



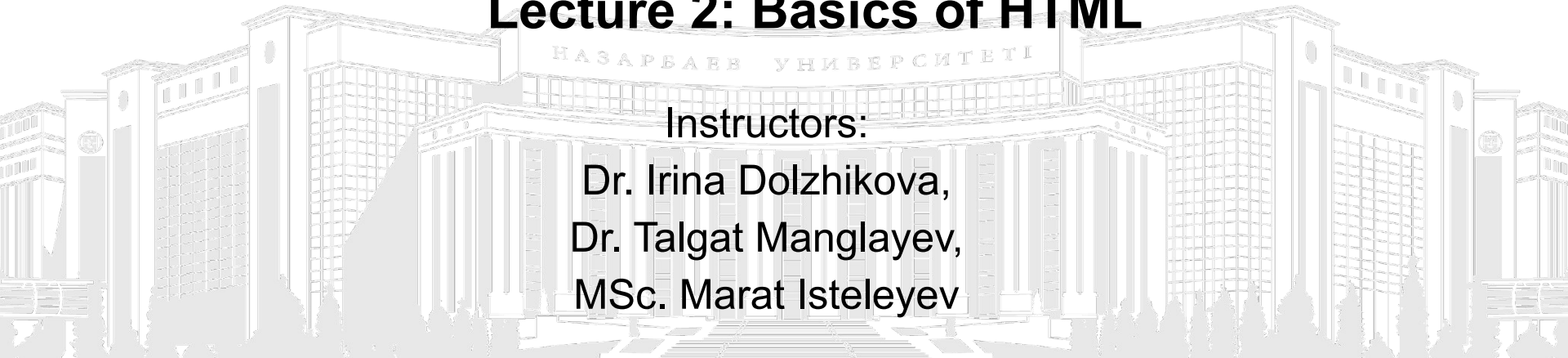
NAZARBAYEV
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CSCI 111: Web Programming and Problem Solving

Lecture 2: Basics of HTML

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Outline

- Introduction
- History of HTML
- What is HTML
- HTML document
- HTML elements
- HTML attributes
- Document Object Model
- Useful HTML Resources

Introduction

- To access a website:
 - Retrieve IP by Domain name (DNS)
 - Access the Web server by IP

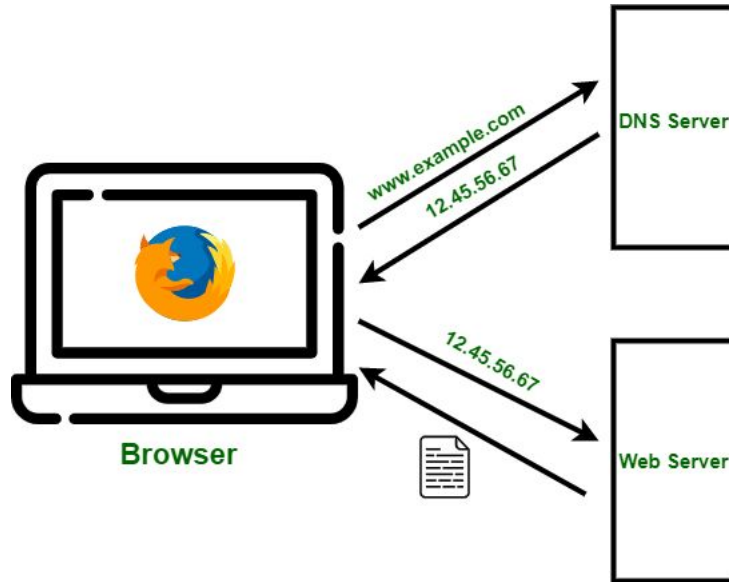


Fig.1 -Before reaching the web server

To serve the website:

