

Website & Design

Development

Part1:

1. Identification of the purpose and types of DNS, including explanations on how domain names are organized and managed:
   1. DNS definition:

The Domain Name System (DNS) is a protocol that uses TCP/IP protocol. It works on port 53. It has database which stores the domain name of the websites which I need. Also, it has the suitable IP for every domain name. For example, the phonebook stores the suitable IP address for every domain name.

The DNS has a main role which is converting the domain name into IP address. When I write the domain name of the website, the DNS looks for its suitable IP address. As a human, it is easier to look for the domain name instead of the IP address. As a result, it is not necessary to know the IP address for every website. This process is called the DNS Lookup. The DNS also translates URL to IP address that computers use to identify each other on a network

* 1. DNS types:

1. Resolvers:

When a DNS request is sent from the client, a recursive resolver will return cached data if it is found in the cache, or it will send a request to a root nameserver. After that, another request is sent to the TLD nameserver. Finally, a request is sent to an authoritative nameserver. If the recursive resolver does not have the requested website in its cache, it will go through the process of obtaining the desired website’s IP address and returning it. It will then store this IP address in its memory for a period of time.

1. Root name servers:

The root name server of DNS is a server that plays a vital role in changing a domain name into an IP address for a device by responding to queries made in the DNS root zone. The server responds to queries that has been cached in the root zone. Other queries can also be redirected to the TDL server.

1. TLD (Top Level Domain):

The TLD refers to the part of the domain name which comes after the dot. The TLDs has two types: country TLDs and industry TLDs. For example, org is a website for organization websites. The TLD is the highest level of domain names after the root domain.

1. Authoritative name servers:

Answers to a DNS query are provided by an authoritative nameserver. It does not use the cached memory to offer answers to website. The authoritative nameserver responds to recursive DNS nameservers with the IP address of the website or another server being sought. The authoritative name server is where domain names’ records are kept, which can be A, CNAME, MX, NS, SOA, or TXT records. If a DNS server in a network holds a record for a website, such as [www.example.com](http://www.example.com), then this DNS server is the authoritative server for the domain example.com.

1.3 Domain names organization and management

URL (Uniform Resource Locator) is the address of resources that you type into a browser’s address bar. It consists of three main parts: the protocol, the domain name and the path. An example of a URL is [**https://www.google.com**](https://www.google.com)**.**

[**www.google.com**](http://www.google.com)is an example of a domain name which is unique for every website like a fingerprint such as google.com and facebook.com. It consists of four parts: the root domain that is the dot at the end of the domain name which is not written and cannot be seen but it is very important because it the base of every domain name. Then, the TLD (top level domain)such as (com, jo, net, org, edu) , the second level domain such as(Google, Facebook, Microsoft) and the third level domain or the host level domain such as (mail, www).

The management process of the domain name includes keeping the DNS up to date. It is done by a third-party company by a portal. The personal or commercial website can use this gateway to manage DNS records that control access to the website, your blog, email, and other online assets. There are many services to manage your domain name offered by companies on the internet. An example of these services is auto-renewal service which keeps your domain name up to date and running and prevent it from expiring. Then you may use this portal to manage your domain name and its part including changing DNS records for different domains quickly and easily.

1. The purpose and relationships between communication protocols, server hardware, operating systems and web server software with regards to designing, publishing and accessing a website:

2.1 communication protocols:

It is a set of rules that controls data communication between the nodes in a network.

Such as HTTP, HTTPS, FTP, TCP/IP, SMTP, IMAP/POP all of these protocols are used in website development to allow the user to transfer files, send or receive emails and access the website, etc.

HTTP (Hypertext Transfer Protocol) (port 80): is a protocol which is used to transfer data from a device (client) to a web server.

The client starts connection by sending a request then the server sends acknowledgement and gives response to the requested information of the client. Data here is not secure because it is sent without encrypting.

HTTPs (Hypertext transfer protocol Secure) (port 443):

It works the same way as HTTP but the difference is that it sends data encrypted so it is more secure.

FTP (File Transfer Protocol):

It transfers files between devices by uploading a file on FTP server then another device downloads a file from FTP server.

