AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

SEMESTER – V

IT8501 – WEB TECHNOLOGY

UNIT I WEB SITE BASICS AND HTML

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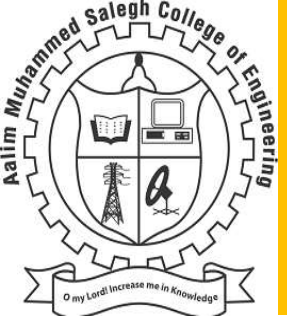
SYLLABUS

- **UNIT I WEB SITE BASICS AND HTML**
- Web Essentials: Clients, Servers, and Communication. The Internet - Basic Internet Protocols - The World Wide Web - HTTP request message-response message - Web Clients Web Servers. Markup Languages: XHTML. An Introduction to HTML History - Versions - Basic XHTML Syntax and Semantics - Some Fundamental HTML Elements - Relative URLs-Lists-tables-Frames-Forms- HTML5.0.

- **Total Topics: 18**



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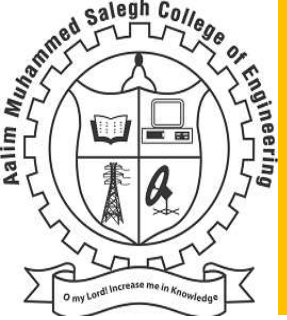
14. Lists
15. Tables
16. Frames
17. Forms
18. HTML5.0



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SYLLABUS

UNIT I WEB SITE BASICS AND HTML

A. WEB ENVIRONMENT

1. Web Essentials: Clients, Servers, and Communication
2. The Internet
3. Basic Internet Protocols
4. The World Wide Web
5. HTTP request message
6. response message
7. Web Clients Web Servers

B. WEB SITE DEVELOPMENT

8. Markup Languages: XHTML
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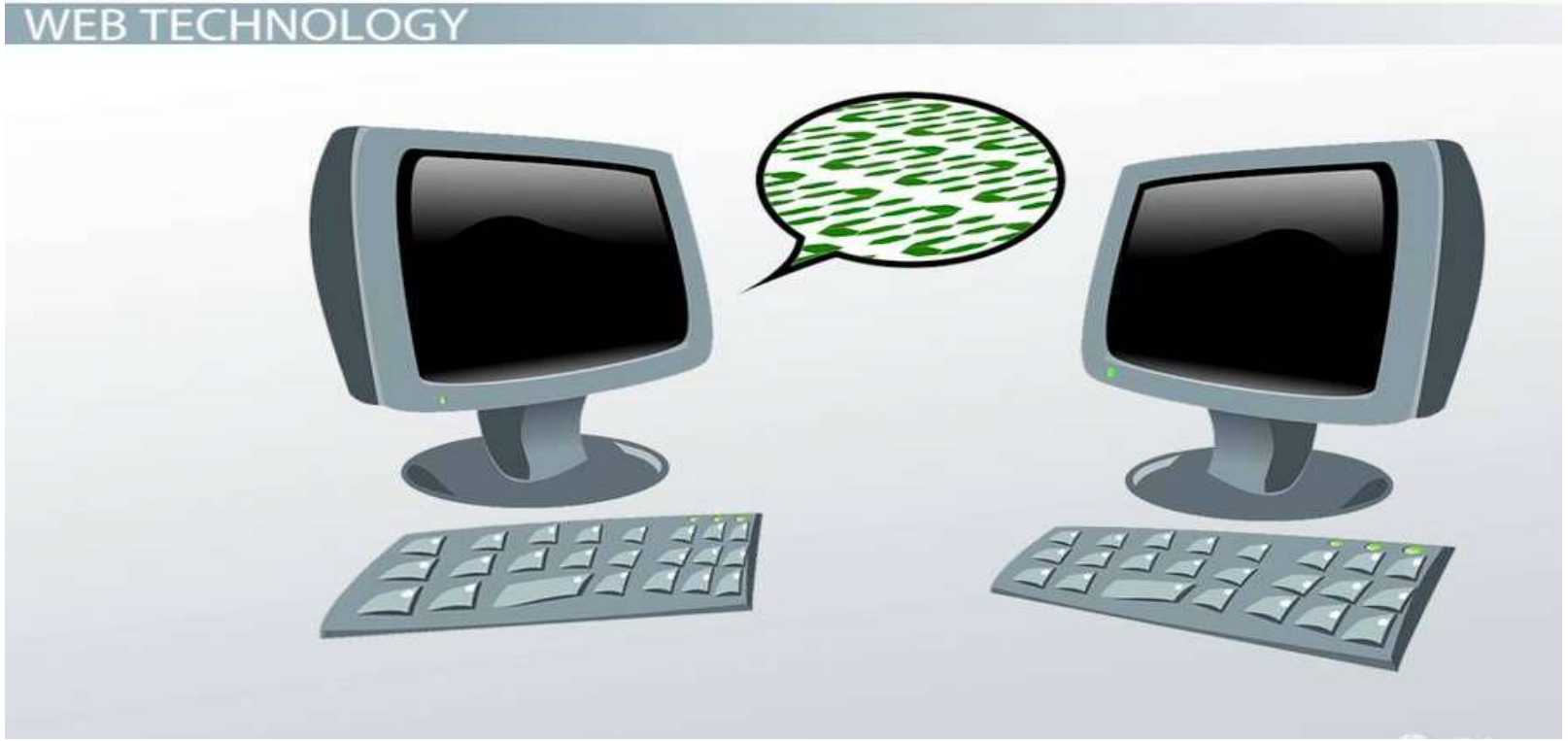
INTRODUCTION TO WEB TECHNOLOGY



Introduction to Web Development

- The trade of IT and Computer Science (CSE) is basically categorized into three sub-domains

1. Software engineering,
2. Networking and
3. website development.

- However former two are also very interesting and fruitful as **web development is more important and significant than Web Development**.

- **Web Development and Designing is third wheel in computer technologies** and it can't be under-estimated.

Introduction to Web Development

- Web Development is not limited to websites.
  - You can create browsers, plugins, games, e-commerce and SOFTWARES too.

- Web Development can get you jobs in
  1. high-reputed companies like Facebook, Microsoft, Google etc.
  2. or you could always work as a high-profiled freelancer.

Basic Road Map to Web Development

Learn Web Technologies

- **Step 1 –** Learn **HTML5**it seem**,** HTML5 is certainly is the extended functional form of HTML4 with many more features than the former version
- With HTML5, you can not only prepare basic webpage structure easily, but can store variables on page itself, create games on it, don't need to rely on flash anymore to run your videos and animation
- can even create full functioning blog, without even touching server side languages like PHP.

Basic Road Map to Web Development

- **Step 2 – Learn CSS**
- CSS (Cascading Style Sheet adds colours to rainbows& surely CSS does.
- With the application of CSS, you can define your web in a colourful and smooth way.
- Like HTML, CSS has grew into CSS3, with which, you can also add transitions to pages, scrolls and even mouse hovers.
- You can even make your site elegant or flashy by using just few lines of CSS3.

Basic Road Map to Web Development

- **Step 3 – Apply features of HTML5 & CSS 3 together.**
- With HTML5 and CSS3 , either design your own pages or templates or can work into responsive layouts that can adapt any device's screen.

Basic Road Map to Web Development

- **Step 4 – Learn and apply features of HTML5 & JavaScript**
- You can actually make those buttons useful in some tasks.
- JavaScript, the best work-around coding language for webpages is versatile, flexible and platform independent.
- With java scripts, real development starts.
- You create variables, assign them some values, and pass them as arguments in some function to finally get returned some values or actions (e.g. page loading, redirecting).
- JavaScript is easy to learn but hard to master, and working of functions and variables. JavaScript has many children like node.js and it requires a lot of reading and practice to actually make some use in creating complex web applications.

