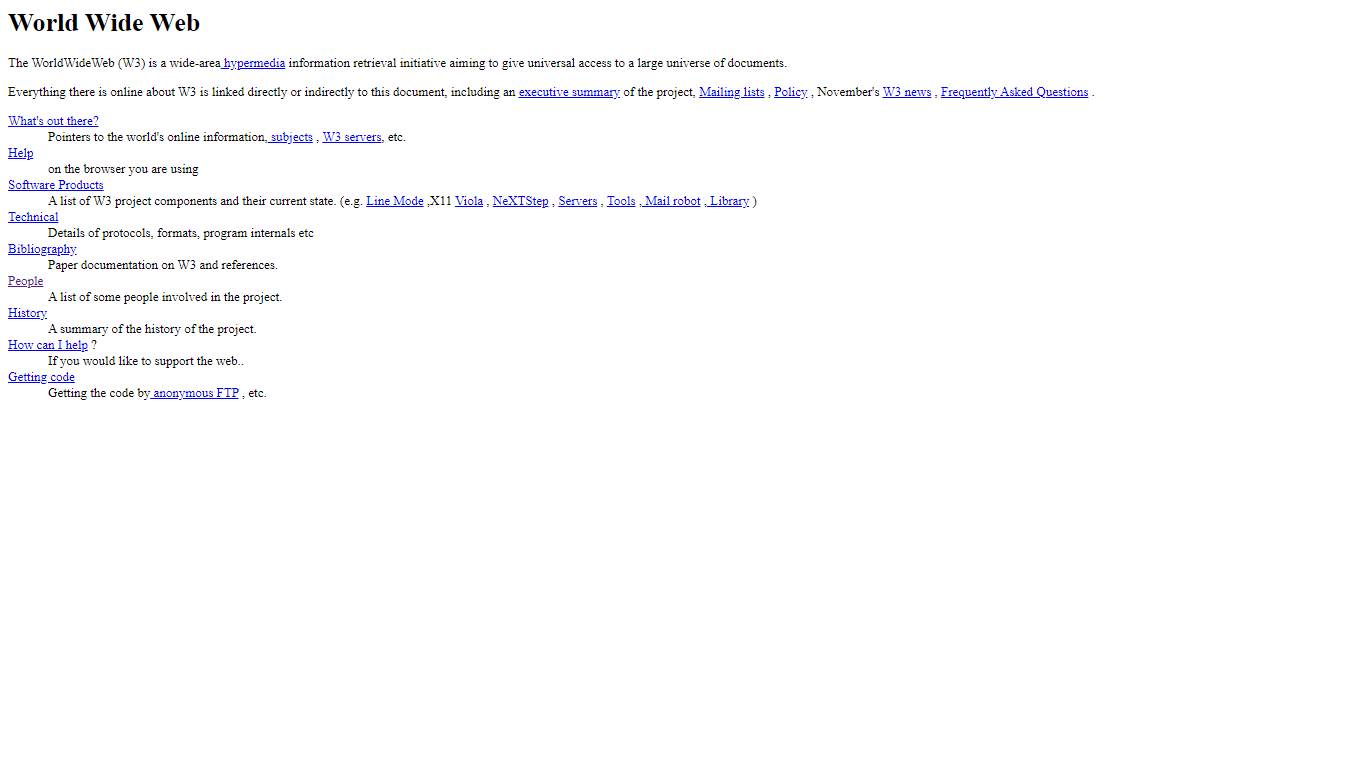


Figure 1:http://info.cern.ch, the home of the first website developed by Tim Berners-Lee

**Homepage**: The default first page that visitors see when they access a website is **homepage** **page**. Usually, this will be the main page of the website where visitors can find links to other **pages** on the site.

**Static and Dynamic Webpages:**

**World Wide Web Consortium** (**W3C**): The World Wide Web Consortium is an international community established by [Tim Berners-Lee](https://www.w3.org/People/Berners-Lee/) , the inventor of the Web to develop [Web standards](https://www.w3.org/standards/). The mission of W3C is to lead the Web to its full potential.

**Internet Service Provider:** We are visiting a number of websites in a day. In order to access the Internet and use a website we need Internet connection. The Internet Service provider is the agency or organization providing access to the Internet. **In India**

The first Internet Service Provider in India was Videsh Sanchar Nigam Limited (VSNL) which launched its service on 15 August 1995. Now, the leading players are BSNL, Reliance and Airtel.