TCP/IP (Transmission Control Protocol/ Internet Protocol):

TCP- It divides the data which is received from application layer into packets which are small pieces called segments then send them to destination. Transport layer.

IP- it ensures reliable transmission of data to its correct destination.

SMTP (Simple Mail Transfer Protocol):

It sends and distributes emails

POP/IMAP (Post Office Protocol / Internet Access Message protocol):

It receives emails

The device activates SMTP when sending an email to mail server then another device activates POP when receiving an email from mail server.

2.2 purpose:

Server hardware:

It is the part of the computer that we can see and touch such as screen, print and mouse. They are use to run the software.

The server could be software or hardware.

Web server software:

It allows communication between computer(user) and web server. A browser (chrome, Firefox) is an example of software. It organizes the way applications and programs are executed by giving them resources. It uses external memory to control the organization of data storage and makes devices work efficiently.

The Operating System (OP):

It is the system which manages the hardware resources and specifies the application and the software used in the server.

First the user need to have internet connection and browser to request a webpage then write a URL. The server receive the request, respond by sending the information to the browser. It is interface between the computer user and computer hardware which controls execution of all programs.

2.3 Relationship:

Communication protocols defines syntax and semantic of communication and can be used by hardware, software, or both. It manages the shape of data and how it will be transferred. Also, we can use HTTP or HTTPS to transfer data and make connection(access) between client and server. We can use FTP to make published my output to other servers. Hardware is all the physical parts of the computer, and it could be a laptop, PC or smart devices. Software is an application that we install, and it doesn’t run without hardware. It allows the user to send and receive the data between devices. The operating system communicates with the hardware through a driver to enable the user to do several things. The software is also used to access website and see its information using the computer.

1. Evaluation of the impact of common web development technologies and frameworks with regards to website design, functionality and management, and what options did I have to develop the website mentioned in this assignment:

3.1 web development technologies:

They are the number of inventions, programming languages and tools that are achieved by developers and used by clients to make a dynamic and fully featured websites and applications.

They are related to the client-side of the website (front-end technologies) which are related to what the user sees and interacts with such as text colors, buttons, navigation menus, styles and images.

Another part is the server-side of the website (back-end technologies) which are for developing the technical creation of the website. For example, they store and arrange data and make sure everything in the front-end works.

Front-end technologies:

* HTML: it stands for hypertext Markup language. Hypertext means that it connects two or more webpages together through <a> tag </a>. markup language means that it uses tags (<img> <input> <label> <button> <table>) to define the element without a document. It describes the structure of a static web page and consists of series of element which tell the browser how to display the content.
* CSS: it stands for Cascading style sheets. Cascading refers to apparent element which will be applied to related children elements. it describes design and presentation of elements on screen. It controls the layout of multiple webpages at the same time, so it saves a lot of work. It can change color, size, font and change position. It can be added on html file in three ways : inline style, internal style, external style.

Both HTML and CSS have some features such as increasing page ranking, offline browsing, working on multiple browsers and better mobile access.

* Java Script: it is a front-end and back-end programming languages Which is easier to learn than other languages. It is used to make a dynamic website. It can change HTML content, MTML attributes values and hide or show HTML elements.

Back-end technologies:

* Data-base:

It is an organized collection of data and structured information stored electronically so that it can be managed, accessed and organized easily. If databases are small, they are stored on a file but if they are large, they are hosted on computer clusters or cloud storage. They are used in many dynamic websites so that it can be handled easily. Some types of databases are used in marketing because they include object-oriented and open-source databases.

* Protocols:

It is a set of rules that controls data communication between the nodes in the network in a secured reliable way. There are many protocols used for deferent types of processes. Each protocol belongs to an OSI model layer.

* PHP: is a server scripting programming language that is employed in the development of web apps, dynamic, interactive webpages or both and it can handle form data. Php code is executed on the server and the result of code is returned to the browser as HTML.
* Programming language: PHP, java script, C++ and Python.

3.2 Frameworks:

They are websites offering a variety of pre-written and predesigned templates and components to create and design a website easily and save time and effort in all the stages of designing the website. Also, they make future maintenance and improvement of the website very simple without the need to re-code. They give developers more features and ready-made designs so that bugs will be less. Each of framework has a specific programming language. They help developers to organize their thoughts and ideas in a flexible and customizable way. Also, they ensure the use of the correct codes and they are good for teamwork.

