Chapter 1
Introduction

1.1 Introduction

This Report explains the meaning of Web, Web Development, and a little touch on Web Design. It also highlights the skills, qualifications, and some tools required as a beginner to make a good start and get your career moving in the right way.

The web is just the common name many people use for the World Wide Web (WWW), a division of the Internet consisting of pages that can be accessed by a web browser. Commonly people often regard the web and internet as the same whereas it's not. However, the Internet is the global network of various servers that makes data(information) sharing that happens over the internet possible.The Internet is used for many things, such as electronic mail, online chat, file transfer, and other documents of the World Wide Web. It is the biggest worldwide communication network of Computers.

Web Development simply means writing mark-up and coding. It refers to the non-design aspects of building websites. It is the work involved in creating a website for the internet(www) or an intranet(a private network).The knowledge of web tools that are required in basic web development includes HTML, CSS, JavaScript, and many more. These tools are required by beginners in career building.

1.2 Objective

The main objective of our project is to provide complete or detailed data or information about all new as well as old technology in form of articles or blogs. These blogs are written by those people who know better about the technology which was chosen by him and these articles are helpful for those who want to explore and want to study in the technology which is present in article or blogs.

A secondary purpose, of web development is to create a functional and user-friendly website that can be accessed through the internet. This can be achieved by writing code in languages such as HTML, CSS, and JavaScript, and using these languages to build the structure, design, and interactivity of the website. Web development can be used to create a wide range of websites, including e-commerce sites, social media platforms, and business websites. The goal is to make the website easy to use, visually appealing, and effective in achieving the purpose for which it was created. The web application is developed for those who might choose or want to study in any technology. As such, the web application employs easy-to-use, relatively inexpensive, basic tools and services, such as php, mysql, Persona, HTML, CSS, JavaScript. In order to use many of these services together, the web application was purpose-built using the well-documented and flexible wordpress web development framework, Pyramid, in conjunction with the templating system, php, along with the standard HTML, CSS, and JavaScript programming languages.

Chapter 2
Tech Stack

2.1 WordPress :-

WordPress is a content management system (CMS) that was first released in 2003. It was created by Matt Mullenweg and Mike Little as a fork of another blogging platform called b2/cafelog. WordPress is written in the programming language PHP and uses a MySQL database to store content. The software is open-source, which means that anyone can use it for free and contribute to its development. WordPress has since grown to become one of the most popular CMS platforms on the web, powering millions of websites. It is used for a wide range of purposes, including blogging, e-commerce, business websites, and more. Over the years, WordPress has undergone numerous updates and improvements, adding new features and functionality. It has a strong community of users and developers who contribute to its growth and development.WordPress is an open-source content management system (CMS) that is widely used for creating websites and blogs. It was originally designed as a blogging platform, but it has evolved to become a powerful and flexible tool for building all types of websites.

The main objective of WordPress is to provide users with an easy-to-use platform for creating, managing, and publishing content online. It is designed to be user-friendly and intuitive, so that anyone can create a professional-looking website without needing to have extensive technical knowledge or programming skills.

WordPress is also highly customizable, with a wide range of themes and plugins available that allow users to tailor their website to meet their specific needs and preferences. It is also constantly being updated and improved, with new features and functionality being added on a regular basis. Overall, the main objective of WordPress is to provide users with a powerful, flexible, and easy-to-use platform for building and managing websites.

WordPress is a content management system (CMS) that is used to power websites and blogs. It is designed to make it easy for users to create, edit, and publish content on the web.
One of the main functions of WordPress is to provide a platform for creating and managing the content of a website or blog. This includes creating and publishing blog posts, pages, and media such as images and videos.WordPress also has a range of features and tools that enable users to customize and extend the functionality of their websites. These include themes, which allow users to change the design and layout of their site, and plugins, which add additional features and functionality to the site.

In addition to its content management and customization capabilities, WordPress is also used as a platform for building and managing online communities, as it includes features such as user registration, user profiles, and support for comments and discussions.

