Web Design Course

Introduction of Website

Lecture by Mis. Zon

Contact

IU #	IU Description	Required /Optional
01	**Web Design Concepts**	**Required**
02	HTML Basics	Required
03	Advanced HTML & Web Browsers	Required
04	Structuring & Styling with CSS	Required
05	Working with CSS : An Example	Required
06	Javascript Basics	Required
07	Advanced Javascript	Required

❑ What is a web site?

- A website is an address (location) on the World Wide Web that contains web pages.

❑ Why do you need a Website ?

- To provide information about your company, products or services.
- To Promote & Sell Products or Services
- To Provide Online Support
- To Generate Leads

❑ How to get your Website Online

- **Step 1:** Get a domain name - This is your personal/private address on the Web.
- **Step 2:** Find a web hosting service- Here is where your website will reside.
- **Step 3:** Design, build and upload your website - The process of website creation.

Website Architecture

❑ Websites are hosted on a Server

❑ Content is Served from the Web Server

❑ Basic Block Diagram of a Website
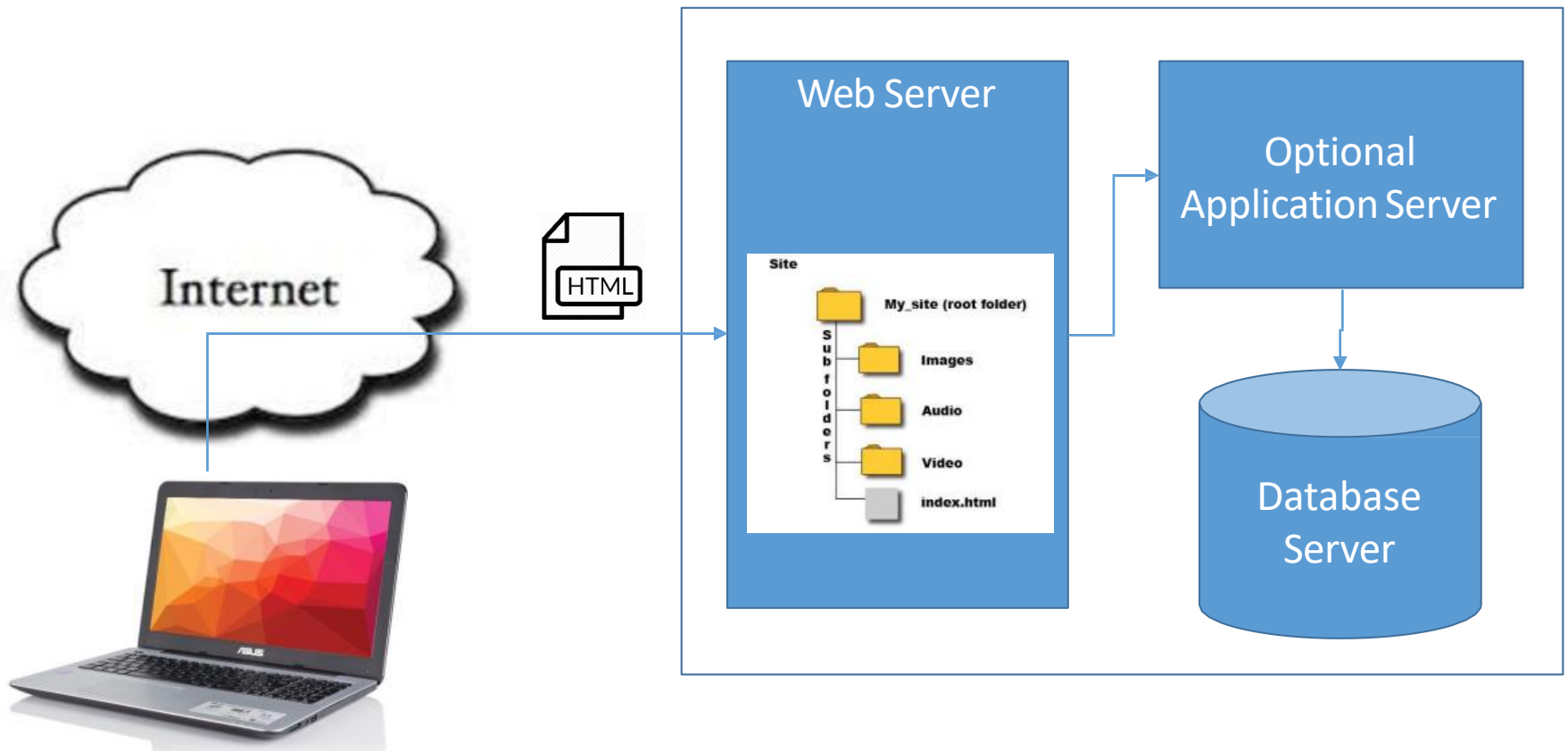
Components of a Website

- ❑ **Technical Components**
  - ▪ HTML Page
  - ▪ CSS
  - ▪ JS
  - ▪ Images like jpeg, gif etc
  - ▪ Video files like .mpeg, .fla etc
  - ▪ Audio files like .ram, .mp3, .wav etc
  - ▪ Server Side Scripting (Python, PHP, ASP.NET, J2EE)

- ❑ **Servers**
  - ▪ Web Server
  - ▪ Database Server
  - ▪ FTP Server
  - ▪ SMTP Server

Components of a Website

❑ **Functional Components**

- ▪ Common Elements

  Header, Footer, Navigation (Menu, Bread Crumbs), Left Navigation, Right Navigation etc.