Front end Frameworks:

It is a part of the website which the user can see (client-side). They includes UI,UX , SEO optimization and creating reusable templates. They support languages such as: HTML, CSS and JavaScript. Examples of front end framework are: Ember, react, bootstrap and Vue. They give developers codes, elements and templates that are integrable and previously written. Also, they manage user interaction.

1. JQury: is a java script library to make using java script easy and helps to increase interaction and dynamic display of information so that you don’t interrupt the user while browsing. Also, it reduces cost and it presents information in a fast and efficient way. It is designed to make navigation of a document, handling events and creating animation easier. In addition, It helps developers to create plug-ins on top of the JavaScript library and create abstractions in the low level of the library. It makes the creation of dynamic web pages possible.
2. Bootstrap: it is the most important front-end framework for HTML, CSS, JavaScript for responsive design and mobile website. it is a free to download. It makes the website development easier and faster so that you don’t need to have knowledge about basic commands and functions. It includes many templates for images, navigations, buttons, and tables. It is easy to use and learn because of it has many tutorials which help you to get started and it has a simple file structure. You can use readymade themes as tools mainly for beginners.
3. Vue: it is an open-source framework which is used in java script for building user interfaces. it has many advantages such as being simple to get started, easy to learn and supporting team collaboration. It is used for prototypes, UI projects, mobile applications, and single page applications. Many companies are using it because it is reliable and has many efficient features for them.

back-end Frameworks:

It is a part of the website which refers to functionality and logic of the website (server-side). They include database management, security, designing sites architecture and the server handling. They support languages such as: python, JavaScript and php. Examples of back end frameworks are: spring, express and Django. They help developers in database maintenance, reusable components and privacy encryptions.

1. Django: it is a full-stack back-end framework for python language which helps in developing a robust web application. It gives developers tools and techniques which they need for building safe and secure website. it uses Convention over Configuration and DRY pattern. It is ideal for excellent developers when competing with fast-moving deadlines and their challenging requirements. The applications made by Django are fast, secure scalable and versatile.
2. Express: it is a free open source web application which is used to design and build web application in a very fast and easy way because it needs JavaScript and most of the code has been already written for programmers. They only need to learn JavaScript and html. Also, it makes managing web applications easier. It has a library which helps programmers to build fast and efficient websites. Also, it improves the functionality of the website and gives it many additional features.
3. Spring: it is an open source framework which helps developers with infrastructure of developing java applications, creating efficient applications using java objects and reducing overall application development time. It has many advantages such as being secure, low cost and flexible. It deals with the infrastructure and reduces configuration work so that developers can focus on the applications and write business logic.
4. Review of the influence of search engines on website performance, and explanation of the techniques followed to improve the ranking of the website and the process of publishing my website on google search engine:

4.1 SEO (Search engine optimization):

It is the process which improves the quality of the website and the number of unpaid traffic that is visitors of different search engines. When people search for products or services in search engines, SEO is responsible for ordering the search results so that you see your business website or web page one of the top ten results. Thus, it increases visibility of your website which in turn increases traffic and the visitors of your website become customers. So, your website will be more efficient. There are three types of SEO such as:

a) offsite SEO b) onsite SEO c) techniques SEO.

* 1. Techniques for improving the ranking of the website:

1. keywords: they are a set of words and phrases that clients use to find online content and that companies use to connect with those client who are looking for product and services. The idea is adding related and useful words to attract people to your site and combining these keywords together instead of adding a large number of words. They are not related to any programing language, but they improve ranking of your website. They are followed by suitable content of unique pictures and videos. You do not need these words to be repeated in the page title or in every heading instead you combine them together.
2. Content: the content of any website is the basic part of interaction with customers, and it makes your website achieve top ranking of the website. it should have precise and related words and repetition should not be more than twice out of a hundred words. Content should be unique and purposeful and easy to search for to help users who search for information or a solution to a problem to find information easily, So that they will not go to anther website. you can give the reader better picture and additional information about the topic in your website by writing additional contents which are rich with keyword phrases.
3. Alt-Tags: they are used in images and videos to allow search engines to locate your page. The alt tag of the videos or images should not be randomly named but the name of the images and videos should be descriptive. They are very important for developers who used screen readers or text-only browsers. Also they are very important when there is a problem with the image or it cannot be uploaded.