**How information is communicated over the internet?**

Before knowing the basics of information communication over the Internet we should know what is meant by a protocol. A protocol in simple terms is a set of rules used for communication between electronic devices, especially computers over a network including Internet. The protocol covers the rules on various types of data or information that are shared, the commands for sending and receiving data, and confirmation data transfer. Normally, the protocols work in the background in a network, so it is not necessary for the ordinary users like us to know the technical details of them. Some of the commonly heard Internet-related protocols are TCP/IP and HTTP.

**Bandwidth and Speed of the Internet**

The speed at which a client can retrieve data from a server is dependent on the amount of bandwidth required to transfer the data. If the server is on your LAN, your router will determine how quickly data is transferred from a server to the client. So if you have a good quality router, these days, that speed can be rather impressive.

This same logic applies to servers in your WAN (on the Internet). When you visit a web page, there are a number of things that determine how quickly the page loads:

* The speed of the server hosting that website
* How large the web page is (images, etc).
* How much bandwidth your ISP has allowed you
* How quickly your router can route data packets
* The speed of the Network Interface Controller on your compute

**How to develop a Website?**

In our daily life, we come across with hundreds of websites featuring interactivity, visual appeal and attractive design, audio and video and many more. Such multi-featured websites were not imaginable some years ago. Since Tim Berners Lee’s invention of the world wide web in 1993, the websites have evolved over the years from simple and static pages to advanced multi-media sites. Earlier website building demanded the knowledge of software tools like hypertext mark-up language (html) and related tools. However, today, we can develop even a multi-feature website without any technical skills in a couple of hours.

Basically, a **website can be built in two ways: (1) From scratch (2) Using web authoring or website building tools.**

**Building a Website from Scratch:** Normally, every website is made up of three components. These are: Hypertext Markup Language (html), Cascading Style Sheet( CSS) and JavaScript. Better to say, these are the building blocks of any website. Of these, html is a very simple coding language which provides the basic structure for a website. The CSS provides stylistic appearance for the website like colours, layout and fonts. The JavaScript is a computer language that provides interactivity and functionality for a website. In order to develop a website from scratch you need to know the above discussed website building blocks, i.e. html, css and JavaScript. In this case you have to write code manually using html, then provide stylistic appearance to it using css and interactivity features with the help of JavaScript. This is a tedious and time-consuming job which requires in-depth mastery of html, css and JavaScript. However, the advantage is that you will get a complete control over the site development.

**Using Content Management System**: A Content Management System (CMS) helps you to create, manage, and modify the contents of your website without the need for any HTML or CSS coding skills.

A content management system (CMS) is an application that is used to manage web content, allowing multiple contributors to create, edit and publish. Content in a CMS is typically stored in a database and displayed in a presentation layer based on a set of templates.

The following are the basic features of a CMS:

* Content creation (allows users to easily create and format content)
* Content storage (stores content in one place, in a consistent fashion)
* Workflow management (assigns privileges and responsibilities based on roles such as authors, editors and admins)
* Publishing (organizes and pushes content live)

### Benefits Of A Content Management System

One major advantage of a CMS is its collaborative nature. Multiple users can log on and contribute, schedule or edit content to be published. Because the interface is usually browser-based, a CMS can be accessed from anywhere by any number of users.

The second major advantage of a CMS is that it allows non-technical people who don’t know programming languages to easily create and manage their own web content. The WYSIWYG editors of a typical content management platform allows users to enter text and upload images without needing to know any HTML or CSS.

When a company uses a CMS to publish its pages, it reduces its reliance on front-end engineers to make changes to the website, making it quicker and easier to publish new content.

### CMS Examples

While there are hundreds of CMS platforms, some of the more popular ones are listed below:

* Drupal
* Joomla
* Magento
* ModX
* Squarespace
* Wix
* Weebly
* Wordpress

### What To Look For In A CMS

Before choosing a content management system, it is beneficial to evaluate your company’s information management practices and overall business goals with respect to the publishing of content.

You will need to begin by making a list of the business problems you are trying to solve as well as any specific requirements you may have. This will help you choose the right content management system – the one that supports your business requirements – rather than the most popular or well-liked.

CMSs come in all shapes and sizes, each with its own set of features and benefits. Some are ideally suited for blogging; others may be tailored to ecommerce sites with features for pricing and accounting functionality. Specifics will vary based on your company’s needs and resources.

Here are some questions to consider in the evaluation process:

**What is your budget?**

If you have infinite resources to spend, there are some very complex content management systems with features designed to make content creators’ and editors’ lives easier. With a limited budget, however, your choices will be more limited.

**What business operations does the CMS need to support?**

After price, the next major consideration is which business operations the CMS will need to support. Does your company need to publish hundreds of new videos a day? Change prices on thousands of SKUs per day? Host images for blog posts?