- ▪ Home Page

  Common Elements, Hero Banner, Section Portlets

- ▪ Inner Page

  Common Elements, Content Area

- ▪ Sitemaps

Technical Components – HTML Page

❑ **HTML**
- stands for Hyper Text Markup Language
- describes the structure of Web pages using markup

❑ **HTML elements**
- building blocks of HTML pages
- represented by tags

❑ **HTML tags**
- label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>
<h1>My First Heading</h1>
<p>My first paragraph.</p>
</body>
</html>
```

A Sample HTMLPage

My First Heading

My first paragraph.

Technical Components – CSS

❑ **CSS** – Cascading Style Sheets
- ▪ describes **how HTML elements are to be displayed on screen, paper, or in other media**
- ▪ can control the layout of multiple web pages all at once
- ▪ used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

❑ External stylesheets are stored in **CSS files**

```
<!DOCTYPE html>
<html>
<head>
<style>
body {background-color: lightblue;}
</style>
</head>
<body>
<h1>Hello World!</h1>
</body>
</html>
```

Hello World!

Technical Component - JavaScript

❑ **JavaScript**

  ▪ the programming language of HTML and the Web.

  ▪ used to program the behaviour of web pages such as validating user inputs, provide navigation menus, add various kinds of interactivity etc..

❑ **Example**

  ▪ if you click the button, the text changes to Hello JavaScript!