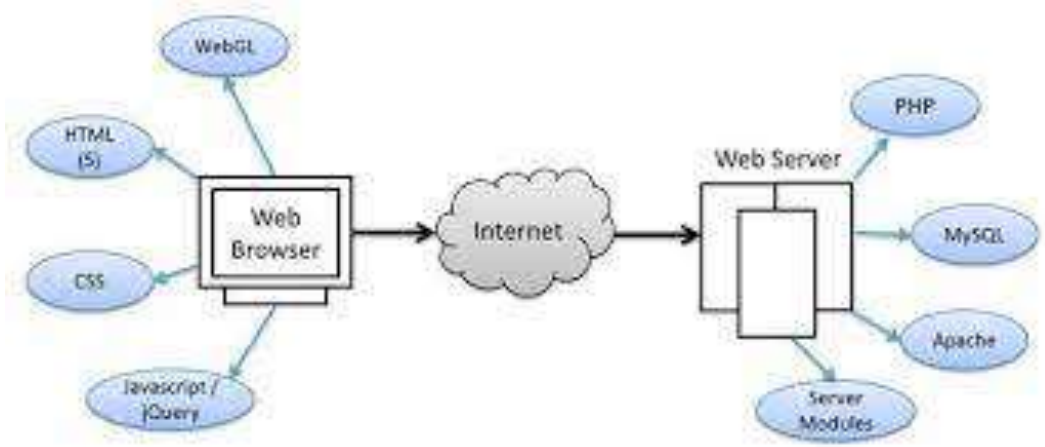
Basic Road Map to Web Development

- **Step 5 – Learn and apply features of HTML5 & PHP + MySQL**
  - PHP is a server-side language, and it handles all the real work and completely relies on your internet connection.
  - Designing on database can be a real pain if you're not organized and well-planned.
  - MySQL, with the combination of PHP on Apache server (better than IIS) provides a perfect frame to build webpages and if you want to practice on localhost, try WAMP server.

What are Web technologies?

- Web technology refers to the means by **which computers communicate with each other using markup languages and multimedia packages**.

- It gives us a way to interact with hosted information, like websites. Web technology involves the use of hypertext markup language (HTML) and cascading style sheets (CSS).



What are Web technologies?

- The methods by which computers communicate with each other through the use of markup languages and multimedia packages is known as **web technology**.

- In the past few decades, web technology has undergone a dramatic transition, from a few marked up web pages to the ability to do very specific work on a network without interruption.

What is Web Development Environment?

- **Development environments**
  A development environment is **where most of the technical programming takes place**.
- These environments are used by developers to build applications and write their code, from platform-specific native apps to progressive web-apps and cross-platform apps.

A. WEB ENVIRONMENT

What is Web Development Environment?

- Development environment is a collection of **procedures and tools for developing, testing and debugging an application or program**.
- Once the application has been tested and the developer feels that the code is working fine, the application then moves to the staging server.

What is Web Development Environment?

- *A web development environment,* which is also a collection of software. It usually includes the following:

1. A web server
2. A relational database management system (RDBMS) to run on the web server
3. A server-side programming language
4. An interface for controlling (starting, stopping, and so on) the web server
5. An interface for accessing and manipulating the RDBMS

What is Web ?

- The World Wide Web, commonly known as the Web, is an information system where documents and other web resources are identified by Uniform Resource Locators, which may be interlinked by hyperlinks, and are accessible over the Internet.

Wikipedia.

What is WWW (World Wide Web) ?

- The **World Wide Web** is a system for displaying text, graphics, and audio retrieved over internet.

- An information space where documents and other web resources are identified by Uniform Resource Locators (URLs), interlinked by hypertext links, and can be accessed via the Internet.

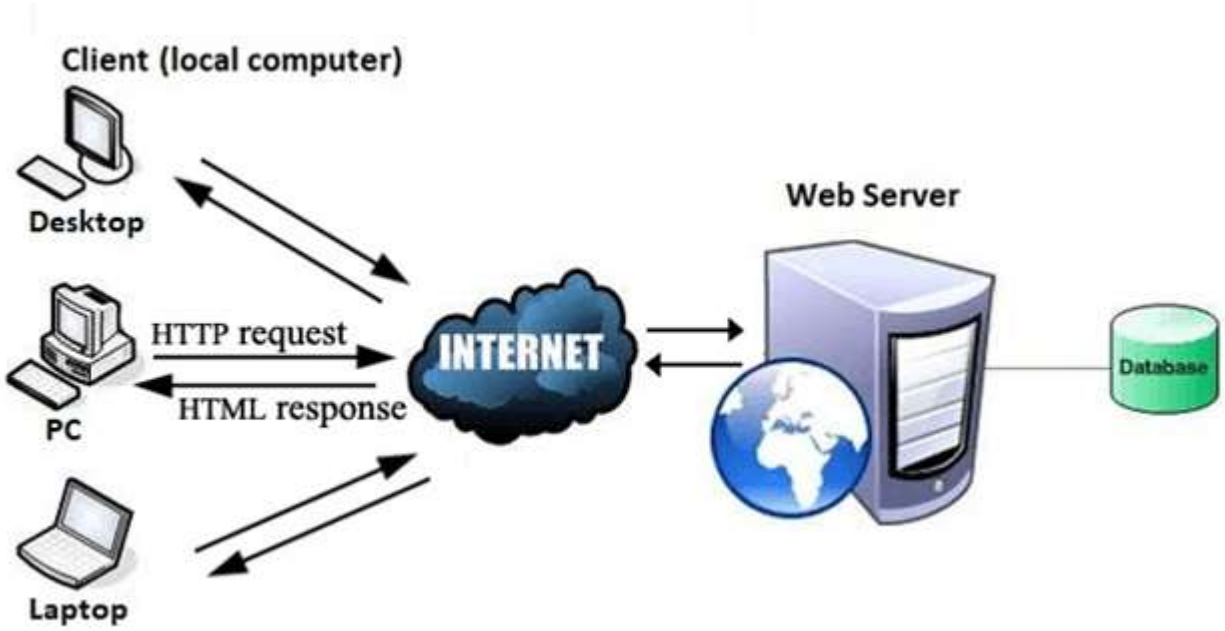
- It is commonly referred to as WWW, W3, or the **Web**—is an interconnected system of public webpages accessible through the **Internet.**

What is WWW (World Wide Web) ?

- It enables the retrieval and display of text and media to your computer.
- This system would allow individuals to link their documents together to create a **web** of interconnected documents.
- Berners Lee says World Wide Web was settled on because it: ... Interestingly the first browser, also invented by Berners-Lee, was called the WorldWideWeb (no spaces).

What is WWW (World Wide Web) ?

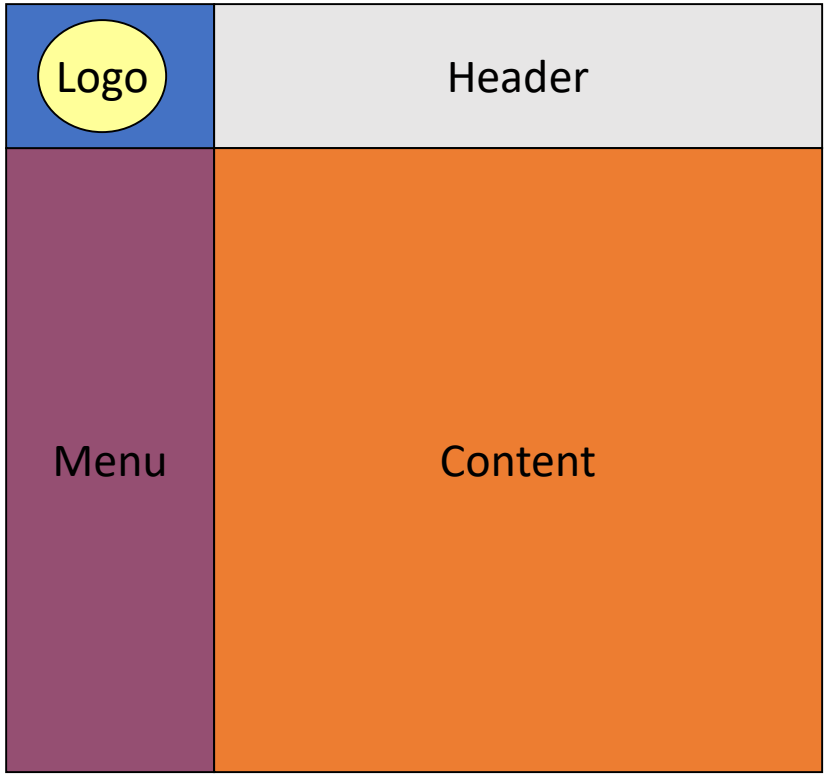
- An **example** of the World Wide Web is the Internet.
- A hypertext document with its corresponding text and hyperlinks is written in HyperText Markup Language (HTML) and is assigned an online address called a Uniform Resource Locator (URL).