**What technologies does the CMS need to support or integrate with?**

If your company already uses a CRM, ERP or web analytics program, you’ll need to consider a CMS that integrates with existing [online marketing](https://www.optimizely.com/optimization-glossary/online-marketing/) software.

**How easy is it to create and edit content?**

The larger the company, the more removed the end user of the CMS will be from the person who implements it. Ideally, the system will be easy to use and intuitive, with features like a WYSIWYG editor.

**How many different groups of users will there be?**

One consideration will be the various different levels of administration privileges that are required. Consider the various user roles, including the role of managers in reviewing scheduled content.

**Is the platform SEO-friendly?**

If [SEO](https://www.optimizely.com/optimization-glossary/search-engine-optimization/) is important to your company, you will want a CMS that automatically handles basic on-page optimization tasks such as title tags, urls, alt tags on images, and a sound internal linking structure.

**How large is the developer community?**

Some of the CMS platforms, particularly Wordpress and Drupal, come with very large developer communities. The advantage to a sizable community is the amount of online help and documentation you will find on most aspects of customization

Getting down to basics — in its simplest terms — a CMS is a ‘system’ that ‘manages’ ‘content.’ Some define it as a software platform providing a collection of procedures used to manage workflow in a collaborative milieu. It’s derivatives WCMS [Web Content Management System], Enterprise Content Management [ECM], Digital Asset Management [DAM], Headless & Decoupled Headless CMS are variations on a theme that have emerged as this technology has transitioned over last three decades.

The evolution of content, from Egyptian scribes to the technological advancement of the World Wide Web, has moved from the hands of a few to those of the masses. Today virtually anyone can create a webpage with limited technical know-how

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## What is a Content Management System (CMS)?

A Content Management System [CMS] is a software platform that lets its users create, edit, archive, collaborate, report, publish, distribute and inform. Its Graphic User Interface (GUI) makes interacting with a website's database user friendly.

Websites use HTML (the Hypertext Markup Language) and CSS (Cascading Style Sheets) to create and design its pages. They are two of the essential core components to create Web pages. HTML provides the structure of the page, CSS the visual and aural layout.

A CMS allows users without any coding knowledge to amend, modify and edit content to websites using a WYSIWYG interface, an acronym for "what you see is what you get." The data entered into CMS software is stored in a database, which renders the web page via a template. The CSS of that page can then control the output.

In recent years, it has served up an alphabet soup of sorts, which at first blush is somewhat blurred, and confusing to decipher. However when separating the wheat from the chaff, there are some distinct differences pertaining to CMS, WSMS and ECM.

## WCMS vs CMS vs EMS

Once you become a bigger brand or organization, finding the right software for your company use case can be a little trickier. And so, the question remains: should you use a WCMS or CMS?

### What is CMS?

CMS: Content management system is often considered a subset of WCMS and ECM. As noted above, CMS is software used for developing, editing, managing and pushing out content. A CMS works best with structured content, such as documents or database records, but it may also be used to manage content such as video and audio files.

### What is ECM?

ECM: An ECM [enterprise content management] combines tools, such as software, with a strategy for incorporating an organization's business processes with its content. It can manage structured and unstructured content. An Enterprise Content Management System is when a company’s content strategies, software, tools, and team intertwine together to manage content effectively.

### What is WCMS?

WCMS: Web content management system is considered by most industry professionals to be a subset of a CMS. The line between a WCMS and ECMS is thin. The primary differentiating factor is that a WCMS is more applicable for web content, while an ECMS is refers to a holistic business processes.

## How Does a CMS Work?

A CMS allows users to manage content from an internal user interface or dashboard. There are a good number of CMS software available with one-click installs. This facilitates and makes it easy for a non-technical marketer to use and navigate. Most of the top-rated CMS programs for smaller startups are open source and free.

This means you do not have to be proficient with other components of the CMS alphabet soup, namely JavaScript [programming language commonly used in web development,] HTML [Hypertext Markup Language,] CSS [Cascading Style Sheets,] PHP [Personal Home Page or hypertext processor,] and MySQL [an open source relational database management system based on the structure query language (SQL.)

Building a website with CMS is analogous to playing with Legos’ plastic bricks from our childhood. You can select what bricks work best to build your site. It allows you to write text and insert pictures and graphics directly from a control panel.

Websites are built with databases similar to Excel spreadsheets, with a secure and easy-to-use interface. With newer iterations, most CMS’s are managed and continuously updated as the web evolves.