D. Domain name: it should be descriptive memorable and short so that it would attract customers attention to your website.

1. semantic tags: it is a set of tags that have elements related to its name. it divides the code into parts.
2. Meta description: It is part of the header and it includes attributes such as: name, content, keywords which are not seen by the clients but they can help in search engines as the description will appear under the results in the search engines.
3. The title: it should be brief, correct and comprehensive to help and attract visitors of your website.
4. Heading: each page should have only one h1 tag not more and the heading describes the part it represents.
5. Also, you can use bold, h1, italics and other emphasis tags to highlight these keyword phrases and make difference between main headings and minor ones.
6. Link: each link name is related to the function it performs.
7. Topic: each page focuses on a particular topic.
8. Freshness: Any website should be able to be refreshed any time so that we can add new content on a regular basis.
9. Broken links: you should not have broken links in your website because they mislead the user and make your website less quality.
10. The capabilities and relationships between front-end and back-end website technologies and how these relate to presentation and application layers.

5.1 Front-end and Back-end

There are two main parts of building a website: front-end and back-end. On the one hand, front-end refers to how a webpage looks for the user such as images, buttons, navigation menus, layout and structure. It is also called client side or browser side. Responsive design is part of the front end of the webpage. It is written in many basic languages such as HTML. CSS and JS. A Client side refers to the browser. The person who creates the front end of websites and web applications is called a front end developer.

On the other hand, back-end refers to how a webpage works in data and development that is the logic or the functional parts of the webpage. It controls the software and cannot be seen by the user. It is also called server side. It is written in many basic languages such as Java, PHP and Python. It is the brain of the website.

The person who works the back end is called back-end developer.

The full stack developer is someone who creates both the front-end and back-end of the website.

5.2 Presentation and Application layers

There are three main layers of the website:

1. Presentation tier (client) : it is known as front end layer which the user can see its content and deal with. It consists of UI (user interface) which is graphical, and it is viewed to the desktop as content and information by web browser or web-based application using a web server and application layer. Like the front end, it is built by languages such as HTML, CSS and JS and can also built by frameworks. It is connected with other layers by API calls.
2. Application tier (server) : it is known as back end layer where all business logic of the website is done. It contains the functional business logic which controls the main functions of a website. Like the back end, it is written in languages such as Java, Python, C++ and Php. It access data through API calls.
3. Data tier (database) : it is the database store which hold data that the website needs. it has two parts which are data storage system and data access layer. There are many examples of these systems such as Oracle, Microsoft SQL server, mongo DB, MySQL.

5.3 Relationship

Front end and back end are integrated and very crucial for any website for the following reasons:

* Back end companies development and maintenance of main functional logic of the website so Back end developers write code to make sure everything works well at the front end.
* Back end uses technologies and programming languages and instruct the web server on data management.
* When the user does an action in the front end, the server checks if the data is stored in the database and handles the instructions so that the user can get what is required.
* Back end achieves the communication between the database (database tier) and the browser (presentation tier) by using the functionalities of application layer.

To sum up, there are many benefit of using these three layers such as speed of development, scalability, performance and availability. In addition, it helps to improve development efficiency because It allows team to concentrate on their main strengths and competencies.

1. The differences between online website creation tools and custom-built sites with regards to design flexibility, performance, functionality, User Experience (UX) and User Interface (UI).

6.1 online website creation tools:

It is a program or platform which makes building a fully functional website easy and quick by combining different features and templets from the UI (User Interface) without writing the code. They have everything you need to design pages in the same place. They are web-based application so there is no need to install any technology before designing your website. They are important for business owners and leader with little technical knowledge and you can choose from many websites builders in specific areas such as ecommerce, portfolio creation and SEO and this is the key to success in building your website. example about online website creation tools: wix, word press and bootstrap.

Templates offered by DIY website builders are typically created with the intent of being as versatile as possible, so you lose individuality of design.