What is Webpage and Website ?

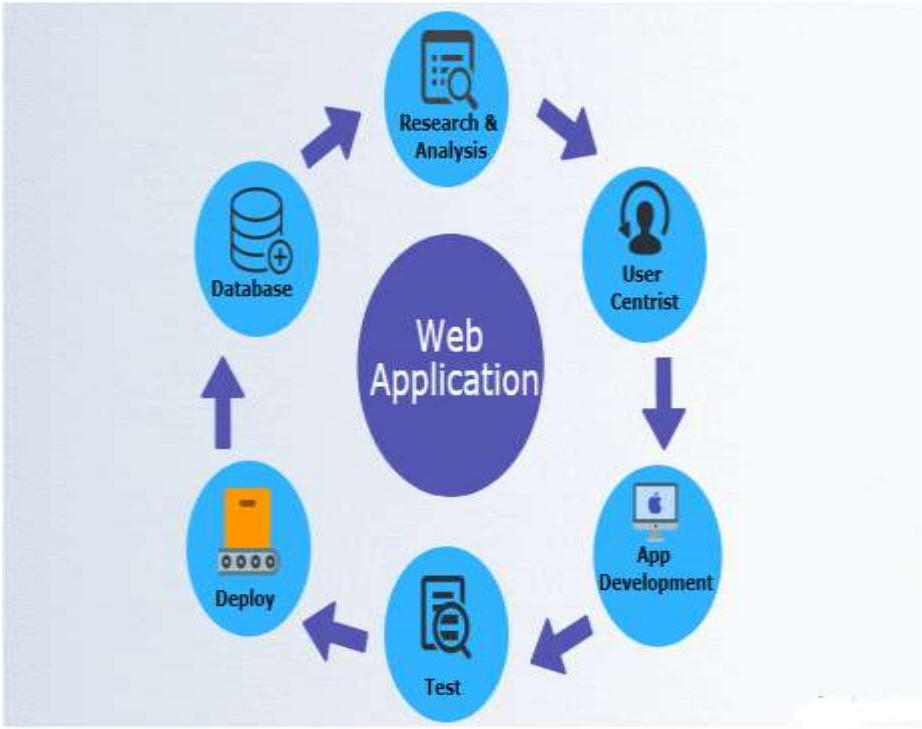
- **Web Page: A document that is suitable for the web browsers.**
  - A webpage is a single HTML document
- **A website is a collection of related WebPages**
- Designing a good website requires more than just putting together a few pages.
- **A modern web page contains three components:**
  1. HTML Content
  2. Style Information
  3. Scripting Language

Areas of a Web Page



What is Web Application?

- Web Application, or Web App, is
  - a collection of elements on a Web site that performs tasks over the internet.
- Web applications are designed to run on Web servers (such as Internet Information Services or Apache) and use Web browsers such as Microsoft Internet Explorer or Chrome as the user interface.
- Web applications are typically client/server applications.
  - For example, the ordering mechanism on an electronic commerce site is a Web application.



How a Web Application works?

Step 1: The user accesses a web application via a web browser or mobile application, triggering a request to the web server over the Internet.

- Note that there may be security measures (i.e. firewalls or cloud access security brokers) and load balancers in.

Step 2: The web server forwards the request to the web application server.

Step 3: The web application server performs the requested task – such as querying the database or processing the data

- Then generates the results of the requested data.

Examples of Web Applications

- Nowadays, almost every web site performs some kind of programmatic task that we call web application.
- Some strong examples are:
  - Facebook.com
  - Booking.com
  - Gmail.com
  - LinkedIn.com
  - Amazon.com

Advantages & Disadvantages of Web Applications

- **Advantages**

1. Web applications run “inside” a browser; no complex installation is needed.
2. Web applications require very little disk space (or computing power) on the client. All the client does is display the data.
3. Web applications solve some of the “compatibility issues” (Windows, Mac, Linux); all that is needed is a browser.
4. In many cases, the data is stored remotely too. As with other cloud computing, this can allow easy communication and cooperation.
5. Help for communication and mail

Advantages & Disadvantages of Web Applications

- **Disadvantages**

1. Because they run inside a web browser, most web applications "look" very different to regular programs.
   - The user experience or ease of use is different and some may dislike it.
2. Web applications need to be coded so they follow standards.
   - Any browser that also follows the standard can be used. Small changes in a given browser's implementation of a standard may prevent that browser from using the web application.
3. Web applications need a connection to the server where the application runs, all the time.
   - The connection may need a certain bandwidth. Without an adequate connection, the application may not become usable; in the worst case, data may be lost.

Advantages & Disadvantages of Web Applications

4. Many applications are dependent on the server that hosts them. When the server is switched off, or the company goes bust, the application is no longer usable.
   - Traditional applications continue to work.
5. The company offering the web application has complete control over it.
   - This also means that they may launch a new version when they want to; the option to “skip” a less popular version does not exist.
6. In many cases, the data is stored remotely too.
   - It may not be possible to export the data so that it can be used with another application.
7. The company can theoretically track anything the users do.
   - This can cause privacy problems.

B. WEB DEVELOPMENT

What is Web Development ?

- Web development is the work involved in developing a Web site for the Internet or an intranet.
- Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services.

Wikipedia

What is Web Development ?

- **Web Development Roadmaps :-**
- Every **Web Developer** must have a basic understanding of **HTML**, **CSS**, and **JavaScript**.
- **Responsive Web Design** is used in all types of modern web development.
- **ECMAScript 5** (JavaScript 5) is supported in all modern browsers. Take a good look at it, especially the new array functions.

What is Web Development ?

