



# CHAPTER 1 – THE INTERNET



# TOPICS TO BE COVERED

- » **The Internet**

Provides a capability so powerful and general that it can be used for almost any purpose that depends on information.

- » **Web and Client Server**

A method of distributing applications over one or more computers, communicating via networking protocol.

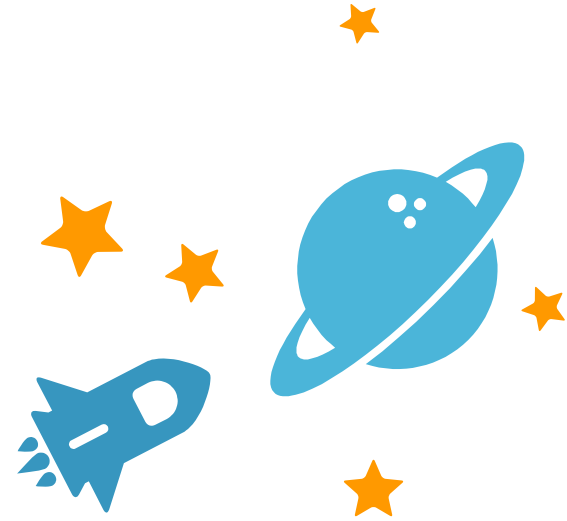
- » **The World Wide Web**

The largest client-server system.

**More info on this topic can be found in e-books provided in LMS.**

Presentation slides made by Fifah S., M. Khalid.






# THE INTERNET

Provides a capability so powerful and general that it can be used for almost any purpose that depends on information.






*“A system architecture that has revolutionized communications and method of commerce by allowing various computer networks around the world to interconnect”*

**- Britannica**





## ..MORE ON INTERNET

- » Supports human communication via email, chat rooms, newsgroups ; hence, allowing people to work collaboratively at many different locations.
  - » Supports access to digital information by many applications, including World Wide Web.
  - » Proved to be a spawning ground for a large and growing e-businesses that carry out most of their sales and services.
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# WORLD WIDE WEB

The largest client-server system.



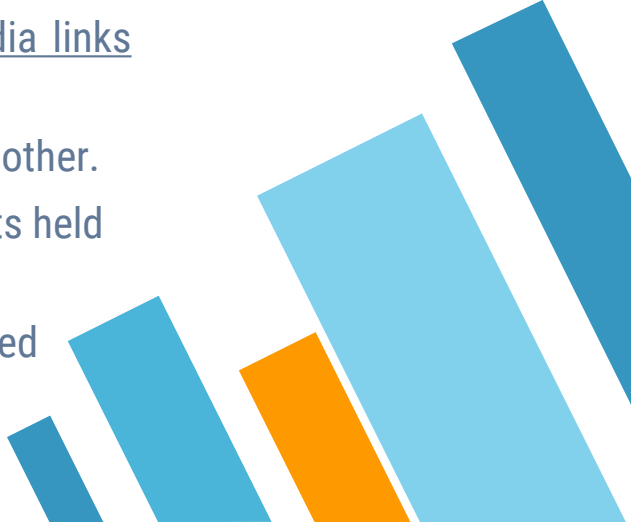


# The “Web”

- » Most people say Web, instead of World Wide Web.
  - » It is a collection of documents called web pages, that are shared by computer users throughout the world.
  - » Different types of web pages do different things, but they all display contents on computer screens.
  - » Contents = text, images, user inputs mechanism etc.
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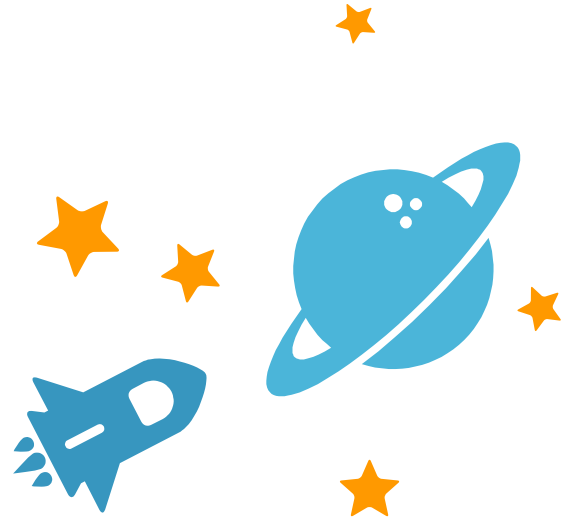
# ..THE WWW