6.2 Custom-built sites:

It is a website that is created from scratch by designing sitemap, wireframe, front and end coding on your own to suit what you need regarding functionalities and aesthetics. After that you just need to buy domain name and hosting it on the server. You have everything you want or your developer can do without any templates that may constraint your needs. Unlike template sites, custom-built sites are personalized, easier to modify, flexible to update and may last for a lifetime if new features are added. You need to contact a professional developer to get exactly what you want and he will use your branding or marketing features in your website such as font, colors and logo. So you have a unique design for your website that is not similar to other website and you can get a professional maintenance.

6.3 comparison between online website creation tools and Custom-built sites:

|  |  |  |
| --- | --- | --- |
|  | Online website creation tools | Custom-built sites |
| Flexibility | Less flexible because you depend on ready-made templates | More flexible because you customize your website the way you want and there are no templates to constraint you and better when business grow |
| Performance | you cannot find them in search engines easily and cannot be updated anytime.  Because It is Designed by programmer, it has less mistakes.  It is faster because you use a ready-made template. | Takes longer time generating a website from the beginning but faster loading and can be updated anytime.  More mistakes are expected.  It takes more time because you start the website from the beginning. |
| Functionality | It has limited functionality.  The user is not free to do whatever he wants, and user is controlled because user uses templates which have many limitations. | It is variable to the user’s needs and has unlimited designs. The user can adapt what he wants because it has unlimited functions and graphics |
| User Experience | it has less user experience because it is sometimes less customizable and less accessible.  The user cannot use his imagination and experience freely because it is controlled.  The templates controls the user. | Better UX and more satisfied.  The user can be creative and made a lot of designs with lots of graphical elements.  The user controls the website. |
| User Interface | It is visually more satisfying, but it is less efficient functionally. | It has better interface and it provides a unique image of a product because it is custom built. It is more efficient |

1. Evaluation of range of tools and techniques available to design and develop a custom-built website.

7.1 Web Development Tools:

They are software and programs used in designing and developing a website.

Any developer use tools to make the process of designing or creating a website simple and less strenuous. There are many examples of these tools such as:

1. Vs code (visual studio code) : it is text editor that support windows, Linux and macOS. It is ideal for everyday use and support many languages. It helps developers to navigate their codes easily because of its shortcuts and customization and they can add more functionality. Also, it helps developers with syntax highlighting, bracket-matching, debugging and box-selection ..etc.
2. GitHub: it is used to store the source code and follow all the past changes of the code. it helps public or private collaboration between developers by giving them tools to deal with conflict changes from many developers. It makes social coding easily because it gives git code repository and management tools for collaboration between developers. Also it has other parts such as debugging, task management and feature request to increase code safety.
3. Notepad++: It is a text editor used with Microsoft Windows. It allows developers to open many files in a single window. It is a free text editor that supports many languages. It ensures a higher execution speedand smaller program size.
4. Moqups: it is a simple, smart, quick and easy online tool for creating and collaborating on diagrams, sitemaps, wireframes and prototypes. It has some of features such as Team collaboration and communication

The aim of this tool is to make collaboration and communication with the team easy and fast because when you create workflows, diagrams , sitemaps and wireframe your team will receive a clear and loud message. Also it enables you to collaborate in real time with complete transparency. There is also integration between this tool and other tools such as Slack, Dropbox and Google Drive. The Mosqups’ library is very large so that you can almost find every component for your project from the stencils such as flowchart, shapes and icons such as editor, images, maps of this web-based wireframe tool. So, You might only have to import images that go into your project. Also, Work from anywhere is supported in all devices from desktops, laptops and mobile phones. Everyone can easily use its upload and download because there are no geographical constraints.

1. Sublime Text: it is text editor which is used to code, prose, and markup files. it is suitable for small to large businesses. It can be used to edit files at the same time because it has a wide range of keyboard shortcuts. It saves time because it can navigate files quickly. It supports many programming and markup languages and platforms such as Windows, Mac and Linux but it doesn’t support mobile platform.

7.2 Web development Techniques:

They are optional efficient ways and skills implemented in specific fields for better user interface of your website. As a result, you will get better qualities and experience in designing websites.