Overall, the main function of WordPress is to provide a user-friendly platform for creating and managing the content of a website or blog, and for customizing and extending the functionality of the site.

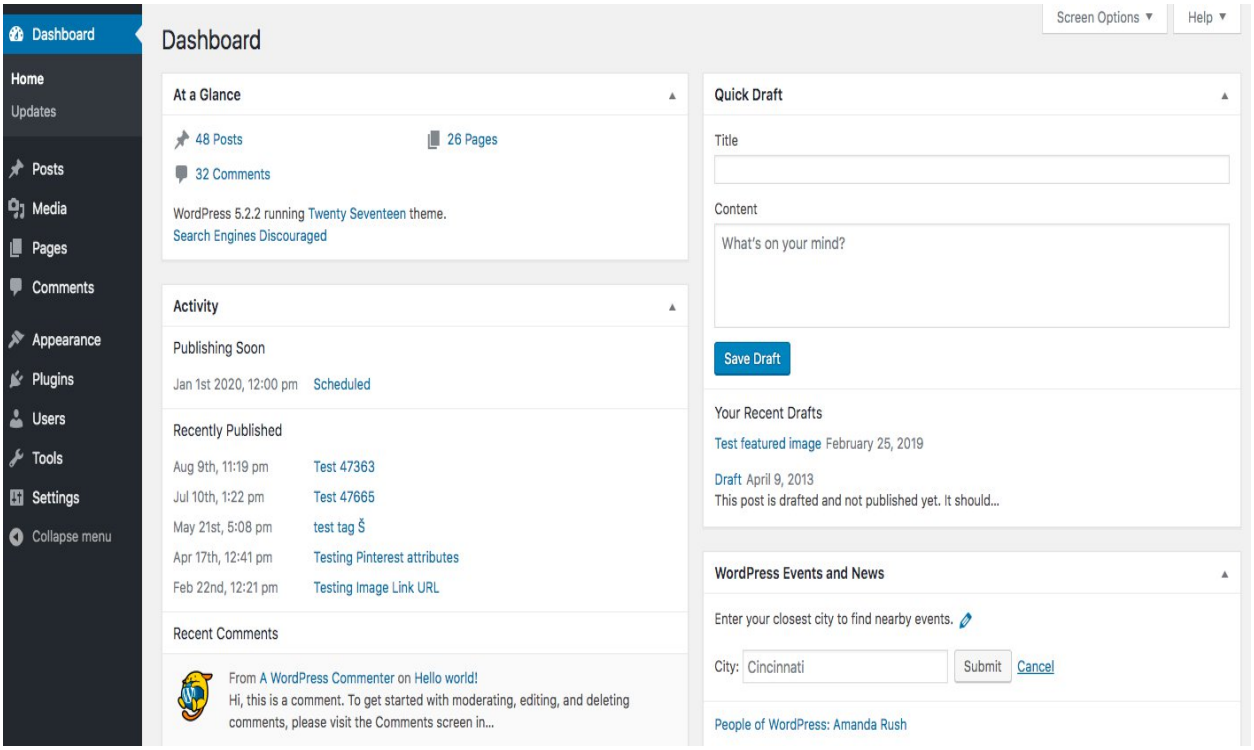

fig. 2.1 WordPress Dashboard

WordPress is a piece of software that can be installed on a WordPress site to extend its functionality. WordPress plugins are written in the PHP programming language and integrate seamlessly with the WordPress platform.There are thousands of WordPress plugins available, both free and premium (paid). They can be used to add a wide range of functionality to a WordPress site, including features such as contact forms, image galleries, and SEO tools. To use a WordPress plugin, you will need to install it on your WordPress site and then activate it. Once activated, the plugin will add its functionality to your site, and you may need to configure its settings to customize its behavior.Using WordPress plugins allows users to easily add new features to their WordPress site without needing to write custom code. They are an essential part of the WordPress ecosystem, and they make it easy for users to extend the capabilities of their site.