• Learn the Basics

- Every **Web Developer** must have a basic understanding of **HTML**, **CSS**, and **JavaScript**.
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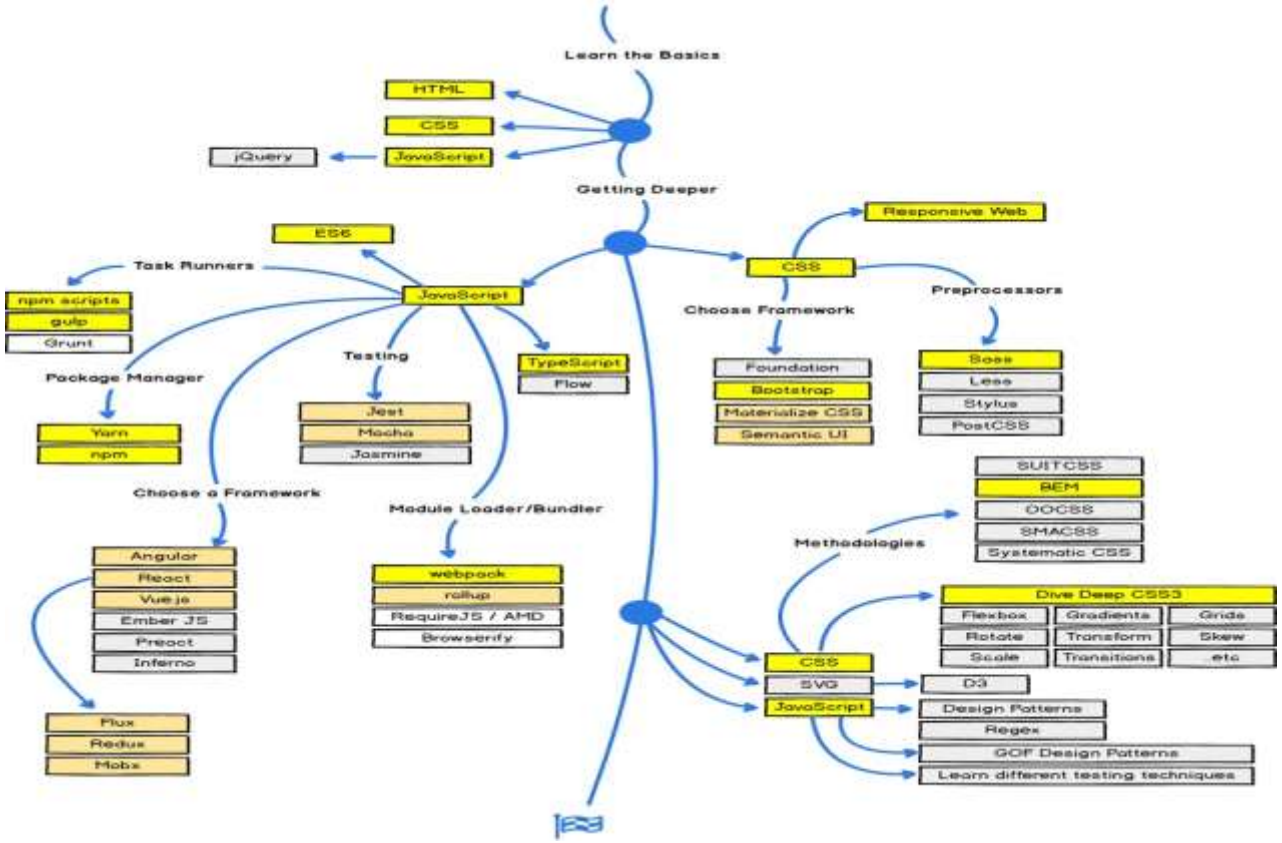
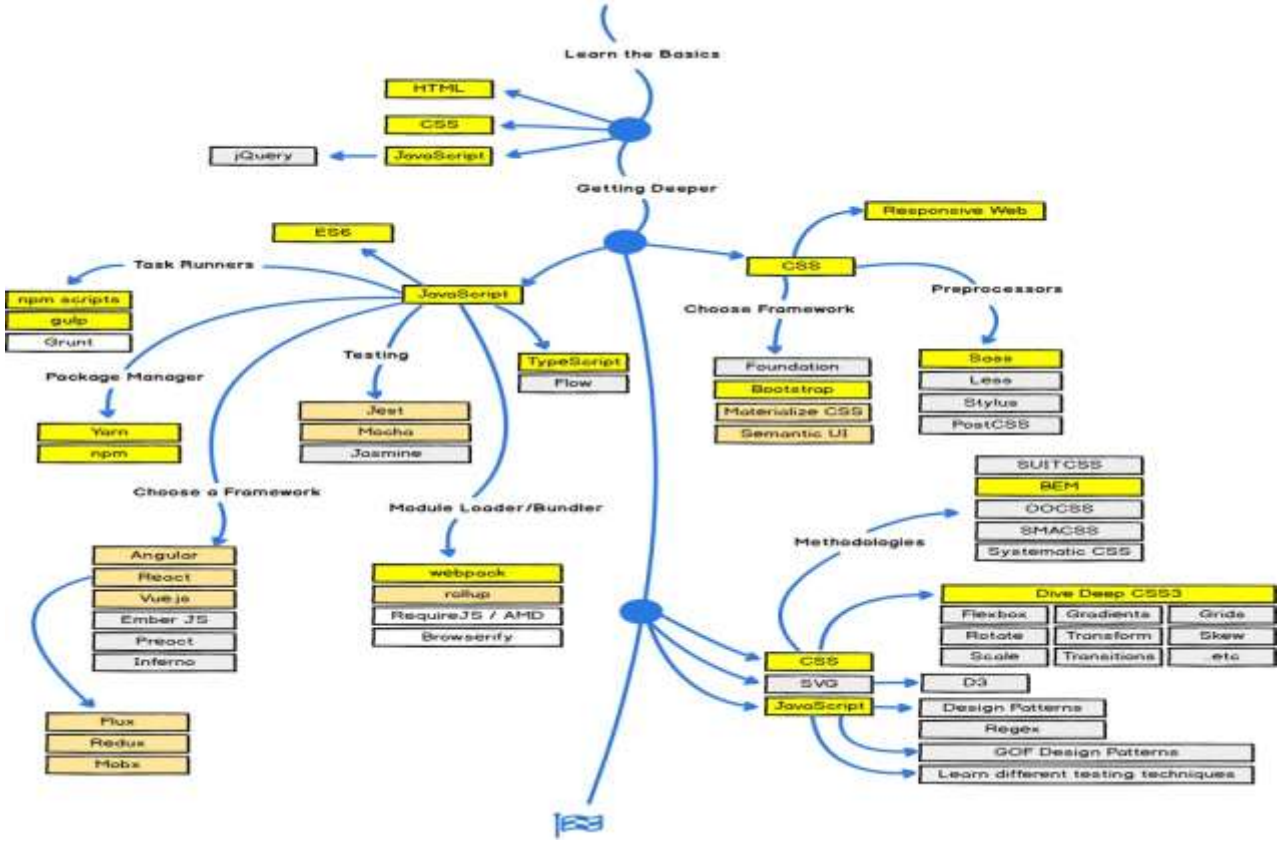


What is Web Development ?

• Dig Deeper

- When you feel comfortable with **HTML** and **CSS**, it is time to dig deeper.

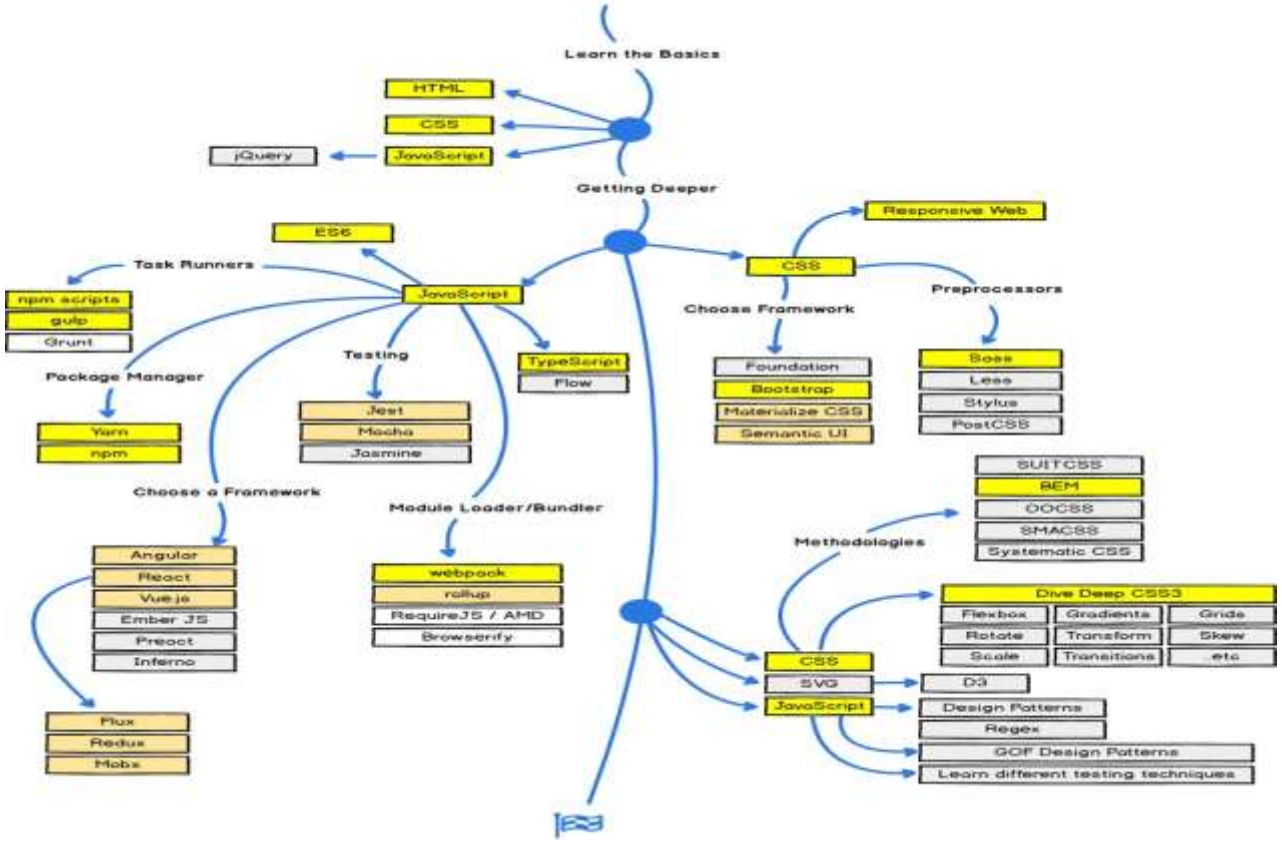
- You should learn how to use **Maps**, **Fonts** and **Icons** in HTML.
- On the **JavaScript** side, you should learn how to access the **HTML DOM**.
- You should also learn how to use **AJAX** and **JSON** for making server requests.