```
<!DOCTYPE html>
<html>
<body>
<h1>What Can JavaScript Do?</h1>
<p id="demo">JavaScript can change HTML
content.</p>
<button type="button"
onclick='document.getElementById("demo").innerHT
ML = "Hello JavaScript!"'>Click Me!</button>
</body>
</html>
```

What Can JavaScript Do?

JavaScript can change HTML content.

[Click Me!]

Technical Component – Image Files

- ❑ **JPEG**
  - stands for Joint Photographic Experts Group
  - Most popular among the image formats used on the web
  - JPEG files are very 'lossy', i.e. considerable information is lost from the original image when you save it in a JPEG file.

- ❑ **GIF**
  - Stands for Graphics Interchange Format
  - Limited to the 8 bit palette with only 256 colors.
  - Still a popular image format on the internet because image size is relatively small compared to other image compression types.

- ❑ **BMP**
  - Stands for Windows Bitmap
  - These are image files within the Microsoft Windows operating system.
  - Large and uncompressed, but rich in color, high in quality, simple and compatible in all Windows OS and programs.

- ❑ **TIFF**
  - Popular among common users, but has gained recognition in the graphic design, publishing and photography industry.
  - Popular among Apple users.

- ❑ **PNG or (Portable Network Graphics)**
  - Stands for Portable Network Graphics
  - An image format specifically designed for the web.
  - A superior version of the GIF

Technical Component – Video Files

❑ **AVI**

  ▪ Developed by Microsoft and introduced to the public in November 1992 as part of its Video for Windows technology, the AVI format is one of the oldest video formats.

❑ **FLV**

  ▪ Videos that are encoded by Adobe Flash software, usually with codecs following the Sorenson Spark or VP6 video compression formats.

❑ **WMV**

  ▪ Developed by Microsoft, WMV was originally designed for web streaming applications.

❑ **MOV**

  ▪ Developed by Apple. Inc, the QuickTime file format is a popular type of video sharing and viewing format amongst Macintosh users, and is often used on the Web, and for saving movie and video files.

❑ **MP4**

  ▪ Abbreviated term for MPEG-4 Part 14, a standard developed by the Motion Pictures Expert Group and is commonly used for sharing video files on the Web.

Technical Component – Audio Files

❑ **WAV**