2.2 Gatsby:-

fig. 2.2 Gatsby

Gatsby is a free and open-source framework based on React that helps developers build fast, secure, and accessible websites and web applications. It uses powerful pre-configuration to build a performance-optimized site, while also providing a flexible way to connect to your data sources, whether that be a CMS, APIs, or a local file system. Gatsby also provides a set of plugins and libraries that can help with tasks such as asset optimization, SEO, and forms handling, making it a popular choice for developers looking to create high-performance websites.

It's primarily used for building Static Site Generator (SSG) by pulling data at build time and generate HTML/CSS/JS that is shipped to the user. It's especially useful when you want to build a performance-optimized website or PWA that still needs to retrieve data from a CMS or API during runtime.

Gatsby is a powerful tool for building websites and web applications that are fast, secure, and accessible. One of the main advantages of using Gatsby is its ability to generate a static version of your site, which can be served to users without the need for server-side rendering. This can greatly improve the performance of your site, since the HTML, CSS, and JavaScript are delivered to the user's browser in a pre-rendered format.

Gatsby uses React, a popular JavaScript library for building user interfaces, as its foundation. This means that developers who are familiar with React will be able to quickly pick up Gatsby and start building their site. However, even if you have no React experience, Gatsby's syntax and structure are relatively easy to learn.

In addition to its static site generation capabilities, Gatsby also provides a number of other features that can help developers create high-performance websites. For example, it includes built-in support for asset optimization, which can help reduce the size of your site's images and other assets, and it also has a powerful plugin system that can be used to add functionality such as analytics, forms handling, and more.

Gatsby also support GraphQL, a query language that allows developers to retrieve exactly the data they need, in the format they want, from their chosen data source (CMS, APIs, local files..)

Another advantage of Gatsby is its large and active community, which has developed a wide range of plugins and tutorials that can help developers get started with their projects.

Overall, Gatsby is a great choice for building high-performance websites and web applications, especially for developers who are already familiar with React, or who are looking to build a static site that pulls data from different sources.

fig. 2.3 GraphQL

GraphQL is a query language for your API. It is a relatively new technology that was developed and open-sourced by Facebook in 2015. It allows developers to request exactly the data they need from an API, and nothing more. This can be a significant improvement over traditional REST (Representational State Transfer) APIs, which typically require developers to make multiple requests to the server in order to retrieve all the data they need for a single page or feature.

With GraphQL, the client can specify exactly what data it needs in a single request. The server will then respond with only that data, making it more efficient and less cumbersome.

One of the main benefits of using GraphQL is its flexibility. Because the client can request exactly the data it needs, it can be used to build a wide range of different types of applications. For example, GraphQL can be used to build web and mobile apps, IoT devices, and even serverless functions.

Another benefit of GraphQL is its ability to handle complex data relationships. REST APIs typically require multiple requests to retrieve related data, but with GraphQL, the client can specify all the data it needs in a single request.

GraphQL also has a built-in type system, which means that it can be used to validate the data being sent to and from the server. This can help prevent errors and improve the reliability of your application.

Gatsby uses GraphQL for retrieving data from various sources, and it also provides a built-in GraphiQL for developers to test and query the data, which can be a great way for developers to explore the data and understand the data structure.

Overall, GraphQL is a powerful technology that can be used to build efficient, flexible, and scalable APIs. It's not the only way to build an API but it's a good alternative to the REST standard, and it's being adopted by many companies as a way to improve their API development.

2.3 HTML (Hypertext Markup Language):-

fig 2.4 HTML

The first version of HTML was written by Tim Berners-Lee in 1993. Since then, there have been many different versions of HTML. The most widely used version throughout the 2000's was HTML 4.01, which became an official standard in December 1999.Another

version, **XHTML**, was a rewrite of HTML as an XML language. XML is a standard markup language that is used to create other markup languages. Hundreds of XML languages are in use today, including GML (Geography Markup Language), MathML, MusicML, and RSS (Really

Simple Syndication). Since each of these languages was written in a common language (XML), their content can easily be shared across applications.

This makes XML potentially very powerful, and it's no surprise that the W3C would create an XML version of HTML (again, called XHTML). XHTML became an official standard in 2000, and was updated in 2002. XHTML is very similar to HTML, but has stricter rules. Strict rules are

necessary for all XML languages, because without it, interoperability between applications would be impossible.