What is Web Development ?

• Choose Frameworks

- Now it is time to look at some **Frameworks**.
- On the **CSS** side you should choose a framework for reponsive web design: **Bootstrap / Material Design / W3.CSS**
- On the **JavaScript** side you should learn at least one modern framework: **React.js / Angular.js / Vue.js / W3.JS**
- Maybe the popularity of **jQuery** has passed the top, but it is still the most used JavaScript framework.



Web Site / Web Applications development tools

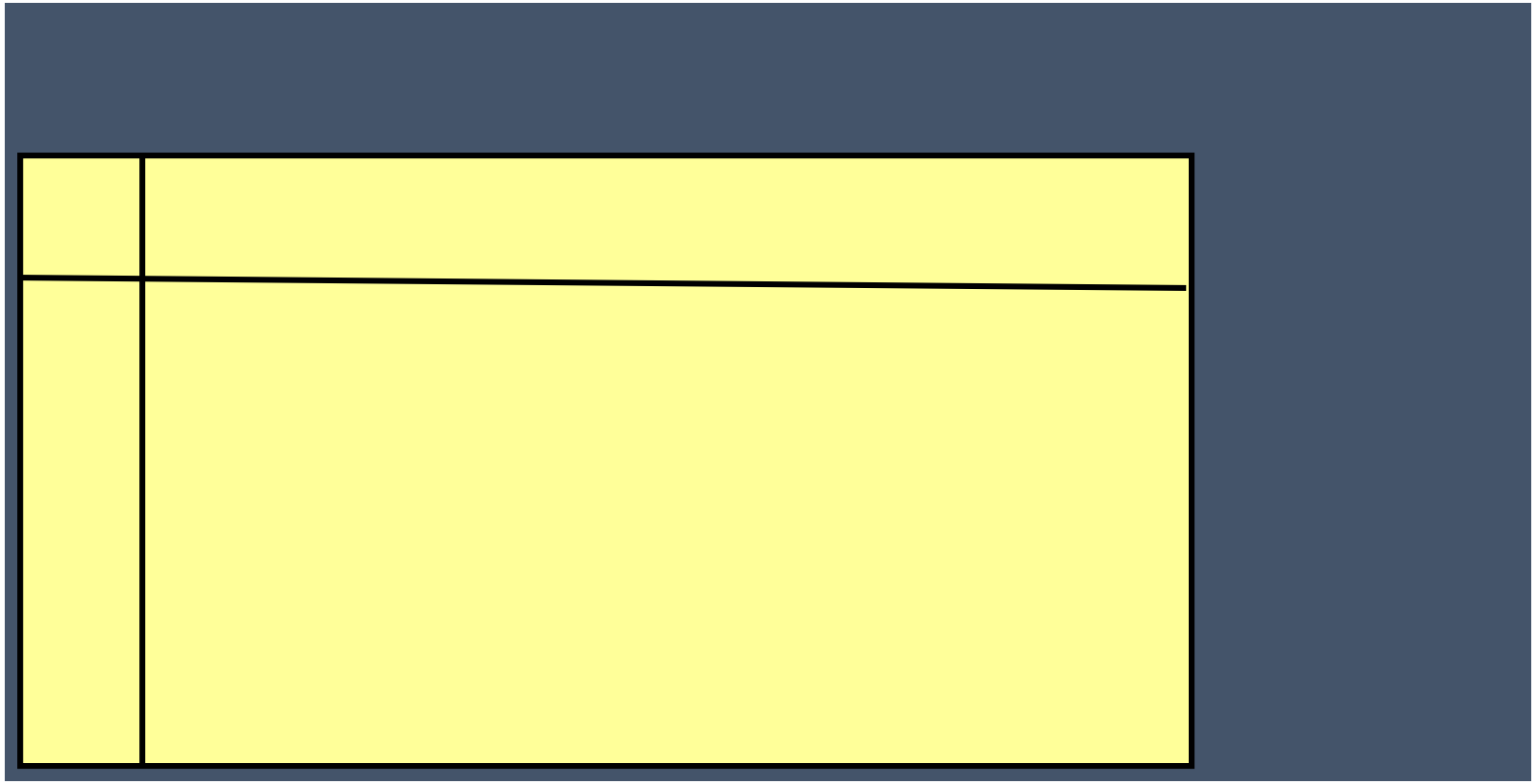
What is Web Page Layout ?

- Layout of web pages is very important
- Poor layout makes for -
  - Difficult navigation
  - Hard to locate information on page
  - Visually unappealing

Simple Web Page Layout

- Use tables to lay out your pages!
- Make the table borders invisible
- A 2x2 table works well.