- WAV stands for Waveform Audio File Format (also called Audio for Windows at some point but not anymore). It's a standard that was developed by Microsoft and IBM back in 1991.

❑ **MP3**

- MP3 stands for MPEG-1 Audio Layer 3. It was released back in 1993 and quickly exploded in popularity, eventually becoming the most popular audio format in the world for music files.

❑ **WMA**

- WMA stands for Windows Media Audio. It was first released in 1999 and has gone through several evolutions since then, all while keeping the same WMA name and extension.

❑ **FLAC**

- FLAC stands for Free Lossless Audio Codec. A bit on the nose maybe, but it has quickly become one of the most popular lossless formats available since its introduction in 2001.
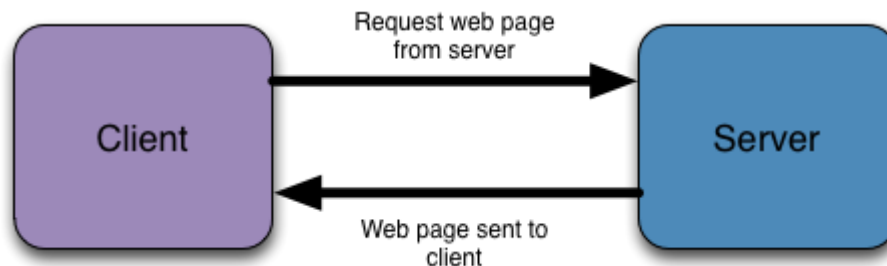
❑ Server Side Scripts

- Enable the generation and display of ***dynamic content*** on Web Pages
- Most websites on the Internet have ***dynamic*** content.

❑ What is Dynamic Content?

- Content displayed to the user generated by selecting information from a database that resides on the server
- Not written directly into the HTML page Content, like Static Content
- You can create a single template page and then populate it with different information from the database depending on what page is requested.
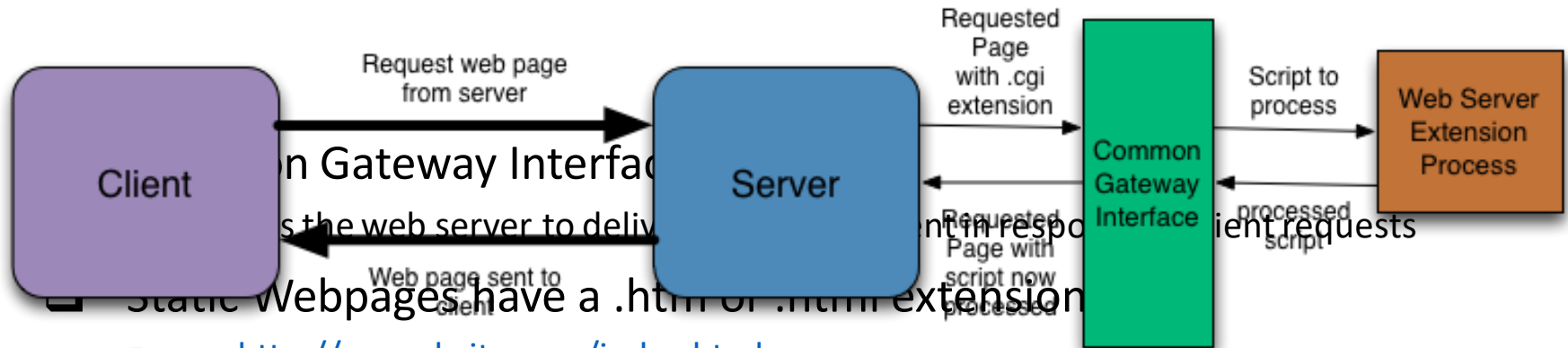
❑ How does the web work?

- The web works as a **client-server system**.
- A web browser residing on your computer acts as a ***client*** which can request web pages from a ***web server.***

How Server Scripts generate and display Dynamic Content

Requested Page with .cgi extension

Script to process

Requested Page with script now processed

processed script

Common Gateway Interface

Web Server Extension Process

Request web page from server

Web page sent to Client

Client

Server

- ❑ n Gateway Interfac
  - s the web server to deliv   ent in respo   ient requests
- ❑ Static Webpages have a .htm or .html extension
  - ▪ e.g. http://mywebsite.com/index.html

- ❑ Dynamic Web pages have extensions such as .cgi, .py or .php.
  - ▪ e.g. http://mywebsite.com/index.php
  - ▪ If a request comes in with one of these extensions, the web server passes the request to the CGI which then interprets it correctly and executes the script in the particular scripting language.
  - ▪ After the script is executed, the output is passed back to the web server to be delivered as a response to the client request.

