ASSIGNMENT 1 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**
Unit number and title	10: Website Design & Development

Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
Student Name	Nguyen Thanh Hung	**Student ID**	GCH190704
Class	GCH0805	**Assessor name**	Nguyen Dinh Tran Long

Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature

Grading grid

P1	P2	P3	P4	M1	M2	M3	D1

✿ **Summative Feedback:**		✿ **Resubmission Feedback:**

Grade:	**Assessor Signature:**	**Date:**
Signature & Date:		

WEB DESIGN & DEVELOPMENT

Presenter: Nguyen Thanh Hung
GCH190704

CONTENT

Junior Staffs

Explain server technologies and management services associated with hosting and managing websites.

- How does the website works.
- Domain name system.
- Communication protocols.
- Server Hardware/ Software.
- Server Operating System.

Senior Staffs

Explain server technologies and management services associated with hosting and managing websites.

- Static/ Dynamic Web.
- Front-end & Back-end Development.
- Online Website Creation Tools.
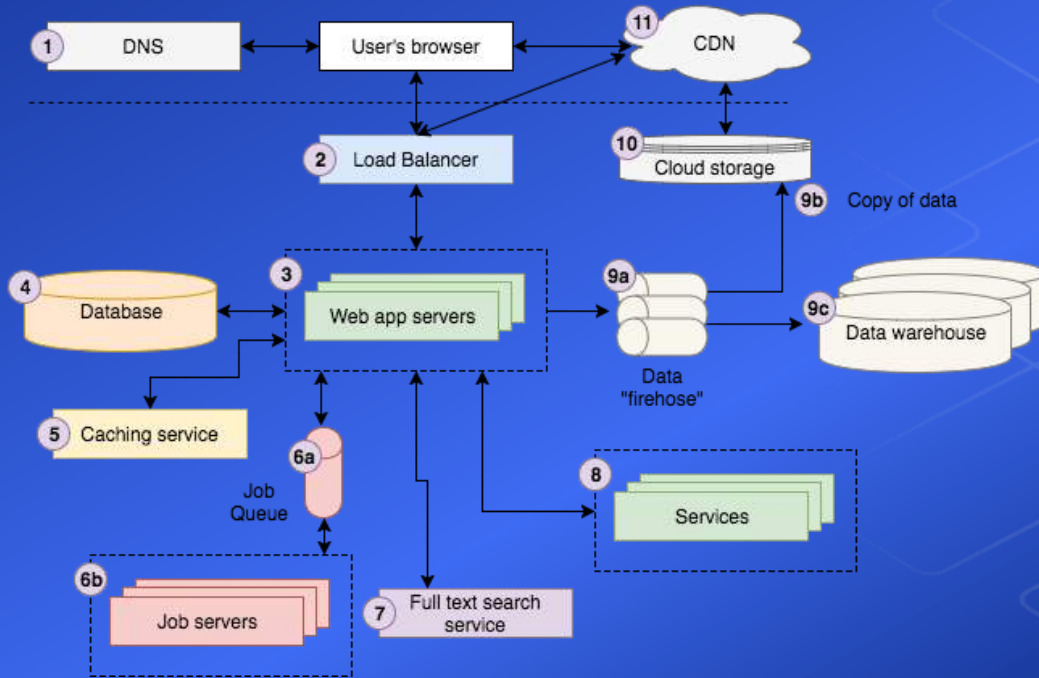- Custom Built Sites.

JUNIOR STAFF

P1: ARCHITECTURE
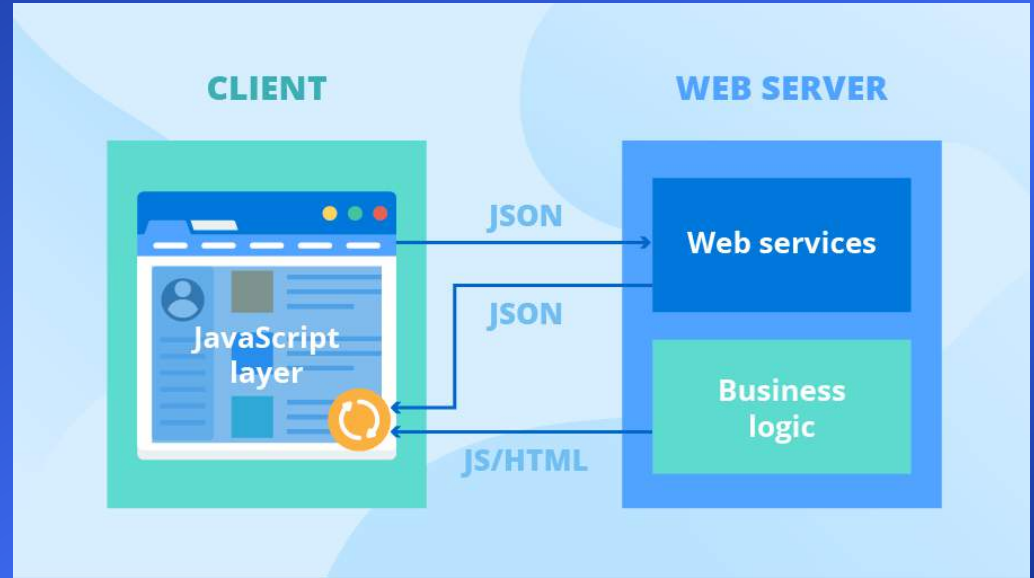
Web application Architecture

How does the website work?

5

Web Application Components

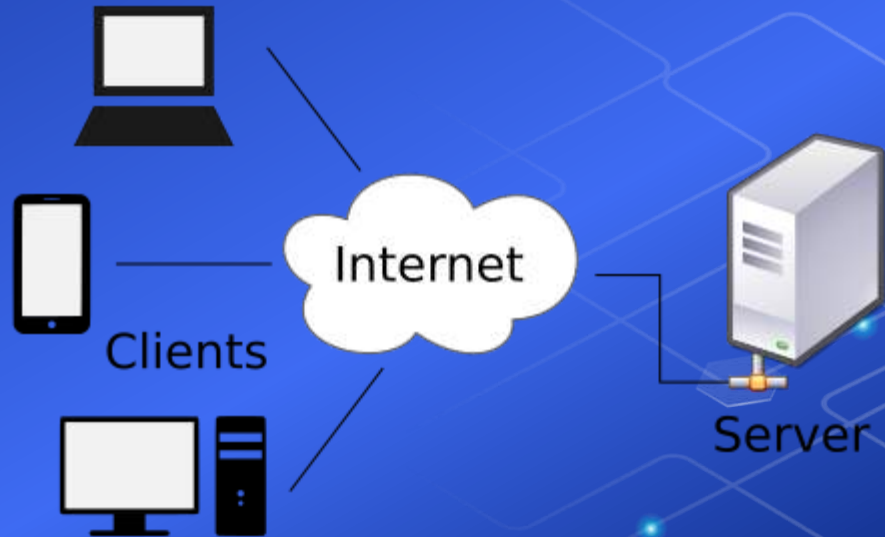The two structural web app components any web app consists of – client and server sides.
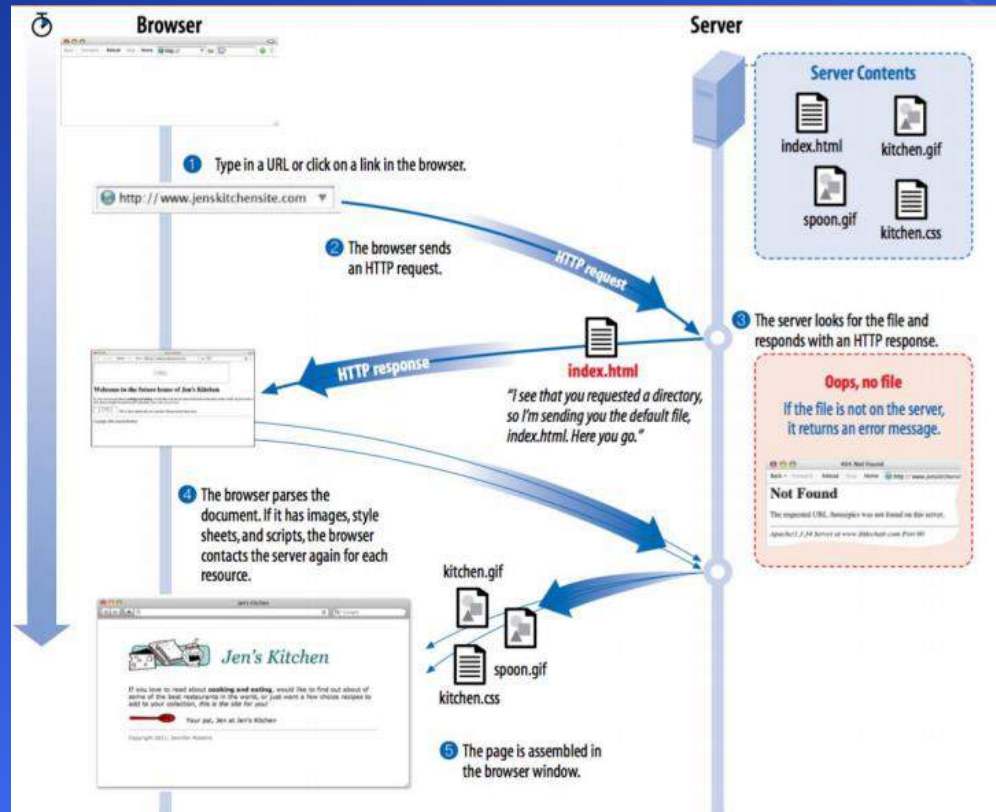
HOW THE WEB WORK?

Client-side

A user-friendly representation of the features of a web app in which a user interacts.

Server-side

Usually consists of at least two more components: the application logic web server and the database.
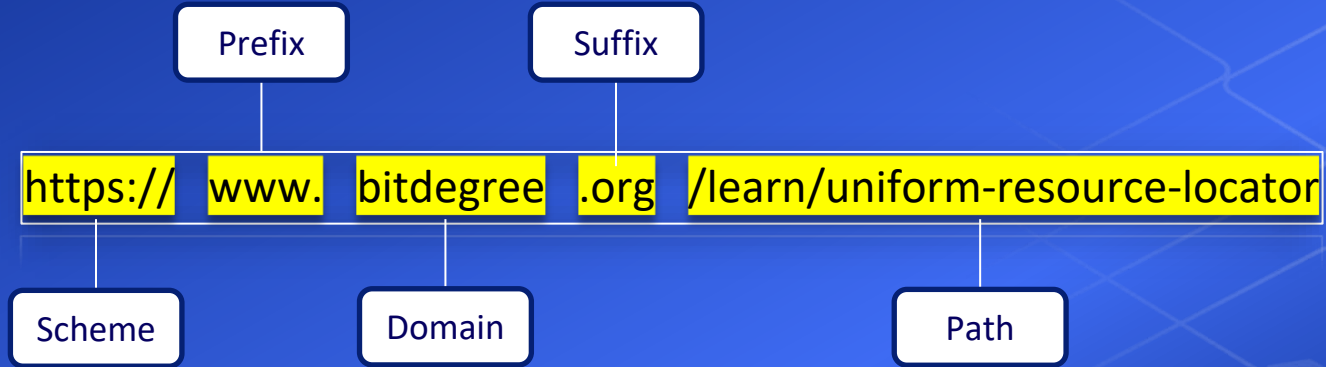
How the web work?

8

URL's Form

- URL stands for *Uniform Resource Locator.*

- URL is the address of a resource on the Internet and the protocol used to access it.

URL's Form

Prefix

Suffix

https:// www. bitdegree .org /learn/uniform-resource-locator

Scheme

Domain

Path

SERVER OS

For advanced, high performance server applications, a server operating system (server OS) is a collection of abstractions and runtime support. Typical server functions, such as Web server, mail server, file server, database server, application server and print server, can be allowed and facilitated.

COMMON APPLICATIONS RUN ON SERVERS

Web server

A computer where the web content is stored.

Database Server

Server runs a network database application and maintain database files.

