



**Lebanese University**

Faculty of Information

Branch I

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PhD in Data Mining - Computer Science

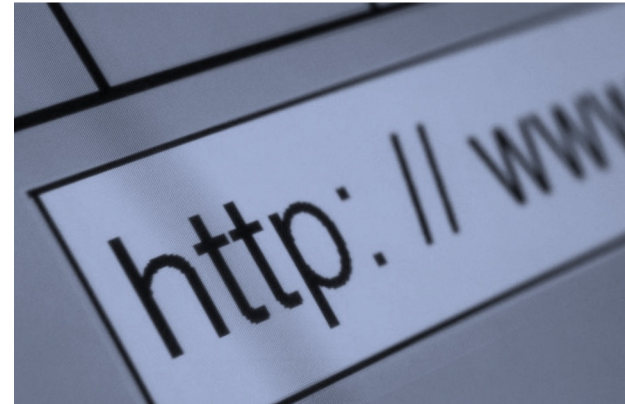
# Advanced Web Design

Semester 5



# Web Design

The graphical user interface to information stored on computers running web servers connected to the Internet.





# Domain Name

## What is a **Domain Name**?

Whenever a person types your Domain Name, the hosting company transforms all the files connected to your IP address and returns all the images, videos and words on your website. Each domain name is unique as like your register address. Whenever you open a new website, you will be able to select a name that is a reflection of your brand.

# Domain Name

- TLD (top level domain name)
  - .com, .net, .biz, .us, .mobi and others
  - .org for non-profits
- There are many domain name registrars, including
  - <http://register.com>
  - <http://networksolutions.com>
  - <http://godaddy.com>
- Visit Registrar, choose name, pay with credit card or Paypal
- Private registration – additional fee but personal information is kept private and out of the WHOIS database

# › Domain Name

## › ICANN - The Internet Corporation for Assigned Numbers & Names

- Non-profit organization
- Main function is to coordinate the assignment of:
  - › Internet domain names
  - › IP address numbers
  - › Protocol parameters
  - › Protocol port numbers.



# Domain Name

Locates an organization or other entity on the Internet

## Domain Name System

- › Divides the Internet into logical groups and understandable names
- › Associates unique computer IP Addresses with the text-based domain names you type into a web browser  
Browser: `http://google.com`  
IP Address: `74.125.225.78`



# ➤ IP Address

- Each device connected to the Internet has a unique numeric IP address.
- These addresses consist of a set of four groups of numbers, called octets.

74.125.225.78 will get you Google!

- An IP address may correspond to a domain name.



# Web Hosting

Web Hosting is the service that allows others to view your website on the Internet. A web host offers space on their server to allow other devices worldwide to access your website via a network or modem.



**Web Client**

**Browser Request**



**Server Response**



**Web Server**

# Web Hosting

- › **Client/Server** can describe a relationship between two computer programs – the "**client**" and the "**server**".
- › **Client**
  - requests some type of service (such as a file or database access) from the server.
- › **Server**
  - fulfills the request and transmits the results to the client over a network



# Web Hosting

## Web Client

- › Connected to the Internet when needed
- › Usually runs web browser (client) software (*such as Internet Explorer or Firefox*)
- › Uses HTTP (Hypertext Transfer Protocol)
- › Requests web pages from server
- › Receives web pages and files from server



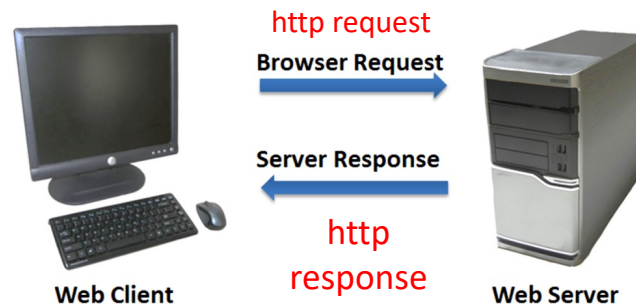
# Web Hosting

## Web Server

- › Continually connected to the Internet
- › Runs web server software  
(*such as Apache or Internet Information Server*)
- › Uses HTTP (Hypertext Transfer Protocol)
- › Receives request for the web page
- › Responds to request and transmits status code, web page, and associated files

# Web Hosting

- › A set of rules for exchanging files such as text, graphic images, sound, video, and other multimedia files on the Web.



- › Web browsers send HTTP requests for web pages and their associated files.
- › Web servers send HTTP responses back to the web browsers.



# Web Hosting

## Types of Web Hosting

Below are the different types of web hosting as follows:

- › Shared Hosting
- › VPS Hosting
- › Dedicated Server Hosting
- › Cloud Hosting
- › WordPress hosting

# Web Hosting



## Shared Hosting:

Hosted websites on the same server share all their memory, computer storage, disk storage, and other resources. there are various disadvantages such as many websites share the same server which leads to having the same resources and slowing down the websites.

If one website consumes more power due to increased traffic or faulty code, others have to face the problem. This phenomenon called the “bad neighbor effect”.

