# INTRODUCTION TO WEB DEVELOPMENT

1

# Web programming

❖A web application is a software program.

❖How to make a website?

❖How to run a website?

2

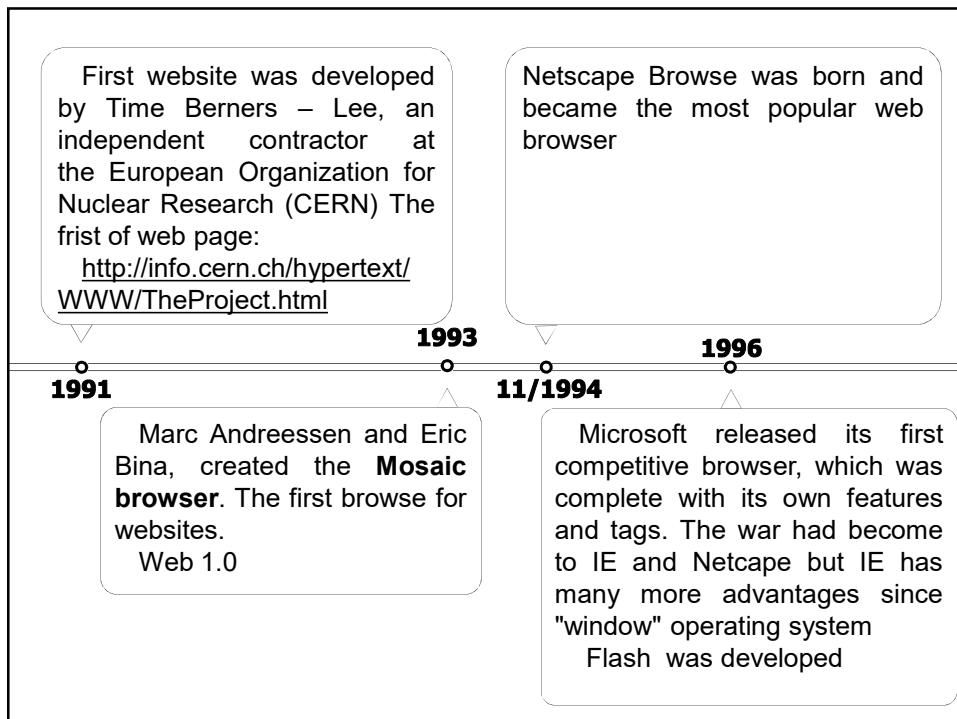| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |
|---------|-----------------|--------------|----------------|-----|

2

## Web Application

- A web application or "web app" is a <u>software program</u> that runs on a <u>web server</u>.
- Unlike traditional desktop applications, which are launched by your operating system, web apps must be accessed through a web browser.
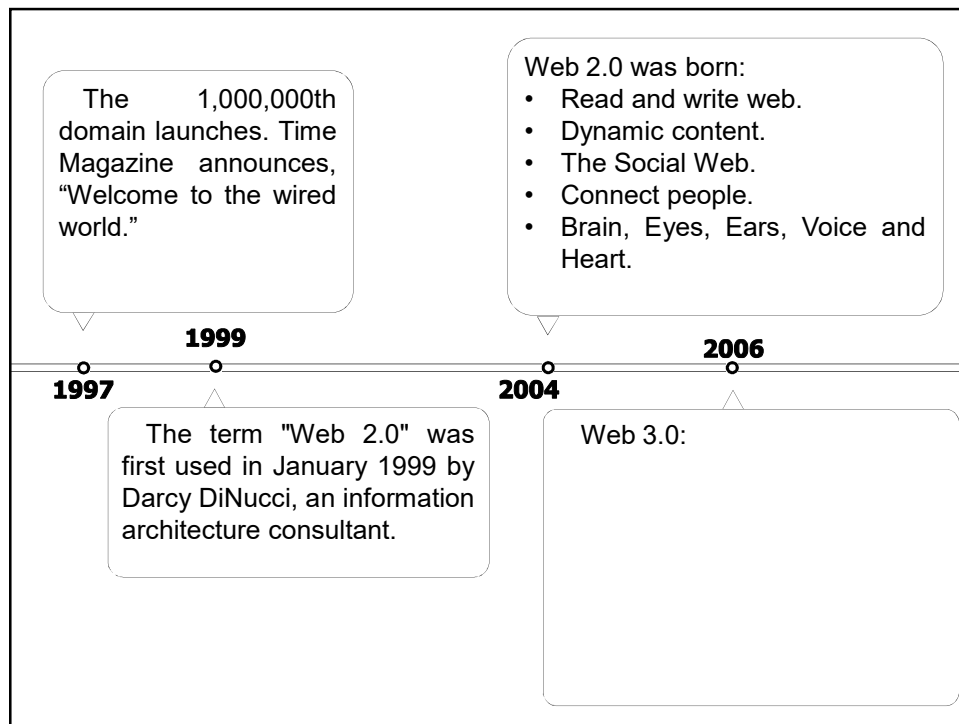- Make web app, run in web server and you can open everywhere with internet.