Mail Server

Server that handles and delivers e-mail over a network

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WEB SERVER

Web server respond to the client request in either of the following two ways:

- Sending the file to the client associated with the requested URL.
- Generating response by invoking a script and communicating with database
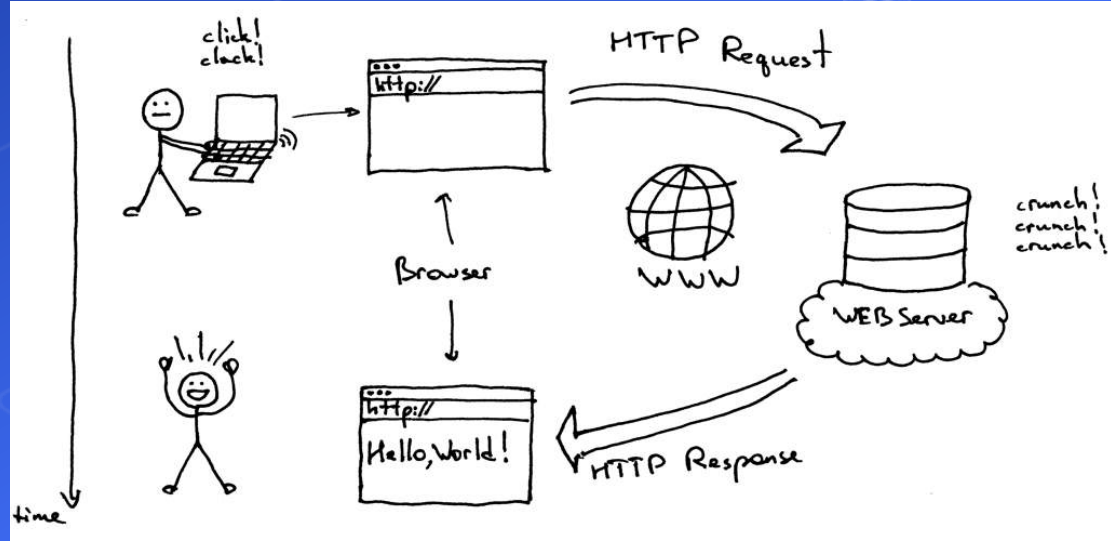
DATABASE SERVER

- Store and manage database that are stored on the server.
- Provide data access for authorized users.
- Keep the data regularly backed up.
- Allow users and applications to centrally access the data across the network.
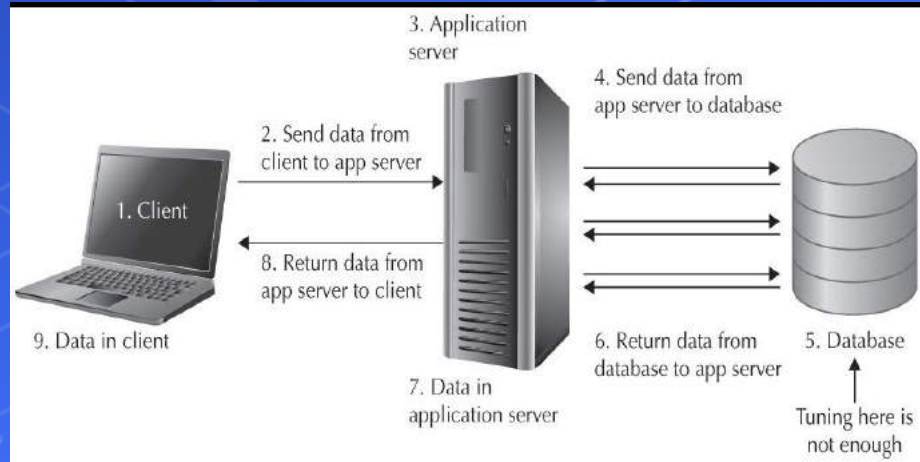
P1: DOMAIN NAME SYSTEM (DNS)

DNS

Fundamentally, DNS is the system that converts human readable domain names (for example, www.google.com) to machine readable IP address (for instance, 8.8.8.8).
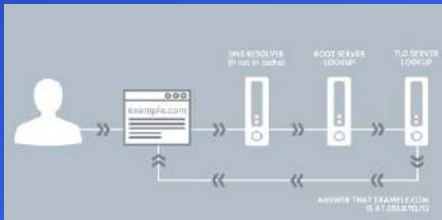
DNS Types

01 DNS Query

A demand for information sent from a user's computer (DNS client) to a DNS server.
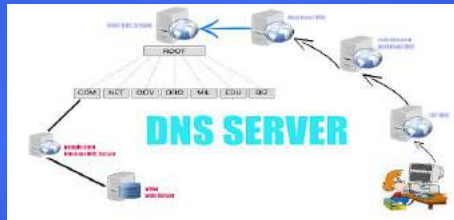
There are 3 types of queries in the DNS system:
- Recursive Query.
- Iterative Query.
- Non-recursive Query.

02 DNS Servers

Manage and process DNS queries. The following are the most common DNS server types:
- DNS Resolver.
- DNS Root Server.
- Authoritative DNS Server.

03 DNS Record

In order to provide important information about a domain or host name, especially its current IP address, DNS servers create a DNS record.

PURPOSE OF DNS

- Easy to remember the address of the website instead of remembering IP address.
- Finding hosts by name allows IP addresses to change over time, allowing sites to grow, change location, or reconfigure.

HOW DNS BEING ORGANIZED?

DNS servers are organized and communicate with each other via private network protocols in a hierarchical order. Master DNS servers, known as root servers, store Internet domain names and their respective IP addresses in the entire database.

Any machine registered on the DNS system that runs special DNS software that helps resolve domain names to their appropriate hosts can be a DNS server. Each DNS server features a public IP address and provides a database of other Internet hosts' network names/addresses.
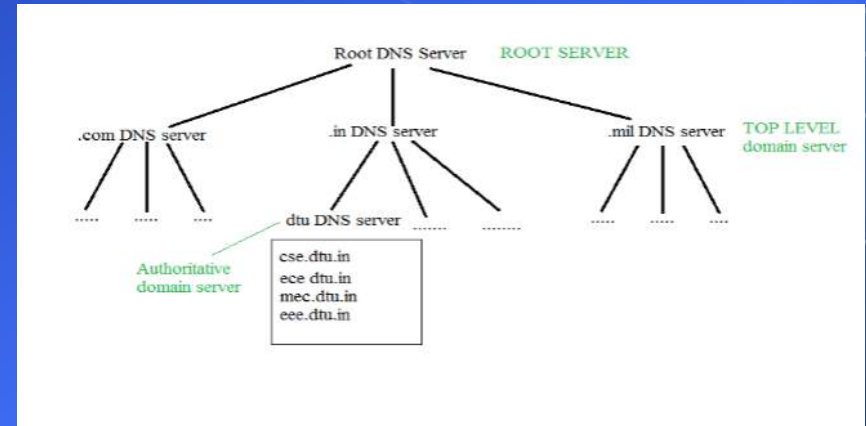
DNS Hierarchy

The hierarchy of DNS has 5 levels:
- Level 1: Root level.
- Level 2: Top level domains.
- Level 3: Second level domains.
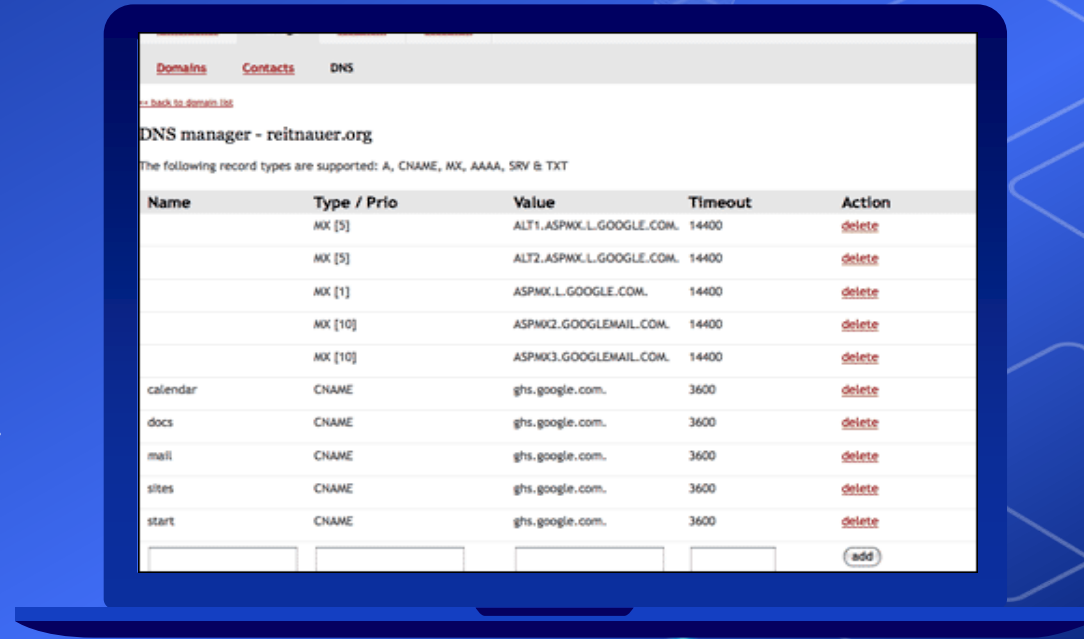- Level 4: Sub-domain.
- Level 5: Host.
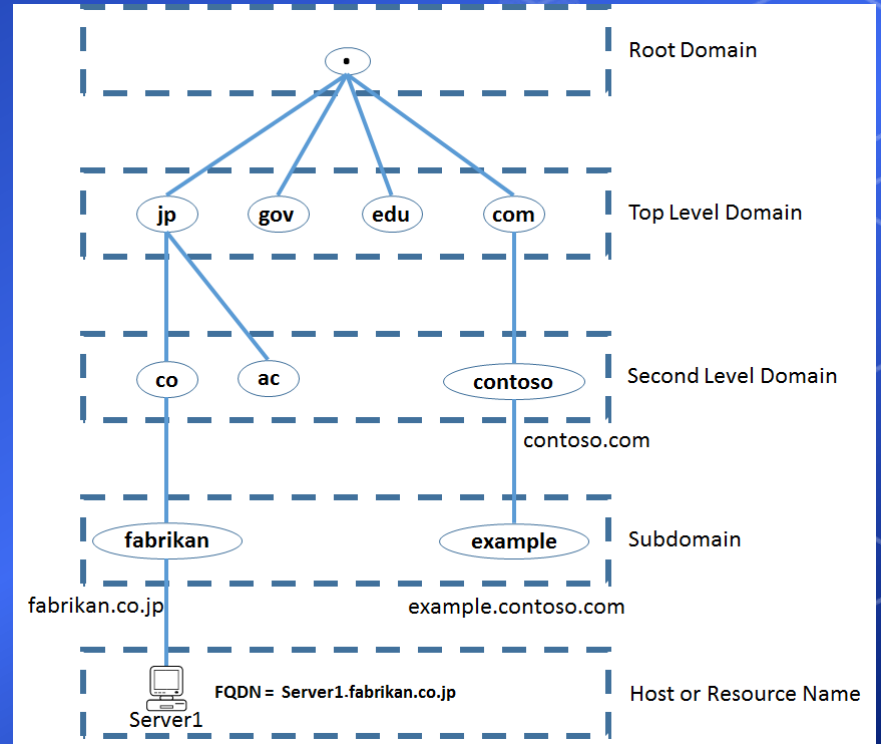
DNS MANAGEMENT

DNS management software controls the DNS server cluster.

