FEU INSTITUTE OF TECHNOLOGY
COLLEGE OF ENGINEERING • COLLEGE OF COMPUTER STUDIES

Basic Webpage Design

Understanding Web Technologies and Applications

Objectives

- Explain how WWW works
- Definition of terms
- Understand the anatomy of a web address
- Understand how a web page works

INTERNET BACKBONE - primary system of networks connecting both major network hubs and Internet users to the Internet itself.

ARPANET (Advanced Research Projects Agency Network) – original backbone

NSFNET (National Science Foundation Network) – the first high speed backbone in 1987

What is WWW (W3)?

- It is often called as WEB that stands for the World Wide Web.
- It is a network of computers all over the world.
- All the computers use a communication standard called HTTP.

Who Developed the WWW?

- Tim Berners-Lee developed World Wide Web in the late 1980's and early 1990's.

How Does WWW Works?

- **Role of Web Page**

  It is a document that serves as a storage of Web information.

- **Role of Web site**

  It is a collection of web pages linked or organized together having a common goal.

- **Role of Web Servers**

  A computer that serves as storage of the web pages or the web site

How Does WWW Works?

- **Role of Web Clients**

  These are the computers reading the web pages.

- **Role of Web Browsers**

  This is where web clients view the web pages.

- **Role of URL**

  Uniform Resource Locator. This is what the users or viewers submits request through an address bar of the web browser.

How Does WWW Works?

- **Role of HTML**

The receiver and the interpreter of the requested instructions through Web browser.

WEB SERVERS

A software and hardware program that serves web pages to requesting clients.

It is used to host web sites.

PRODUCT	VENDOR
Apache	Apache
IIS (Internet Information Server)	Microsoft
nginx	NGINX, Inc.
GWS (Google Web Server)	Google

WEB BROWSER

A program that is used to view HTML documents.

2013 Famous Browsers

Browser	Description
Internet Explorer	A free web browser from Microsoft which was released in 1995.
Mozilla Firefox	A free, open-source web browser from Mozilla available for Windows, Mac OS X, Linux, and Android.
Google Chrome	A free, open-source web browser developed by Google. It was released in 2008
Safari	In 2003, Apple developed their own browser in April 2005, Safari became the default browser for Mac systems.
Opera	A free, and it is the smallest and fastest browser.

Major Browsers

GOOGLE CHROME

INTERNET EXPLORER

MOZILLA FIREFOX

OPERA

SAFARI

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One way to think of the Internet is to picture it as a wide-area network that spans multiple geographic locations. Each location in this enormous network is made up of a group of computers that are relatively close in proximity to one another and are connected by hardware and cabling.

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All types of computers are connected to the Internet. Most major colleges and universities, as well as many large companies, have connections right into what's called the Internet backbone, the worldwide series of major junction points that ties the whole thing together.

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The computers of people are connected to the Internet through the **Internet Service Provider *(ISP). Your ISP may be connected to another,*** bigger ISP, or possibly directly to the backbone.

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Users communicate from one location to another using a communication protocol known as **IP *(Internet Protocol). This protocol,*** running on each computer connected to the Internet, ensures that communication breakdowns do not occur and that the networked computers can communicate and exchange data properly with one another.

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Every computer connected to the Internet has a unique ***IP address. If duplicate IP addresses*** existed, information using a given address could end up in the wrong place. Software applications that run on the Internet are known as ***Internet Applications.***

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INTRANET APPLICATIONS

An **intranet is a private local area network** (LAN) or wide area network (WAN) that lets you use and interact with your Internet-based applications in a secure environment. An **intranet application is an application that** works on a private (network). It differs from an Internet application only in who can access it and the location of the client computer accessing it.

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URLs

Every piece of information on the World Wide Web has a unique address. This address is called a *Uniform Resource Locator, or URL.*

URL is a pointer to some bit of data on the web.

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URLs

- Example

How to get the information (what protocol to use: FTP, HTTP, and so on)

•The Internet host name to contact (for example, http://www.macromedia.com; http://localhost/mysite; or ftp.mysite.com)

* The directory or other location in which to find the requested information.

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ANATOMY OF A WEB ADDRESS

The technical name for a web address is Uniform **Resource Locator, or URL. Here's** what a URL looks like:

http://www.iskulnet.com/members/signup.html

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http://www.iskulnet.com/members/signup.html

The http stands for Hypertext Transfer Protocol, which is the standard method used to transport Web pages over the Internet.