**3**

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

3

First website was developed by Time Berners – Lee, an independent contractor at the European Organization for Nuclear Research (CERN) The frist of web page:
http://info.cern.ch/hypertext/WWW/TheProject.html

Netscape Browse was born and became the most popular web browser

**1993**

**1991**

**11/1994**

**1996**

Marc Andreessen and Eric Bina, created the **Mosaic browser**. The first browse for websites.
Web 1.0

Microsoft released its first competitive browser, which was complete with its own features and tags. The war had become to IE and Netcape but IE has many more advantages since "window" operating system
Flash was developed

4

The 1,000,000th domain launches. Time Magazine announces, "Welcome to the wired world."

Web 2.0 was born:
- Read and write web.
- Dynamic content.
- The Social Web.
- Connect people.
- Brain, Eyes, Ears, Voice and Heart.

**1999**

**2006**

**1997**

**2004**

The term "Web 2.0" was first used in January 1999 by Darcy DiNucci, an information architecture consultant.

Web 3.0:

5

# HTTP Protocol

- Web browsers and servers communicate via TCP/IP.

- Hypertext Transfer Protocol (HTTP) is the standard application protocol on top of TCP/IP supporting web browser requests and server responses.

- Web browsers also rely on DNS to work with URLs. These protocol standards enable different brands of web browsers to communicate with different brands of web servers without requiring special logic for each combination.

6

6

3

# HTTP Protocol

- **HTTP feature:**
  - **HTTP is connectionless, stateless:** The HTTP client (web browser) initiates an HTTP request and after a request is made, the client waits for the response. The server processes the request and sends a response back after which client disconnect the connection. Due to this nature of the protocol, neither the client nor the browser can retain information between different requests across the web pages
  - **HTTP is media independent:** data can be sent by HTTP as long as both the client and the server know how to handle the data content

7

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

7

# HTTP Protocol

- **HTTP feature:**
  - **HTTP is connectionless, stateless:** The HTTP client (web browser) initiates an HTTP request and after a request is made, the client waits for the response. The server processes the request and sends a response back after which client disconnect the connection. Due to this nature of the protocol, neither the client nor the browser can retain information between different requests across the web pages
  - **HTTP is media independent:** data can be sent by HTTP as long as both the client and the server know how to handle the data content

8

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

8

# HTTP Protocol



**Domain**
**http://...**

**Hosting**

9

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

9

# URL

– HTTP resources are identified and located on the network by Uniform Resource Locators (URLs), using the Uniform Resource Identifiers (URI's) schemes http and https.
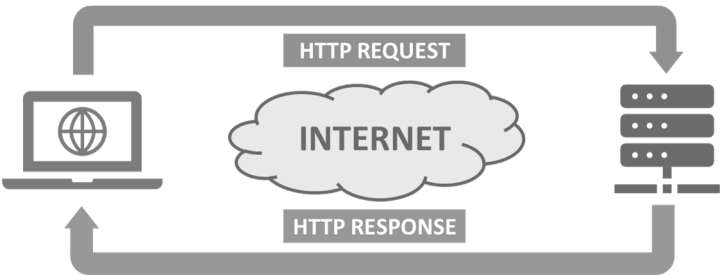


```
                    host          port
              ┌──────┴──────┐  ┌───┴──┐
http://www.hcmuaf.edu.vn:80/forum/questions/?tag=networking&faculty=fit#top
└──┬─┘ └──────┬──────┘ └────┬──────┘ └──────────┬──────────┘ └─┬┘
 scheme      authority      path              query          fragment
```

10

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

10

# Internet Addresses

- The host is named using DNS (domain name system), which translates IP addresses into a string of names.
- EX: hcmuaf.edu.vn
- Top level domains include:
  - .edu - educational sites
  - .com - commercial sites
  - .gov - government sites
  - .mil - military sites
  - .net - network administration sites
  - .org - nonprofit organizations

11

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

11

# HTTP Request - Response

- HTTP is based on the client-server architecture model and a stateless request/response protocol that operates by exchanging messages across a reliable TCP/IP connection.