Purposes:
- Reduce potential human error happens when editing complicated and repetitive DNS data.
- Minimize the effort to edit large quantities of DNS data.
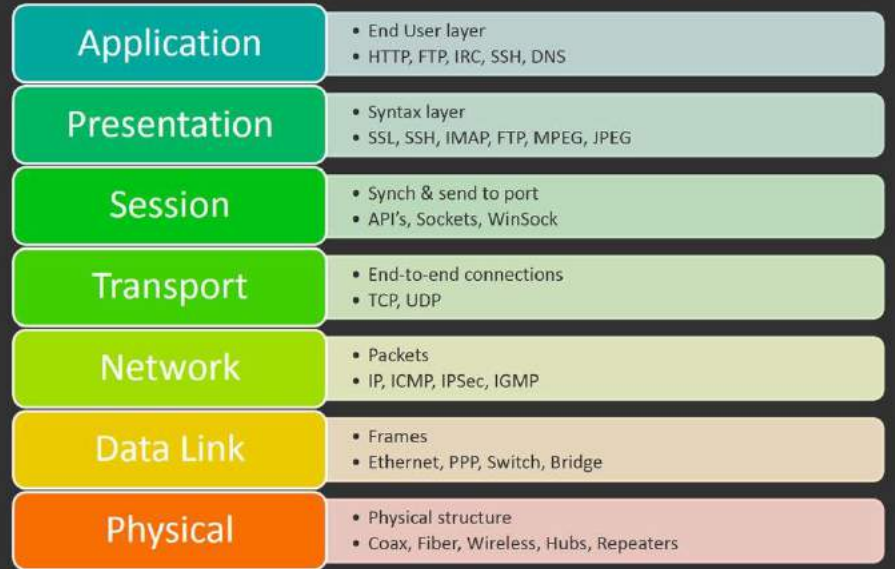- Verify and automate the distribution of DNS data before uploading it to DNS servers.

P2: WEB SERVER

COMMUNICATION PROTOCOL

Communication protocols are standardized definitions of formats and rules for digital communications. In or between computing systems, they are needed to exchange messages. In telecommunications systems and other systems, communication protocols are important because they create continuity and universality for the sending and receiving of messages.

7 Layers of the OSI Model

Application	• End User layer • HTTP, FTP, IRC, SSH, DNS
Presentation	• Syntax layer • SSL, SSH, IMAP, FTP, MPEG, JPEG
Session	• Synch & send to port • API's, Sockets, WinSock
Transport	• End-to-end connections • TCP, UDP
Network	• Packets • IP, ICMP, IPSec, IGMP
Data Link	• Frames • Ethernet, PPP, Switch, Bridge
Physical	• Physical structure • Coax, Fiber, Wireless, Hubs, Repeaters

COMMUNICATION PROTOCOL

Types of communications internet protocols:
- Transmission Control Protocol (TCP)
- User Datagram Protocol (UDP)
- Internet Control Message Protocol (ICMP)
- Hypertext Transfer Protocol (HTTP)
- Post Office Protocol (POP)
- File Transfer Protocol (FTP)
- Internet Message Access Protocol (IMAP)

SERVER HARDWARE

A server is a piece of computer hardware or software (computer program) in computing that provides other programs or devices with functionality, called "clients". This architecture is called the client-server model.
Purpose:

- Orientate requests.
- Balance workload.
- Store, retrieve, send data.
- Load balancing switch.
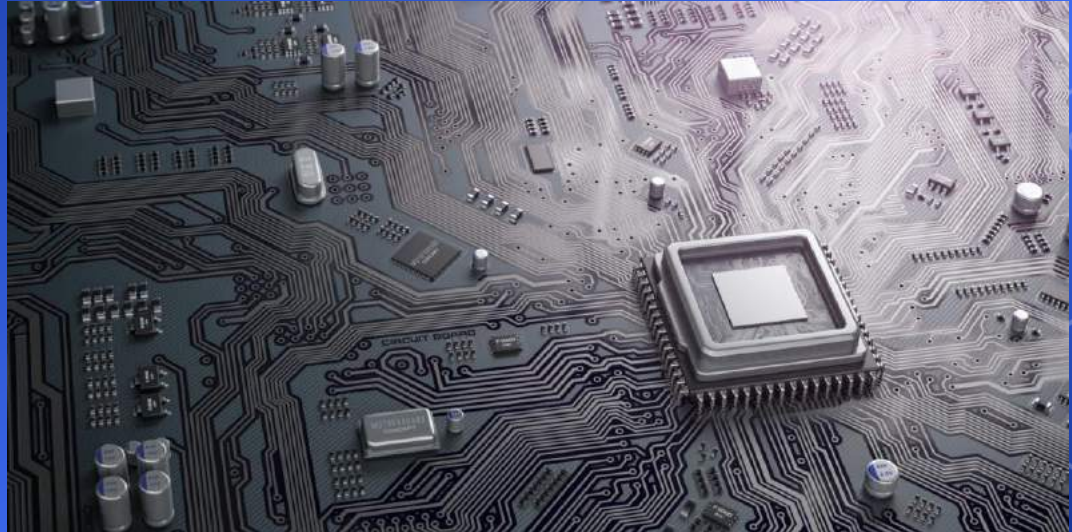
WEB SERVER SOFTWARE

Web Server Software is a type of software that can satisfy client requests on the World Wide Web.
Popular web server programs: Apache, Nginx, Internet Information Server (IIS), …

SERVER OPERATING SYSTEM

A server operating system, also referred to as a server OS, is an operating system primarily designed to operate on servers that are specialized computers that function to serve client computer requests on the network under a client/server architecture. Provides special facilities with frequent updates & high safety awareness for server applications.

RELATIONSHIP OF 4 ELEMENTS

	Communication Protocols	Server Hardware	Web Server Software	Operating Systems
Designing	Rules used by computer and networking devices to communicate with others.			Support running applications for web design.
Publishing		Upload data and information to the Internet.	Publish websites to the Internet.	The application can be published and shared.
Accessing	Exchange data via the Internet.	Support data exchanging between web connected devices.	Storing and distributing content to user devices.	Install the application from the web.

IMPACT OF COMMON WEB DEVELOPMENT TECHNOLOGIES (M1)

	Web Design	Functionality	Management
HTML, CSS (Client – side)	• Flexibility in processing on many browsers. • Fast loading. • Widely used, compatible with many languages. • Building hypertext structure. • Compatible with many languages. • Integrated Media supports.	• Format the layout for websites. • Foundation of static websites. • Fix wrong organized elements automatically. • Compatible with many popular browsers. • Basic definition of how web will be display for browser.	• Easily maintain. • Support of frameworks. • Friendly with search engine. • Managed website base on Framework

IMPACT OF COMMON WEB DEVELOPMENT TECHNOLOGIES (M1)

	Web Design	Functionality	Management
PHP (Server – side)	• Optimizable and effiency. • SEO friendly. • Easy to edit. • Scalability and development easy and fast. • Fast encryption.	• Many hosting providers. • Most secure. • Fast processing. • Support multiple database connections. • Flexible. • Run standalone.	• Easy to maintain. • Support many servers. • Secured design pattern. • Remote debugging.
ASP.NET (Server – side)	• Supports a huge number of programming languages. • Dynamic web pages are easy to generate. • Open-source web framework for .NET is easy to deploy.	• Safe and secured. • Provides support for API development in an easy manner.	• Easy to maintain and write. • Develop testing automation scripts for QA in Software Testing Companies.

IMPACT OF COMMON WEB DEVELOPMENT FRAMEWORKS (M1)

	Web Design	Functionality	Management
Bootstrap	• Modern Frontend Framework for Web Design. • Easy to use, flexible. • Customizable. • Responsive structured. • Compatible with various browsers.	• Packaged JavaScript Modules. • Lightweight and open source. Good document, various plugins & huge community. • Several JavaScript plugins using the jQuery	• Big support community. • Fewer bugs. • Loads of free and professional templates, WordPress themes and plugins. • Useful & compatible grid system for responsive web design.
jQuery	• Supports animations. • Supports multiple responsive features. • Automatically fixes and runs on all popular browsers.	• Supports XHR. • Supports event based animations. • Wraps long lines code into techniques, then call it one line code by one line code	• Fewer bugs. • Faster in development. • Easy to use.

IMPACT OF COMMON WEB DEVELOPMENT FRAMEWORKS (M1)

	Web Design	Functionality	Management
.NET Framework (.NET Core)	• Less code and reusable. • Cross platform language (based on supports of .NET Framework). • Easily deploy.	• Use for Service – Oriented Architecture. • Integration with Legacy System. • Security. • There are a range of features that can be explored.	• Reliable and stable. • Good security. • Automatic monitoring. • Offers enhanced application security.
Laravel PHP Framework	• Template based interface. • Reusable Templates. • MVC model. • Flexible in development.	• Fast feature generator. • Good documents & various templates. • Support from API. • Supports plugins.	• Easy to maintain. • Easy to expand. • Access to manage session, cache and users.

SEARCH ENGINE (M2)

SEARCH ENGINE (M2)

A search engine is an online tool that searches for results in its database based on the search query (keyword) submitted by the internet user.

SEARCH ENGINE (M2)

By crawling hundreds of billions of pages using their own web crawlers, search engines work. Such web crawlers are generally referred to as bots or spiders for search engines. By uploading web pages and following links on these pages to discover new pages that have been made accessible, a search engine navigates the web.

HOW DO SEARCH ENGINES WORK?

Spiders report back to search engine with results

SEARCH ENGINE

Search engine follow links to look around the internet using automated programs with search bots known as 'web crawlers' or 'spiders'

Search engine uses algorithm to make sense of what you are searching for and pulls out relevant results from index

YOUR WEBSITE

Spiders combine findings from each page and builds an index in large databases

CONTACT
PRODUCT / SERVICES
ABOUT
HOME

Spiders evaluate and learns about your web page by analyzing meta data and keywords

Spiders crawl from page to page and builds a list of word content

www.wavemakers.co

SEARCH ENGINE OPTIMIZATION (M2)

SEO stands for search engine optimization." In simple terms, to improve its exposure for related searches, it means the process of optimizing the website.

SEO refers to the enhancement of unpaid outcomes (known as natural" or "organic" outcomes) and excludes direct traffic and paid placement purchases.

TYPE OF SEO (M2)

01 On –Page SEO

To optimize an individual page on a website, it requires techniques. These variables allow search engines to understand the content issue and to see if the website is a valuable source that individuals would like to find.

02 Technical SEO

Technical SEO refers to aspects of your website that are non-content. It requires techniques to strengthen the backend structure of a web and 7 foundations.

03 Off-Page SEO

Off-page SEO strategies help reinforce the website's influence and alliance with other websites. It involves techniques to develop the credibility and authority of a website.

ON-PAGE SEO(M2)

Why is it important?

On-page SEO is important because it helps search engines understand your website and its content, as well as identify whether it is relevant to a searcher's query.

As search engines become more sophisticated, there is a greater focus toward relevance and semantics in search engine results pages (SERPs).

Google, with its plethora of complex algorithms, is now much better at:

- Understanding what users are actually searching for when they type a query.
- Delivering search results that meet user intent (informational, shopping, navigational).

Additionally, you can't simply ignore on-page SEO because you have more control when optimizing for on-site elements – as opposed to off-page SEO that consists of external signals (i.e., backlinks).

Some areas of on-page help improve the content and authority of website (M2)

E-A-T

- E-A-T stands for Expertise, Authority (Authoritativeness) and Trustworthiness (Trust) is a measure Google uses to evaluate content author, webpage and overall website.

- Google is especially concerned with content quality. Pages with high quality content will rank high in the search results and vice versa. Therefore, when building an SEO strategy, you need to pay attention to E-A-T, because E-A-T is sometimes also associated with natural search results on Google.

Some areas of on-page help improve the content and authority of website (M2)

Title Tag

- The title tag, an HTML tag that exists in the head section of each webpage, provides an initial cue or context as to what the topical subject matter is of the respective page it is on.
- It is featured prominently in the search engine results pages (typically used as the clickable link) as well as in the browser window.
- The title tag by itself has little impact on organic rankings, this why it's sometimes overlooked.

Some areas of on-page help improve the content and authority of website (M2)

Meta Description

Since the early days of SEO, meta descriptions have been an important optimization point. Optimizing meta description correctly can help improve:

- Click-through rate (CTR).
- Perception of the quality of the result.
- Perception of what your website offers all change.

TECHNICAL SEO(M2)

Why is it important?

