Web Systems

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About Me

- M.Sc. From KFUPM
- Area of interest: WEB Development, Mobile Applications, Machine Learning

- What about you?
- Name , Hoppies, any web projects before?

About the Course

- We will explore various technologies related to Web ex. HTML, JS, Bootstrap, Jquery

- At the end a website project is required

- Exam dates

- Exam marks

- For normal inquiries contact your class representative and I will answer him

- For critical inquiries you can contact me directly

- Reference books and websites (see last slide)

Internet vs World Wide Web (WEB)

- Internet: global system of interconnected computer networks that use TCP/IP protocol to link billions of devices. (network of networks).

- The internet is an international network of connected computers. No company owns the internet; it is a cooperative effort governed by a system of standards and rules. The purpose of connecting computers together is to share information.

- The web (originally called the World Wide Web, thus the "www" in site addresses) is just one of the ways information can be shared over the internet.

- It is unique in that it allows documents to be linked to one another via hypertext links—thus forming a huge "web" of connected information.

- Internet started in 1960 while web emerged in the early of 1990's

Internet

Internet

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- In the late of 1960, the first research network was constructed. Called ARPANET.

- The goal is to connect scientists from different locations to share information.

- Alternative networks X.25 (1974) and USENET (1979) for business use.

- Inability for these networks to communicate between each other was a real limitation.

- To unify and combine between them a set of protocols were invented.

- Protocol: a set of rules that mange data exchange between two points.

HTTP

- Http is an essential part of the web, and hence requires deep understanding.

- The HTTP establishes a TCP connection on port 80 (by default).

- The server waits for the request, and then responds with a response code, headers, and an optional message.

World Wide Web

- Collection of HTML (HyperText Markup Language) documents
- HTML: glues images , videos and files together
- Links (HyperLinks) are what make the web look like

Quiz

- What is the main type of document on the web ?
- HTML
- Microsoft word
- PDF

- What type of files can be found on the web ?
- Plain text
- Html
- Images
- Videos
- music

Main Web Components

- You (your computer+Browser): program that displays web documents

- Internet: largest computer network

- Server: host files

- Http protocol : the main protocol of the web

What does the web server do?

- Web servers have a full-time job on the Internet, waiting for requests from web browsers

- What kinds of requests? Requests for web pages, images, sounds, or maybe a video

- When a server gets a request for any of these resources, the server finds the resource, and then sends it back to the browser.

- In order for a computer to be part of the web, it must be running special web server software that allows it to handle HyperText Transfer Protocol transactions.

Web Server
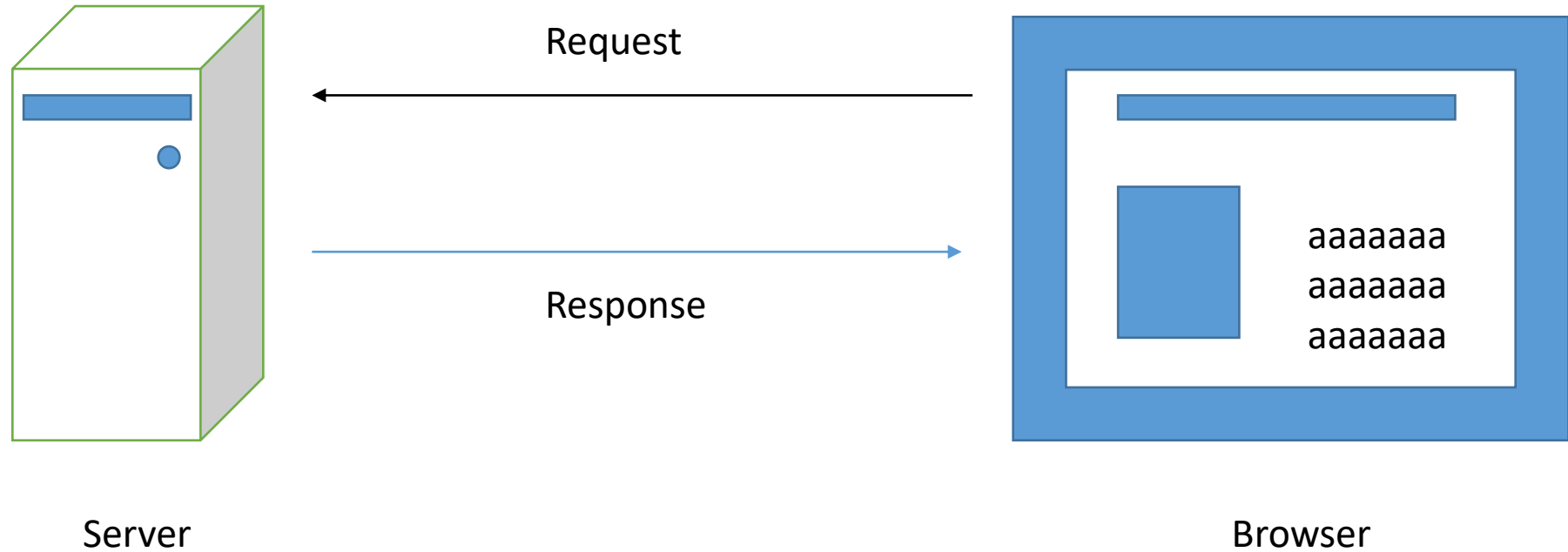
What does the web browser do?