- » The Web provides *consistency*: Servers provide information in a consistent way and client show the information in a consistent way.
  - » And, many users view the Web through graphical browsers.
  - » The WWW works by establishing hypertext / hypermedia links between documents anywhere on the network.
  - » These links, allow you to move from one document to another.
  - » A document might include many links to other documents held on many different servers.
  - » Selecting any one of those links will take you to the related document wherever it is.
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# HOW PEOPLE ABLE TO ACCESS THE WEB

Some terminologies that you need to know...



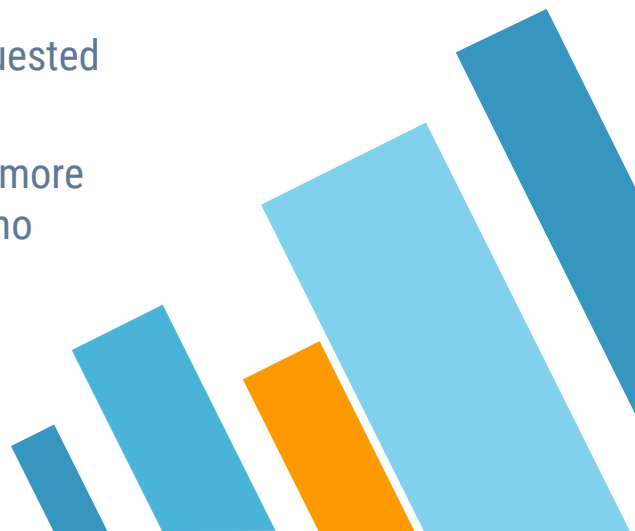


# ...BROWSERS

- » People access websites using software called **web browser**.
  - » Popular ones are: Firefox, Internet Explorer, Safari, Chrome and Opera.
  - » Software manufacturers regularly release new versions of browsers with new features and supporting additions.
    - » Hence, remember that many computer owners will not be running the latest versions of these browsers.
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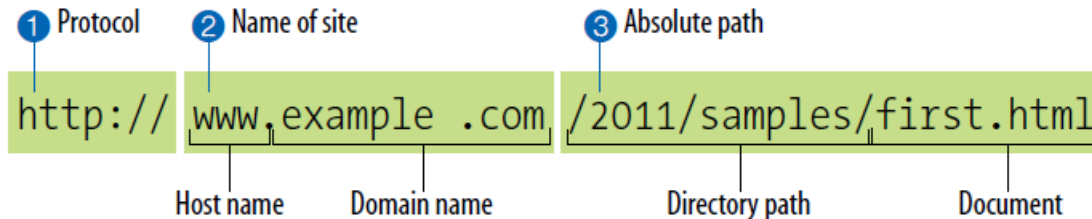


## ...WEB SERVERS

- » When you ask your browser for a web page, the request is sent across the Internet to **web server**.
  - » Web servers are special computers that are constantly connected to the Internet, and are optimized to send requested web pages.
  - » Some big companies, run their own web servers, but it is more common to use the service of a **web hosting** company who charge a fee to host site.
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## WEB PAGE ADDRESSES (URLs)

- » Every page and resource on the Web has its own special addresses called URL (Uniform Resource Locator).
- » Parts of URL:



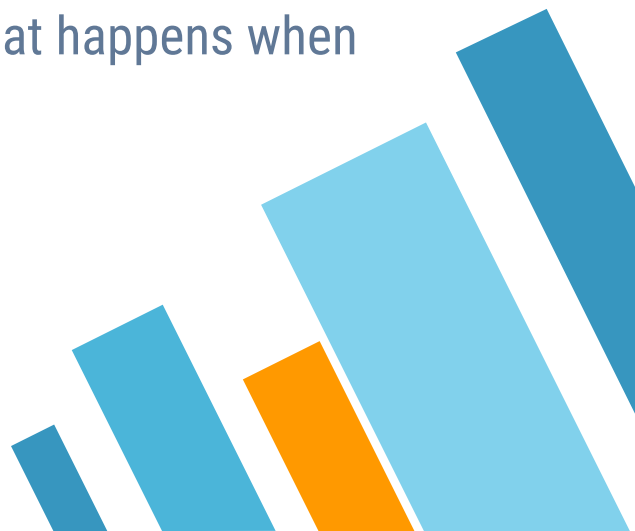
## WEB PAGE ADDRESSES (URLs)

### 1) `http://`

- » Defining the protocol that will be used for that particular transaction.
  - » HTTP let the server know to use Hypertext Transfer Protocol or get into “web mode”.
  - » Let's talk more on PROTOCOL.
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## WEB PROTOCOLS

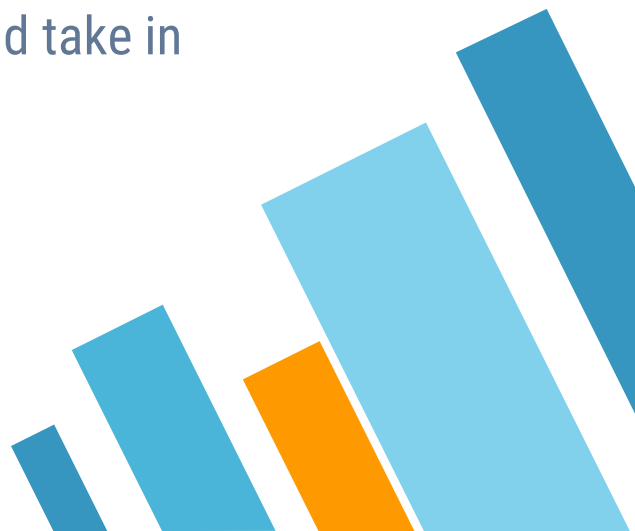
Standardized instructions for how to pass information (messages) back and forth between computers and devices.

- » i.e. the format and order of the messages, what happens when the messages are transmitted and received.
  - » E.g. HTTP, FTP, SMTP..
- 



# WEB PROTOCOLS


## HYPertext TRAnSFER PROTOCOL (HTTP)

- » The underlying protocol used by World Wide Web (WWW).
  - » Defines how messages are formatted and transmitted, and what actions web servers and browsers should take in response to various commands.
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# WEB PROTOCOLS

## HYPertext TRAnSFER PROTOCOL (HTTP)

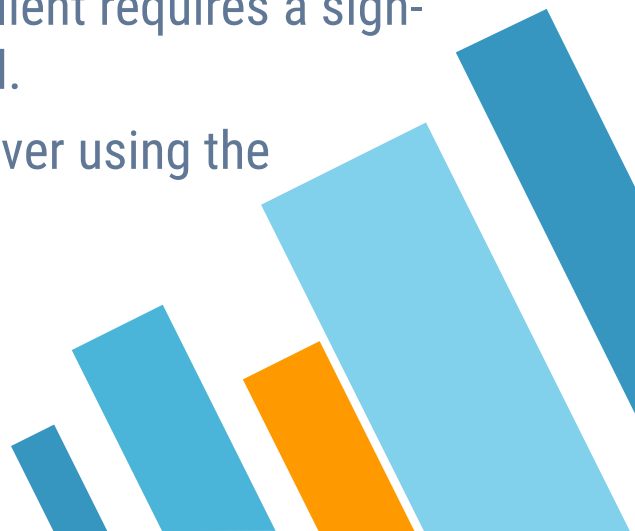
- » It is called a stateless protocol because each command is executed independently, without any knowledge of commands that came before it.
    - ◇ The main reason that it is difficult to implement websites that react intelligently to user input.
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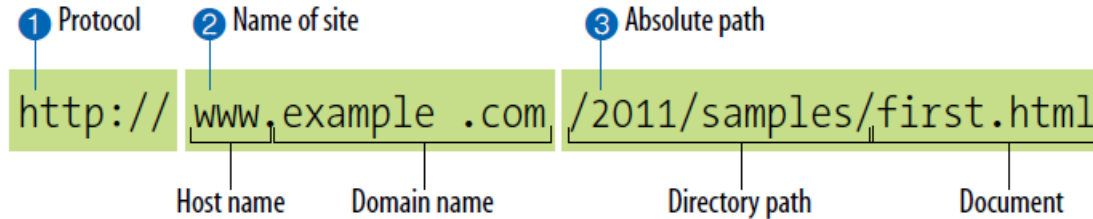


