

# Content Management System

## Lecture 04



# Content Management System

- ❖ This lecture will discuss about Content Management System (CMS)
- ❖ In particular, a CMS called WordPress
- ❖ To put CMS & WordPress into context, we will quickly review:
  - What is a website ?
  - What is involved in developing a website ?
  - Why there is a demand for CMS & WordPress ?



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# What is Web-Based Content Management System ?



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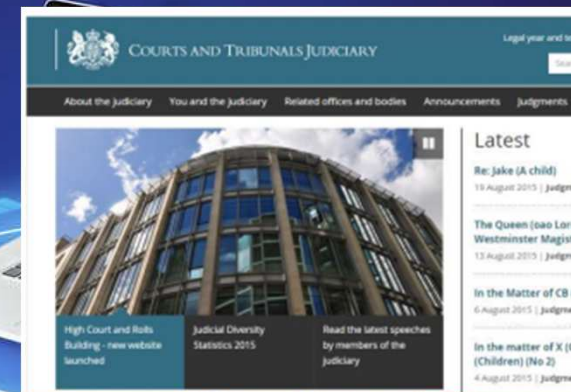
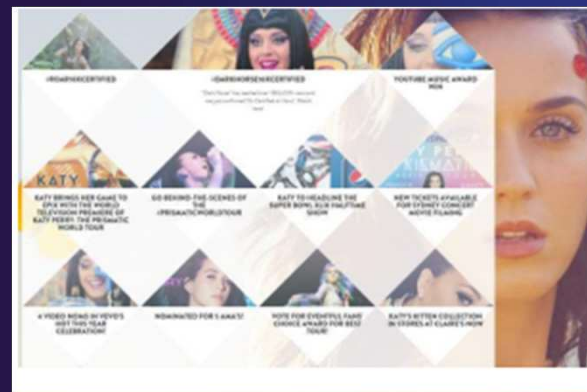
# Web Content Management Systems

- Recent years have seen the collection of **Web Content Management System (WCMS** or often referred to as **CMS**)
- A **WCMS** is a software system that provides **website authoring** and built-in **administration tools** that allow users with **little or no knowledge** of HTML or web programming languages to easily create and manage websites
- **Example:** WordPress, Joomla, Drupal



# WordPress Examples

- <https://hackaday.com>
- <https://katyperry.com>
- <https://wnba.com>
- <https://judiciary.gov.uk>
- <https://wordpress.org/showcase>



# Where will you host your website ?

- Where will you operate/publish your website ?
- Your computer, a web server that you build, or hosted by an external hosting service ?



# Servers

- A **server** is a running instance of a computer and a software application that is capable of accepting requests from clients
- Servers operate within a **client-server architecture**
- A **client** (another computer) makes requests to the server
- **Examples:** database server, file server, mail server, print server, web server, gaming server and application server



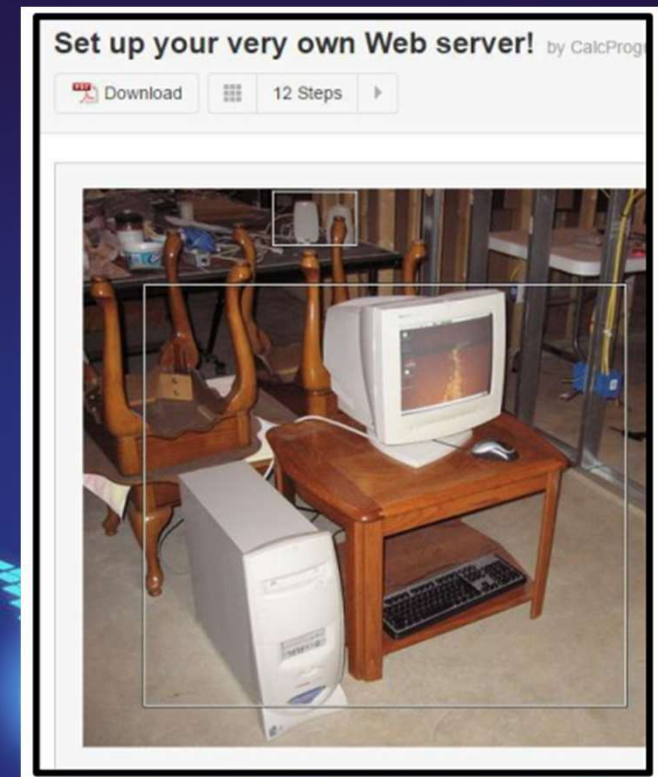
# Web Servers

- The primary function of a **web server** is to store, process and deliver **web pages** to clients.
- The client typically uses a **web browser** to communicate with the web server
- Pages delivered by a web server are most frequently **HTML** documents. These may include text content, images, style sheets and scripts
  - The content, images, style sheets are stored on the Web Server in files



# Creating your own Web Server

- You could create your own web server
- But it requires expertise
  - Setup hardware & software
  - Installing software updates
  - Security
  - Backups
  - Reliability, Speed, Disk Space
  - Scalability
- Often **not** realistic















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# Web Server Hosting

- Offers most **common** features required by website builders
  - Email, CMS, database,...
- **Relative cheap**
  - No large up front cost
  - Monthly fees
  - Often offer free services
  - Upgrade only as needed