Most pages on the Web today were built using either HTML 4.01 or XHTML 1.0. However, in recent years, the W3C (in collaboration with another organization, the WHATWG), has been working on a brand new version of HTML, HTML5. Currently (2011), HTML5 is still a draft specification, and is not yet an official standard. However, it is already widely supported by browsers and other web-enabled devices, and is the way of the future.

HTML (Hypertext Markup Language) is a markup language used to structure and format content on the web. It is the standard markup language for creating web pages and is used to define the structure and layout of a web document by using a variety of tags and attributes. HTML consists of a series of elements, which are represented by tags. These tags are used to mark the start and end of an HTML element and are usually enclosed in angle brackets.

For example, the following HTML code creates a paragraph element:

This is a paragraph

In this example, the and tags define the start and end of the paragraph element, and the text "This is a paragraph" is the content of the element.

```
<!DOCTYPE html>
<html>
<head>
    <title> My First Page </title>
</head>
<body>
    <p> Welcome to <em> Simplilearn!! </em></p>
    <p>
        This is the <b>HTML</b> tags <u>article.k/u>
        <a href="https://www.simplilearn.com/"> This is the link to
        Simplilearn website</a>


    </p>


</body>
</html>
```

fig 2.5 HTML Workspace

HTML can be used to add formatting and structure to text, create links, embed images and media, and create forms for user input. It is a fundamental technology that is essential for building websites and is used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive and dynamic web page.

2.4 CSS(Cascading Style Sheets):-

fig 2.6 CSS

The saga of CSS starts in 1994. Håkon Wium Lie works at CERN – the cradle of the Web – and the Web is starting to be used as a platform for electronic publishing. One crucial part of a publishing platform is missing, however: There is no way to style documents. For example, there

is no way to describe a newspaper-like layout in a Web page. Having worked on personalized newspaper presentations at the MIT Media Laboratory, Håkon saw the need for a style sheet language for the Web. Style sheets in browsers were not an entirely new idea. The separation of document structure from the document's layout had been a goal of HTML from its inception in 1990. Tim Berners-Lee wrote his NeXT browser/editor in such a way that he could determine the style with a simple style sheet. However, he didn't publish the syntax for the style sheets, considering it a matter for each browser to decide how to best display pages to its users. In 1992, Pei Wei developed a browser called Viola, which had its own style sheet language.CSS (Cascading Style Sheets) is a style sheet language used for describing the look and formatting of a document written in HTML. CSS is used to control the style of a web page, including elements such as the layout, colors, and fonts. CSS is a separate file from an HTML document and is linked

to the HTML file using a link element in the head of the HTML document. The CSS file contains a set of rules that specify how the elements in the HTML document should be displayed. Each rule consists of a selector and a declaration. The selector identifies the element or elements that the rule applies to, and the declaration specifies the style properties and values that should be applied to the selected elements.

Here is an example of a simple CSS rule that changes the color of all paragraphs in an HTML document to red:

```
p {
 color: red;
}
```

In this example, the selector is "p" and the declaration is "color: red;". This rule will apply to all paragraph elements in the HTML document and will set their text color to red.

CSS is a powerful tool for controlling the look and feel of a website and is an essential part of modern web development

```
.l-header {
  background: #fff;
  box-shadow: 0 0 30px rgba(0, 0, 0, 0.05);
  width: 100%;
  position: fixed;
  left: 0;
  top: 0;
  z-index: 9000;
  &__inner {
    display: flex;
    align-items: center;
    justify-content: space-between;
    @include smMax {
      height: 60px;
      background: #fff;
      z-index: 8500;
```

fig 2.7 CSS Workspace

2.5 JavaScript:-

fig 2.8 javascript

JavaScript was created at Netscape Communications by Brendan Eich in 1995. Netscape and Eich designed JavaScript as a scripting language for use with the company's flagship web browser, Netscape Navigator. Initially known as LiveScript, Netscape changed the name to JavaScript so they could position it as a companion for the Java language, a product of their partner, Sun

Microsystems. Apart from some superficial syntactic similarities, though, JavaScript is in no way related to the Java programming language.After its release, more and more browsers started adding JavaScript support. Still, for much of its history JavaScript was not regarded as a serious programming language. Its earliest releases suffered from notable performance and security issues, but developers had no alternatives. If they wanted to run programs in the browser, they had to use JavaScript.