Technical SEO is what allows search engines like Google to know that you have a website of high value. This is important because it can prompt the search engines to rank you higher.

Creating a strong technical foundation for your website will go a long way in satisfying and delighting your users. Search engine crawlers take notice and prioritize your website over others who offer slower and buggier experiences.

Some problem should be noticed of Technical SEO(M2)

Page loading speed

This is considered as one of the 10 important factors for SEO ranking. Therefore, you can not ignore it in the process of optimizing Website to bring it to rank more quickly on Google rankings. In particular, this also gives users a very perfect experience.
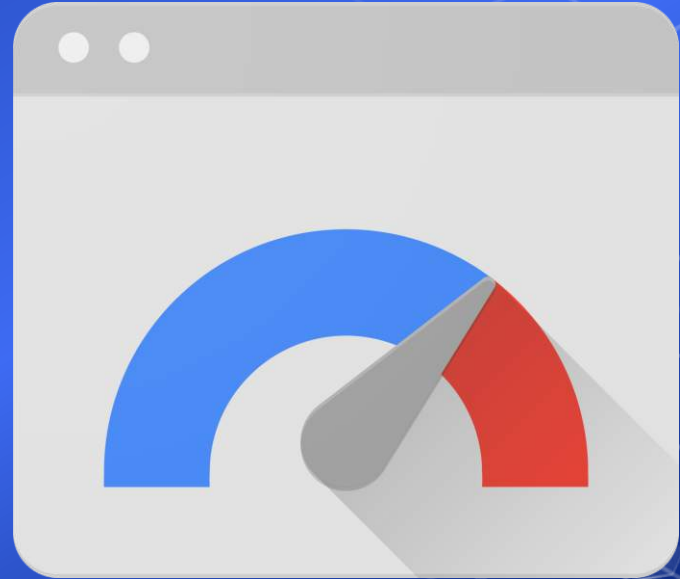
Some problem should be noticed of Technical SEO(M2)

Optimized images

Please adjust the image to the size and capacity of the standard. Sometimes, you also need to put in place minimum size limit required. This will greatly affect the page load speed, user experience on your Website.
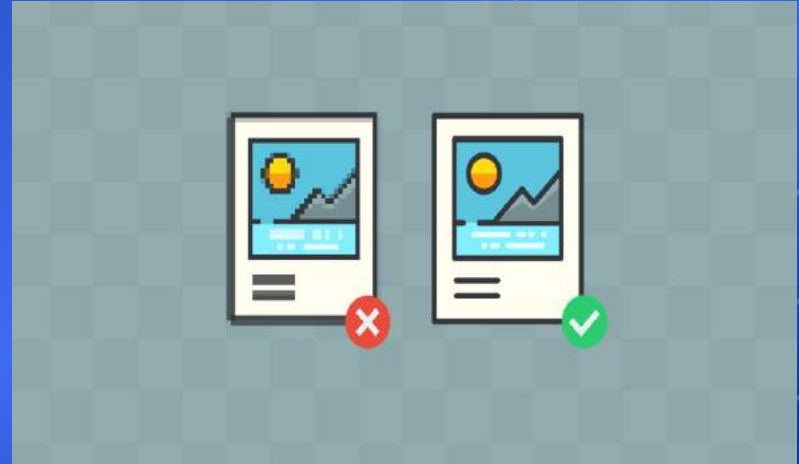
Some problem should be noticed of Technical SEO(M2)

Redirected links are restricted

Many redirected links have a lot to do with page load time and crawl. The more redirects on a page, the longer a user has to wait while loading the page. Meanwhile, instead of waiting for the user to leave your page extremely quickly.

Off-page SEO(M2)

Why is it important?

Off-page SEO is tremendously valuable because it tells search engines that your website is important to others on the web. Every link that you receive acts as an endorsement from another source that your website is quality.

This lets external sources act as tie-breakers for websites that have the same quality of on-page SEO so search engines know the best to rank websites on search engine results pages (SERPs).

Some ways to improve off-page SEO(M2)

Develop content.

Try to edit in-depth, really quality articles. A quality article doesn't have to be long, but it is certain that as you dig deeper the content can get a lot longer.

LONG-FORM CONTENT GENERATES MORE BACKLINKS THAN SHORT BLOG POSTS

REFERRING DOMAINS

WORDS: 0-1000, 1000-2000, 2000-3000, 3000-10000
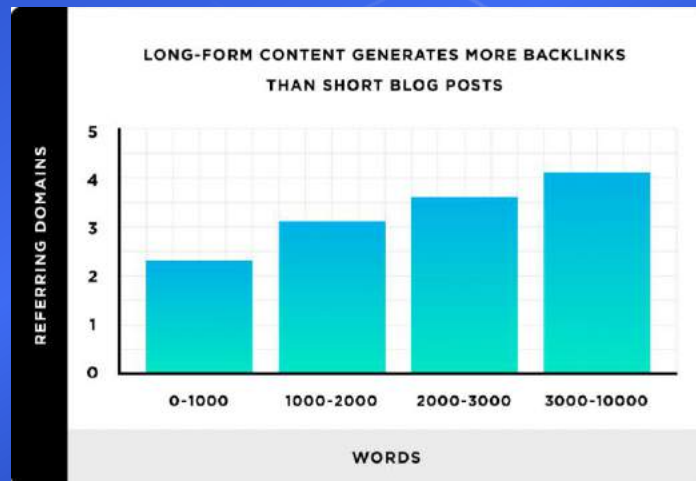
Some ways to improve off-page SEO(M2)

Interview

Participating in interviews is a great way to increase brand awareness. And be sure to include a link about your website in the interview.
The most important thing is that when you are interviewed, Google will definitely see your brand as reputable because your website gets credibility from the authority websites.

Some ways to improve off-page SEO(M2)

Co-op with famous brands

Suppose you can create professional quality articles related to the products and services they are offering, and send them those articles. Surely no one will turn down such a great offer from you.

You even get free promotions from those brands, when they share articles on their social networking sites and send it out to relevant customers.

EXAMPLE OF IMPROVING SEO (M2)

Optimize meta tag (On-page)

EXAMPLE OF IMPROVING SEO (M2)

Break up your content with header tags (Off-page)

EXAMPLE OF IMPROVING SEO (M2)

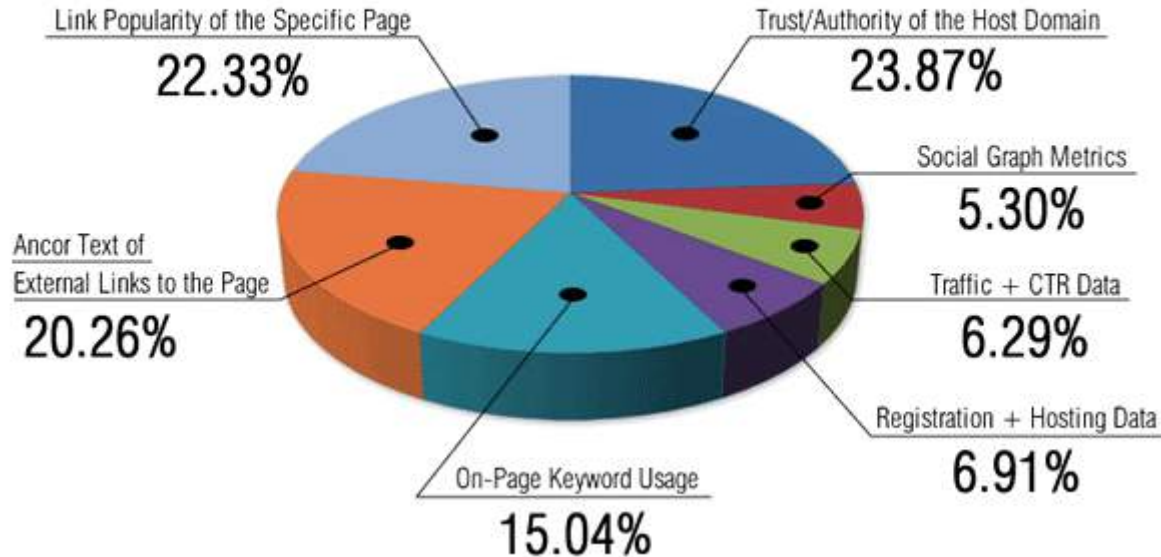## Optimize title tag, description tag (On-page)
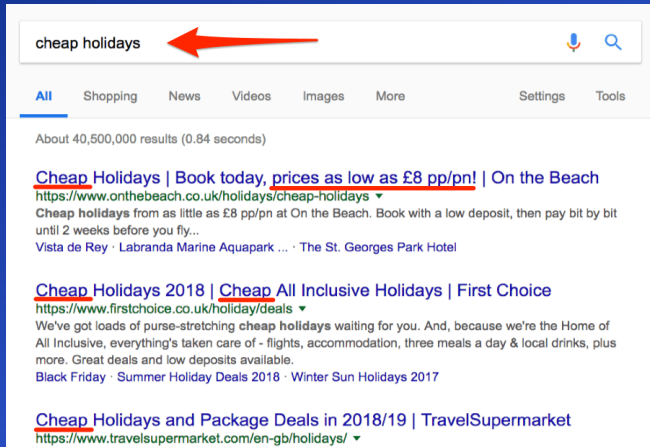
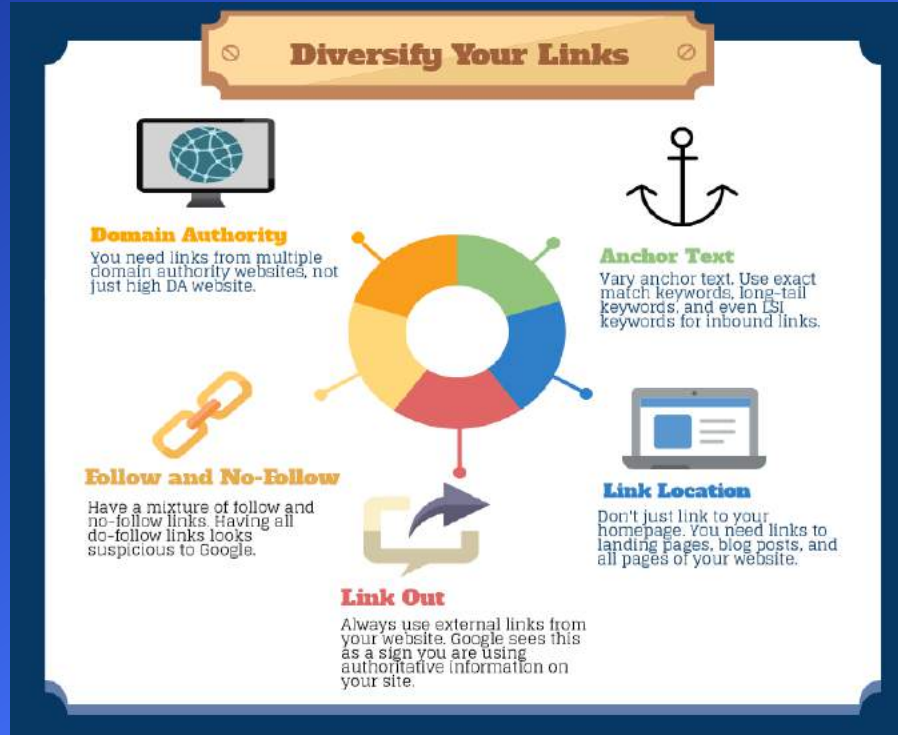# EXAMPLE OF IMPROVING SEO (M2)

Use keywords (Technical)

Components of Google's Ranking Algorithm
According to 72 SEOs Surveyed for SEOmoz's Biennial Search Ranking Factors

Link Popularity of the Specific Page
22.33%

Trust/Authority of the Host Domain
23.87%

Social Graph Metrics
5.30%

Ancor Text of External Links to the Page
20.26%

Traffic + CTR Data
6.29%

Registration + Hosting Data
6.91%

On-Page Keyword Usage
15.04%

EXAMPLE OF IMPROVING SEO (M2)

Diversity your links (Technical)

THE INFLUENCE OF SEO ON WEB (M2)

The components of the website such as: sitemap, speed, URL, tags, image size, title length, code language, ... are optimized to meet the requirements of Google. Thanks to that, the quality of the website increases.