New CMS web building platform options are numerous. The traditional option is WordPress. Wordpress is open source with multi-faceted features, templates, themes, and plugins and take no time to install and create live websites. WordPress is the de facto software used by approximately 75 million websites. It currently accounts for over a [quarter of all websites](https://martechtoday.com/wordpress-used-on-25-percent-of-all-websites-report-151115). [However, WordPress has experienced recent vulnerability and security issues which is discussed below.]

## Enterprise Level CMS | Everything You Need to Know

An Enterprise Level CMS requires vastly more than a standard CMS for smaller organizations. As a marketer or IT employee of an enterprise seeking a CMS, you have to make the whole team happy. IT requires security. Web development requires flexibility to create sites without limitations. Marketing requires a non-technical interface and software that will increase their conversions while allowing them to distribute content for campaigns quickly. There’s a handful of components that go into ECM to stay aware of during your exploration of Content Management Systems.

Enterprise Content Management is known as a collective term that represents the synchronized process, tools, and methodologies used to represent an enterprise’s strategy. As such, it delivers critical data to business stakeholders, inclusive of consumers and a company’s staff members.

ECM streamlines the lifecycle of data with document management and automates process workflows. The breakdown of an ECM includes five distinct components. The AIIM [[Association for Information and Image Management](http://www.aiim.org/What-is-ECM-Enterprise-Content-Management)] identifies the purpose of each as follows:

* The Capture component involves creating information by converting paper documents into electronic formats, obtaining and collecting electronic files into a cohesive structure, and organizing information. Information can include invoices, contracts, research reports and more.
* The Manage component connects, modifies and employs information through means such as document management, collaborative software, web content management and records management.
* The Store component temporarily backs up frequently changing information in the short term within flexible folder structures to allow users to view or edit information.
* The Preserve component backs up infrequently changing information in the medium and long term and is usually accomplished through records management features. It is commonly used to help organizations comply with government and other regulations.
* The Deliver component provides clients and end users with requested information.

The streamlining efficacy of an ECM eliminates bottlenecks, optimizes security and minimizes cost, which results in increased productivity.

It’s incumbent on users of the enterprise to provide proper to manage content effectively. With ECMs, that content can be integrated with business intelligence and business analytics (BI/BA) applications, which helps in making informed business decisions.

## 7 Must HAVE CMS Features

### ****1. Security.****

The web continues to be risky terrain. Security attacks are far too common to jump onboard a standard CMS with little to protect your company data. Hackers today can essentially assume control over the look, feel and content of websites.

In 2017, [WordPress uncovered a major vulnerability](https://securityboulevard.com/2018/03/life-cycle-of-a-web-app-0-day/) compromising thousands of their users’ websites. While WordPress of the security breach alerted users, unless companies took it upon themselves to make the appropriate changes, they remained in jeopardy. That threat prompted website users to look for alternative content management systems. The right WCMS will take care of security updates for you. Today it’s more important than ever to find a service that automatically pushes out updates when vulnerabilities present themselves.

Content creators and publishers should also consider platforms, which provide their clients with protection against [DDoS attacks](https://www.cnet.com/how-to/what-is-a-ddos-attack/), as well as offering [two-factor authentication](https://www.zesty.io/en-us/wcms-technology/enterprise-level-security/) to add additional layers of security.

### 2. Multilingual Functionality

[TranslateMedia](https://www.translatemedia.com/us/translation-service/website-translation/) notes that more than 75% of Internet users don’t communicate in English and require content to be translated into their native language, or ‘localized.’ Additionally, global firms who cater to international clientele need their sites to be equipped with multiple translations.

So, to meet these goals, your CMS of choice should support the following [multilingual capabilities](https://www.translatemedia.com/us/blog-usa/cms-considerations-multiple-languages/):

* **Site architecture for global markets and languages.**This will allow you to generate country sites that need to be translated locally, regionally or globally.
* **Ability to import/export text as XML or other standard formats.**This will make working with your translation provider easier by allowing you to import and export text in a standardized format.
* **Full Unicode support.**This ensures your website can display languages that require characters versus an English alphabet, such as Japanese or Arabic.

### 3. Distributing Content

Addressing all digital touch points in today’s ever-changing communication landscape adds a security and omnichannel complexity. Going beyond hand-held devices, content needs to be appropriately formatted for the Internet of Things [IoT], Augmented Reality [AR], Artificial Intelligence [AI] and Virtual Reality [VR].

With all these device variables constantly in play, it’s incumbent on brands to proactively stay ahead of the curve to also provide omnichannel customer service. The most direct way to do that is to use headless CMS or its more user-friendly hybrid variant called decoupled CMS, which is favored by enterprises with marketing team.