**Features and Benefits:**

-  **Worry-Free Uptime Reliability**  
Network Solutions® ensures that your Web hosting service remains trouble-free. Features such as our reliable 99.99% Uptime® uptime rating and automatic backup and restore give you peace of mind knowing your online presence will be consistent and dependable.
-  **Ample Disk Space and Storage**  
Each Web Hosting package comes with plenty of disk space and bandwidth to accommodate your business needs. You can start small and scale up as needed.
-  **Open Source Applications to Customize your Website**  
Our extensive library of open source applications including WordPress™, Joomla!®, Gallery2 and many more can be installed with the click of a button. Create and connect with your customers by easily adding blogs, wikis, forums or other applications. [See All Open Source Applications](#).
-  **Extensive Programming Language Support**  
Customize your website using some of the most widely-adopted programming languages including PHP, ASP.NET, JSP, Ruby On Rails and many more. [Learn More](#)
-  **Publish Websites with our Website Builder Tool**  
For no additional charge, we provide an innovative and easy-to-use Website Builder Tool to help you quickly create a website and publish content to the Internet. You can use our tools or your own software with FTP access. [Learn More](#)
-  **Online Storage & File Sharing**  
Online storage and file sharing with SpaceManager is the easiest way to create online workspaces, share documents, photos and files and collaborate with others securely. Each Web Hosting package includes 2 GB of file sharing.
-  **Easy FTP Access**  
Transferring files is hassle-free with our FTP File Manager that allows you to quickly upload and download files to your website by simply dragging and dropping. Secure FTP & Secure Copy gives you the ability to securely transfer sensitive files.
-  **1-Click Install WordPress® 3.5.1 Blog Hosting**  
The interactive forum provided by a blog helps you to encourage repeat visitors, gather valuable feedback, and build a community to share ideas. Plus, consistently adding content to your blog can help boost your search engine performance. We offer 1-click Install WordPress® blog hosting. [Learn More](#)
-  **Use Your Own Domain Name**  
Point any of your domain names to your Web hosting packages for multiple websites and email addresses. You'll even get a FREE\* nsWebAddress™ (domain name) with any annual Web Hosting purchase. The domain name can be new, renewed or transferred.
-  **Attract Website Visitors with Online Marketing**  
Advertise online with \$50 off the setup fee for Network Solutions® Online Marketing Services and a 60-day free trial of email marketing powered by Constant Contact®\*\*
-  **24/7 Support**  
Get support for our services when you need it. Our 24/7 Support is just a phone call or email away. We also have online user guides and tutorials to help you find the answers you need. Need additional support? MyTime Support is also available for an additional fee ([click here for additional details](#)).
-  **Get Email Matched to Your Web Address**  
Our Web Hosting packages include nsMail™ with spam and virus protection that you can match to your nsWebAddress™ (i.e. jane@janesbags.com). Access your email with any POP3 program including Microsoft® Outlook/Express, Eudora®, and Netscape®, or use Network Solutions Webmail.




## There is a plan for you

Choose a plan today and unlock a powerful bundle of features. Or [start with our free plan.](#)

Pay yearly

	<b>Popular</b>	<b>Best for devs</b>		
<h3>Personal</h3> <p>Create your home on the web with a custom domain name.</p> <p><b>\$4</b></p> <p>per month, \$48 billed annually, excl. taxes</p> <p><a href="#">Get Personal</a></p>	<h3>Premium</h3> <p>Build a unique website with powerful design tools.</p> <p><b>\$8</b></p> <p>per month, \$96 billed annually, excl. taxes</p> <p><a href="#">Get Premium</a></p>	<h3>Business</h3> <p>Unlock the power of WordPress with plugins and cloud tools.</p> <p><b>\$25</b></p> <p>per month, \$300 billed annually, excl. taxes</p> <p><a href="#">Get Business</a></p>	<h3>Commerce</h3> <p>Create a powerful online store with built-in premium extensions</p> <p><b>\$45</b></p> <p>per month, \$540 billed annually, excl. taxes</p> <p><a href="#">Get Commerce</a></p>	<h3>Enterprise</h3> <p>Deliver an unmatched performance with the highest security standards on our enterprise content platform.</p> <p>Starting at \$25,000/year</p> <p><a href="#">Learn more</a></p>

# DreamHost

 <b>WordPress Business</b> WORDPRESS FOR NEW SITES The most affordable way to get all the basics for your WordPress website - perfect if you're new to WordPress.  Starting at <b>\$2.59/mo</b> ? SAVE UP TO 68% WITH A 3-YEAR PLAN  <a href="#">Sign Up Now</a>	 <b>DreamPress</b> MANAGED WORDPRESS Fast, optimized WordPress Hosting with professional staging, daily & on-demand backups, custom caching + email.  First year at <b>\$11.99/mo</b> then \$19.99/mo 40% OFF  <a href="#">Sign Up Now</a>	 <b>VPS WordPress</b> POWER MANY SITES The ideal way to support 5 WordPress websites. A high-performance platform with isolated resources and more backend control.  Starting at <b>\$10.00/mo</b> ? SAVE UP TO 50% WITH A 3-YEAR PLAN  <a href="#">Sign Up Now</a>
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# Hostinger

	MOST POPULAR	
<h3>Premium</h3> <p>Everything you need to create your website.</p> <p><del>\$11.99</del> <b>SAVE 75%</b></p> <h2>\$2.99/mo</h2> <p>For 48-month term</p> <p><b>+3 months free</b></p> <p><a href="#">Choose plan</a></p> <p>\$7.99/mo when you renew</p>	<h3>Business</h3> <p>Level up with more power and enhanced features.</p> <p><del>\$13.99</del> <b>SAVE 71%</b></p> <h2>\$3.99/mo</h2> <p>For 48-month term</p> <p><b>+3 months free</b></p> <p><a href="#">Choose plan</a></p> <p>\$8.99/mo when you renew</p>	<h3>Cloud Startup</h3> <p>Enjoy optimized performance &amp; powerful resources.</p> <p><del>\$24.99</del> <b>SAVE 68%</b></p> <h2>\$7.99/mo</h2> <p>For 48-month term</p> <p><b>+3 months free</b></p> <p><a href="#">Choose plan</a></p> <p>\$19.99/mo when you renew</p>

## Managed WordPress Basic

Best for hosting simple websites.

WITH AN ANNUAL TERM (30% SAVINGS)

**\$8.99** /mo

You pay \$107.88 today. Renews at \$155.88.

Buy

- 1 website
- 10 GB NVMe storage ?
- Free Domain\*\*
- Free SSL Certificate ?
- WordPress pre-installed
- Weekly backups
- Web Application Firewall ?
- Airo™ Site Optimizer ?
- Automated malware scans & removal ?

RECOMMENDED

## Managed WordPress Deluxe

Ideal as you grow, with upgraded resources.

WITH AN ANNUAL TERM (29% SAVINGS)

**\$11.99** /mo

You pay \$143.88 today. Renews at \$203.88.