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http://www.iskulnet.com/members/signup.html

This part of the address is called the domain name. You can own a domain name by registering it through ISP's or companies recognized by InterNIC. You need to pay for the domain name on a yearly basis, have it parked or hosted by a Web Hosting company.

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http://www.iskulnet.com/*members*/signup.html

This is a subdirectory or subfolder within your website. You can create as many subdirectories to organize your web contents. Note the forward slash (/) is used to separate the protocol, domain name, subdirectories and HTML file name not the backward (\) used in Windows.

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http://www.iskulnet.com/members/*signup.html*

This is the web document or HTML filename. The file extension can either be .htm or .html.

Summary

- Every computer connected to the Internet has a unique ***IP address. If duplicate IP addresses*** existed, information using a given address could end up in the wrong place.

- A web browser is a software program residing on a computer that you use to view pages on and navigate the World Wide Web

Sample Domain Suffixes

Suffixes

- **com** - commercial
- **net** - network
- **gov** - government
- **edu** - education
- **org** - non-profit organizations
- **ws** - website
- **tv** - web TV
- **mil** - military sites
- **pro** - professions
- **info** - information
- **coop** - cooperatives
- **biz** - businesses

For list of suffixes visit

http://www.computerhope.com/jargon/num/domains.htm

What is a Static Web Site?

It is the simplest kind of web site you can build. Static web sites are written in HTML and CSS only, with no scripting. The only form of interactivity on a static web site is hyperlinks.

What is a Dynamic Web Site?

It is a web site that not only uses HTML and CSS, but includes web site scripting as well. For a dynamic site here are some of the scripting languages and frameworks that will be added to the code are JavaScript, PHP, Ruby on Rails and ASP.NET.

Review on Important Concepts

Web Server vs. Web Clients
Web Page vs. Website
Web Browsers

- **Hypertext** – is a method of organizing information that gives the reader control over the order in which the information is presented.
- **Hyperlinks / Links** – a hypertext document that allow you to jump from one topic to another, often with a mouse click.
- **Markup Language** – is a language that describes a document's structure and content.

Important Concepts

- **FTP (File transfer protocol)** - a method of copying a document from one computer to another computer in the network.
- **ISP (Internet Service Provider)** – a company or business that provides access to the Internet and related services.
- **TCP (Transmission Control Protocol)** – responsible for breaking data being sent across an IP connection into small packets, and then reassembling these when they arrive at their destination.
- **HTTP (Hypertext Transfer Protocol)** – used to transmit web pages from the web server being accessed to your computer.
- **URL (Uniform Resource Locator)** – web unique address

Planning a Website

Before beginning to build web site you should:

- Identify your target audience
- Have a statement of purpose
- Know your main objectives
- Have a concise outline of the information your site will contain.

Knowing Your Audience

Web site structure should meet the needs and expectations of the user.

TYPES OF USERS

a. **Web Surfers** - they are the casual user that needs to be enticed with strong graphic content and bold statement of content.

b. **Novice and Occasional Users** - they depend on clear structure and easy access to web site.

c. **Expert and Frequent Users** - they depend on site to obtain information quickly and accurately.

d. **International Users** - they are users who could be in many different places.

Just a Reminder

Do not assume that all readers understands the developers conventions.

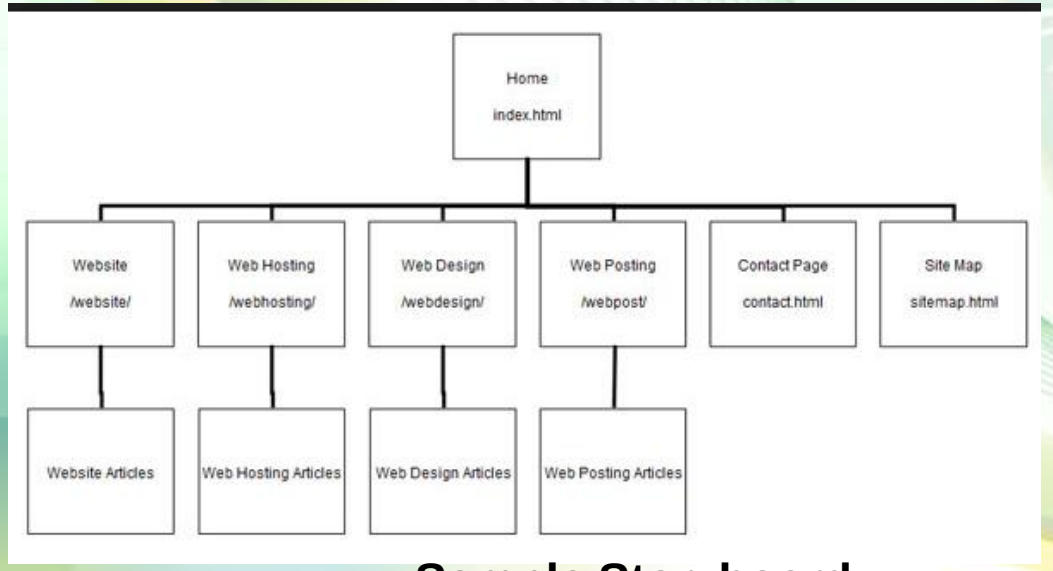
Example:

Reading Dates

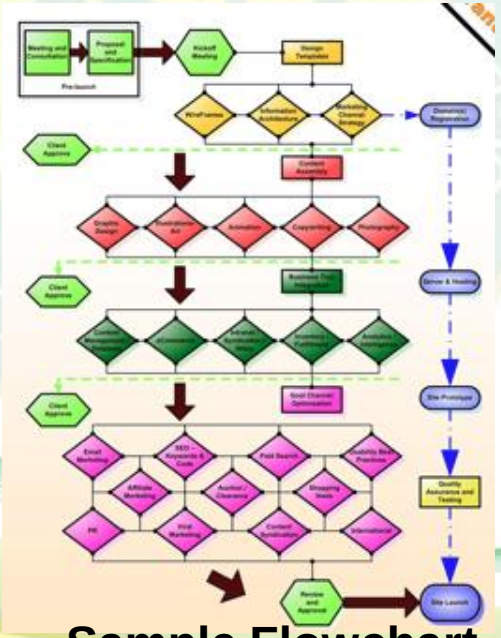
Writing "3/4/97" **– American would read it as March 4, 1997, other countries read it as April 3, 1997**

Steps to follow in planning a website:

- Getting Web Content
- Storyboarding
- Flowcharting



Sample Storyboard



Sample Flowchart

Information Architecture

- **Without Structure there is no Architecture** - user should be able to comprehend to what the site is all about.

- **Reduction is Construction**- learn how to consolidate similar topics to produce good site

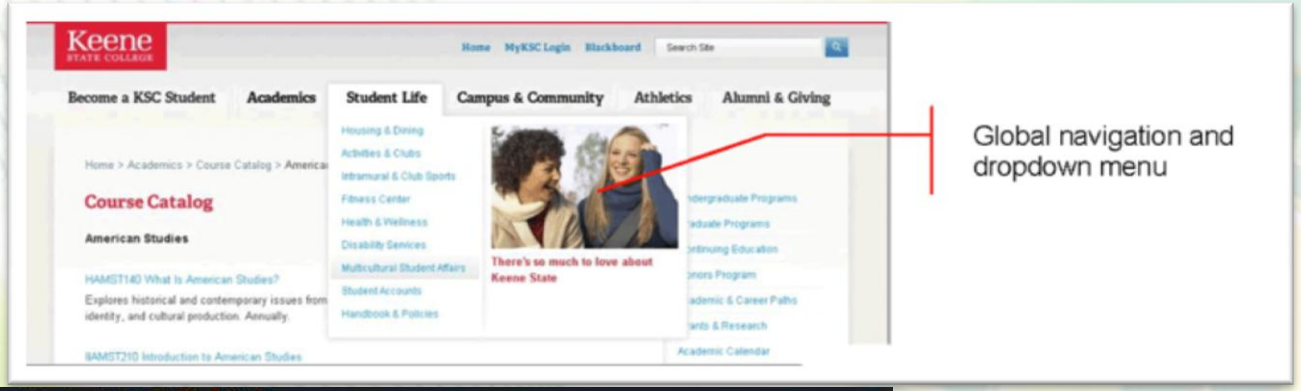
Information Architecture

Navigation in the Information- use a clear and consistent global, parallel and local navigation.

a. Global Navigation – user can move between main sections, it should be present on every page.

b. Parallel Navigation – the presence of subcategories or subsections on each section which must be present on every page within section.

c. Local Navigation – works like table of contents



Global

Parallel

Local

Information Architecture

Common Architecture Mistakes

a. **Too many categories –** "There should be no more that seven categories if possible."