### 4. Search Engine Optimization (SEO) Tools

Search Engine Optimization is an essential component of CMS, WCMS and ECMS. [Search Engine Watch](https://searchenginewatch.com/sew/how-to/2223883/10-seo-considerations-for-a-content-management-system) has identified the most important elements to look for when considering CMS through SEO-friendly eyes:

* Must be able to customize page titles & [meta-data](https://www.cmswire.com/cms/enterprise-cms/the-importance-of-metadata-in-content-management-009746.php)
* Drop-down navigation needs to be built into the CSS
* Assuring SEO-friendly URL
* Consolidate duplicate URLs with a rel=canonical tag
* Should have a XML Sitemap Creation Function
* Should not use or rely on frames for content display
* Should include 301 Redirects, not 302
* Supports pagination with rel=“next” and rel=“prev”
* Mandatory to have alt tags
* Include breadcrumb navigation
* Supports fast page load times

### 5. Fast Customer Support

Gartner Peer Insights is a great resource for determining if current or past clients enjoyed working with customer service for a software company. You can view[Zesty.io’s CMS reviews](https://www.gartner.com/reviews/market/web-content-management/vendor/zesty-io/product/zesty-io) on Gartner Peer Insights too. The best Web Content Management Software products are determined by customer satisfaction. Gartner Peer Insights allows the user to view review by company, job description, and rating. Seek out user reviews that give your team peace of mind before you purchase.

### 6. Responsive Mobile

Users don’t need a “mobile-version” of their website to be “mobile-friendly.” The proper CMS can adapt your current website to any device or IoT with responsive design. This approach addresses the need to provide, optimize and tailor the viewing experience based on the capabilities and constraints of the device and its screen size.

The technology you use to create responsive design is [CSS3](https://developer.mozilla.org/en-US/docs/Web/CSS/CSS3). This is the latest evolution of the Cascading Style Sheets language, which improved upon CSS2, its previous iteration. CSS3 brings a lot of long-awaited innovation, such as rounded corners, animations, shadows as well new layouts with multi-columns and grids. Responsive design also optimizes a website with drag-and-drop layouts and other responsive rule sets.

### 7. Seamless Integrations

In the early days of CMS, our content creation functioned in silos. Today, mobile CMS requires a seamless sharing and WYSIWYG. It needs to be component-based so any publisher can deliver a rich, touch-enabled experience for every screen. Seamless integration now allows for monetization to go native and live within the CMS.

## What are the different types of Content Management Systems?

Traditional CMS: Traditional CMS is only one option of a few. Digital evolution moves at lightning speed. Decades are eons. Traditional CMS has only been around 30 years. Over that time, other forms of content management systems have emerged.

### What’s a coupled or traditional CMS?

Traditional architectures attach the backend to the frontend of a website. The CMS backend management is bound within the same system that delivers the content, or frontend.

In essence, this means that editors writing and publishing in the backend of a website are working on the portion of the website visitors are going to view. Additionally, all of the website design and customization applications are stored in the backend as well.

**A traditional CMS incorporates the following key features:**

* A front end that displays published content on HTML pages
* A content management backend where content is created
* A database where content is stored
* An application in which publishers and designers create and apply design schemas, which lives within the content management backend]

### What is a Decoupled CMS?

Decoupled CMS architecture divides the backend and frontend management of a website into two disparate systems. In a decoupled CMS, the content management system (backend) operates separately from the delivery component (frontend). This translates to when content is created and edited in the backend of a website, it is transmitted via an API and published in the separate frontend system.

In other words, a decoupled CMS allows the technical employees in your organization to develop and create with flexibility, without forcing marketers to use a software that’s too technical. A decoupled CMS is a recipe for making all parties happy.

**A decoupled CMS consists of:**

* A content-publishing frontend that is predetermined and connected to the content management backend via an API
* A database where content is stored
* An admin interface comprised of an application that allows editors to create and manage content easily (depending on the platform)
* Can publish content to any device

### What is a Headless CMS?

Headless CMS architecture is similar to decoupled CMS architecture, but lacks a defined frontend system in which to publish. Many developers love a completely headless CMS, but it can hurt marketing efforts. In a headless CMS environment, the system has lite content management and editorial capabilities but then publishes to a web-service or API that can transmit content to any system with Internet access. As a result, a headless CMS can publish the same content to a website, an app, a wearable device or any device connected via Internet of Things (IoT) because the content isn’t bound by a predetermined content structure.

**A headless CMS is comprised of:**

* A content management backend
* An API
* Does not have a predetermined content publishing frontend and can publish to any device connected via IoT

So what CMS platform is the public favoring going forward? Many CMS platforms no longer need to rely on IT for design, development and content deployment. A Decoupled Web Content Management system can empower marketing to work independently and gives them the ability to create once and deploy it anywhere.