Buy

- 1 website
- 20 GB NVMe storage ?
- Free Domain\*\*
- Free SSL Certificate ?
- WordPress pre-installed
- Daily backups
- Web Application Firewall ?
- Airo™ Site Optimizer ?
- Automated malware scans & removal ?
- Up to 2x faster performance with CDN\* ?
- Enhanced security with DDoS protection

## Managed WordPress Ultimate

Our best multi-site plan. Plus, sell online.

WITH AN ANNUAL TERM (30% SAVINGS)

**\$15.99** /mo

You pay \$191.88 today. Renews at \$275.88.

Buy

- 3 Websites
- 30 GB NVMe storage ?
- Free Domain\*\*
- Free SSL Certificate ?
- WordPress pre-installed
- Daily backups
- Web Application Firewall ?
- Airo™ Site Optimizer ?
- Automated malware scans & removal ?
- Up to 2x faster performance with CDN\* ?
- Enhanced security with DDoS protection

# Web Server Hosting

- Selection criteria:
  - cPanel and WordPress
  - Reasonable space, backup, customer service
  - Location (local vs overseas): speed
  - Free plugins/themes
  - Easy migration
- Takes around 5 minutes for registration
- Your email & password needed



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# WordPress

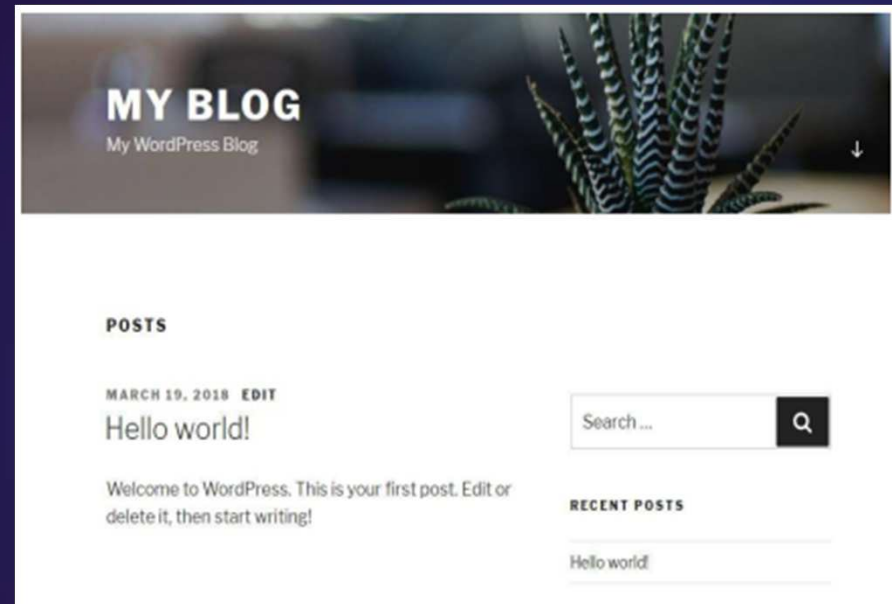
- **WordPress** began as a tool for creating **blogs**
- Each year new features have been added
- Now, blogging is simply one feature that can be included in a website developed in WordPress
- WordPress has become very **sophisticated** and it is used by many large **mainstream** organizations



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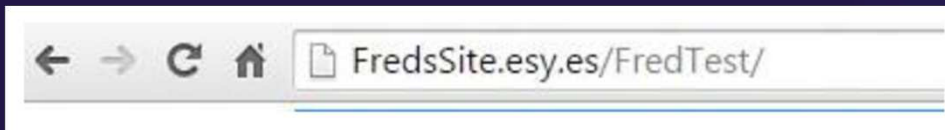
# WordPress

- To get started, WordPress has already done the followings:
  - Create a sample page
  - Installed a theme
  - Posted a blog entry
  - Create a comment

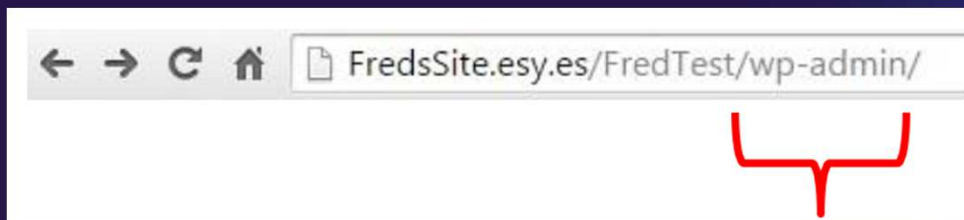


# Using your WordPress site

- When your site has been created, you (or anyone) can **use** the site by using the **website URL**



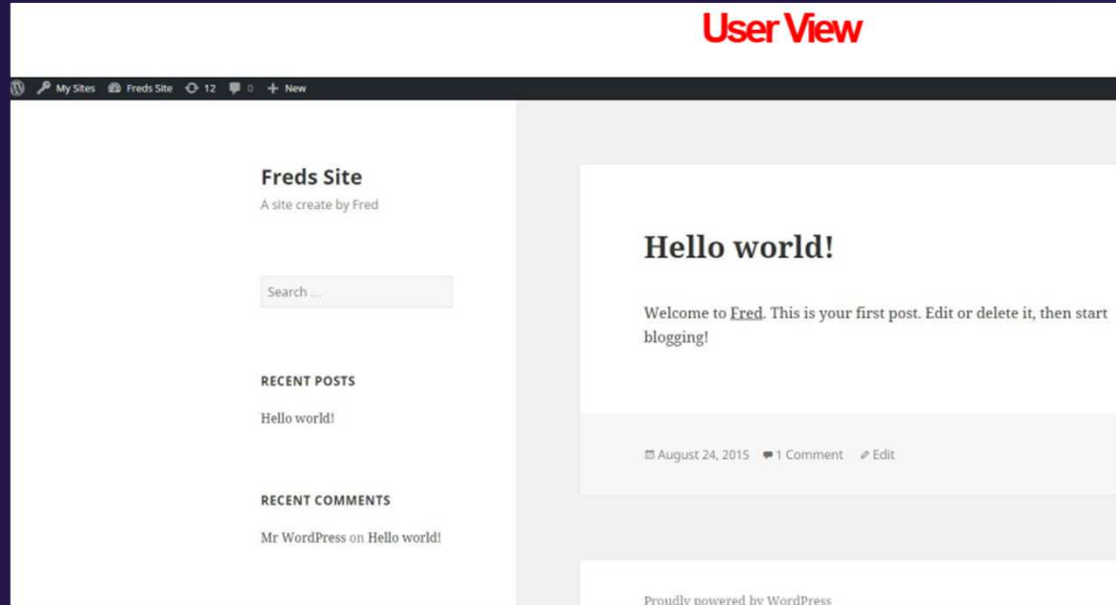
- When you want to **edit/maintain/design** your website, you use the **administrator's URL**. This will require **user-id/password**