- When you're surfing the Web and you click on a link to visit a page. That click causes your browser to **request** an HTML page from a web server, retrieve it, and display the page in your browser window.

- The software that does the requesting is called the client

- But how does the browser know how to display a page? That's where HTML comes in. HTML tells the browser all about the content and structure of the page.

- The web is also finding its way onto smart TVs and gaming systems (Xbox)
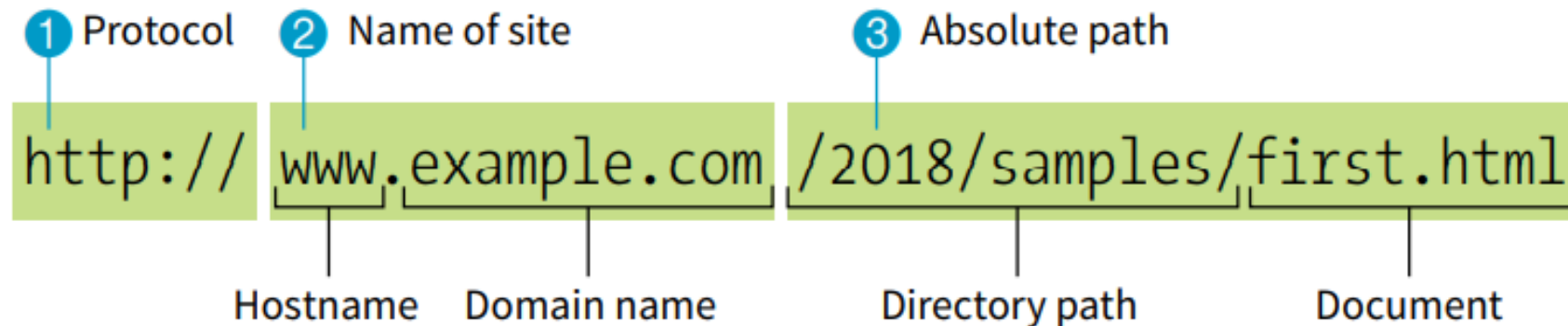
Browsers and Render Engines

- The program that is responsible for converting HTML and CSS into what you see rendered on the screen is called a rendering engine

Browser	Rendering engine
Chrome 28+	Blink (forked from WebKit)
Firefox (all)	Gecko (except Firefox for iOS, which uses WebKit)
Safari and Safari iOS (all)	WebKit
Internet Explorer 4–11	Trident
MS Edge (all)	EdgeHTML (forked from Trident)
Opera 15+	Blink (forked from WebKit)

- The reality is that pages may look and perform differently from browser to browser. This is due to varying support for web technologies, varying device capabilities, and the users' ability to set their own browsing preferences. It is the most challenging aspect of designing and developing for our medium.

URLS

- Every page and resource on the web has its own special address called a URL, which stands for Uniform Resource Locator

- A complete URL is generally made up of three components: the protocol, the site name, and the absolute path to the document or resource

① Protocol ② Name of site   ③ Absolute path

`http://` `www.example.com` `/2018/samples/first.html`

Hostname   Domain name   Directory path   Document

Pointing to default files

- Many addresses do not include a filename, but simply point to a directory,
    - http://alarabuni.com/
- When a server receives a request for a directory name rather than a specific file, it looks in that directory for a default document, typically named index.html
- The index file is also useful for security. Some servers (depending on their configuration) display the contents of the directory if the default file is not found.

Anatomy of a WEB Page

- We're all familiar with what web pages look like in the browser window, but what's happening "under the hood"?

- Although you see it as one coherent page, it is actually assembled from one or more separate files (html, css, images ..etc)

- Adding descriptive tags to a text document is known as "marking up" the document.

- Web pages use a markup language called HyperText Markup Language, or HTML for short, which was created especially for documents with hypertext links.

Hypertext Markup Language (HTML)

- When the browser reads your HTML, it interprets all the tags that surround your text.

- The tags tell the browser about **the structure and meaning** of your text.

- you can use tags to tell the browser what text is in a heading, what text is a paragraph

- Web file extension is ".html" to tell the OS that this is a web file.

HTML Page Structure

- The main parts of any web page are:
  - doctype
  - Head: contains meta data, css, and js
  - body
- The web page also contains TAGS that describe the meaning and the structure of the content.

TAGS

- <name > content </name>
- Opening tag and closing tag
- The element: the whole structure
- Example
- I love web development
- <em>
- Tags can contain attributes:
- <a href="#">
- Element = open tag + content + closing tag

Quiz

- I <b> love web development
- What happens when forgetting to close the tag ?
- Nothing
- The browser crashes
- Every thing after <b> tag is bold

Example of HTML page

```
<html>
    <head>
            <title> Page Title </title>
    </head>
    <body>
            <h1> heading 1 </h1>
    </body>
</html>
```

Html 5

references

- [هرمشHTML (harmash.com) - تعلم لغة](#)
- [HTML Tutorial (w3schools.com)](#)