Servers - Web Server

❑ **What is a Web Server?**
- A computer or combination of computers, which is connected through internet or intranet to serve the clients requests, coming from their web browser.
- Comprises of a large repository of web pages which transfer to the client in response to their request.

❑ **"Web server" can refer to hardware or software, or both of them working together**
- On the hardware side, a web server is a computer that stores a website's component and delivers them to the end-user's device.
- On the software side, a web server includes several parts that control how web users access hosted files, at minimum an HTTP server.
- An HTTP server is a piece of software that understands URLs (web addresses) and HTTP (the protocol your browser uses to view webpages).

❑ To publish a website, you need either a *static* or a *dynamic* web server.

❑ A **static web server**, or stack, consists of a computer (hardware) with an HTTP server (software).
- "static" ❼ the server sends its hosted files "as-is" to your browser

Servers - Web Server

❑ A **dynamic web server** consists of a static web server plus additional software, usually an *application server* and a *database.*

- "dynamic" ❼ the application server process the server side script before sending them to your browser via the HTTP server.
- A Web & Application server may be separate or be the same
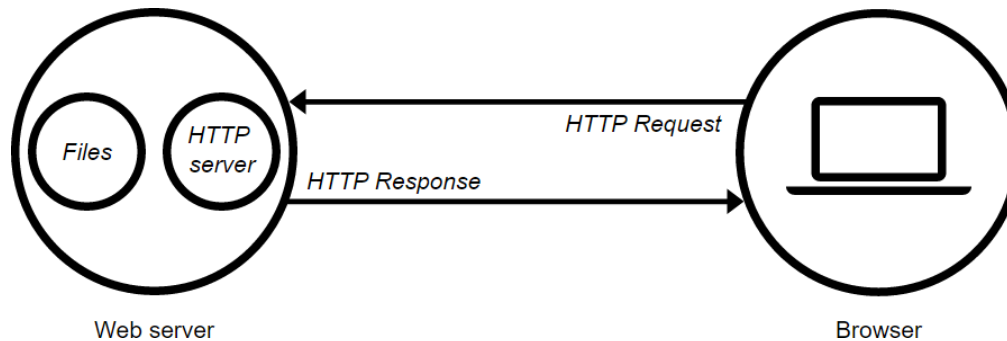
Web server   Browser

❑ **RDBMS**
- stands for Relational Database Management System.
- Basis for SQL, and for all modern database systems such as MS SQL Server, IBM DB2, Oracle, MySQL, and Microsoft Access.

❑ **Data in RDBMS is stored in database objects called tables**
- A table is a collection of related data entries and it consists of columns and rows.

❑ Server Side Scripts access and manipulate data stored in a Database Server.

❑ Database Server has Security features to allow users to allow or deny access

❏ **How data is accessed from a Database Server**

- A Web Server runs a PHP script to create HTML Content on the fly
- The script accesses MySQL Database for retrieving data
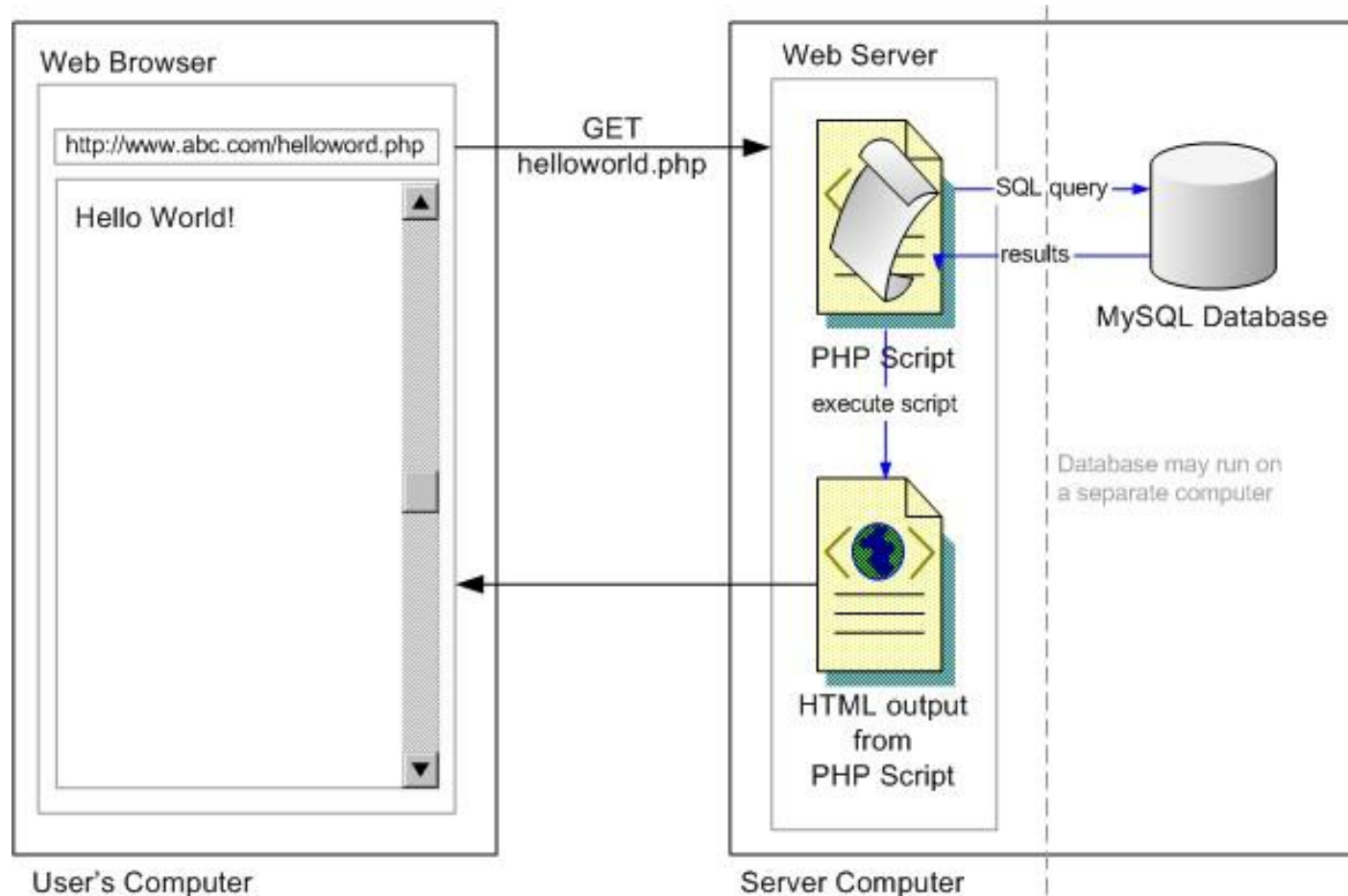
# Servers – FTP Server

- ❑ **FTP** – File Transfer Protocol
  - ▪ prescribed method for the transfer of files between computers
  - ▪ easiest and most secure way to exchange files over the Internet.