# Web Hosting



## VPS Hosting:

VPS stands for Virtual Private Server Hosting. However, you still share a server with other users, however on the server your web host gives you a separate partition. You will have dedicated server space, as well as reserved computer power and memory. VPS hosting can be excellent for medium-sized enterprises with fast increasing websites.

VPS provides more reliability and stability than shared hosting.

# Web Hosting



## Dedicated Server Hosting:

In a dedicated hosting type, the website owner has full control over the server on which the website is stored. i.e. the owner has complete admin and root access. Because of this, it allows faster executions and high-level security and all the resources are under the control of the owner.

One of the main advantages of dedicated hosting is that there is no problem of bad neighbor effect as no other websites are involved to use the website's resources.

# Web Hosting



## Word-press hosting:

Word-Press Hosting is a little bite like Shared hosting, but this was created for owners of WordPress sites. Your server is specifically configured to WordPress and there are plugins installed for important items such as caching and safety on your site. Because your site is extremely optimized, it loads more quickly and runs less troubleshoot the problem.

# Web Hosting



## Cloud Hosting:

Cloud hosting is currently, with no downtime, the most reliable solution on the market. It is the same as VPS hosting as in this type virtual machines are used. Your host offers a cluster of servers with cloud hosting. Each server is replicated for your files and resources.

If one of the cloud servers is busy or issues, your traffic is routed to another server in the cluster automatically. It is more scalable as it combines several computers into a virtual server that can then provide its resources based on their requirements.



# Web Sites

## Static Websites

A **Static Website** is displayed in a web browser exactly as it is stored. It contains web pages with fixed content coded in HTML and stored on a web server. It does not change, it stays the same, or "static" for every viewer of the site.

A static website does not require web programming or database design. Static is the most basic form of website and are the most simple to create and are perfect for small scale sites. Maintaining a large number of static pages can become a time consuming and impractical hassle very quickly. If you require a website with hundreds of pages and a ton of content, a dynamic website may be for you.

# Web Sites

## Static Websites

### Advantages of static websites

- Static websites take less time to build and deploy than dynamic websites.
- You can duplicate the basic code of your static web pages to keep elements consistent while making slight changes to differentiate.
- Static websites tend to be more secure.
- It's easier for search engines to rank static websites because they usually load faster.
- Building static websites doesn't require complex software.
- You can change the layout and design of every page on a static website.
- It's easier to restore a static website after a crash or [DDoS attack](#) by redeploying the codebase.



# Web Sites

## Static Websites

### Disadvantages of static websites

- › Making updates to static websites can be challenging and time-consuming, especially if they're large.
- › Once you've built the basic structure, it can be hard to scale a website to add new content.
- › Because of the effort needed to update static websites, yours may end up with stagnant content that makes your company or brand feel outdated.
- › You can't interact with or create unique experiences for visitors.

# Web Sites

## Dynamic Websites

A **Dynamic Website** requires web programming and database design. A dynamic website contains information and content that changes, depending on factors such as the viewer of the site, the time of the day, the time zone, or the native language of the country the viewer).

The content of your site (text/images) is stored on a database. When the information is updated or changed within the database, it changes on the site.

When a dynamic site is accessed, pages are generated on-the-fly (or in *real-time*) to the user based on this data from the visitor.



# Web Sites

## Dynamic Websites



### Front End

- Markup and web languages such as HTML, CSS and Javascript
- Asynchronous requests and Ajax
- Specialized web editing software
- Image editing
- Accessibility
- Cross-browser issues
- Search engine optimisation



### Back End

- Programming and scripting such as Python, Ruby and/or Perl
- Server architecture
- Database administration
- Scalability
- Security
- Data transformation
- Backup

# Web Sites

## Dynamic Websites

### Advantages of dynamic websites

- › They provide more website functionality and enable user interaction.
- › Dynamic sites let you request and store information in an organized way.
- › They display content based on the user's needs.
- › These type of websites enable additional website flexibility by allowing connection to a CMS.
- › They allow multiple users to adjust the content.
- › It is less costly to make adjustments and changes versus a static website.
- › Dynamic sites are more likely to attract recurring customers and visitors.



# Web Sites

## Dynamic Websites

### Disadvantages of dynamic websites

- › Functions like building the site foundation, creating database connections, and adding other features can make a dynamic website more expensive than a static website.
- › There can be design and layout limitations when it comes to displaying content on your dynamic website.

# CMS

## Top 5 WordPress Alternatives:

### 1. Joomla

Joomla is also another Content Management system which works on model view controller architecture. It is one of the biggest competitions for WordPress.

### 2. Drupal

Drupal is another alternative to WordPress which is more digital. Being preferred for digital solutions Drupal is not suitable for beginners to use. The various advantages of Drupal include creating blogs, personal websites, forums, and even social networking sites.

# ➤ CMS

## Top 5 WordPress Alternatives:

### ➤ 3. Craft CMS

Although Craft CMS is not that famous, it is extensively being used by Netflix and Salesforce websites. It is developer friendly due to its extensive back end features for your application.

### ➤ 4. Shopify

Unlike other sites, e-commerce sites also require alterations and demand to have something easy. Among all these WordPress alternatives, Shopify is the best alternative to WordPress in this regard. It is simple and helps in growing your business the easy way.