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# WordPress: User View

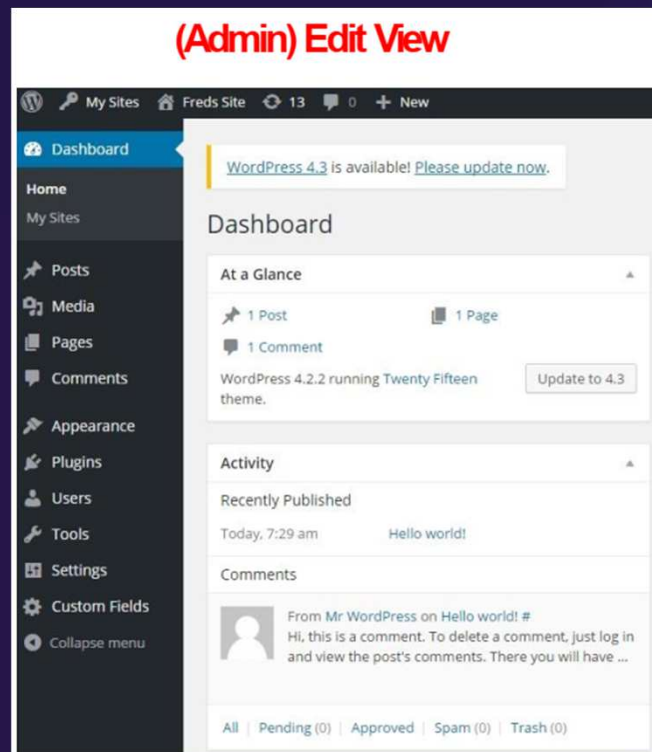
- Basic web site with auto-generated Blog entry and comment



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# WordPress: Interface/Dashboard

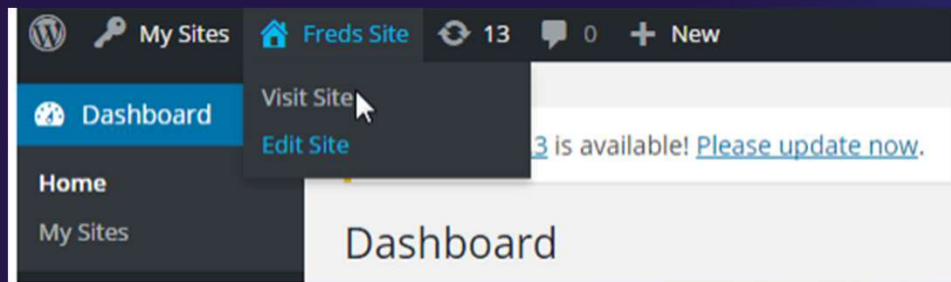
- WordPress has a dashboard to allow you to Modify/Edit your website



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# WordPress: Interface/Dashboard

- To use your website, you can either type the website URL or select **Visit Site** from the Dashboard Menu



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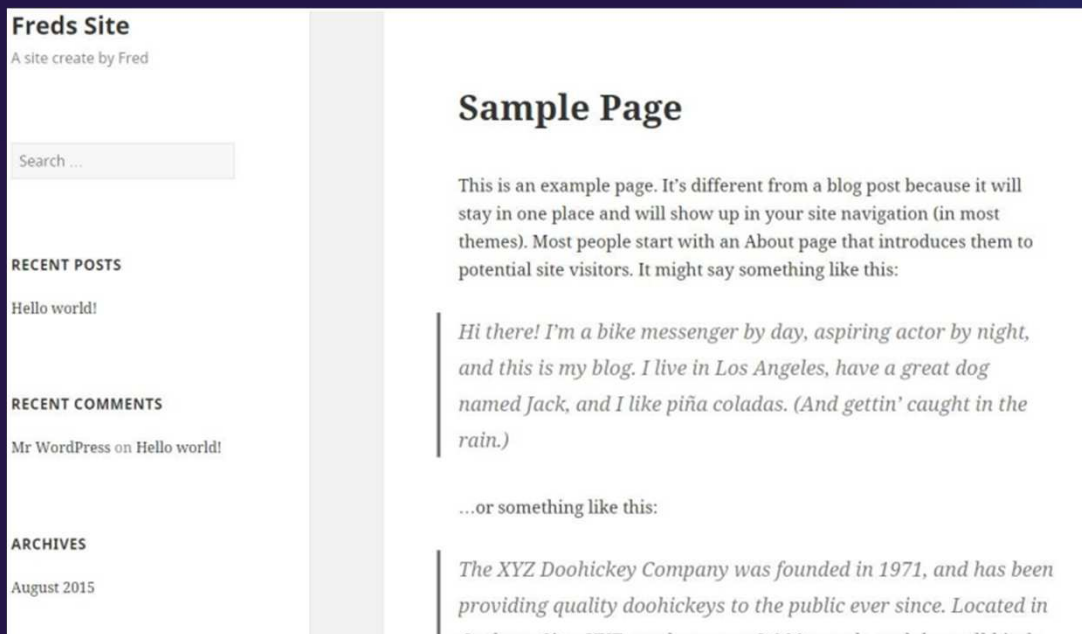
# WordPress: Pages

- A WordPress page is made up of many **elements**
- A page typically has a **headers, footer, content, sidebar**
- It can also have elements such as **menus** and a **logo** and soon