## Frequently Asked Questions (FAQ) About Content Management Systems

### How to choose a CMS for building microsites?

If you have a specific campaign or content publishing effort coming up, a microsite might be the answer to test the waters and build a client-base. In essence, a microsite is small website [in many instances, a one-pager] that can pack a big punch in capturing leads, building loyalty, spreading your marketing message and creating a buzz around a specific topic.

So when looking for a CMS that can help build microsites, seek out one that addresses these key features:

* Up and running in minutes
* Cost effective
* Ease of publishing, preferably with one to two clicks.\
* Permits fast content editing
* Streamlines the review process to obtain content changes quickly
* Offers a robust infrastructure that scale to meet growth and large bumps in traffic

### What’s the key difference between WCMS vs CMS?

A content management system [CMS] is software application or set of related programs used to create and manage digital content. A subsection of Content Management is Web Content Management or WCM. A WCMS is a program that helps in maintaining, controlling, changing and reassembling the content on a webpage. They differ from the traditional CMS in that they need less IT personnel to work on servers, update software and prepare for scale.

### What are the best CMS platforms for marketing?

There is a good number of CMS offerings available for various uses. Here’s a closer look at two:

* Zesty.io. -- Larger companies in need of a WCMS look to decoupled options like Zesty. Our platform is loved by marketers and approved by IT. This is a great option for Enterprises who need to push content out and need the [security standards](https://www.zesty.io/en-us/wcms-technology/enterprise-level-security/) other options can’t provide. Zesty.io also compliments tech savvy benefits with social media integrations and other marketing tools to increase engagement on your site.
* WordPress -- A free and open source WCMS based on PHP and MySQL. WordPress can be utilized as part of an Internet hosting service (WordPress.com), or it can be deployed on a local computer to act as its own web server (WordPress.org). It is immensely popular amongst the blogging community and was initially created for bloggers. There’s a lot of negatives because of that. It’s not the most suitable CMS for enterprises, but startups love it!

### Will a CMS eliminate the need for hiring a web developer?

Not necessarily. While most of the CMS platforms in the market today provide the marketer with a greater ability to DIY, there are areas where programming knowledge may be required. The goal of your enterprise should be to find a software that limits any bottlenecks that keep marketers from moving fast with content on your site.

While Zesty.io and other CMS platforms provide the inexperienced with a number of templates for styling and site design, database creation and basic knowledge of stylesheets might require an experienced programmer.

## CMS Search Engine Optimization (SEO) Recommendations

SEO [search engine optimization] is key to increasing traffic to a website.

For your Search Engine Result Pages [SERP] to rank high on Google and other search engines, you need to put forth a major SEO effort. This is why many WCMS (Web Content Management System) vendors include support for SEO by automating some of the processes involved with optimizing a page.

The SEO elements of the greatest concern fall into three major categories:

1. Content: If you’ve ever heard the phrase “content is king,” content is what it’s all about for search engines. Good content needs to be relevant, fresh [not dated] and must contain a sufficient number of well-selected keywords.
2. Architecture: ‘Crawlability’ allows for a website to be indexed by the search engines. If a page can’t be crawled, the search engines won’t index it. All pages need to be accessible by links – and a sitemap listing all relevant pages will improve your searchability.
3. HTML: Hypertext Markup Language is the format for which a webpage is offered to the web browser and the search engines. So, it’s incumbent on this format to be compliant with current web standards. This means the title, the headers, the metadata and the alternative text description for images [alt attribute] need to be formatted properly for the best search results.

When you’re in your next WCMS demo, make sure to ask your representative to show you their SEO tools and how they work.

The great thing about website builders is that they offer templates for a range of different industries (check out these [templates by Wix](https://www.websitetooltester.com/en/blog/wix-templates/), for example). You pick the one you like and just add your own text and images. You don’t have to start from a blank slate, which makes it super easy to achieve impressive results in no time.

Website builders are perfect for [small businesses](https://www.websitetooltester.com/en/best-website-builder-for-small-business/), [portfolios](https://www.websitetooltester.com/en/website-builder-for-artists/), [photographers](https://www.websitetooltester.com/en/how-to-make-photography-website/), [online stores](https://www.websitetooltester.com/en/start-online-stores/), [restaurants](https://www.websitetooltester.com/en/wix-restaurant-website/), and [hotels](https://www.websitetooltester.com/en/blog/wix-hotels/), as well as clubs and associations.