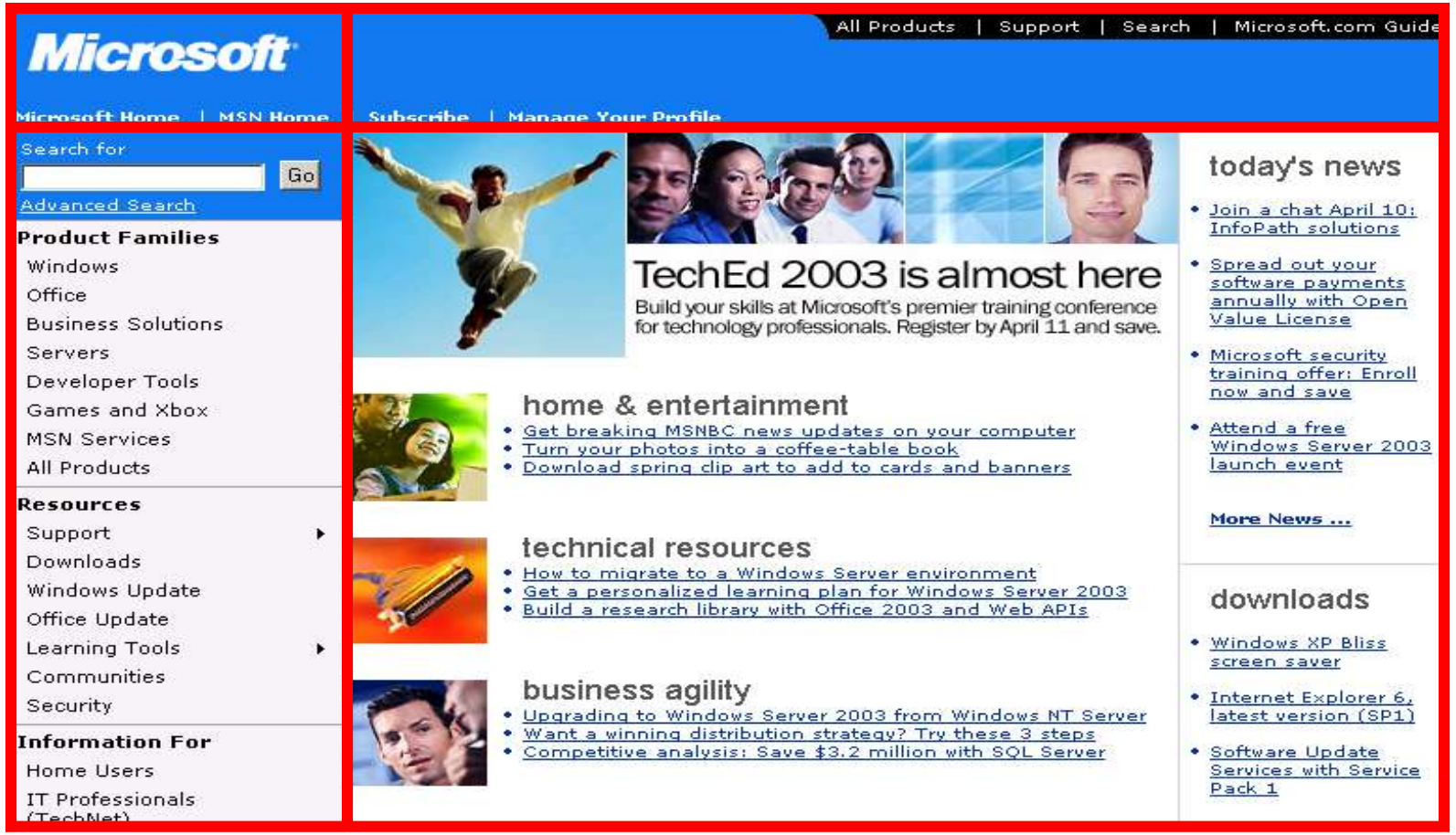
WEB PAGE LAYOUT



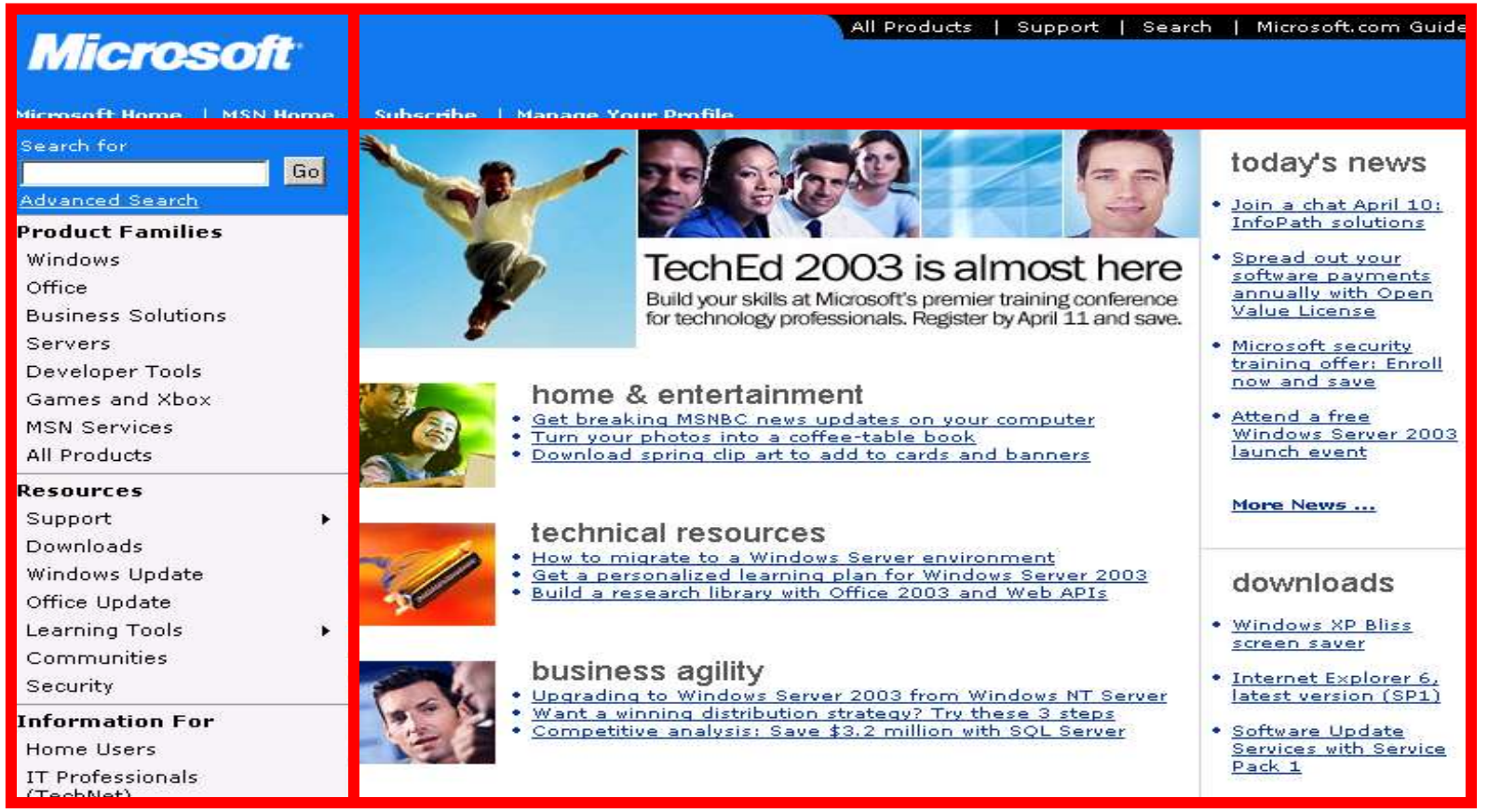
What is A 2 x 2 Layout ?

Table within a table

The outer table



The inner table



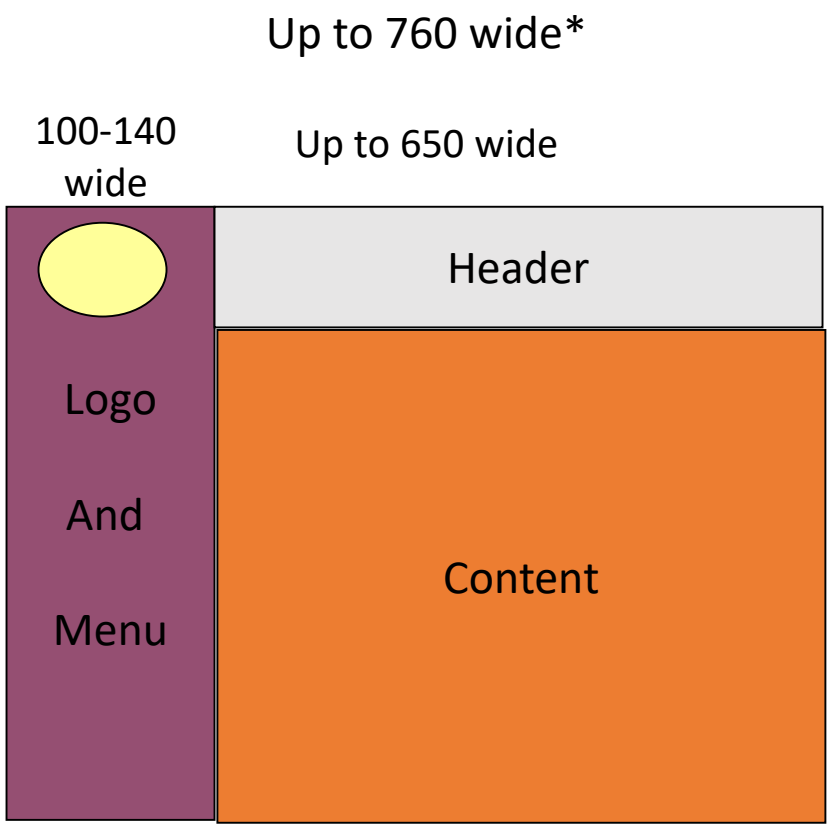
Centered with three columns

Really complicated design!

How Monitors and Dimensions influences Webpage Display?

- Monitor resolution affects how you should lay pages out.
- 800x600 = 50% - 760 x 420 pixels in browser window
- 1024x768 = 35%
- 640x480 = 3%* - 595 x 360 pixels
  - *Was 20% three years ago

Dimensions in a 2x2 table



Page Width

- Because monitors differ (640x480, 800x600, 1024x768), pages look different.
- You can use a % width for a table, for example make it 80% of the page width.

Splash Page

- The index.html file is called the “Splash Page”
- It is the key page—the first page visitors usually see
- Must be visually attractive, informative, and easy to navigate
- Examples:
  - www.projectpuffin.org
  - www.pmlodge.com
  - www.uncommonadv.com
  - www.rainforestandreef.org

Organizing Information on a Web Page

- Decide what info goes on each page
  - Friends page
  - Family page
  - Personal page
  - Hobbies page

Good Web Communication

- Be Concise
- Limit choices – use a hierarchical structure
  - A hierarchy is a structured organization where some pages are at a higher level than others
  - Hierarchy results in a site map with multiple levels

Site Map

- A site map is designed to show the connections between pages
- A graphical site map uses lines to connect linked pages

INTRODUCTION TO WEBSITE

INTRODUCTION TO WEBSITE : What is a Web site?

- **website is a collection of WebPages.**
- **A Website is:**
  - a collection of documents written in the HTML code for an individual, a business house or any other organization.
  - a collection of individual documents and files made up of text, graphics, colors, links, and formatting that come together to create a complete user experience.
  - a collection of related network web resources such as Web pages, Multimedia contents, etc which are typically identified with a common domain name and published or hosted on at least one web server.