# WordPress

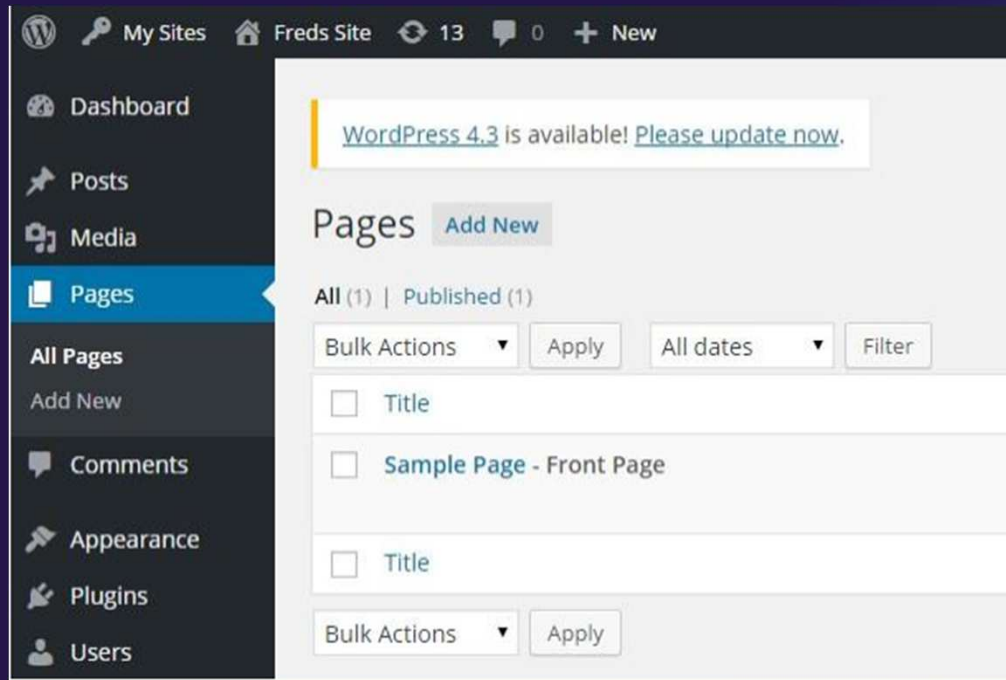
- Removing the blog posts reveals the Sample Page that WordPress automatically generated for you



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# WordPress

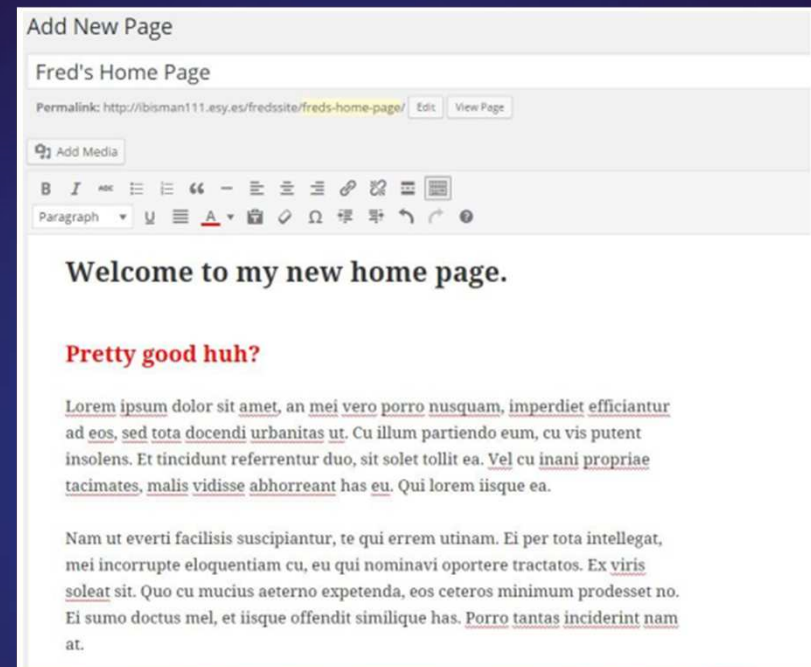
- You can easily **add pages** to your website



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# WordPress

- Simply add texts or images using the editor for “Fred’s Home Page”
- This uses the WordPress **basic page editor**
- You can download/install **better editors** via the WordPress Plugins



Add New Page

Fred's Home Page

Permalink: <http://ibisman111.esy.es/fredsite/freds-home-page/> Edit View Page

Add Media

Paragraph

**Welcome to my new home page.**

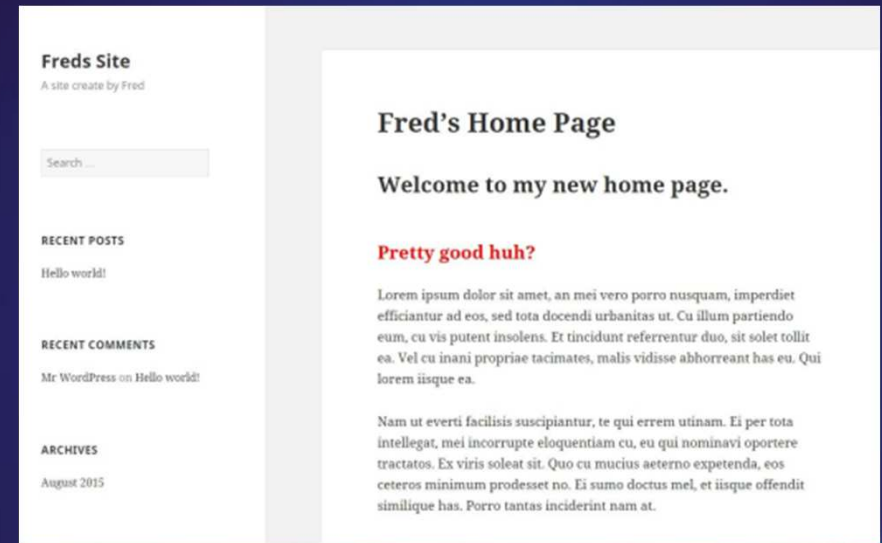
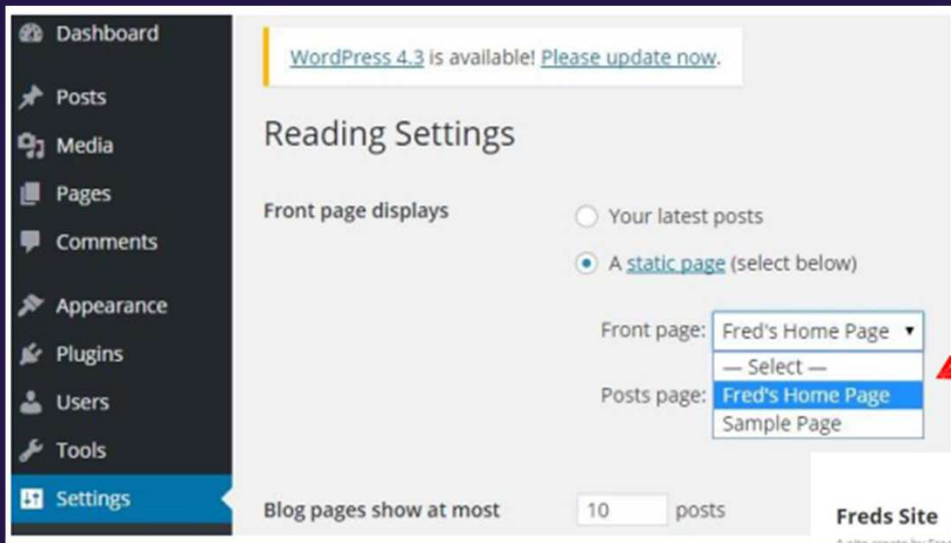
**Pretty good huh?**