On the other hand, sites that require a database (real-estate listings, job boards) aren’t so easy to create. They require a different tool and more time. Your best bet in this case: [WordPress](https://www.websitetooltester.com/en/website-with-wordpress/).

And since we get this question frequently: No, hypercomplex sites like Airbnb, eBay or Facebook are completely out of reach. You’ll need to hire a development team to build a website like that

**How to select a Good Website Builder**

Here’s the good news: choosing a website builder is relatively risk-free nowadays. However, there are a couple of things that you should be looking into before deciding:

* **Free Trial**: Make sure you can try the site builder for free. Most providers offer free plans (with some limitations) or at least a money-back guarantee policy.
* **Support**: Check which kind of support the website builder offers (e.g. phone, chat, forums, etc.). It’s also worth checking if there is an active community of users that can help each other.
* **Price**: This can be tricky to figure out as offers are sometimes confusing. However, in all our reviews, you’ll find clear details of the pricing plans and extra costs (e.g. domain name) for each provider.
* **Features**: Obviously each project will have different needs. But here are some of the common things you may be looking for: a decent **blogging system**, customizable**SEO options**, **mobile-friendly designs**, a **shopping cart**, decent **image galleries**, possibility to **password-protect pages** or having registered users.
* **Domain name**: You should be able to connect domain names purchased elsewhere, even if you can register a new domain with the web builder directly.

**Using website building tools:** Today, with the advancement in technology ready made software applications are available for building a website. These are called website building tools or website builders. Wixi and Weebly are two most popular website building tools today.

**How to Launch a Website?**

The pre-requisite of launching a website is the obtaining of a domain name for the site or registering for a domain name. There are many domain agencies in the country to do the job for you.

Once you get the domain name, there are two ways for launching your website onto the web so that others can make use of it. (1) Setup a Server Computer by yourself, install the site you designed in it, get a 24/ 7 Internet connectivity for it and upload the site using your registered domain name. (2) launch the website using the website hosting service provided by the government or private webhosting organizations. It may please be noted that the government webhosting organizations will host only the government website. There are mainly three types of web hosting services: Free hosting service, shared hosting service and dedicated hosting service. The three main factors that determine the webhosting are: storage space, bandwidth and server operating system.

**Evaluation of Websites**

Due to revolution in information and communication technology, the web has now become important source of information. Everything is now available on the click of a button. However, in order to make informed decisions regarding a subject, the available information should be reliable and accurate. On the Internet, due to freedom of information, anyone can create a website and offer expert advice regarding a host of topics. Studies have shown that the majority of the information on World Wide Web are unreliable. Such information of dubious quality can do more harm than good. This necessitates the evaluation of websites based on some criteria. The major criteria for evaluating websites are given below.

1. **Currency:** The users should know whether the information that they access over a website is up-to-dated or not. Many Web pages will post the date on which the page was last reviewed or updated. This will be usually found at the very bottom of the page. The following are the specific criteria related to the currency of health information website: When the site was first created? How frequently or often is the site/site content updated? Does the site indicate when it was last updated?

Does the site indicate date until which the content/information is valid?

1. **Relevance:** The information provided on the website should be relevant for satisfying the information requirement of the user. The following questions should be asked for understanding the relevance: Does the information relate to my topic or answer to the question? Who is the intended audience of the site? Is the information at an appropriate level (i.e. not too elementary or advanced for your needs)? Is it appropriate to cite this source in my research paper?
2. **Authority:** The name of the individual or organization running the site should be clearly stated on the website along with a list of credentials. Normally, the information about the authorship will be provided on the home page under the heading ‘About Us’. The site should provide a way for users to contact the author and to make comments or ask questions. The websites published by the government agencies (gov.), nonprofit organizations (.org) and educational institutions (.edu & .ac) are more reliable than the websites of commercial organizations and individuals (.com). The sites with ‘.com’ web addresses are called commercial websites. Commercial sites may offer useful and accurate information. However, you may want to be more careful about believing the information you read on these sites. The information may not be fair and accurate if the company that pays for the site has something to gain from it. It's a good idea to double-check information you read on commercial websites. The following questions should be asked to understand the authority of website information: Who is the author/publisher/source/sponsor? What are the author's credentials or organizational affiliations? Is the author qualified to write on the topic? Is there contact information, such as a publisher or email address? Does the URL reveal anything about the author or source? examples: .com .edu .gov .org .net
3. **Accuracy/ Completeness of Information / Coverage:** The information provided on the website must be complete in every respect. It should avoid “under-construction” pages as much as possible. Also, there should not be any factual inaccuracies, spelling mistakes, or grammatical errors and the information should be well organized. The following questions should be asked to understand the accuracy of the website content. Where does the information come from? Is the information supported by evidence? Has the information been reviewed or refereed? Can we verify any of the information in another source or from personal knowledge? Does the language or tone seem unbiased and free of emotion? Are there spelling, grammar or typographical errors?
4. **Purpose:** The site must specify its purpose, mission and scope. It should say whether the information provided is for consumers or for health practitioners. In other words, it should state the reasons for its existence. Following are the important questions related to the purpose of a website. Do the authors/sponsors make their intentions or purpose clear? Is it for to inform, teach, sell, entertain or persuade? Is the information fact, opinion or propaganda? Does the point of view appear objective and impartial? Are there political, ideological, cultural, religious, institutional or personal biases?
5. **Other Criteria:** Other major criteria for evaluation include Accessibility and Presentation, Navigation and Facility for Feedback.