At the same time, SEO for your website will also create a better user experience. For example, faster website speed helps visitors not have to wait long, operations become faster, reducing the possibility of customers leaving your website.

Site speed's influence on SEO

Faster website = higher conversion rates

REFERENCES

- **https://www.greenflagdigital.com/homepage-seo/**
- **https://developers.google.com/search/docs/beginner/seo-starter-guide**
- https://factwifi.com/url-full-form/
- https://aws.amazon.com/route53/what-is-dns/
- https://techopedia.com/definition/25705/communication-protocol
- **https://www.advantage.tech/service/server-hardware**
- **https://www.verisign.com/en_US/website-presence/online/what-is-a-url/index.xhtml**
- **https://www.scnsoft.com/blog/web-application-architecture**
- **https://diffzi.com/web-server-vs-database-server/**
- **https://thenoobsnet.blogspot.com/2019/04/domain-name-systems-dns.html**

SENIOR STAFF

STATIC WEBSITES

Definition: There are web pages of set content on a static website. Each page is encoded in HTML and displays every visitor with the same information.

STATIC WEB DESIGN
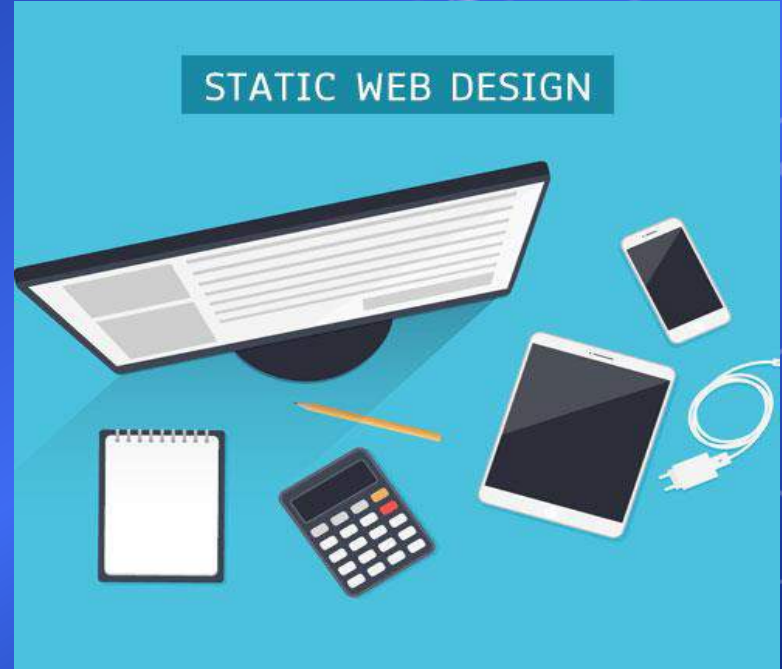
PROS AND CONS OF STATIC WEBSITES

Advantages

- Faster load time and displays page quickly.

- More secure – less vulnerable to hacks without a database.

- Less expensive to host and maintain.

- Less complex to setup.

Disadvantages

- **Hard to update.**

- **Cannot display dynamic content to users.**

- **Less engaging then interactive sites.**

- **Lack of functionalities.**

STATIC WEBSITES EXAMPLES
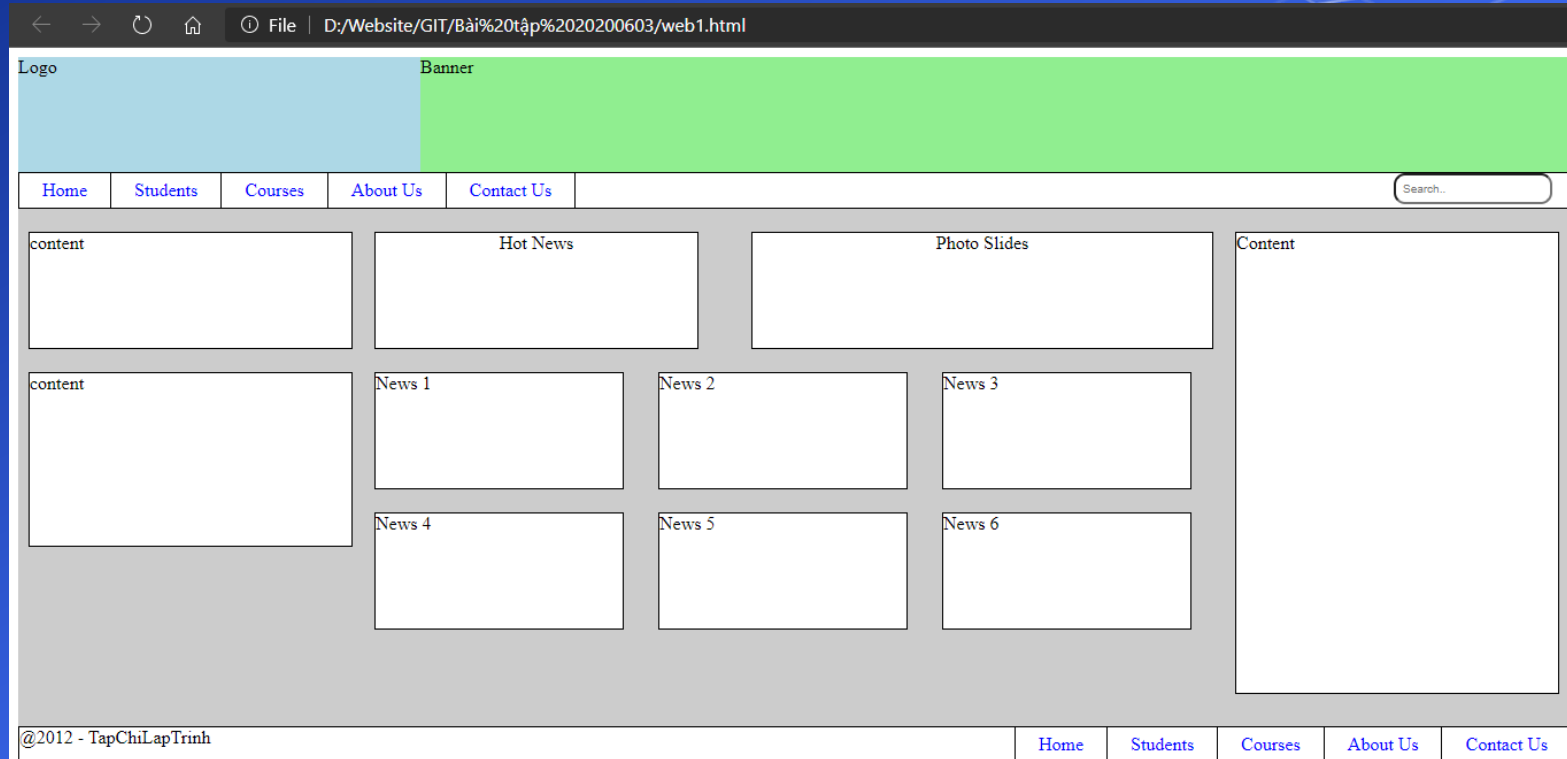
DYNAMIC WEBSITES

Definition: Websites that are interactive include Web pages that are created in real time. These pages contain code, such as PHP or ASP, for Web scripting. When a dynamic page is accessed, the code on the Web server inside the page is parsed and the resulting HTML is sent to the Web browser of the client.

PROS AND CONS OF DYNAMIC WEBSITES

Advantages

- Easily maintain and update.

- easy to update with a CMS like Wordpress.

- More powerful with features like login, payments, etc.

Disadvantages

- **Require long time to develop.**

- **Difficult to manage.**

- **More complex.**

- **Expensive.**

DYNAMIC WEBSITES EXAMPLES

STATIC & DESIGN WEB COMPARISON
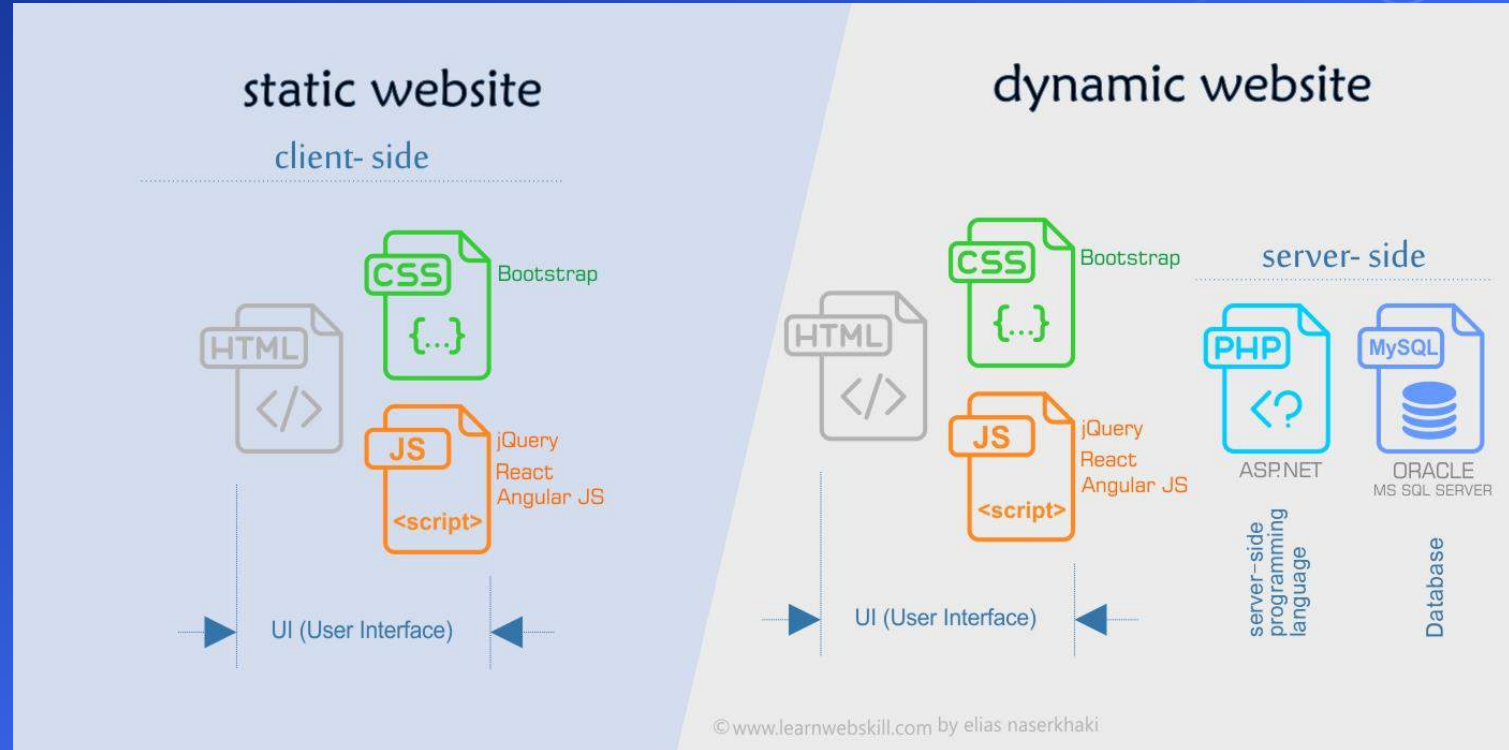
FRONT-END

Definition: The section of a website that users directly communicate with is referred to as the front end.

FRONT-END CAPABILITIES

GRAPHICS

Show the graphical component to the users to illustrate the information for the web page.

INTERACTION

Allow user to interact with each element in the website to retrieving data, making requests,…

FRONT-END TECHNOLOGIES

01 HTML

Describing the structure and presentation of information via the Internet.

02 CSS

Standing for Sheets Cascading Type . CSS explains how to view HTML elements on the computer, on paper, or on other media. A lot of effort is saved by CSS. The architecture of many web pages can be managed all at once.