Example for Web sites

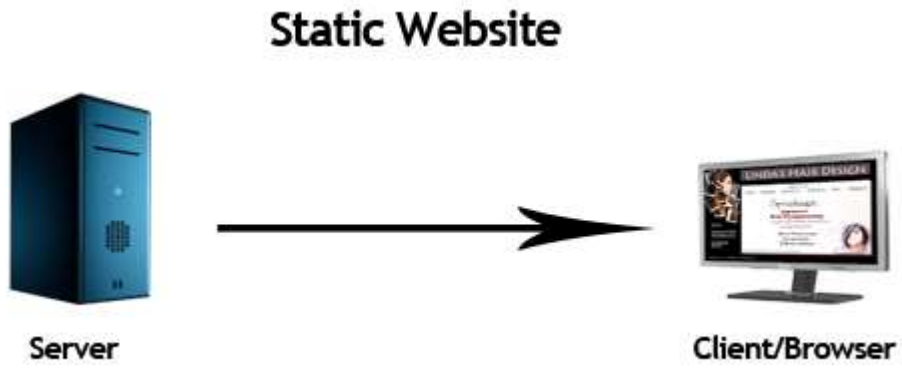
- Google.com
- Amazon.com
- Wikipedia.com
- Aalimec.ac.in

Types of Web site

- A website is typically dedicated to some particular topic or purpose.
- Based on their functionality, there are two types of website,
  1. Static Website and
  2. Dynamic Website.
- In static website contents are not expected to change frequently whereas in dynamic website contents are changing frequently.
- Websites are also usually associated with domain names, like www.codeschool.com, that explain to your computer where all of the files that are necessary to display a website are located.

Static Web site

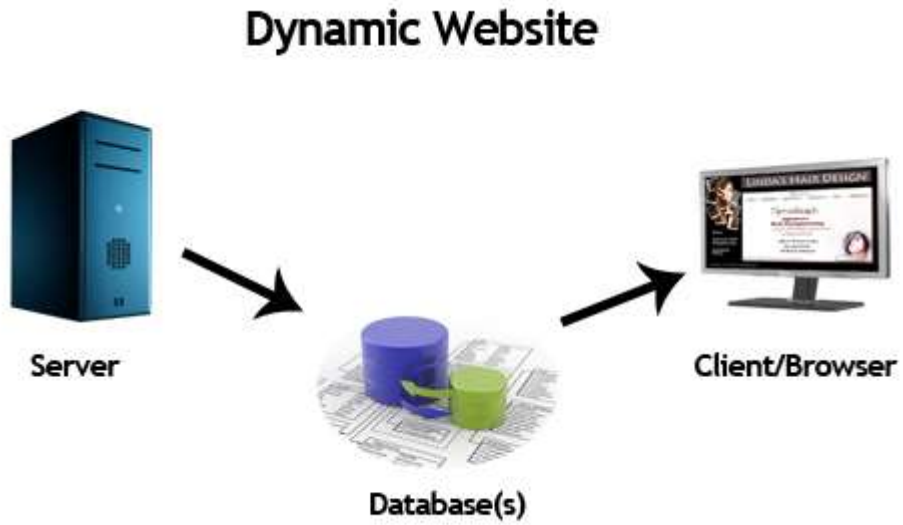
- Static website is the basic type of website that is easy to create. You don't need the knowledge of web programming and database design to create a static website. Its web pages are coded in HTML.
- The codes are fixed for each page so the information contained in the page does not change and it looks like a printed page.



Dynamic Web site

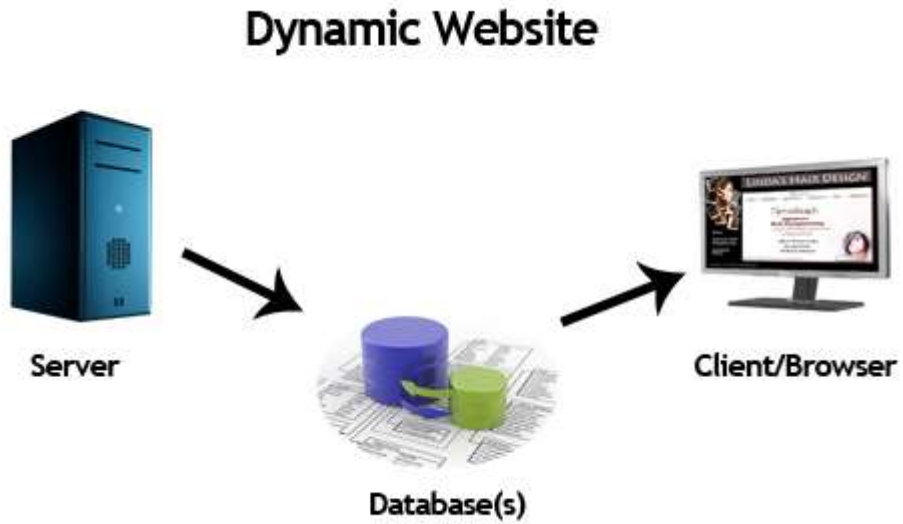
- Dynamic website is a collection of dynamic web pages whose content changes dynamically.
  - It accesses content from a database or Content Management System (CMS).
- when you alter or update the content of the database,
  - the content of the website is also altered or updated.

- **Dynamic website uses:**
  - ***client-side scripting or server-side scripting, or both to generate dynamic content.***



Dynamic Web site

- Client side scripting generates content at the client computer on the basis of user input.
- The web browser downloads the web page from the server and processes the code within the page to render information to the user.
- **In server side scripting,**
  - the software runs on the server and processing is completed in the server then plain pages are sent to the user.



Static vs Dynamic website

Static Website	Dynamic Website
Prebuilt content is same every time the page is loaded.	Content is generated quickly and changes regularly.
It uses the **HTML** code for developing a website.	It uses the server side languages such as **PHP,SERVLET, JSP, and ASP.NET** etc. for developing a website.
It sends exactly the same response for every request.	It may generate different HTML for each of the request.
The content is only changed when someone publishes and updates the file (sends it to the web server).	The page contains "server-side" code which allows the server to generate the unique content when the page is loaded.
Flexibility is the main advantage of static website.	Content Management System (CMS) is the main advantage of dynamic website.

Website Vs Webpage

- A webpage is a document commonly written in HTML that is accessible through the internet or other networks using a web browser.
- Thus, a web page is an individual HTML document and whereas the website is an interrelated collection of web pages.

Components of a Website

Components of a Website

- **The components in a webpage are the elements of a webpage contents decided by the webpage designing Languages or web authoring Tools**
- A possible set of components are listed as below:

1. **Front-end elements** such as Text, Form controls ,etc
2. **Navigation Structure** such as Hyperlinks with either Hypertext form or Hypermedia form.
3. **The page layout** which suggests possible set of web elements and its preferred locations termed as TEMPLATE.
4. **Images or Photos**
5. **Videos Audios**

Basic elements of any website

- ***Basic elements of any website are as follows:***
- **Home Page and site-wide template design** to ensure an attractive, functional and consistent appearance of your website.
- **Integrated site navigation** to provide clear and consistent access to your site's content.
- **Look and feel** of your website, including colors, text and graphics, as well as the way it functions.
- **A Logo**: to be displayed in the left corner of each page of your website.
- **A site map** to Provide a list of all pages on your site.
- **Website Search features** allowing user to search the website for content relevant to their specific interests.

Basic elements of any website

- **About page** that includes:
  - A complete description of you and / or your company
  - Your website and / or company objectives
  - Your name, address, phone numbers and e-mail addresses
- **Feedback:** that facilitates the customers to ask some queries about your Products and Services.
- **A domain name**: Your 'address' on the internet, what people type into their browser to find you. You choose a word or phrase (Example:- mywebsite) and an extension (Example:- .com, .net, .edu), your domain name could be mywebsite.com.
- **Web Hosting**: The physical place your website resides; includes the computer (called a server) as well as the connection to the Internet and the technology that makes your website work.
- **Copyright**: Displaying your copyright information at the bottom of each page. Your copyright might look like this: **Copyright @ Year CompanyName**

Web Development Languages and tools

Web Development Languages and tools

- The web pages are written for web browsers.
- The web languages are common evolved due to past experience with new features existence.