In 2008, the creation of Google's open-source Chrome V8, a high-performance JavaScript engine, provided a crucial turning point for JavaScript. The subsequent proliferation of fast JavaScript engines made it possible for developers to build sophisticated browser-based applications with performance that competed with desktop and mobile applications.

Soon after, Ryan Dahl released an open-source, cross-platform environment called Node.js. It provided a way to run JavaScript code from outside a browser. It freed JavaScript from the browser's confines and led directly to JavaScript's current popularity. Today, you can use JavaScript to write all kinds of applications, including browser, server, mobile, and desktop applications. Most major online companies today, including Facebook, Twitter, Netflix, andGoogle, all use JavaScript in their products.JavaScript is a programming language that is

commonly used to add interactive features to web pages. It is an object-oriented language that is used to create dynamic web pages by manipulating the content, layout, and functionality of a website.

JavaScript is often used in conjunction with HTML and CSS to create interactive and dynamic web pages. It can be used to validate form input, create animations, and handle events such as mouse clicks and keyboard input.

JavaScript code is usually written in the form of functions, which are blocks of code that can be called from other parts of the code or from event handlers. Functions can accept input in the form of parameters and can return output in the form of a return value.

Here is an example of a simple JavaScript function that displays an alert message when called:

```
function showAlert() {
```

alert("Hello, World!");

}

This function can be called from an event handler in an HTML document, such as a button click:

<button onclick="showAlert()">Click me</button>

JavaScript is a powerful and widely-used language that is essential for building modern, interactive websites.

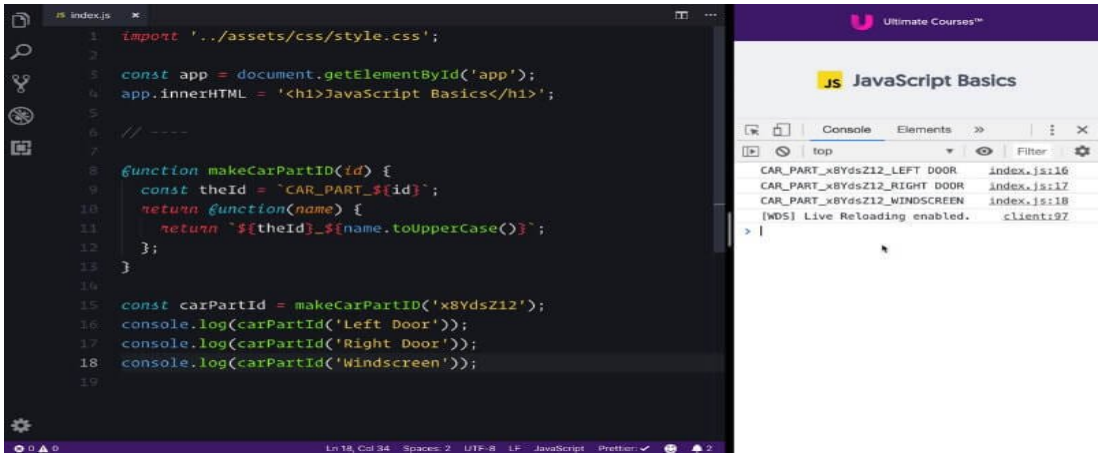

fig. 2.9 Javascript Workspace

2.5 GSAP:-

fig. 2.10 GSAP

GSAP, or the Greensock Animation Platform, is a suite of JavaScript libraries for creating high-performance animations on websites and web applications. It is widely regarded as one of the

best animation libraries available, and is used by many professional web developers to create a wide range of different types of animations.