- ❑ FTP is used for uploading various files to Web Servers
  - ▪ Files such as servers side scripts, images, javascript files, css files, video & audio files
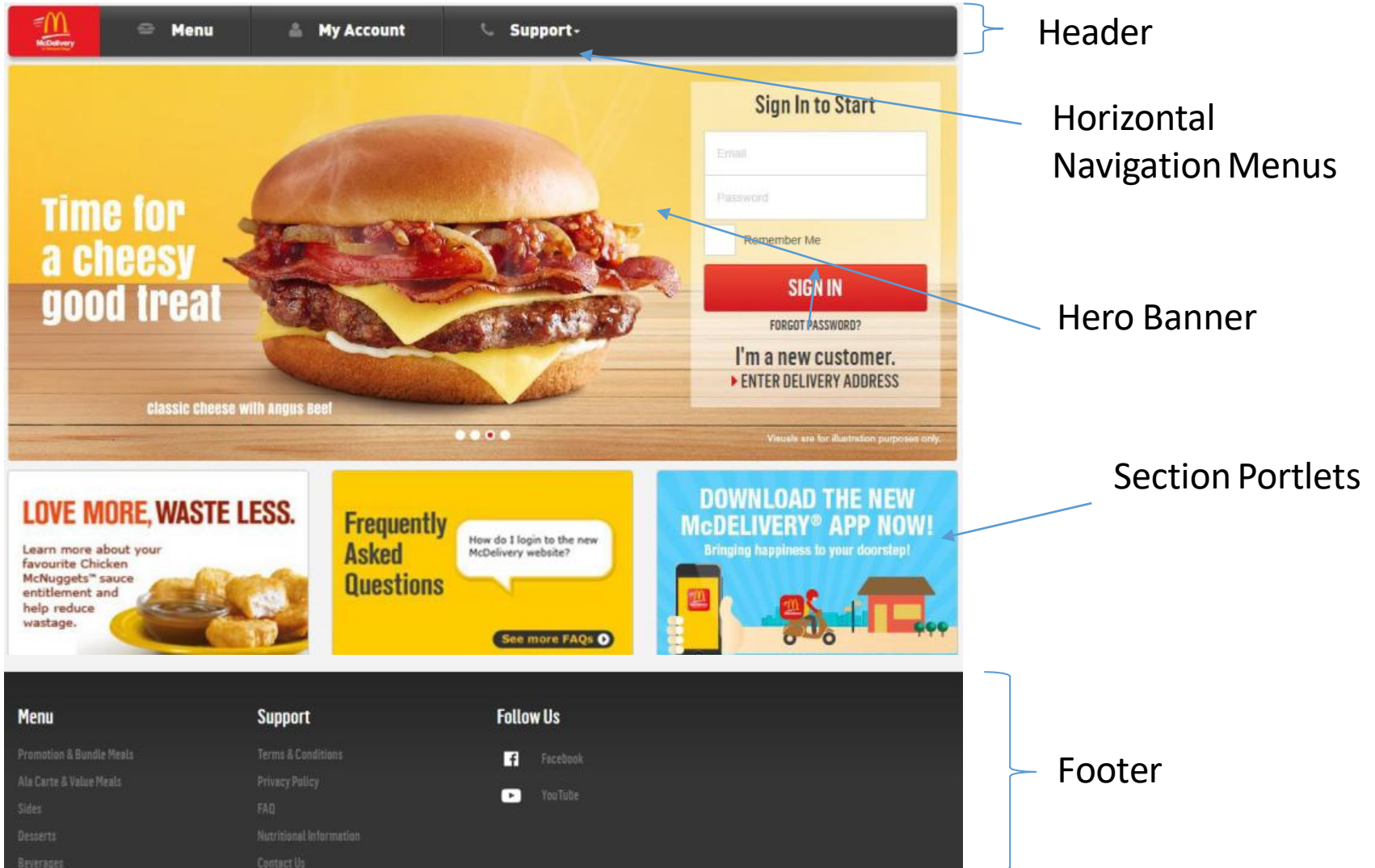- ❑ Most web hosting service providers provide FTP access to their customers to allow them to upload the contents of their web sites
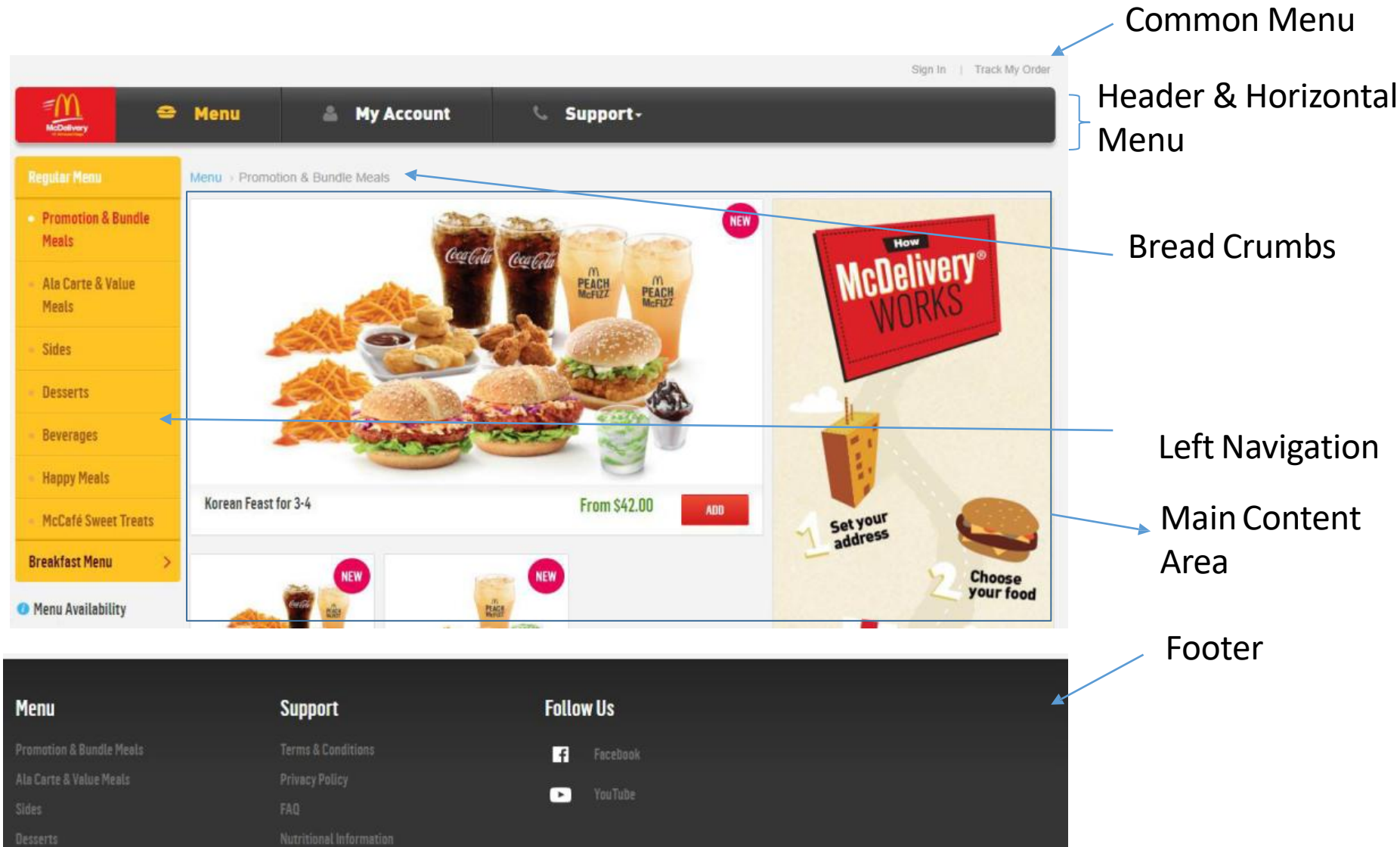- ❑ A popular FTP Server & Client: Filezilla

FTP client — Command Channel — Port 21 — Data Channel — Port 20 or random port — FTP Server
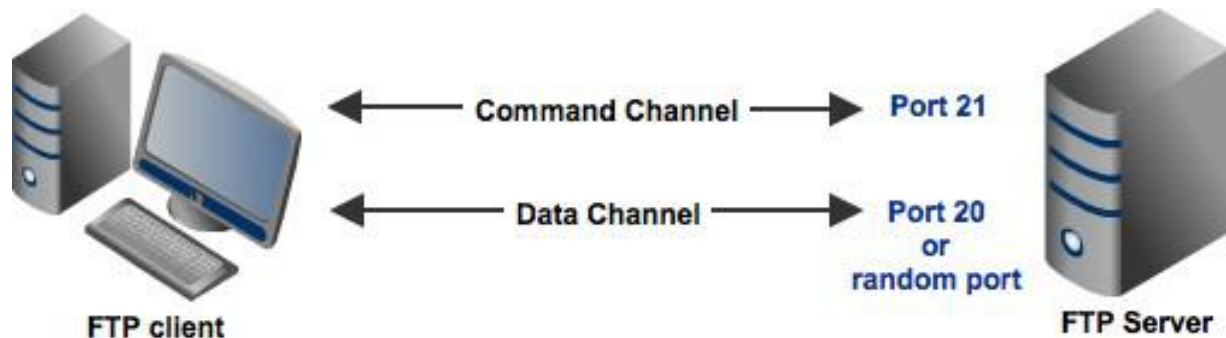
Functional Components – Home Page Layout

❑ Below is the Home Page of mcdelivery.com.sg

Header

Horizontal Navigation Menus

Hero Banner

Section Portlets

Footer

Functional Components – Inner Page Layout

❑ Inner Page of mcdelivery.com.sg

Common Menu

Header & Horizontal Menu

Bread Crumbs

Left Navigation

Main Content Area

Footer

Functional Components

Header	▪ The strip across the top of a web page with a big heading and a logo ▪ Usually consists of common information about a website, such as site navigation and contact information.
Footer	▪ The strip across the bottom of a web page ▪ Generally contains fine print, copyright notices, quick access links and/or contact information or any common information to be displayed across the site
Left Navigation	▪ A Left Navigation menu is a user interface element within a webpage that contains links to other sections of the website ▪ Some Websites have Right Navigation as well for related Pages
Horizontal Navigation	▪ Similar to left navigation, but placed in the Header of the Web Site ▪ Most Websites either contain a Left Navigation or a Top Navigation
Hero Banner	▪ Usually a Homepage element; an Image or a video with some text ▪ Hero Banner sets the mood of the Website
Main Content	▪ This is in the inner pages. This is the main content area of an Inner Page.
Bread Crumb	▪ Locates the current webpage in the context of a navigation path or a Hierarchy ▪ Allows the user to move up the Hierarchy from the current page. ▪ The first link is usually the Home link.
Section Portlets	▪ A series of boxes with header and content, placed in a row in home page ▪ Can also be placed right hand side in inner pages to link the users to related section

Web Design Principles

❑ **Two important factors that affect the usability of a website**