**Planning and Designing a Library Website**

Proper planning and designing are important for the success of a library website. The major steps in planning a site are the following:

1. Deciding the Purpose of the Website: This is the first step in planning and designing a library website. During this stage, the purpose of the site, target audience, the types od information to be provided on the site etc. have to be decided. Also, all the information needed for the development of the site and its content creation will be gathered.
2. Creating a Site Map: In this stage, a list of all the items that constitute the webpages of a site will be prepared. The site map is very essential for building user-friendly site with better avigation options and search engine optimization.
3. Creating a Wireframe: The wireframe is a visual guide that depicts the skeletal framework of a site. It is also called the visual prototype of a website.
4. Deciding the Design aspects: In this stage the layout of the site will be decided and see that the layout selected are visually appealing. Then the logos, images etc will be uploaded.
5. Content Development: In this stage, compelling and appealing content will be developed with catchy phrases and headlines.
6. Coding and Site Development: This stage is optional and will be decided based on whether you develop the site from scratch using tools like html, css and JavaScript of website development tools like Wixi. First create a homepage followed by the subpages based on the sitemap and wireframe prepared earlier.
7. Testing: in this stage, the website will be tested for any errors.

**Guidelines for Developing an Effective Library Website**

The Library and Information Centre website of a B.Ed. College is an information gateway for its academic community. The important guidelines for developing the site are:

1. The website should have a vision and mission statement detailing its objectives and purposes in line with the vison and mission of the organization
2. It should be ensured that the site is accessible with equall ease for the users through the major browsers and across all computer platforms.
3. The site ownership must be mentioned on the homepage and all other entry pages.
4. The terms conditions of using the site should be mentioned on the site
5. The site must incorporate a search box on a prominent place
6. It should have proper navigation options
7. Homepage, the most important part of the site where the user land first should not be cluttered with too much information.

**Development of a B.Ed. College Library Website**

[Practical]

**Unit 2**

**Social Media for Libraries**

**Learning objectives**

**Introduction**

In the previous Unit we have learnt about the basics of the Internet and Web, the most powerful technology on the Internet. The current generation of the Web is commonly known as Web 2.0. The previous generation of the Web attracted the users with its hypertext facility and user-friendly nature whereas Web 2.0 is noted for its interactivity and easy self-creation of content by users. The Social Media can be considered as a by-product of Web 2.0 technology. They are nothing but web-based online applications or tools which facilitate interactive information sharing and collaboration among the users of the Web. On social media a user can:

* Create content by himself also in collaboration with others
* Edit the content of what he created or other’s content with permission
* Rate the quality and usefulness of the content
* Comment or give feedback
* Start a discuss on the content or join an already started discussion
* Tag and organize content as per convenience
* Mix the content with others
* Personalize the content
* Share the content across the web

In this Unit we will learn a few popular social media applications and the relevance of social media tools for providing library and information services. Also, we will integrate a few social media tools on the Educational Institution Website that we already developed.

**Role of Social Media Tools in Library Services**

The social media can be powerful information dissemination tools and offer a way for libraries to promote their activities, resources and services while allowing a two-way dialogue with the users.

The social media can be used in the library services in the following ways.

* To Publicize library resources and services
* Improve the library image and reputation
* To improve audience engagement
* Create a community of users
* To reach out potential users
* To push library news and press release
* To provide quick updates to users
* To build discussion groups and collaborative work
* To spread news and service alerts

**Popular social media tools useful for Library Services**

The most popular social media tool which can be used for the library services are:

* Facebook
* You tube
* WhatsApp
* LinkedIn
* Twitter

[**Practical: Integrating social media tools on the website developed by the participants**]

**Reference**

1. Veletsianos, G. et al. (2017). Social media in the library. UK: Routledge
2. Mitchell, S. (2008). Create your own website. Indiana: Sams