Web Development Languages and tools

- the web pages or a website are / is designed using:

Languages

- -HTML (HyperText Markup Language)
- PHP
- -Java script
- VBScript , Etc

Tools

- Bootstrap
- Wordpress
- Dreamweaver , Etc

Website Planning

Website Planning

- Planning is the most important part of building a website. Before designing a website, it is necessary to do proper planning as we do in the case of building a house.
- If you start building your house without giving a thought of planning, the house may end up into an uncomfortable dwelling. Therefore, for building a good website proper planning is required.

Basic steps in planning a website

1. Define your target audience
2. Organize your concepts and materials
3. Create a directory structure (also called site map)
4. Create a sketch of the pages you intend to create
5. Design and refine the look and feel of the site

Step 1: Define your target audience

- Your site should facilitate the information or services to visitors the way they are looking for.
- The keys to successfully communicating with your audience are first to identify who they are and then anticipate their reaction to the various elements of your web site.
- You can tailor almost every aspect of your web site to your target audience - from the way you organize information to the kinds of fonts and images you use.

- **You need to consider the following points for meeting the above said objectives.**
- The viewer's background and previous experience
- Their interest and tastes
- The reason why they are visiting your site
- What is their general age

2. Organize your concepts and materials

- You should be clear about the aim of creating your site, whether the aim of the site is:
- to inform
- to promote a product
- to educate audience
- to entertain the audience
-
- Your vision of creating the web site needs to be well defined.
- Once the goals are defined, organize all your materials and put together any other related documents and pictures you want to work with.

3. Create a Directory structure

- If you think that the site will contain very few files then you can store all of them in just one directory.
- But if the site is going to be very large and complex, then you will need to organize files into separate directories and sub-directories.
- Developing a logical directory structure is an essential part of planning your web site. You can have a subdirectory for sound clippings.

4. Create a Sketch of the web pages

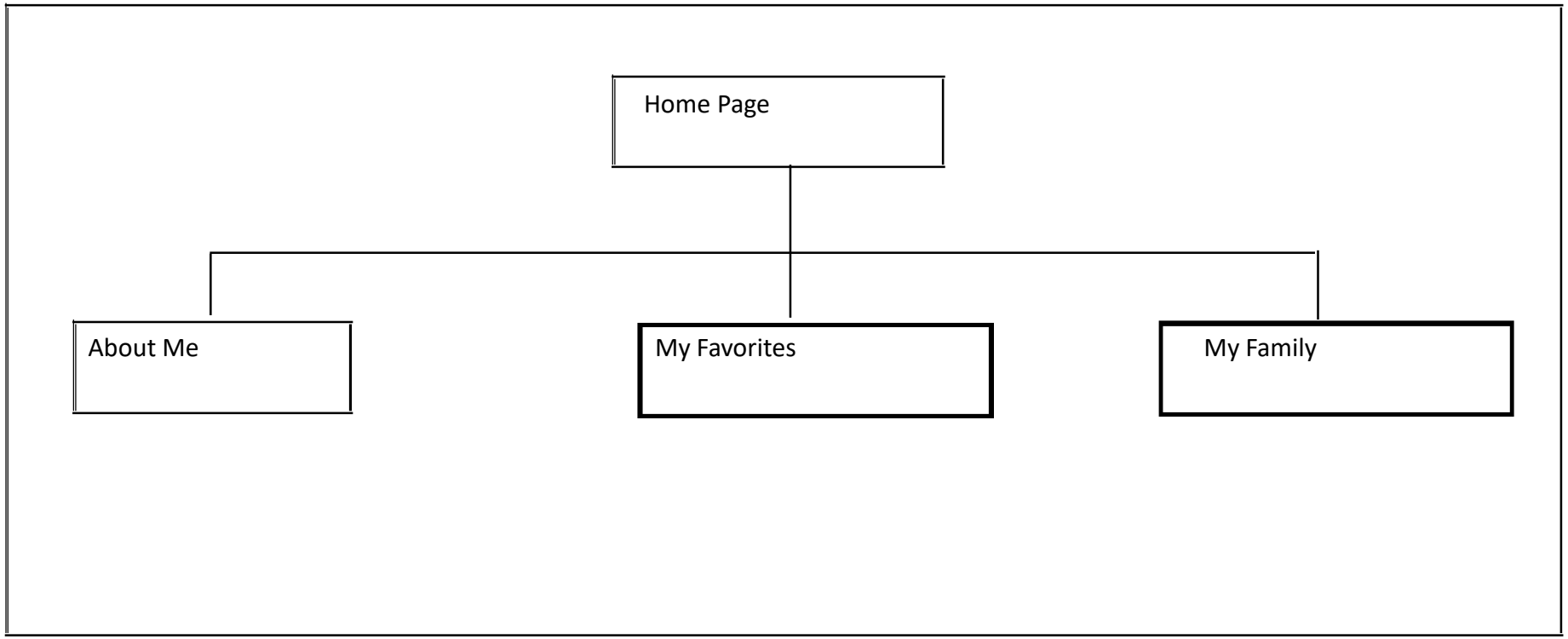
Home Page

1. My Family
2. My Favorites
3. About Me

- After setting up a general site plan and directory structures, your contents may fall into certain types.
- It may be possible to work within various pre-designed templates available on the web designing tools such as Macromedia Dreamweaver.

- You may like to create a drawing of web pages (Fig. 1).

4. Create a Sketch of the web pages – Cond.



5. Design and refine the look and feel of the site

- Following are some principles about web page designing which will help you to design an effective web page.

a) Present your web page in such a way that the user gets impressed within the first few seconds of visit.

b) Keep on updating web pages on regular basis by providing fresh and latest information.

c) Keep your web pages focused. Don't show everything on one page, use separate pages for separate topics.

d) Make sure that the features used in the web site are compatible to all browsers.

e) Ensure that buttons and links in the web site behave as expected.

f) Use compressed images so that web page gets quickly loaded.

Steps for Creating the Website

5. Design and refine the look and feel of the site

- **The major Five steps for creating or developing the website are :**
- These steps are enough for overall design and publishing of website.
- They are:
- ***Step 1: Plan for website creation***
- ***Step 2: Create the website using suitable Language or tool.***
- ***Step 3: Choose the web hosting services***
- ***Step 4: Register the Domain Name.***
- ***Step 5: Upload the files (webpage files)***
- ***Step 6: Test the website.***

Step 1: Plan for website creation

- ***Step 1: Plan for website creation***
- *Do the following decisions*:
- Decide the Type of the site is for such as News, Informational Site, Company or Personal
- Types and varieties of Navigation structures needed
- The types and various categories of Web content or Components

Step 2: Create the website using suitable Language or tool.

- ***Step 2: Create the website using suitable Language or tool.***
- Select the Language such as HTML to select and apply formatting options through valid tags in HTML.

Step 3: Choose the web hosting services

- ***Step 3: Choose the web hosting services***
- Identify a company that can host and or manage your website on their web server.
- Adopt the type of hosting service that is required such as Personal or Business
- Decide the type other services can be adopted such as email services, Space service.

Step 4: Register the Domain Name.

- ***Step 4: Register the Domain Name.***
- Buy your website domain from web hosting company such as GoDaddy.
- Note that domain name is an alias that points to the actual location of your website on their web server.
- These domain names are administered by ICANN (Internet Corporation for Assigned Names and Numbers).
-

Step 5: Upload the files (webpage files)

- ***Step 5: Upload the files (webpage files)***
- The created web resources such as
  - source file,
  - image,
  - video and
  - audio
- must be moved from the source host (computer) to web server (hosting computer) using the protocol such as HTTP (Hyper Text Transfer Protocol).

Step 6: Test the website

- ***Step 6: Test the website.***
- Testing the developed website is should be done consistently to assure the live on web.

List of factors considered while developing a website

List of factors considered:

- The various factors that should be considered are:

1) Test in multiple browser:

This assures the portability of the site which in turn verifies contents of the site is consistent or not.

2) Test in multiple operating Systems:

This assures the need of hosting the site in multiple environments.

3) Test for connection field :

Based the real time requirements, an optimal speed that is set during the development is to be maintained for the hosting environment.

List of factors considered:

4) Device Types:

The screen size varies on various device types need to be optimized by adopting the rendering features with device independency.

5) Links :

It is required to verify through validation tool for live connectivity of web pages in the hosted domain such as validator.w3.org/checklink.

6) Security Testing:

To avoid the vulnerabilities by unknown persons or software with the help of security tool or components.

Any Questions ?

Thank You