- Implement **Frontend**: HTML, CSS, JS

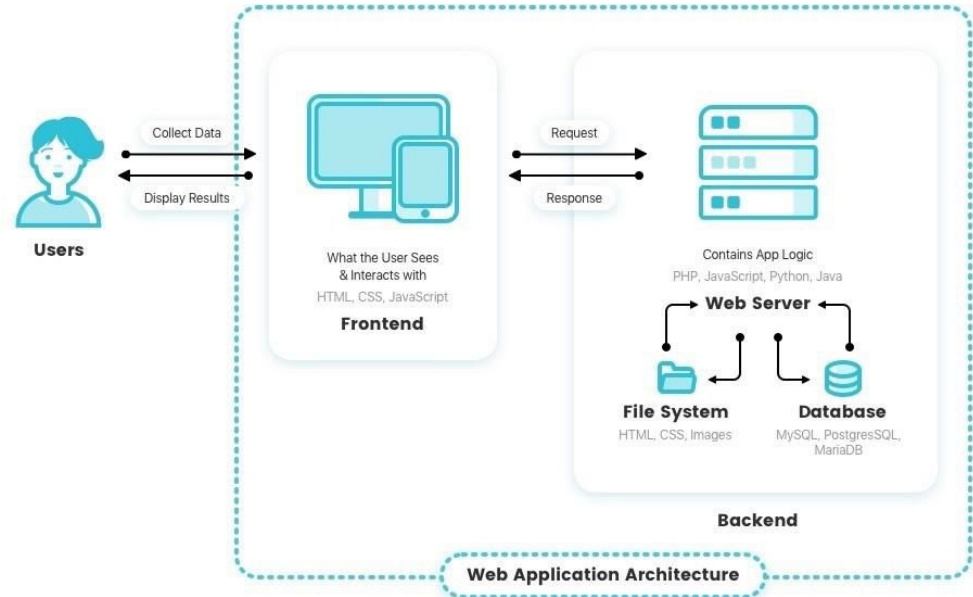


Fig.2 -After reaching the web server

HTML, CSS, Javascript

- **Hyper-Text Markup Language (HTML)** is the standard markup language for documents designed to be displayed in a web browser.
 - It describes the structure of the web page
- **Cascading Style Sheets (CSS)** is a stylesheet language used to describe the presentation of a document written in HTML.
 - It describes the style of the web page
- **JavaScript (JS)** is a lightweight and interpreted programming (or scripting) language for Web pages.
 - It adds behavior to the web page



History of HTML

1989

- Invention of WWW, HTTP, HTML
 - **Tim Berners-Lee** (CERN)

1993

- Release of WWW software (CERN)

1994

- World Wide Web Consortium (W3C)

2000

- XHTML 1.0 based on XML (W3C)

2004

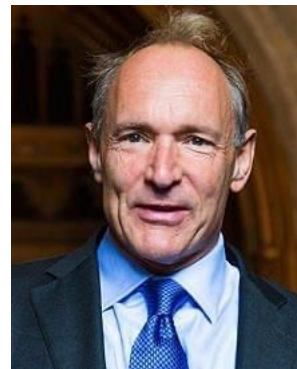
- WHATWG (Mozilla, Opera, and Apple)

2007

- HTML5 release (WHATWG, W3C)

2011

- HTML5.1, HTML5.2 and HTML5.3



2011

Sir Timothy John Berners-Lee (8 June 1955), TimBL, is an English computer scientist, professor at MIT, and the director of the World Wide Web Consortium (W3C).

The World Wide Web project

<http://info.cern.ch/~home>

WORLD WIDE WEB

The WorldWideWeb (W3) is a wide-area hypermedia[1] information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary[2] of the project, Mailing lists[3], Policy[4], November's W3 news[5], Frequently Asked Questions[6].

What's out there[7]? Pointers to the world's online information, subjects[8], W3 servers[9], etc.

Help[10] on the browser you are using

Software Products[11] A list of W3 project components and their current state. (e.g. Line Mode[12], X11 Viola[13], NeXTStep[14], Servers[15], Tools[16], Mail robot[17], Library[18])

Technical[19] Details of protocols, formats, program internals etc

<ref.number>, Back, <RETURN> for more, or Help: █

History of HTML



Search the web using Google!

10 results

Index contains ~25 million pages (soon to be much bigger)

[About Google!](#)

[Stanford Search](#) [Linux Search](#)

Get Google! updates monthly!

your e-mail [Archive](#)

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Google (1998)

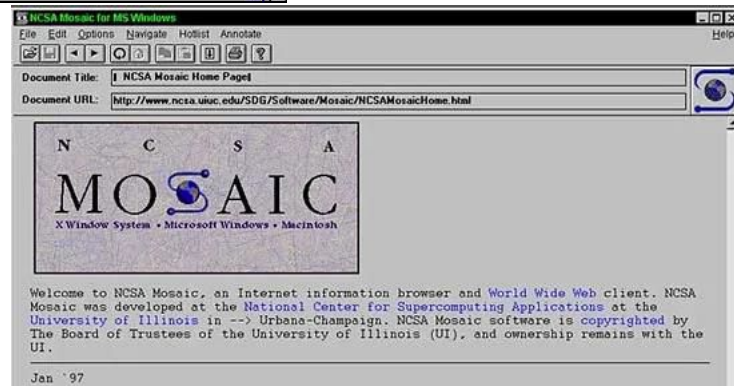


Yahoo (1994)

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Amazon (1995)



eBay (1995)

What is HTML?