# WEB PROTOCOLS

## FILE TRANSFER PROTOCOL (FTP)

- » Commonly used protocol for exchanging files over the Internet.
  - » Uses Internet's TCP/IP protocols to enable data transfer.
  - » Uses a client-server architecture where FTP client requires a sign-in protocol, usually a username and password.
  - » Commonly used to download a file from a server using the Internet or to upload a file to a server.
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## WEB PAGE ADDRESSES (URLs)



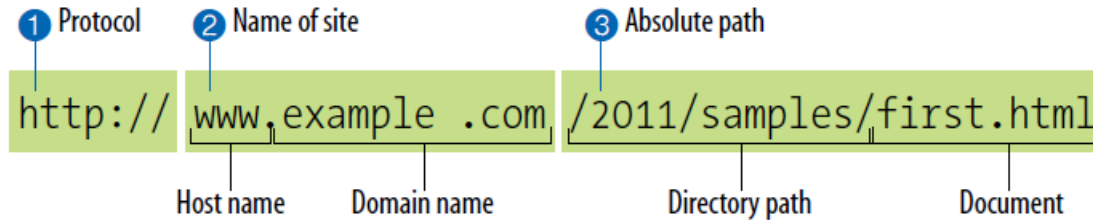
### 2) **www.example.com**

- » Defining the website by its domain name, which is *example.com*.
- » The www part at the beginning is the host name at the domain, it can be omitted.
- » There also can be more than one website at a domain (subdomain). E.g. `developer.example.com`

## DOMAIN NAME

- » A domain name is an easy to remember address of a website.
    - ◇ You would rather type “google.com” or 173.194.70.113 in your browser? But they both lead to the same web site.
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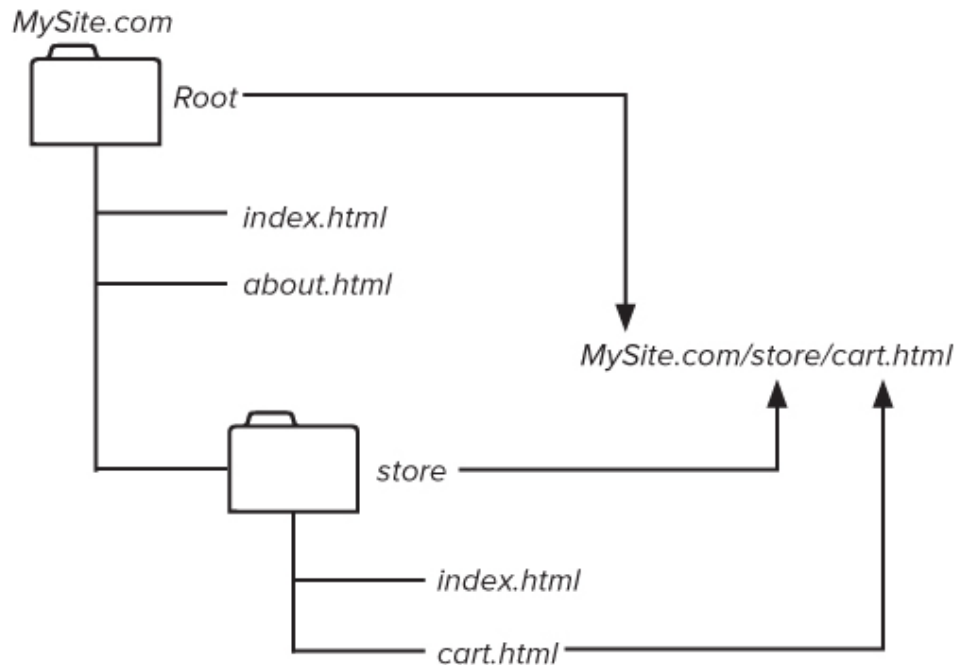
## WEB PAGE ADDRESSES (URLs)