Lorem ipsum dolor sit amet, an mei vero porro nusquam, imperdiet efficiantur ad eos, sed tota docendi urbanitas ut. Cu illum partiendo eum, cu vis putent insolens. Et tincidunt referrentur duo, sit solet tollit ea. Vel cu inani propriae tacimates, malis vidisse abhorreant has eu. Qui lorem iisque ea.

Nam ut everti facilisis suscipiantur, te qui errem utinam. Ei per tota intellegat, mei incorrupte eloquentiam cu, eu qui nominavi oportere tractatos. Ex viris soleat sit. Quo cu mucius aeterno expetenda, eos ceteros minimum prodesset no. Ei sumo doctus mel, et iisque offendit similique has. Porro tantas inciderint nam at.

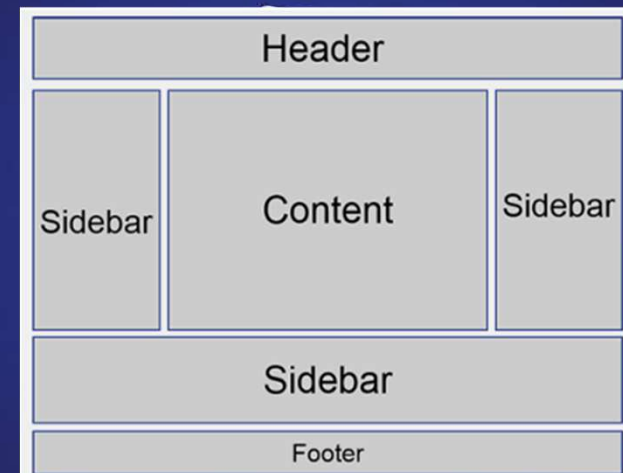
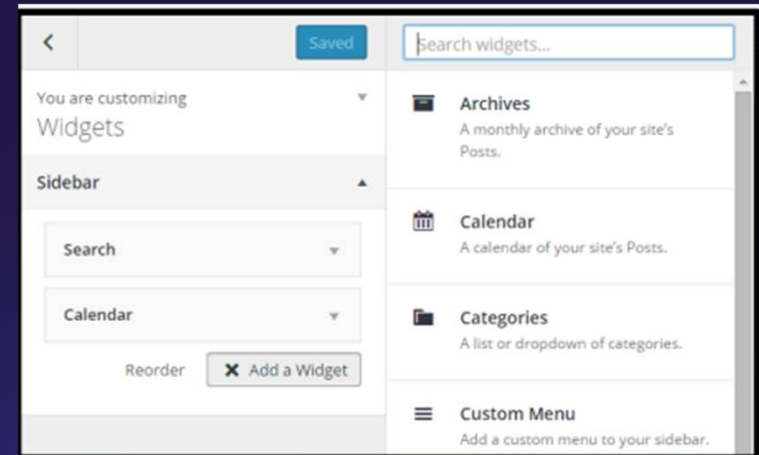
# WordPress

- To see the new page, you have to change the **Front Page** of your site



# WordPress: Sidebars

- As mentioned earlier, a WordPress Page is made up of a number of elements
- Widgets can be configured to appear in the WordPress Sidebars (or headers/footers)
- Widgets are useful common tools that regularly appear on websites



# WordPress: Sidebar Widgets

All events in site collection

November 2011

Mo	Tu	We	Th	Fr	Sa	Su
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

NOVEMBER 14  
**Multiday (all day) event**  
Location: Presentation Room 3  
Time: All-day event

NOVEMBER 14  
**Second Calendar rollup test**  
Location:  
Time: All-day event


Archives

Select Month

Categories

Select Category

Write On ... by Lorna Sixs...