- Form (how good it looks),
- Function (how easy is it to use)

❑ **Factors influencing Web Design**
- Purpose
- Communication
- Typefaces
- Colours
- Images
- Navigation
- Grid Based Layouts
- F Pattern Design
- Load Time
- Mobile Friendly

Top 10 Website Design Tips

- ❑ Know your audience
- ❑ Keep web pages short
- ❑ Limit the amount of text
- ❑ Avoid large images
- ❑ Use web safe colours
- ❑ Clearly identify all links
- ❑ Check spelling
- ❑ Use a site map or directory page
- ❑ Update and check all links
- ❑ Include contact information

Graphic Design for websites

❑ Process of creating the web site in an attractive and logical manner to achieve the following:

- attract attention of desired audience
- add value to a message – branding or marketing etc
- enhances readership and readability
- simplifies, organizes and provides selective emphasis

Good Design

Bad Design

Keep it Simple

❑ Users are rarely on a site to enjoy the design. In most cases they are looking for the information despite the design.

❑ Economize: Do the most with the least amount of cues and visual elements. Four major points to be considered:

- **Simplicity** — only the elements that are most important for communication.
- **Clarity** — all components should be designed so their meaning is not ambiguous.
- **Distinctiveness** — the important properties of the necessary elements should be distinguishable.
- **Emphasis** — the most important elements should be easily perceived.

Audience

❑ Different demographics of users use the web in different ways. Design with your target market in mind.

Effective Writing

❑ The Web is different from print, — adjust the writing style to users' preferences and browsing habits.

- Promotional writing won't be read.
- Long text blocks without images and keywords marked in bold or italics will be skipped.
- Exaggerated language will be ignored.

❑ Talk business.

- Avoid cute or clever names, marketing-induced names, company specific names, and unfamiliar technical names.

Format - Grids

❑ Provides solid visual and structural balance for website

❑ Enables user to scan, read and understand a page quickly

❑ You can have more than one grid.
  ▪ Your front page could be based on a five column grid while inside pages with ads on a six column. There is no one right way.

❑ Think about the grid not only vertically but horizontally, too.