Hyper-Text Markup Language (HTML)

Hyper-Text – a document with hyperlinks (references) to other documents

Markup – a system (set of tags) of text annotation to control its structure, formatting and relationships between its parts

MS Word:

Bold Text

Markdown:

**** Bold Text ****

LaTeX:

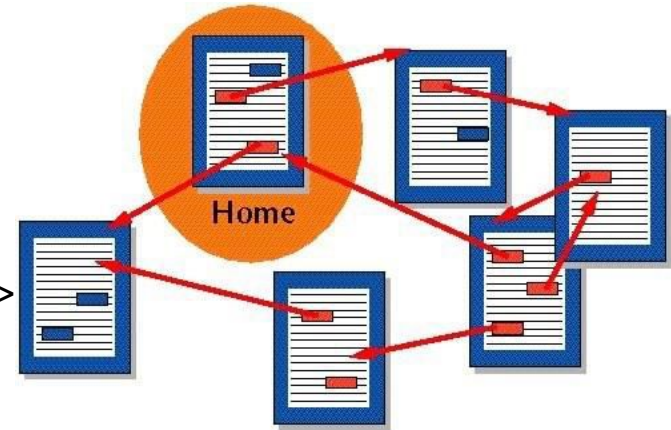
\textbf{ Bold Text }

HTML:

** Bold Text **

WhatsApp:

Bold text



Language – a structured system of communication with its alphabet, vocabulary and a grammar (specific set of rules)

HTML Document

What is a HTML document?

- **Text file** with an extension “.htm” or “.html”
- Can be created in a **text editor**: Notepad, TextEdit, Sublime, VS Code, WebStorm
- Contains markup tags (elements) which direct how a page is to be displayed by browsers
- Must have proper text encoding (UTF-8)
- HTML is not case sensitive (head = HEAD)

Example: *index.html*

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>My Website</title>
</head>
<body>
<h1>Hello, World!</h1>
</body>
</html>
```


HTML Document

HTML document consists of **elements**

DOCTYPE – type of document

`<!DOCTYPE html>` – stands for HTML5

`html` – root element of a HTML document

head – section for **meta** information

(encoding, display settings, other resources)

title – title of a document, shown in browser's Tab

body – section for main content of a webpage

h1 – defines a heading (h1-h6)

p – defines a paragraph

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>My Website</title>
  </head>
  <body>
    <h1>Hello, World!</h1>
    <p>Some paragraph</p>
  </body>
</html>
```

HTML Elements

HTML elements must follow specific structure and rules to be correctly processed and shown in browsers

Elements consist of **opening tag**, **content** and **closing tags** (except for some elements):

`<h1>Hello, World!</h1>` - no spaces after `<` and `</`

`<hr>`, `
` `<meta>` - no closing tags, no content

Elements must be correctly **nested**

CORRECT: `<body> <h1> Hello, World! </h1> </body>`

WRONG: `<body> <h1> Hello, World! </body> </h1>`

Special element for comments: `<!--Browsers don't show this content -->`

HTML Attributes

Elements may have **attributes** that come in **name="value"** pairs

```
<meta charset="UTF-8">
```

Attributes provide **additional information** about elements

Attributes are always specified in the **opening** tag

```
<h1 color='blue'> Hello, World! </h1>
```

Attribute values must be in **quotes** (single or double)

Document Object Model

When a web page is loaded, the browser creates a **Document Object Model (DOM)** of the page.

The HTML DOM model is constructed as a **Tree of Objects**.

HTML Elements can be found and accessed with JavaScript:

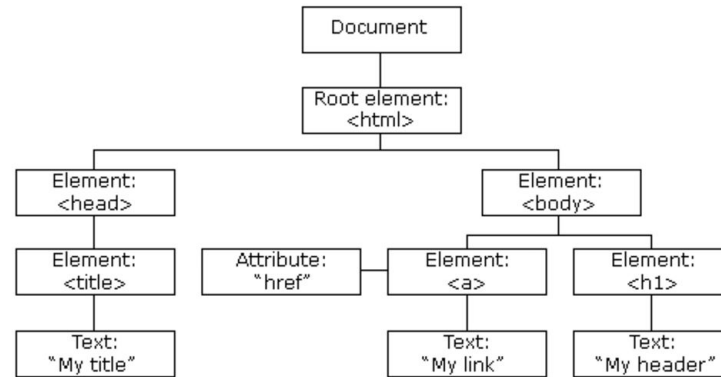
Finding elements by id

Finding elements by tag name

Finding elements by class name

Finding elements by CSS selectors

The HTML DOM Tree of Objects



Summary

- Web technology (frontend) is based on HTML5, CSS3 and JavaScript
- HTML Documents are specially written text files
- HTML elements and attributes direct browsers how to display a web page
- Document Object Model is a tree like structure associated with HTML document

self-study:

<https://www.w3schools.com/html/default.asp>

Thanks for Attention!