03 Javascript

A client-side scripting language primarily used to make web pages interactive

EXAMPLE OF FRONT-END TECHNOLOGIES
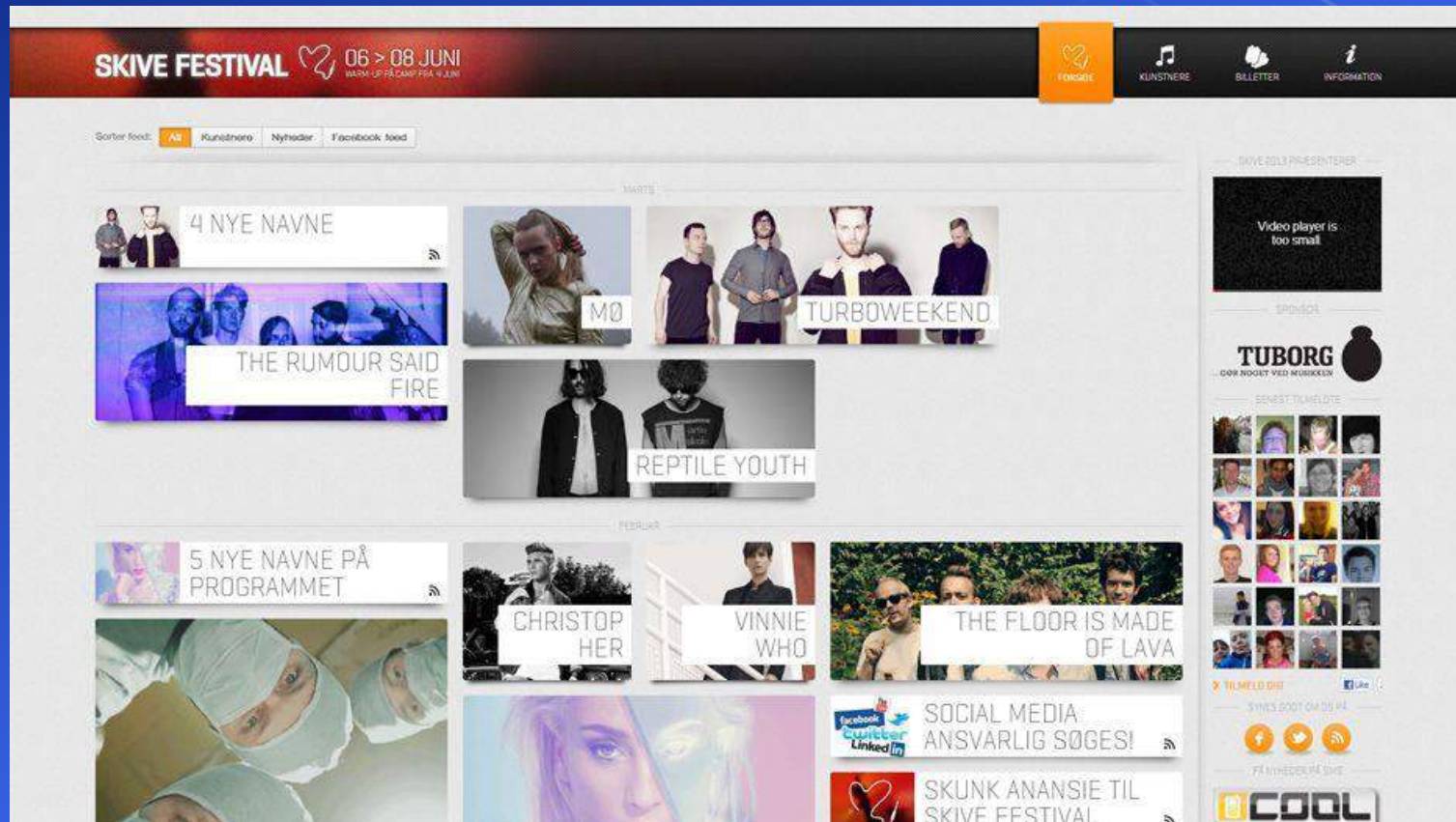
BACK-END

Definition: The "backend" refers to any section that users do not see of a website or software program.
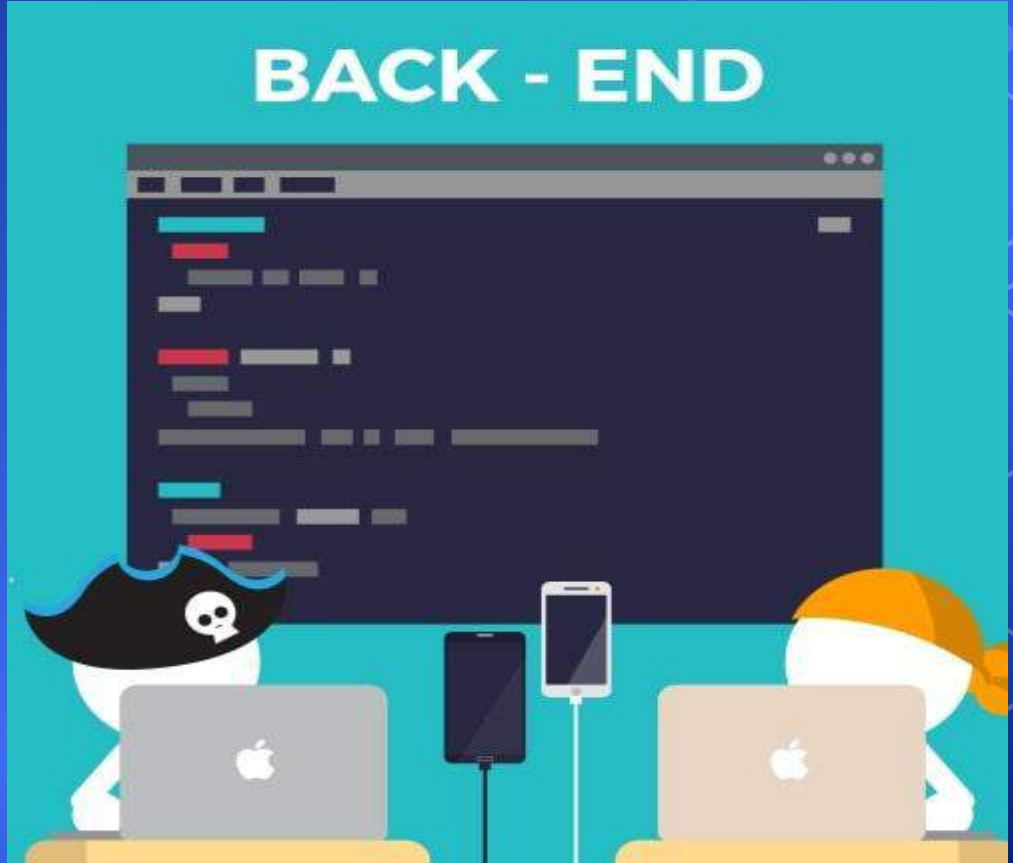
BACK-END CAPABILITIES

DATA MANAGEMENT

It is responsible for storing and organizing data.

DATA SECURITY

Backend conceals private data on the server to avoid unauthorized access.

DELIVERY DATA

The backend communicates with the front-end, sending and receiving information to be displayed as a web page.

BACK-END TECHNOLOGIES

PHP

PHP is one of the back end languages which is known as the scripting language.

.NET

.NET is an open source programming language that is created for building, deploying and running applications and services that use .NET technologies.

Java

Java back end is a software running on a server connecting to databases and mainframes.

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FRONT-END & BACK-END COMPARISON

Front End

- Markup and web languages such as HTML, CSS and Javascript
- Asynchronous requests and Ajax
- Specialized web editing software
- Image editing
- Accessibility
- Cross-browser issues
- Search engine optimisation
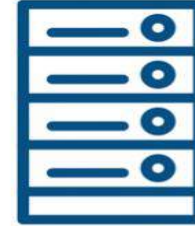
Back End

- Programming and scripting such as Python, Ruby and/or Perl
- Server architecture
- Database administration
- Scalability
- Security
- Data transformation
- Backup

FRONT-END & BACK-END COMPARISON
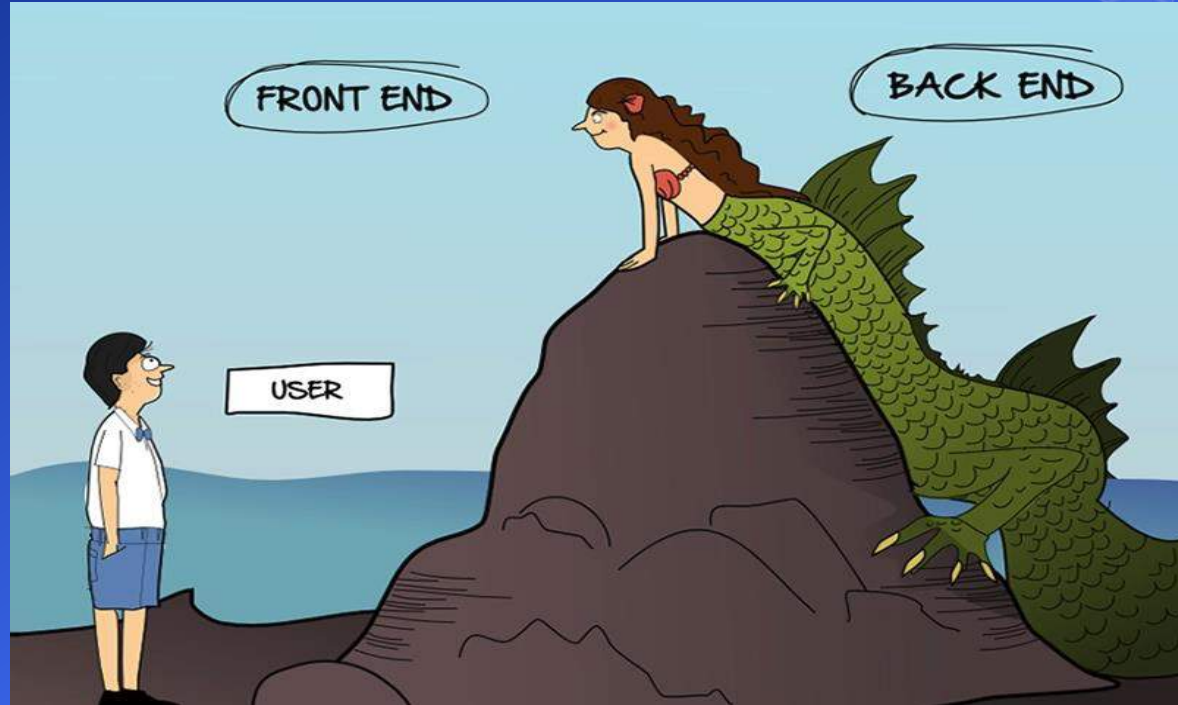
RELATIONSHIP BETWEEN FE – BE, PRESENTATION LAYER – APPLICATION LAYER

- Develop presentation layers for users, customers.
- Its main component is GUI allows users to interact with the application.
- Send data to application layer.
- Formatting the website.

⇨ FE developers decide the vision for a website.

Frontend

- Users see
- 20% of total effort

API

Backend

- Users don't see
- 80% of total effort
- Repetitive
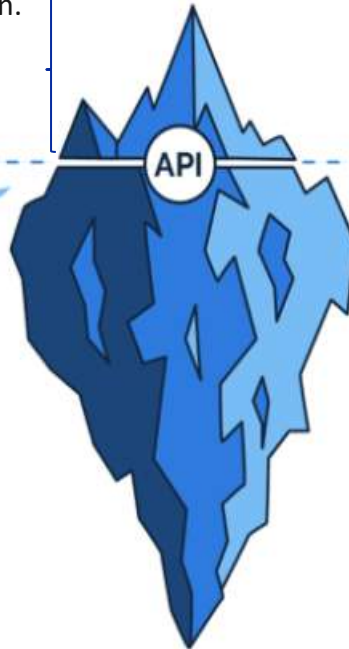
- Use in application layer.
- Process functionality by language such as Ruby or PHP.
- Fetch data.
- Users interacts with application.