❑ Build in white space.
  ▪ Adding just a little more space in alleys/gutters and between stories will add emphasis to the story, and improve readability

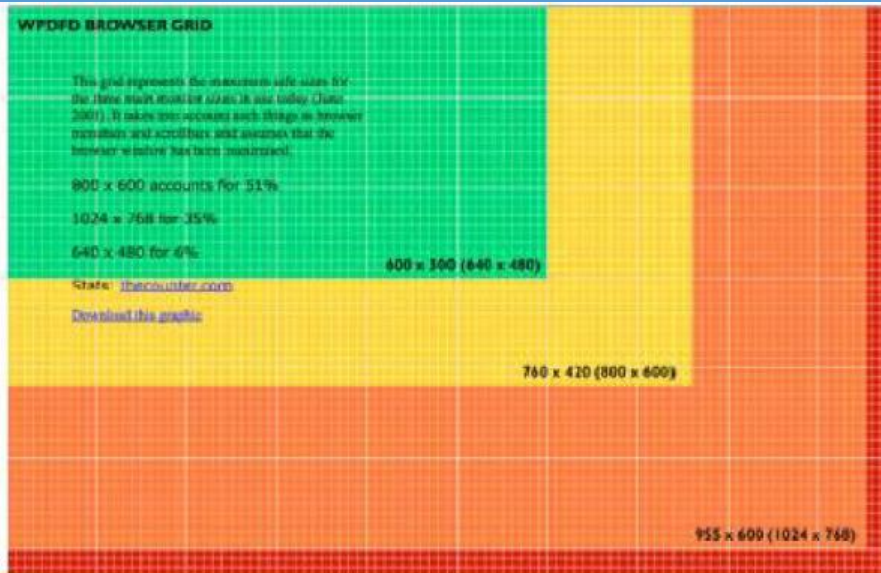**A page without a grid is a usability nightmare**
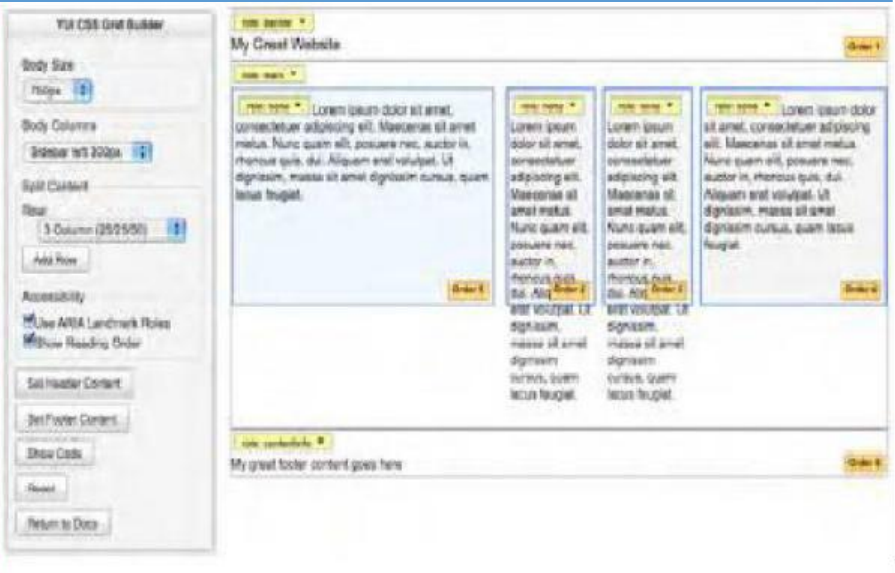
Grids in Use
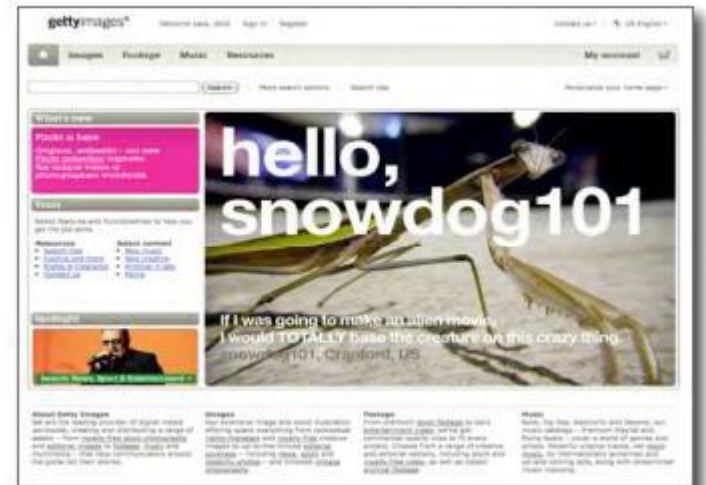
Grids Useful Tools

Browsergrid	CSS grid builder
http://www.wpdfd.com/browsergrid.htm	http://developer.yahoo.com/yui/grids/builder

Whitespace

❑ White space (the absence of text and graphics) is vital to graphic design.

❑ The key is to add just enough white space so the eye knows where to go and can rest a bit when it gets there.

❑ You can control white space in the following locations:
- margins
- paragraph spacing
- spacing between lines of text
- gutters (the space between columns)
- and surrounding text and graphics

Typography

❑ Don't underestimate its importance.

❑ The best ideas, the most beautiful imagery, the most harmonious color combinations will be blighted by inferior typography.

❑ Good typography depends on the visual contrast between one font and another, and the contrast between text blocks and the surrounding empty space.

❑ Don't set body text below 10 or 12px and, if possible, make it bigger.

  ▪ What is legible on your HD monitor might not be so on a 15" laptop. If in doubt, make it bigger.

❑ Limit the number of different fonts you use

Color

❑ With colors you can set a mood, attract attention, or make a statement. You can use color to energize, or to cool down.

❑ By selecting the right color scheme, you can create an ambiance of elegance, warmth or tranquillity, or you can convey an image of playful youthfulness.

Add & Manipulate Graphics

- [ ] Look at well designed sites often
- [ ] Emulate
- [ ] Keep it simple, less is more
- [ ] Be consistent
- [ ] Design is not about decoration, it's about communication and functionality
  - If something is not furthering the message or the function, it should not exist
- [ ] innovate only when you know you really have a better idea, and take advantage of conventions when you don't.

Refine & Retune

- ❑ When you think you are finished designing, step away.
- ❑ Come back to it fresh and refine it, step away.
- ❑ Proof for typos, alignment, spacing, sizing, color, consistency, etc.
- ❑ Proof it again

THANK YOU