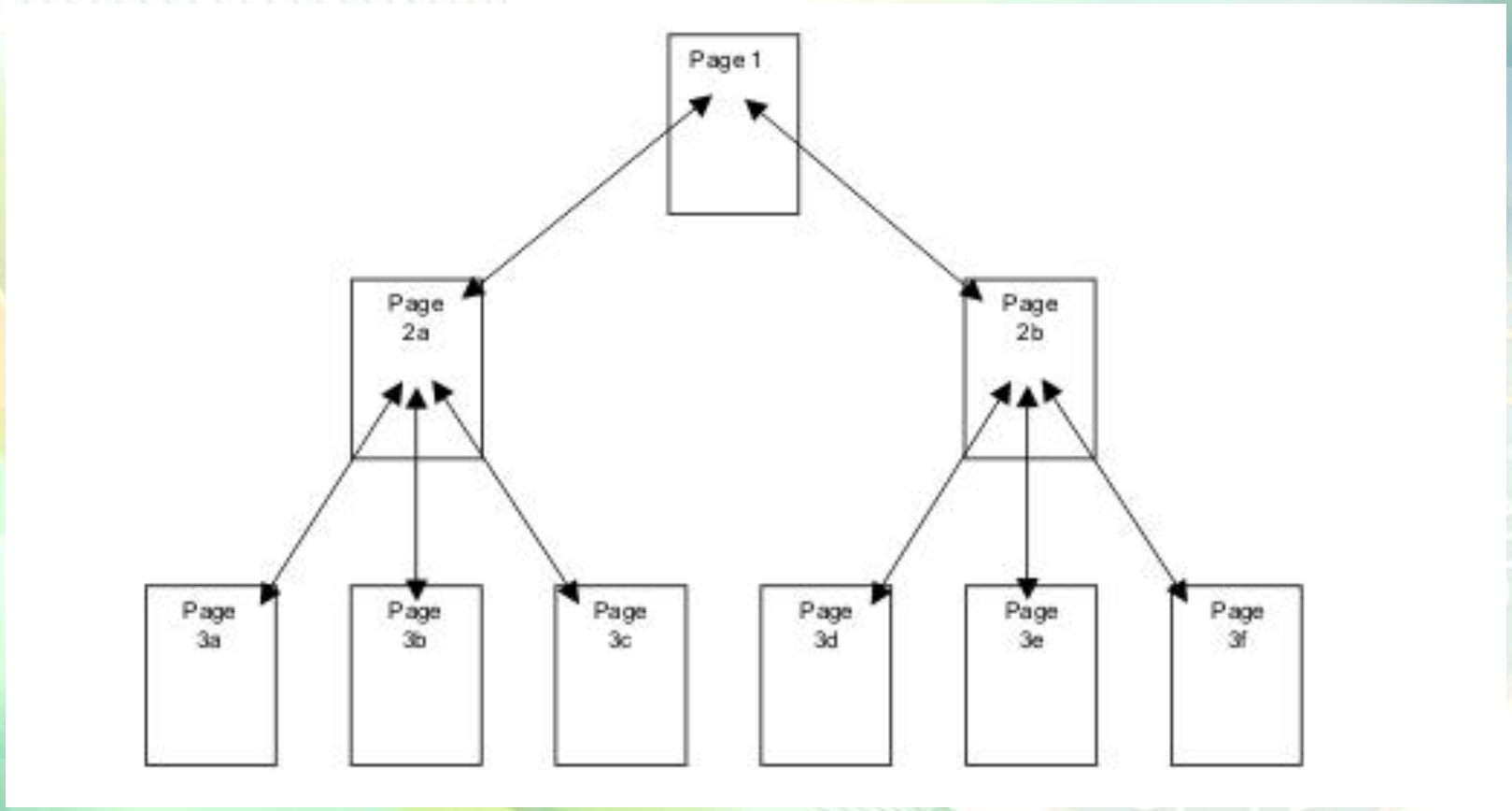
b. **Getting trapped in established structure –** does the existing company's department structure logical from viewers point of view.

Information Architecture

Common Architecture Mistakes

c. **Inconsistent Navigational Organization -** concept should be simple and straightforward

d. **Burying Information in too many levels -** Four hierarchical levels is too complex



Hierarchical Organization

Quality Web Design

Factors of Quality Web Design

- Content
- Accessibility
- Layout and Navigation

End of Module