# CMS

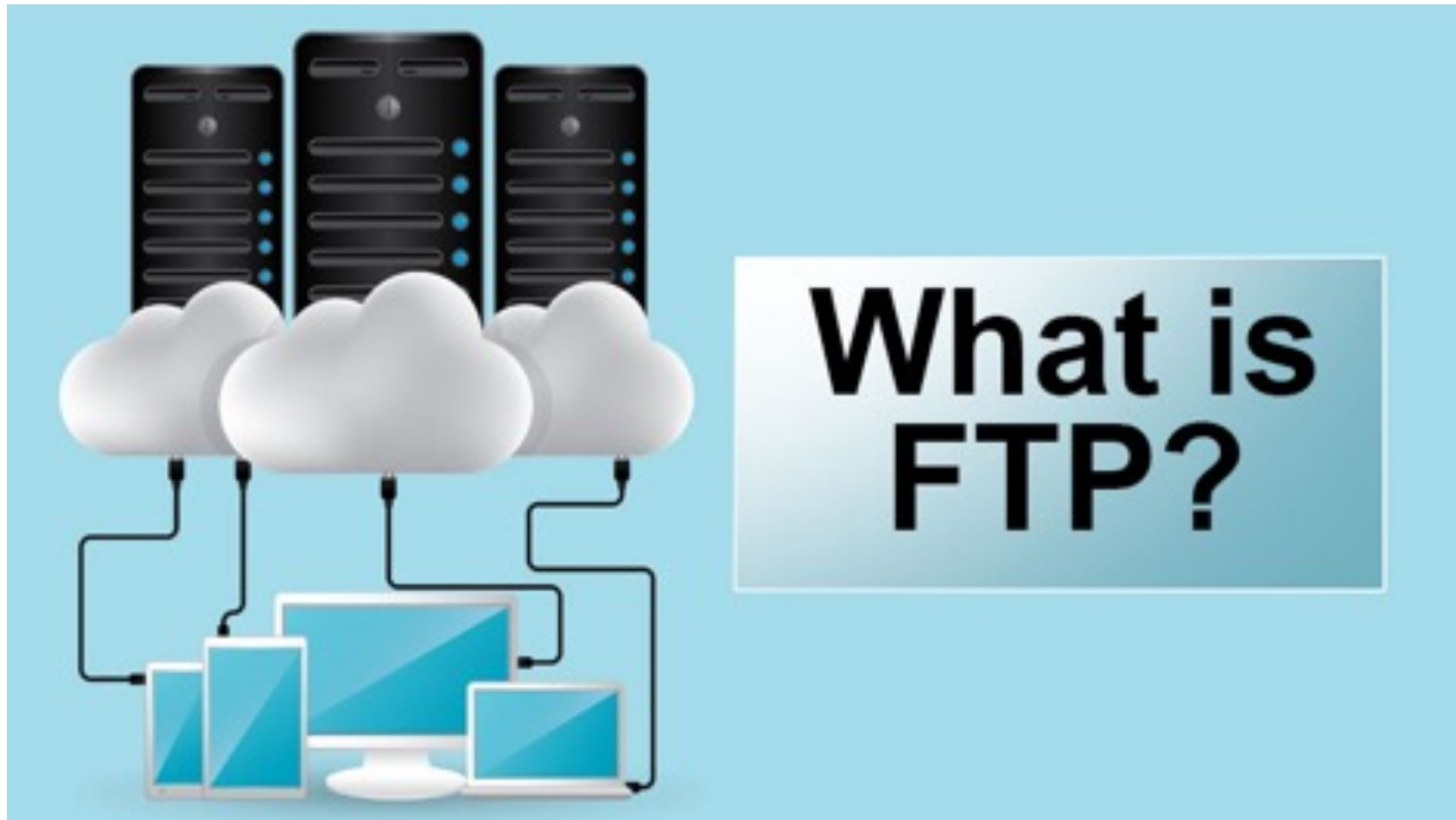
## Top 5 WordPress Alternatives:

### 5. **Wix**

Wix is one of the oldest and widely used websites which is used to build sites. It was launched in 2006 and has been in the industry since then. One of the best catches of Wix is that it provides animation features that animate texts and other elements. It is one of the most intriguing factors of Wix.



# FTP



# ➤ FTP

## ➤ Introduction to FTP

FTP stands for File Transfer Protocol. It is a protocol that is used for transferring a file from one location to another i.e. from one host to another host. It is a standard mechanism that is provided by TCP/IP.



## ➤ How does it work?

It uses TCP services. It needs two TCP connections. One is Control connection and another is Data connection. For control connection, it uses port 21 and for data connection, it uses port 20

# ➤ FTP

- A set of rules that allow files to be exchanged between computers on the Internet.
- Web developers commonly use FTP to transfer web page files from their computers to web servers.
- FTP is also used to download programs and files from other servers to individual computers.

# E-Mail

-  ▶ Sending E-mail
  - ▶ SMTP Simple Mail Transfer Protocol
-  ▶ Receiving E-mail
  - ▶ POP (POP3) Post Office Protocol
  - ▶ IMAP Internet Mail Access Protocol