See On *Pinterest*

Book of the Week



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# WordPress: Extensibility

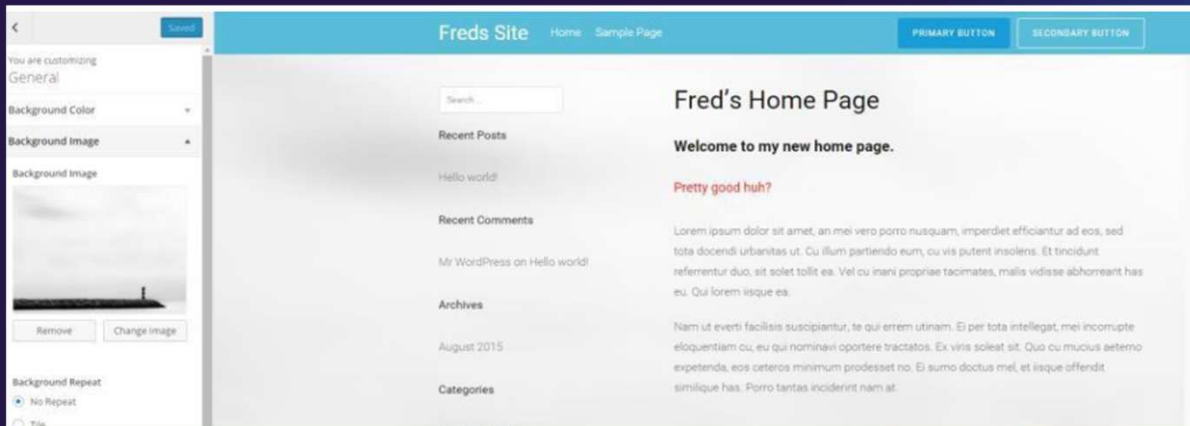
- WordPress performs some basic functionality
- However, thousands of software developers create Themes & Plugins that can:
  - Change the **look & feel** of your WordPress Site
  - **Extend** the WordPress functionality:
    - Some themes & plugins are **free**
    - Some themes & plugins **cost** money
    - Many have a mix of Free & Premium features
- Many plugins that solve limitations of WordPress are built into the next release of WordPress
  - Viewing old WordPress documentation/Videos can be confusing



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# WordPress

- We could keep **improving** the look and feel of this site
- However, to make a really exciting look and feel requires:
  - A lot of minor changes to a number of settings
  - Small changes to PHP or CSS code files in website
- Alternatively, **install a theme** of your choice



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# WordPress: Page elements/files

- A WordPress pages and themes are not a single file
- Each is a group of files
- The diagram shows some of the files required to create a theme
- Typically, themes use stylesheets (e.g. style.css)
- Understanding the role of these files is important if you want to create or manipulate themes



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# WordPress: Themes

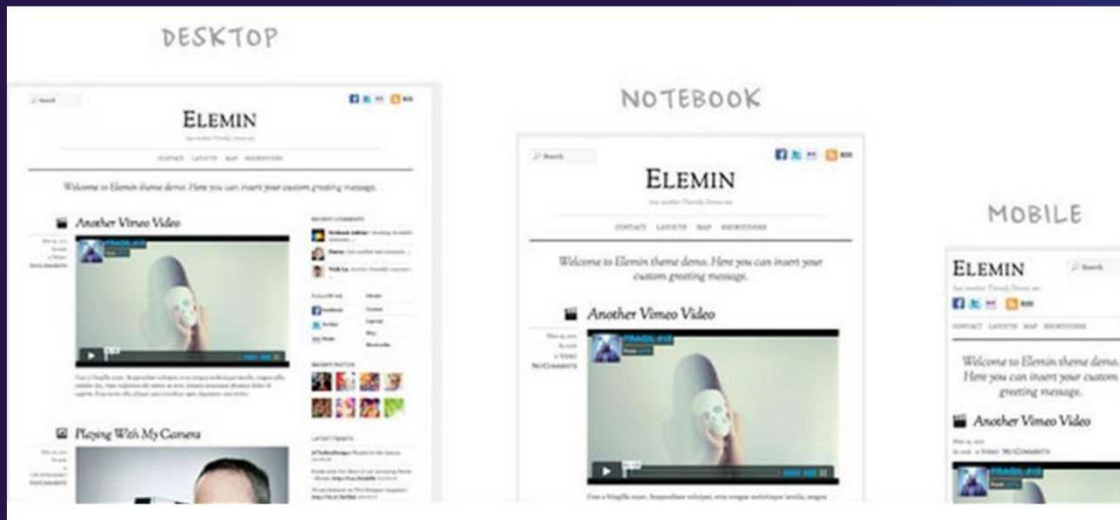
- Imagine that you have a few WordPress pages of content
- You can **change themes** to alter the way the pages **look/feel/perform**
- By changing the theme of your website, you can change the entire website's look and feel
- The key point to note is that **Content is separated from Style**



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# WordPress: Responsive Themes

- A **responsive** design creates a consistent user experience on all types of devices & screens including PCs, Tablets, Mobiles
- Many 'old' themes are **not** responsive and have mainly been designed for PC screens



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# More about WordPress Themes

- An important aspect of any good website is the separation of content from presentation
  - <http://www.wpbeginner.com/beginners-guide/what-happens-when-you-switch-your-wordpress-theme/>
- There are **problems**. Some theme builders don't always do this and start to mix content and presentation.
- WordPress offers a preview button. See what your content will look like with a new theme.



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# Separation of Style & Content

## ○ Danger of themes

- While data may not be 'lost', installing a theme may it very difficult to find/collect all your content again
- Always **make a backup** (and/or clone) your website **before changing** to a new theme (there are plugins to make backups easy. e.g. all-in-one)
  - <https://www.wpexplorer.com/change-wordpress-theme>
  - <https://chrislema.com/switch-wordpress-themes>
  - <https://wordpress.org/support/topic/theme-suffusion-dangerous-architecture-here>



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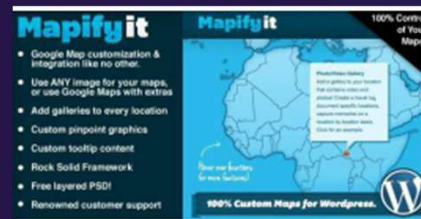
# WordPress: Plugins

○ There are **two major types** of Plugins for WordPress

1. Plugin that make **building** a website easier

❖ Editors, Administration, Security

- <https://www.wpexplorer.com/best-builder-wordpress>
- <https://premium.wpmudev.org/blog/essential-wordpress-plugins>
- <https://www.wpbeginner.com/category/plugins>



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# WordPress: Plugins

- There are **two major types** of Plugins for WordPress
  2. Plugin that make the **end-user experience** better
    - ❖ Photos gallery
    - ❖ Forms (Pirate forms)
    - ❖ User Polls
    - ❖ Maps (Google maps plugin)



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# WordPress: Plugins

## ❑ Business tools

- Booking system (for restaurant, clinic)
- Newsletter subscription
- Membership spreadsheet, appointment managers, calendars, form builders
- Customer relations management (CRM)



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# WordPress: Plugins

## ❑ Security

- Restrict number of logins that can be attempted, scan files
  - E.g. Wordfence, Sucuri, iThemes Security,...