1. media query: using media query depends on certain rules if these rules were achieved the CSS is implemented inside.
2. flex: it is the first modern techniques for designing webpage layout. it is a technique that helps organizing the elements in one dimensional row or column.
3. grid: unlike flex, it is a technique that helps organizing the elements in two dimensional as rows and columns at the same time.

\*both techniques flex and grid need a container as a parent in order to be applied.

1. SEO: it is an excellent technique for getting the optimum website reactions from users. It helps users by giving the result of the search in the best order which saves time.
2. responsive design : it is a very useful technique because it enables the user to get the same interface of website from any device. It is applied by using media query.
3. Using Colors, backgrounds, shades, icons, and type and size of font are other techniques.
4. Using suitable headers, alt tags, text alignment and semantic tags are good techniques to make your website readable.
5. Border-box (padding, margin and border) are useful techniques to control internal and external space between elements and to make lining for the elements.
6. Justification of the tools (such as IDE’s, design tools, and other software) and the techniques I used to design, develop, manage, or publish my website.

8.1 Tools that I used in my website:

Git hub: It is the largest host of source code or platform where you can share your codes or projects and host your local repository online. It is a social media which helps collaboration of a group of people to share their work which might be website development, design website or operating system such as android or Linux. It is owned by Microsoft and could be free or paid. It provides the version of git as well as bug tracking, software features and task management for every project.

VS code develop : it is a wonderful text editor with powerful developer tooling such as debugging and intelligence code completion which means the cycle of edit, build and debug saves time and gives you more time carrying out your ideas . It supports windows, Linux and macOS. It is ideal for everyday use and support many languages. It helps developers to navigate their codes easily because of its shortcuts and customization and they can add more functionality. Also, it helps developers with syntax highlighting, bracket-matching, debugging and box-selection ..etc. it also helps developer with more semantic code understanding and navigation, and code refactoring. It has interaction with build and scripting to do usual tasks and makes the work faster. It supports Git and you can work with source control without leaving the editor.

Moqups design : I chose this tool among the others because it is a simple, smart, quick and easy online tool for creating and collaborating on diagrams, sitemaps, wireframes and prototypes. it has many formatting, resizing, rotating, aligning and styling options. Also, it is possible to make precision adjustments and renaming of the objects with these tools. It offers a countless number of fonts, styles, icons and stencils to choose from so you can keep your teams focus and be creative. Also it allows you to keep everyone involved from managers to employees.

GoDaddy: I helped me with these services: web hosting and domain registration. I used it because it had the cheapest domain name for my website although there was a time limit of sixty days to transfer the domain name to another hosting application.

XAMPP develop: X: Cross platform, A: Apache, M:MySQL, P:PHP, P:Perl.

it is one of the most common, free and open source cross platform web server which helps developer to create and test programs on a local web server before releasing it to the main server. It consist of the Apache HTTP server, MariaDB and interpreter for 11 programming languages such as the PHP and Perl programming language. It is supported by many platforms such as windows, macOS and Linux. It is a platform that gives a suitable environment to test and modify projects based on Apache, Perl , MySQL database.

pxpMyAdmin develop: it is a free software tools written in php to handle the administration of MySQL or MariaDB database server which are used to do main tasks such as adding user accounts, creating and managing database, tables, columns, permissions and relations either by user interface or by MySQL. Also, it is used to import, delete, update, drop, export, alter and create MySQL database tables. It can run on any server and provide a web-based interface so it can be accessed from any computer.

Web hosting manade and pupliched 11: it is the business of hosting serving ad maintaining the files of one or more website offered by hosting companies. they host your websites files so thar they are accessible on the internet. It is very important because without a web host visitors cannot access your website. also these companies will provide you with server maintenance, support, email account and they will provide you with tools to help you manage your server.

Google search console manade and pupliched: it is a free service offered by google which helps website owners to improve the performance of their website by understanding how they are performing on google search and what they can do to make their appearance on search better and so bring more relevant visitors to their website. also, it helps them to monitor and improve search performance. You don’t need to check your account everyday because c]google will alert you is anything goes wrong but you may need to check your account when you make chances on your account to make sure data is stable.