⇨ Emphasis on the technical aspects of web application development.

SERVER-SIDE SCRIPTING TECHNOLOGIES

	Definition	Advantages	Disadvantages
PHP	• A widely used language. • Can be embedded into HTML. • Standalone graphical application, robotic.	• Speed up web. • Easy to use and get support. • Stable. • Work with databases. • Costless. • Content management.	• Hard to maintain. • Lack of security. • Lack of option to modify core behavior.
ASP.NET	• An open source web framework created by Microsoft. • Integrated with .NET framework.	• Fast coding. • Easy to use. • Secure. • Power and flexibility.	• License required. • Incompatible between versions.

SERVERS SUPPORT WEB SCRIPTING LANGUAGE

01 LAMP

- Used for Linux OS only.
- Its full form is Linux, Apache, MySQL and PHP.
- An open source platform.
- Uses the Apache web server.
- Relational database management system is MySQL

02 XAMPP

- Can be used for any OS.
- Its full form is x-os, Apache, MariaDB, PHP and Pearl.
- Free, open source, developed by **Apache Friends.**
- Extra features: supporting of perl, filezilla, …
- Simple, lightweight, easy to use.

03 WAMP

- Used for Windows OS only.
- Its full form is Windows, Apache, MySQL and PHP.
- An open source platform.
- Uses the Apache web server.
- Easy to set up and configure.

P4: ONLINE WEB CREATION TOOLS – CUSTOM BUILT SITES.

Difference regards to flexibility, performance, functionality, UI, UX.

ONLINE WEB CREATION TOOLS
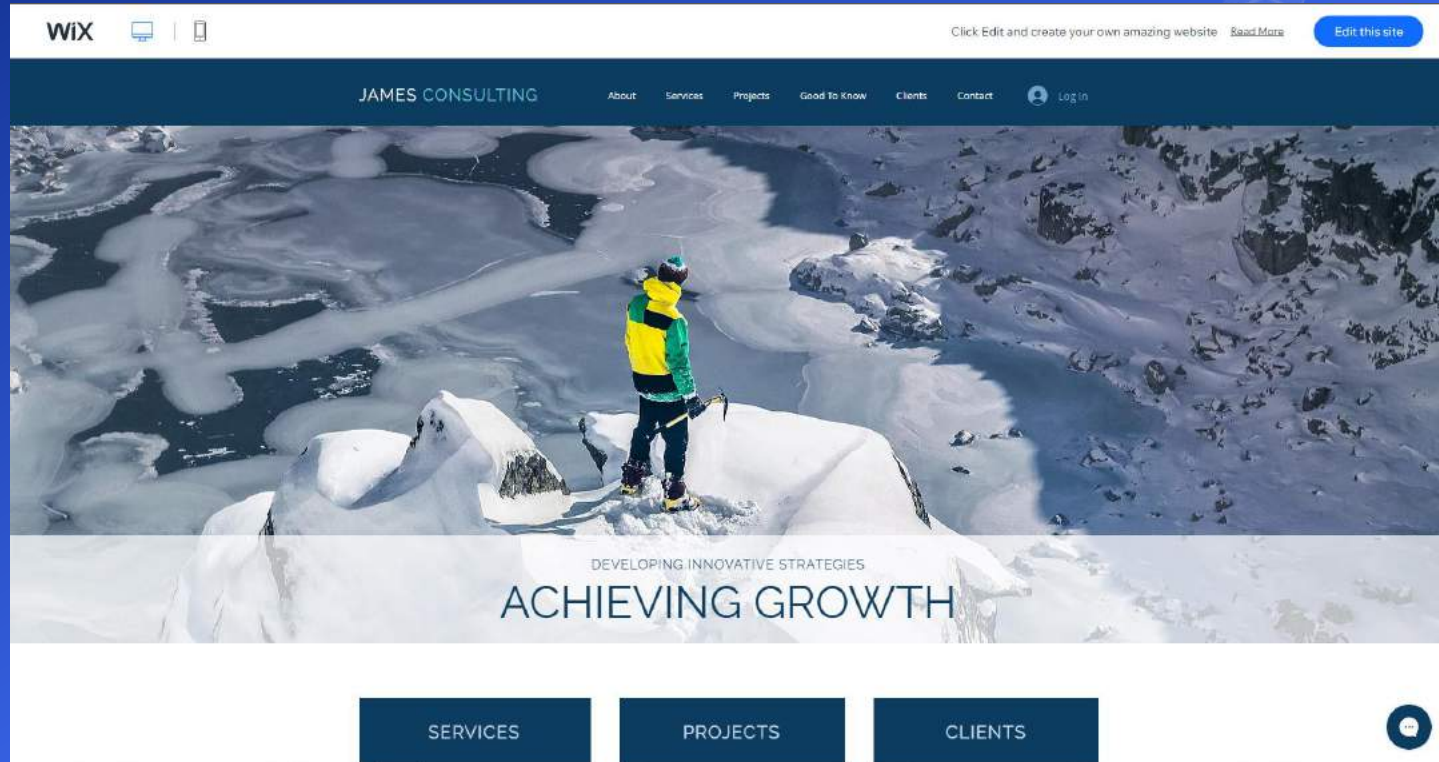
PROS AND CONS OF ONLINE WEB CREATION TOOLS

Advantages

- Significantly less expensive.
- Fast to implement.
- Large user community.
- Convenient structure and sophisticated.

Disadvantages

- The website looks resemblance to others.
- Limited customize sites.
- Functionality can be limited.
- Not secure.
- Do not have a good support system.
- Cannot create more customization and technology.
- Some templates are not built to be search engine friendly.

CUSTOM BUILT SITE
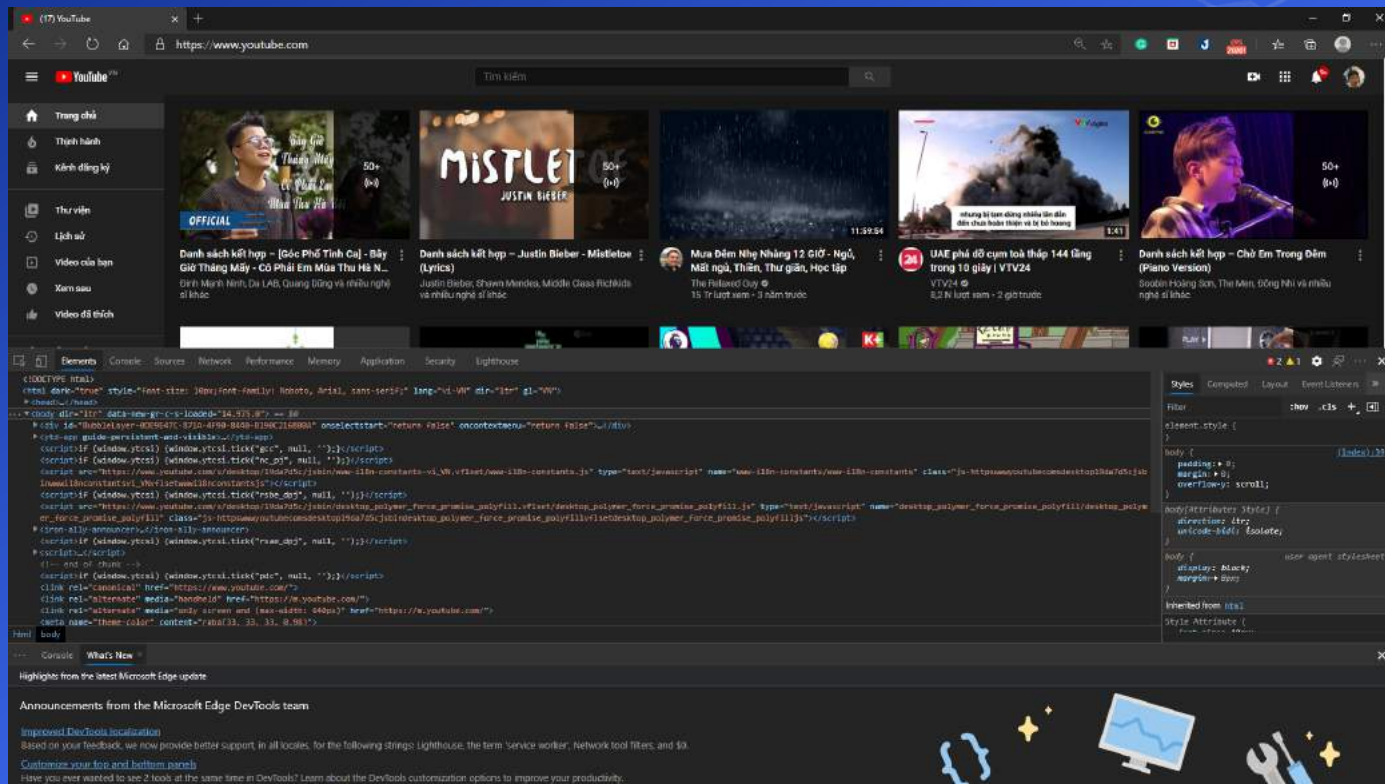
PROS AND CONS OF CUSTOM BUILT SITE

Advantages

- Unique design that incorporate the company's branding.
- Suitable for the company's needs.
- The site is tested to work on all browsers.
- Constructed to be search engine friendly.
- Good support from company and back-end server.

Disadvantages

- Expensive.
- Takes long time to finish.

COMPARE ONLINE WEBSITE CREATION TOOLS AND CUSTOM BUILT SITES

	Online tools	Custom built
Design Flexibility	• Limit customization. • Fast development proceeding. • Low cost for creation simple website.	• Flexible in development. • Adapt to user's needs. • Cost much time and money.
Performance	• Not SEO friendly. • Tough in creation responsive website.	• Easily make a responsive website. • Easily apply SEO. • Easy to update.
Functionality	• Limited in tool's support. • Well maintained provided tools.	• Unlimited creation in designation. • Take much time. • Harder.
User Experience	• Similar to some others website. • Bored, not impressive.	• Unique design. • Interesting, good impression.
User Interface	• Depends on the tools.	• Unique, based on the website.

DEVELOPMENT TOOLS EVALUATION (M3)

	Advantages	Disadvantages
Notepad++	• Free, fast, lightweight. • Easy file read and write access. • Reads many file format. • Coding in multiple language. • Support code highlighting and code completion. • Syntax checking.	• Processing speed is not as fast as current IDEs. • There are no functions such as debug, VCS, deployment, ...
Visual Studio Code	• Free, fast, lightweight. • Syntax highlighting for almost every programming language. • Excellent extension library. • Great interface. • Code coloring or customization with themes. • Error debugging.	• VSCode's memory and battery usage were pretty bad. • There's no git merge as the ST3 and Atom are capable of doing just that. • The user has to reconfigure almost all of shortcut.
Sublime Text 3	• It's free, fast, easy to set up, and small to configure and encrypted • The available packages have support for the user interface • Code autofill and more suggestions than notepad ++ • Suitable for coding user interfaces	• Not used to code server side • Cannot show syntax error • Cannot save files automatically

DEVELOPMENT TECHNIQUE EVALUATION (M3)

Javascript	Advantages	Disadvantages
	• JavaScript is an easy programming language to learn. • JavaScript errors are easier to detect and therefore easier to fix. • JavaScript works across many browsers and platforms. • JavaScript helps websites interact better with visitors. • JavaScript is faster and lighter than other programming languages.	• Ease of exploitation. • Can be used to execute malicious code on the user's computer. • Deployment may differ from device to device resulting in heterogeneity.

DEVELOPMENT TECHNIQUE EVALUATION (M3)

HTML	Advantages	Disadvantages
	• This widely used language has a lot of resources to support and a huge community of users. • Use smoothly in almost any browser. • There is a simple and direct learning process. • Open source and completely free. • Clean and consistent markup. • The main web standard operated by the World Wide Web Consortium (W3C). • Easy integration with backend languages like PHP and Node.js.	• Used mainly for static web. For dynamic features, you need to use JavaScript or a 3rd party backend language like PHP. • It can execute certain logic for the user. So most pages need to be created separately, even if it uses the same elements, like headers or footers. • Some browsers are slow to support new features. • It is difficult to control browser execution (eg, older browsers cannot render new tags).