## ❑ Social sharing

- Share your content with various social sites
  - E.g. Mashshare, Share buttons, Shareaholic, Social Welfare,...



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# WordPress: Plugins

## ❑ Search Engine Optimization & Analytics

- Getting higher ranking on search engine results
  - Yoast WordPress SEO, SEO Ultimate
    - <https://www.youtube.com/watch?v=hF515-0Tduk>

## ❑ All in one WP Migration

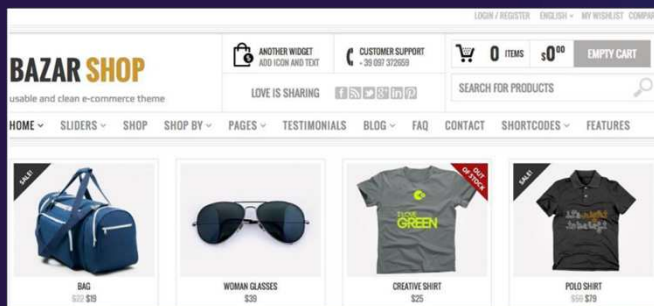
- Export website to another hosting service
- Backup



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# WordPress: Plugins

- ❑ **WooCommerce** is an open source e-commerce plugin for WordPress
  - It has been adopted by over 380000 online retailers
  - It is used by a number of high-traffic websites
  - For the 2<sup>nd</sup> week of March 2015, trends indicated that WooCommerce ran on 24% of e-commerce sites online with total downloads reaching 6.7 million



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# Appendix



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# Web Server Hosting

- ❑ You can install CMS on your personal computer
  - Require some skills
  - Not recommend until you already created a few WordPress sites
    - e.g. XAMPP or USB web server
  - Link: <https://wordpress.org/download/>

 **XAMPP** Apache + MySQL + PHP + Perl

Download and install it yourself

For anyone comfortable getting their own hosting and domain.

[Download WordPress 6.6.2](#) [Installation guide](#)

Recommend PHP 7.4 or greater and MySQL version 8.0 or MariaDB version 10.5 or greater.

[Releases](#) · [Nightly](#) · [Counter](#) · [Source](#)



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# Creating web pages & websites

- ❑ Web pages are documents written in HTML language
  - ❑ A page also consists of other elements such as CSS, images and JavaScript
  - ❑ There are many tools to create web pages
    - ❑ Dreamweaver, Quanta, CoffeeCup,...
    - ❑ They requires you to have an understanding of HTML, CSS,... and how web pages are assembled

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta name="TITLE" content="Web Page" />
<meta name="KEYWORDS" content="HTML, CSS, JavaScript" />
<meta name="DESCRIPTION" content="A simple web page" />
<link rel="stylesheet" type="text/css" href="style.css" />
<script language="JavaScript" type="text/javascript">
</script>
</head>
<body bgcolor="#ffffff" width="100%">
```



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# Static pages & Dynamic pages

## ❑ Static web pages

- The content remains the same each time the user visits the page
  - Obviously, the page can be edited and updated
- Unpopular and almost obsolete



## ❑ Dynamic web pages

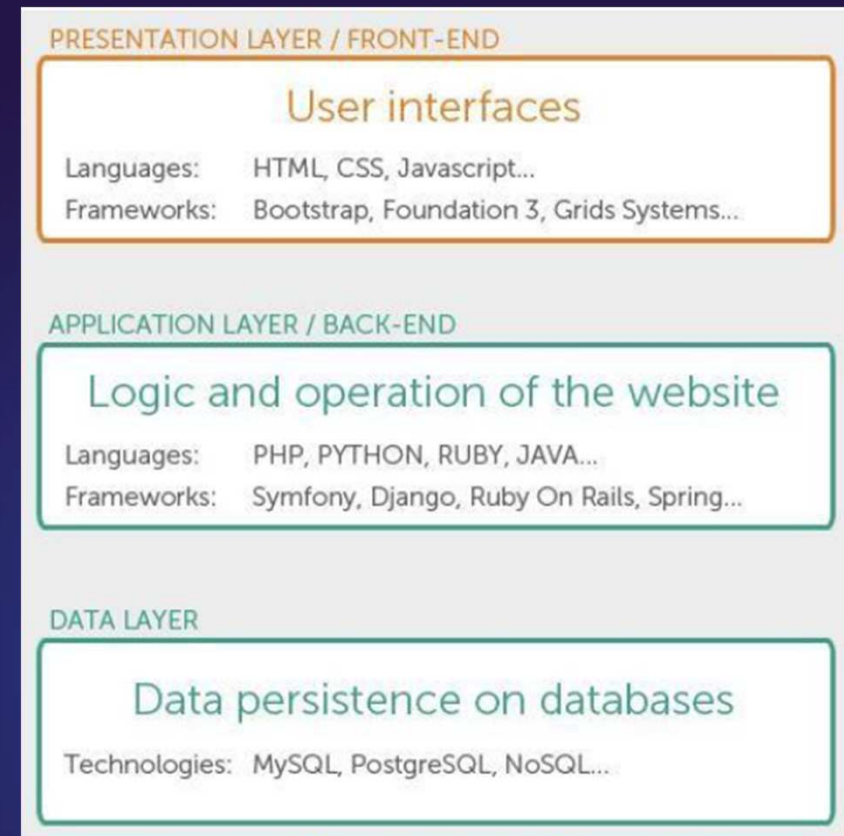
- The content on the page can change
  - Depending on choices made by user while interacting with elements on the screen
  - Depending on the user
  - Depending on the day
  - Depending on feeds from external sources



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# Dynamic websites

- ❑ Typically websites are dynamic. The **content** may **change** rapidly
- ❑ Changes occurs by accessing data from **databases** and **data feeds**
- ❑ Require **logic** and **data**
- ❑ May require use of PHP, Python, JavaScript, MySQL,...
- ❑ Can be **complicated**
  - <https://kinshinkai.com>
  - <https://tradiesbooks.com>





THANK YOU