One of the key features of GSAP is its ability to create highly performant animations, even on older or less powerful devices. This is achieved through the use of advanced techniques such as requestAnimationFrame, a method that allows animations to be synced with the device's display refresh rate, resulting in smoother animations.

GSAP also has a wide range of features that can be used to create a wide variety of different types of animations. For example, it includes tools for animating CSS properties, SVG attributes, and even JavaScript objects, allowing you to create highly customized and complex animations.

GSAP also provides a lot of built-in easing function and a powerful timeline system to help you orchestrate multiple animations together. It also allows you to stagger and stagger reverse the animations for more complex animation sequences.

One of the main advantages of GSAP is that it is framework-agnostic, this means you can use it with any framework or no framework at all.

Overall, GSAP is a powerful and flexible library that can be used to create high-performance animations on websites and web applications. It is widely used by professional web developers and it's a great choice if you want to create smooth and complex animations on your website.

GSAP (Greensock Animation Platform) is a suite of JavaScript libraries that provides a wide range of tools for creating high-performance animations on websites and web applications. At its core, GSAP is built on a system of tweening, which is a method of gradually changing a property's value over time. The basic process of using GSAP to create an animation involves the following steps:

1. Select the element or elements you want to animate. You can use CSS selectors, DOM nodes, or any other method to select the elements you want to animate.
2. Define the starting and ending values of the animation. This can be done using an object literal, an array, or any other data structure that supports key-value pairs.

3. Choose the animation duration and easing. The duration is the length of time the animation should take to complete, and the easing is the rate at which the animation should progress. GSAP provides a variety of built-in easing functions, such as linear, ease-in, and ease-out, or you can define your own easing function.
4. Create the animation. You can use the TweenLite or TweenMax class from the GSAP library to create the animation. You'll need to pass in the element or elements you selected, the starting and ending values, the duration, and the easing.
5. Start the animation. Once the animation is created, you can start it by calling the play() method on the Tween instance.

Here is an example of a simple animation created using GSAP:

```
// Create a new animation
var tl = new TweenLite.to("#my-element", 1, {
  x: 200, // move element 200px to the right
  ease: Power1.easeInOut // use the Power1 easing function
});

// Start the animation
tl.play();
```

fig. 2.11 GSAP Workspace

In this example, the TweenLite.to() function is used to create a new animation, which will move the element with an id of "my-element" 200 pixels to the right over the course of one second. The Power1.easeInOut easing function is used to control the rate of the animation. Finally, the play() method is called on the animation instance to start it.

GSAP also provide various other functionalities such as controlling the animation progress, reversing the animation, pausing, reversing and many more. It also provide a built-in timeline system, where you can add multiple animations and control them together, which is very useful for creating complex animation sequences.

Chapter 3
Projects

3.1 Wabi Sabi

A web app created during my internship day Technologies used : HTML,CSS, Wordpress, Gatsby , Graphql , GSAP.

3.1.1 Some common features of E-commerce websites include:

- A catalog or product listing page, where products or services can be displayed and sorted by various criteria such as category, price, or popularity.
- A shopping cart, where customers can add items to their order and view the total cost before checking out.
- A checkout page, where customers can enter their shipping and billing information and complete the purchase.
- A customer account system, where customers can view their order history, track their order, and manage their account information.
- A search function, where customers can search for products by keywords or other criteria.
- A Product detail page, where customers can view more detailed information about a specific product and see options like size, color, etc.
- A Secure payment gateway, for processing payments and securely transmitting sensitive information such as credit card numbers.
- A back-end or administrative interface, where store owners can manage their inventory, process orders, and track sales.

An e-commerce website is a website that allows businesses to sell products or services online. E-commerce websites are becoming increasingly popular as more and more people shop online. They can be used by small businesses, large corporations, and everything in between.

fig. 3.1 Homepage

A T-shirt e-commerce website is a specific type of e-commerce website that focuses on selling T-shirts online. These websites typically feature a product catalog that allows customers to browse through a variety of T-shirts, with each product including details such as size, color, material, and design.