HTTP REQUEST

INTERNET

HTTP RESPONSE

12

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

12

# HTTP Request - Response

- Browser sends a request sent to the web server that hosts the website.
- The web server then returns a response as a HTML page or any other document format to the browser.
- Browser displays the response from the server to the user.

13

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

13

# HTTP Request content

```
POST /cgi-bin/process.cgi HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
Host: hcmuaf.edu.vn
Content-Type: application/x-www-form-urlencoded
Content-Length: length
Accept-Language: en-us
Accept-Encoding: gzip, deflate
Connection: Keep-Alive

licenseID=string&content=string&/paramsXML=string
```

14

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

14

# HTTP Response content

```
HTTP/1.1 200 OK
Date: Thu, 01 Aug 2019 18:41:53 GMT
Server: Apache/2.2.14 (Win32)
Last-Modified: Thu, 01 Aug 2019 19:15:56 GMT
Content-Length: 202
Content-Type: text/html

<!DOCTYPE HTML">
<html>
<head>
    <title>Trường Đại học Nông Lâm TP.HCM</title>
</head>
<body>
    <h1>Trường Đại học Nông Lâm TP.HCM</h1>
    <p>Welcome!</p>
</body>
</html>
```

15

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

15

# Static and Dynamic Web

– Static Web pages
  - A static Web document resides in a file that is associated with a Web server.
  - Clients can read data.
  - The content is only changed when someone publishes and updates the file (sends it to the web server).
  - Web pages are coded in HTML.
  - Server sends exactly the same response for every request.
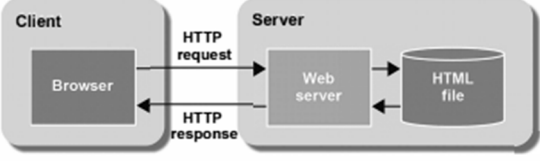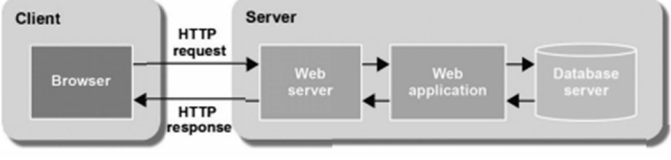
16

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

16

# Static and Dynamic Web

- Dynamic Web pages
    - Web pages is created by a Web server whenever a browser requests the document. When a request arrives, the Web server runs an application program that creates the dynamic document.
    - Because a fresh document is created for each request, the contents of a dynamic document can vary from one request to another.
    - Dynamic web uses the server side languages such as **JSP - SERVLET, PHP,   and ASP.NET** etc. for developing a website.
    - Content is generated quickly and changes regularly.

17

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

17

# Static and Dynamic Web

- Static web



- Dynamic web



18

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

18

# How to make a website?

- Design a web page template (Building a frontend page)
  - Interface design
  - Using color
  - HTML
  - CSS
  - Javascript
  - Frontend framework

**19**

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

19

# How to make a website?

- Building website
  - Programming language: Java, PHP, Asp .Net, …
  - Database
  - Networking.
  - Analizice for website
  - Business process, analysis
  - Collects sample data
  - Test

**20**

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

20

# How to make a website?

- Skills
  - Team-Working
  - Search document
  - Document writing
  - Time management

**21**

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

21

# How to run a website?

- You need to know about:
  - What is domain name?
  - What is web server? How does the web server work?
  - How to deploy a website?

**22**

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |

22

# Web programming language

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |
|---------|-----------------|--------------|----------------|-----|

23

# PHP

– PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

– Advantages:
  - Open source
  - Easy to learning
  - Easy development.
  - Low cost
  - Support
  - Frameworks
  - Speed

24

| 08/2019 | KHOA CNTT - NLU | LẬP TRÌNH WEB | PHAN ĐÌNH LONG | 28 |
|---------|-----------------|--------------|----------------|-----|

24

# ASP .NET

- ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages developed by Microsoft to allow programmers to build dynamic web sites, applications and services.
- Advantages:
  - Easy development.
  - Technology support
  - Easy to maintain
  - Security
  - MVC and OOP

25

25

# JAVA Technology

- **JavaServer Pages** (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types.
- Released in 1999 by Sun Microsystems.
- **Java servlet** (Servlet)is a Java software component that extends the capabilities of a server
- JSP/Servlet is similar to PHP and ASP, but it uses the Java programming language.

26

26

27



28