### 2) `/2011/samples/first.html`

- » This is an absolute path through directories on the server to requested HTML document, *first.html*.
- » The words separated by slashes are the directory names, starting with the root directory of the host (initial `/`).

# CREATING A WEBSITE USING HTML AND CSS




The URL of a webpage reflects its location in the website directory structure

## COOKIE


A small text files, given ID tags that stored on your computer's browser directory or program data subfolder.

Functions:

1. To keep track of your movements within the site.
  2. Help to fill the web forms.
  3. Help to resume where you left off.
- 


## CACHE

A hardware / software components that stores data so that future requests for that data can be served faster, but the data will be stored in a cache.



## FRAMEWORKS

A layered structure indicating what kind of programs can or should be built and how they would interrelate.

- » Taking all the difficult, repetitive tasks in setting up new web application and either do them for you or make them very easy for you to do.
  - » E.g. Bootstrap, Ionic, PhoneGap / Cordova
- 



## LIBRARY

Groupings of code snippets to enable a large amount of functionalities without having to write it by yourself.

E.g. jQuery





# WEB TERMS

## FRONT-END


Comprised of HTML, CSS and JavaScript.

This is how and where the website is shown to users.



## BACK-END

Comprised of your server and database.

- » A place for your functions, methods and data manipulation happens that you don't want your clients to see.
  - » Database – where all data is being stored.
  - » Server – where the application code is stored.
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## OPEN SOURCE

A software which is developed as a collaborative effort with the intent to make its source code available to other programmers for use and modifications

Usually available for free.



# APPLICATION PROGRAMMING INTERFACE (API)

To allow other developers to use some of application functionality without sharing the code.

E.g. Google Map API





**DISCUSS:**

**WHY DO SOME WEB PAGES ALWAYS  
LOOK DIFFERENTLY IN DIFFERENT WEB  
PAGES?**





# Activity!

## Try it out

Get into group of FOUR students [MAX],

**The booming of Ecommerce due to pandemic. What do you think the next trend for Ecommerce will be?**  
**Discuss.**

**Make sure each group has their own idea.**





# COMMON WEB ERRORS

Most errors that you will come across when accessing the web.





# LISTS OF COMMON ERRORS

Number	Description	Trigger
500	Internal Server Error	Web server is overloaded.
401	Unauthorized	No access / Failed login attempt.
400	Bad Request	Requests has been corrupted.
403	Forbidden	No access to specific directory on a website.
404	Not Found	Web page does not exist.
408	Request Timeout	Server is running slow or file is large.
501	Not Implemented	Browser does not support the requested feature.
502	Service Temporarily Overloaded	Server congestion, but will corrects when web traffic decreases.

# LISTS OF COMMON ERRORS

Number	Description	Trigger
503	Service Unavailable	Site is busy or server down.
-	Connection refused by Host	No permission to access the site or incorrect login credentials.
-	File contains No Data	Due to stripped header information or bad table formatting.
-	TCP error encountered while sending request to server	Hardware related problem between the requested site and the user.
-	Failed DNS lookup	The website URL cannot be translated due to overload.