DEVELOPMENT TECHNIQUE EVALUATION (M3)

PHP	Advantages	Disadvantages
	• PHP is free to use, a huge advantage for anyone who wants to learn this programming. • PHP's syntax and structure are relatively easy. • If you want to learn about the language, it won't take you long to understand it. • It will be easy to get a job with a huge salary. Most web design companies today have a PHP department. • Able to thrive in the future.	• PHP has limited structure of grammar. It is not neatly designed and not as beautiful as other programming languages. • PHP can only work and be used on web applications. That is the reason why this language is so difficult to compete with other programming languages. If you want to develop and replicate more in programming.

DEVELOPMENT TECHNIQUE EVALUATION (M3)

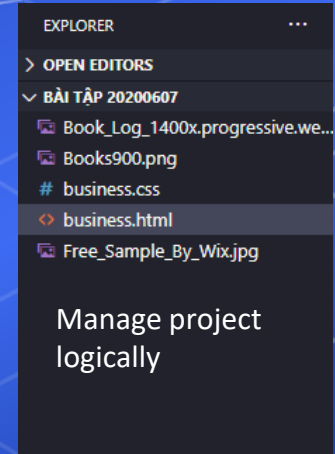| jQuery	Advantages	Disadvantages
	• PHP is free to use, a huge advantage for anyone who wants to learn this programming. • PHP's syntax and structure are relatively easy. • If you want to learn about the language, it won't take you long to understand it. • It will be easy to get a job with a huge salary. Most web design companies today have a PHP department. • Able to thrive in the future.	• PHP has limited structure of grammar. It is not neatly designed and not as beautiful as other programming languages. • PHP can only work and be used on web applications. That is the reason why this language is so difficult to compete with other programming languages. If you want to develop and replicate more in programming.

JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

Visual Studio Code (Tool chosen)

- Free, fast, lightweight.
- Syntax highlighting for almost every programming language -> I can code easier without boring.
- Excellent extension library -> The ability of coding could be faster and easier.
- Great interface.
- Code coloring or customization with themes (one of the benefits of using extension).
- I can easily fix bug because it has error debugging.
- Can open with live server (one of the benefits of using extension).
- Big community support -> helped me a lot in fixing bug and beautify the code.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="business.css">
    <link href="https://fonts.googleapis.com/css2?family=Architects+Daughte
    <title>Nhà Sách GIT</title>
</head>
```

Smart code completion with code coloring with themes.

EXPLORER ...

> OPEN EDITORS
∨ BÀI TẬP 20200607
  Book_Log_1400x.progressive.we...
  Books900.png
  # business.css
  <> business.html
  Free_Sample_By_Wix.jpg

Manage project logically

JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

phpMyAdmin (database tool chosen)

- I used phpMyAdmin because it is free open source and commonly used -> I can get the support from the community to identify and fix bug.
- Easy to use and manage with friendly interface.
- Easy to manage, update, delete tables, entities, data, etc.
- Create constraint without coding.
- Can encrypt the password with MD5.
- I can also import and export the database.
- I stored the database on the server, so I have not install them.
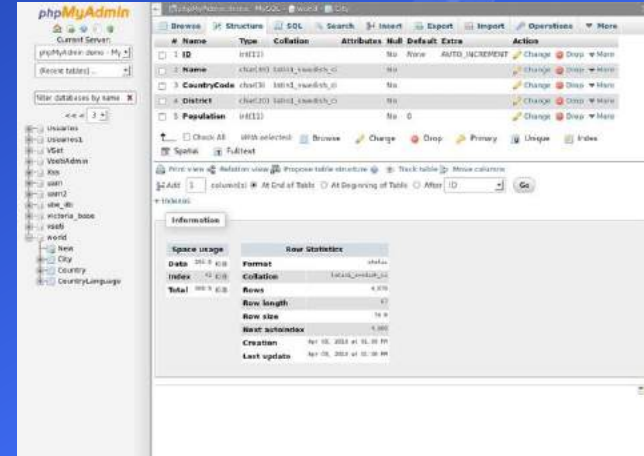
JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

XAMPP (server tool chosen)
- Free and open source.
- It is easy to install and easily to start the website.
- Include: Apache(HTTP server), MariaDB (Database Server), Compilers of PHP and Pearl languages.
- High security.
- I was recommended by the seniors in the GIT club.
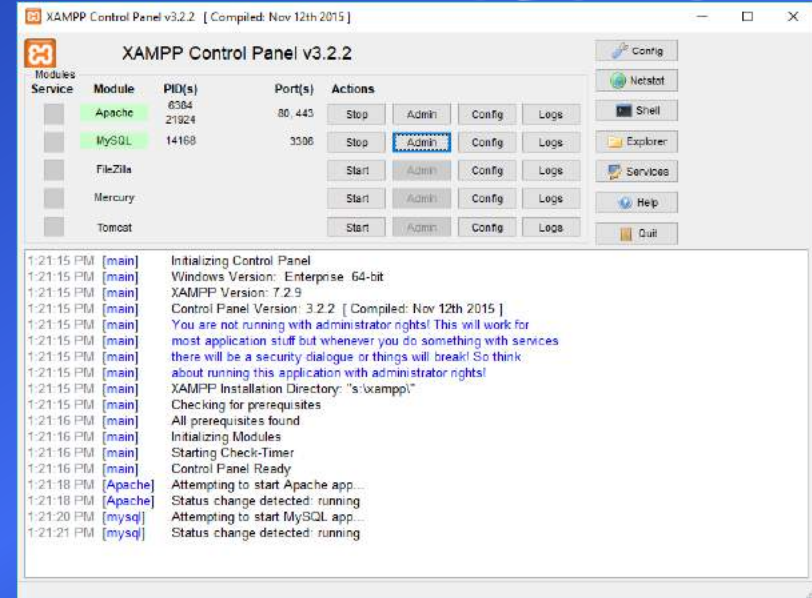
JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

HTML

- Easy to use and understandable.
- Supported by all browsers.
- HTML supports using videos and image, which is very appropriate for the bookstore (the idea of my website).
- Used by large community -> I can learn many ways in organizing the layout.

CSS

- Provide wide range of animation -> I created the slideshow, dropdown and hover effect for the element.
- Easy to use and understandable.
- I can use only one file CSS to style all the HTML files.

Front-end tool chosen


```
HTML

<div id="app">
  <div class="container">
    <p class="hello">Hello</p>
    <p class="hola">Hola</p>
  </div>
  <div class="other">
    I am left behind...
  </div>
</div>
```
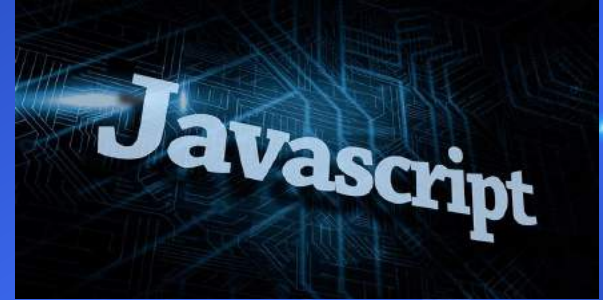
```
CSS

p { color: blue; }
div { color: magenta; }
```

JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

Javascript (Front-end tool chosen)

- High speed process.
- Simple code.
- I can make an announce for the user by using alert -> it will show a dialog for the user.
- Moreover, it can be embedded to HTML.

The page at localhost:39470 says:

my alert message

OK
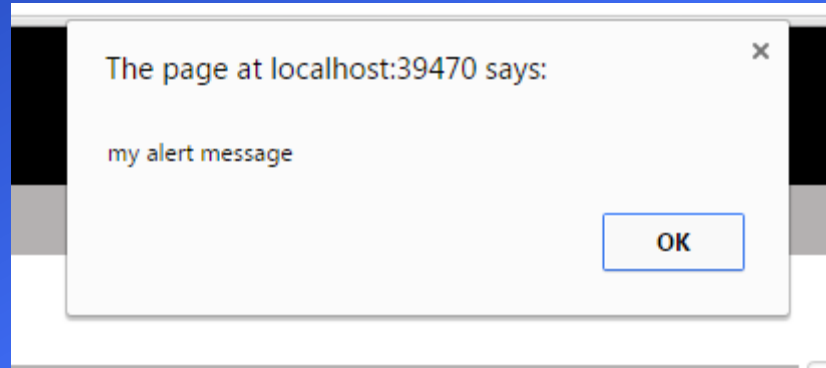
JUSTIFY CHOSEN TOOLS & TECHNIQUE (D1)

PHP (Back-end tool chosen)
- Easy to learn.
- High performance and scalability.
- It can be embedded into HTML with Javascript.
- The information of a session is stored by the $_SESSION variables -> flexible in retrieving and processing the data.
- It has MySQL prepared statements, which is very useful for optimizing the SQL query, and, it resists SQL Injection.
- I can encrypt the password with MD5.

MySQL
- It is easy to use.
- It provides high performance querying system.
- It is flexible and open-source.

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EXAMPLE OF WEBSITE CREATED BY GIVEN TOOLS AND TECHNIQUE (D1)

Login:

EXAMPLE OF WEBSITE CREATED BY GIVEN TOOLS AND TECHNIQUE (D1)

Homepage:
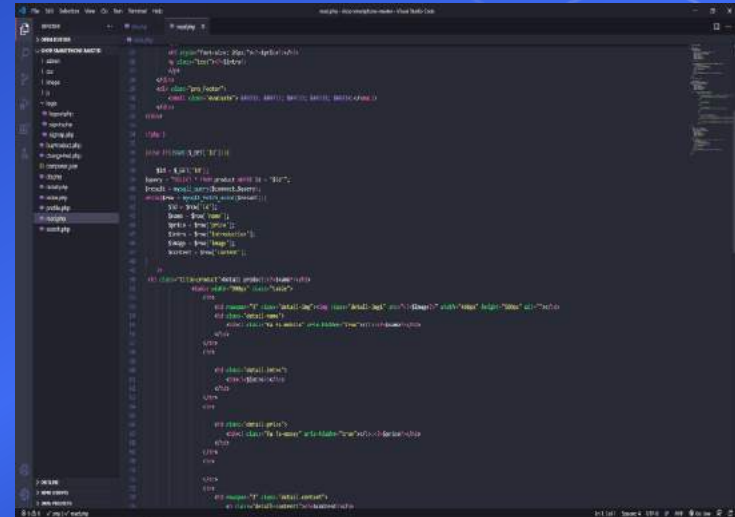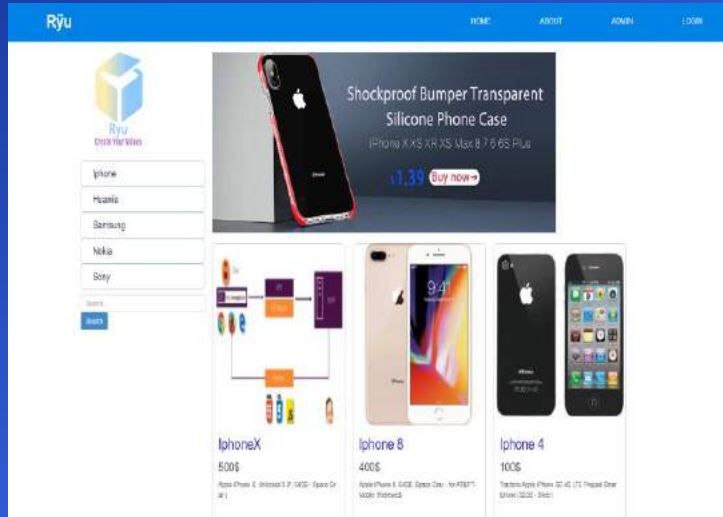
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Thanks!

Any questions?

You can find me at: Nguyen Thanh Hung

hungntgch190704@fpt.edu.vn.

GCH190704 – GCH0805