8.2 Techniques that I used in my website:

In my website, I used the following techniques: the media query which helps me to make my website responsive so that it can be activated from any device in a an organized way. Then, I used flex and grid techniques to divide the elements of the page into rows and columns so that I could design the layout of my page properly.

I used tag <h1> for headers so that they woulda be recognized from other parts. Also, I used border-box (padding, margin and border) are useful techniques to control internal and external space between elements and to make lining for the elements. Another useful techniques was semantic tags such as header, main, footer and section which helped me to divide the code to parts and each one has elements depending on its meaning. Also, I used seo is an excellent technique for getting the optimum website reactions from users. It helps users by giving the result of the search in the best order which saves time. Using Colors, backgrounds, shades, icons, and type and size of font are other techniques. Using suitable headers, alt tags, text alignment and semantic tags are good techniques to make your website readable.

Part 2: Design document

* Comparison of the multipage website created to the design document.

**Goals:**

The goals of my website have successfully achieved as planned in the design document which are to help patients to reserve (book) an appointment, postpone, change, or cancel an appointment in an eye clinic.

**Scope:**

The scope of my website has been achieved with some changes from the scope of the design document. In my design document I planned that the user gets into the homepage of the website and looks at the services offered by the clinic by choosing the services link. If he finds any of the service that he is looking for, he can create or open an account. Then, he will see the specialist doctors and the schedule of each doctor and then choose a suitable appointment for him. Later, the user can edit or cancel the appointment.

On the other hand, in my website I have made some changes such as the user can see the specialist doctor with no need to login but if he wants to book an appointment he needs to login. Concerning the services there is no change. The user can see the services offered by the clinic by choosing the services link. Also I added other services such as the ability to see the location and contact the clinic using phone.

**Requirements:**

The requirements in my website have been achieved with some changes from the requirements of the design document. In my design document, I planned that user can login and sign up the website and can book an appointment by choosing the date and time and the user can edit or cancel this appointment. In my website the user can also choose the doctor and service.

Other two requirements in my design document were that the user can see the cost of the treatment session and how much time he may need to wait. In my website, I deleted these two requirements.

**Sitemap:**

The sitemap in my website is completely different from the sitemap of my website. There was new arrangement of pages in my website because I added new pages.

Sitemap of design document:

Diagram

Description automatically generated

**wireframe:**

my website is almost the same as my wireframe that is the elements in my website are arranged the same way as they are in the wireframe and there are no different elements. There is slight different in spacing (padding and margin), color, size and content between them. There are some differences between pages such as links names in navigation bar. Also, some pages were added to the website. another change was that the value and the placeholder of input box was changed from name in the wireframe to email in the website. In my website I exchanges the positions of email and password I put the email first then the password but in wireframe I put the password first then the email.

**launching:**

I have applied the instruction is the video to buy and host domain name and upload the files of the website. I had no problems, and everything went successfully.

* Evaluation of the design and development process against my report and analyze any technical challenges I faced during my development:

Creating a website was not an easy task for me at all since it was my first time creating a website. my knowledge was very limited, and I did not know how I can make something creative and professional. Sometimes I need to do things again and again which was very tiring and time-consuming. At the same time it was a very exciting and beneficial experience.

I had a problem designing my website in a very attractive way due to the fact that I’m not an imaginative or artistic person but what helped me most in this aspect was the sitemap and wireframe which helped me with the initial design and imagine the diagram of the website at the beginning before I start working. Moreover, programing languages such as HTML which helped me with the structure of the page and what elements it contains and CSS which helped me to present the elements on the screen, to control the layout of the pages and elements and to use appropriate colors, sizes and font type.

I don’t have a lot of knowledge about database and SQL language so I used PHP language and PHPMyAdmin which help me to connect my website with database.

I faced a problem with using combination of colors and font type, so I used trending color pallets and google fonts to help me.

Spacing the elements in each page, aligning and displaying were not easy tasks for me I tried to control these aspects using flex, grid, margin, border and padding.

I faced a problem with the development of the code because it is very long, complicated and divided into files and folders and each folder or file has different languages or images. So I used VS code to help me organize my code.

On of the most serious challenges was the responsive design in which all the elements, layout and design of the page change according to the device used so sometimes I need to write a new CSS code suitable to the width of the device used.

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