A T-shirt e-commerce website might include the following features:

- A catalog or product listing page, where customers can browse through the available T-shirts and filter them by size, color, material, and other criteria.
- Product detail page, where customers can view more detailed information about a specific T-shirt, including product images, sizing charts, and product descriptions.
- A shopping cart, where customers can add items to their order and view the total cost before checking out.
- A checkout page, where customers can enter their shipping and billing information and complete the purchase.
- A customer account system, where customers can view their order history, track their order, and manage their account information.
- A search function, where customers can search for T-shirts by keywords or other criteria.

- A Secure payment gateway, for processing payments and securely transmitting sensitive information such as credit card numbers.
- A back-end or administrative interface, where store owners can manage their inventory, process orders, and track sales.
- A Wishlist, where customers can add their desired items to the wishlist to purchase later.
- A Custom Design Tool, where customers can upload their own designs and preview them on a T-shirt before purchasing.

Creating a T-shirt e-commerce website is relatively complex, and typically requires more resources and expertise than building a simple website. There are a lot of platforms and frameworks that can help you create an e-commerce website, but some are more suited for T-shirt sales than others, such as Shopify, WooCommerce and Magento are few popular e-commerce platforms to build a T-shirt website.

If you are looking to build a custom website that can handle specific needs of your store like custom design tool, it would be better to work with a web development team who have experience in building e-commerce websites. They can help you design a website that meets your needs and provides the best possible user experience for your customers.

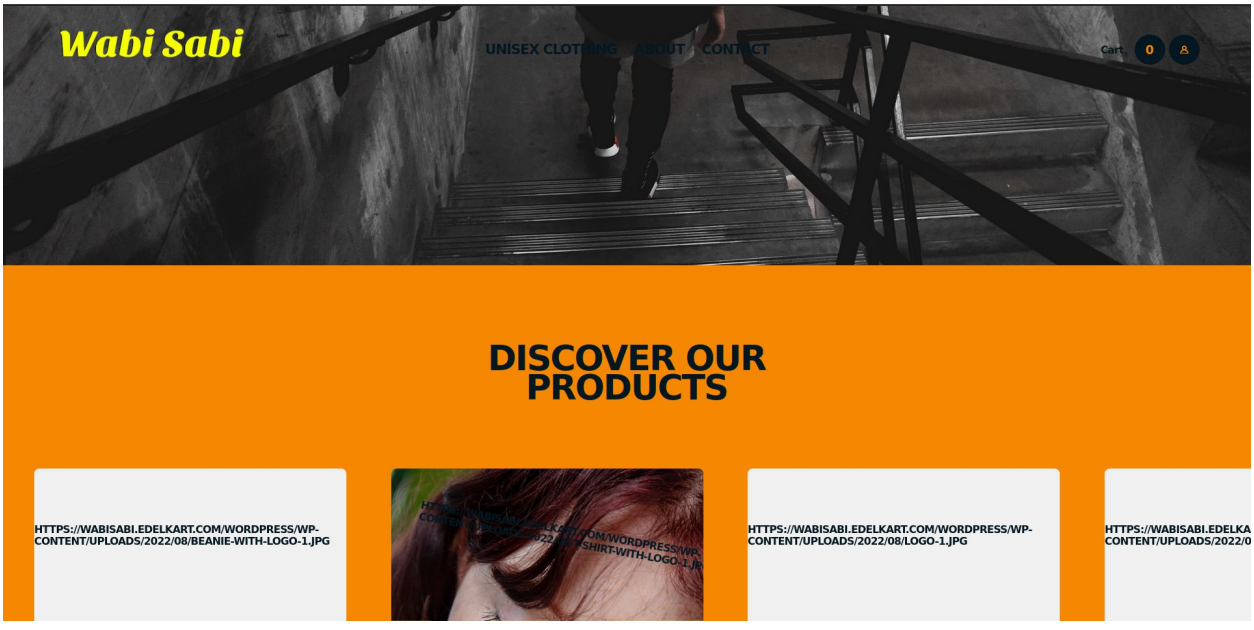

fig. 3.2 Homepage

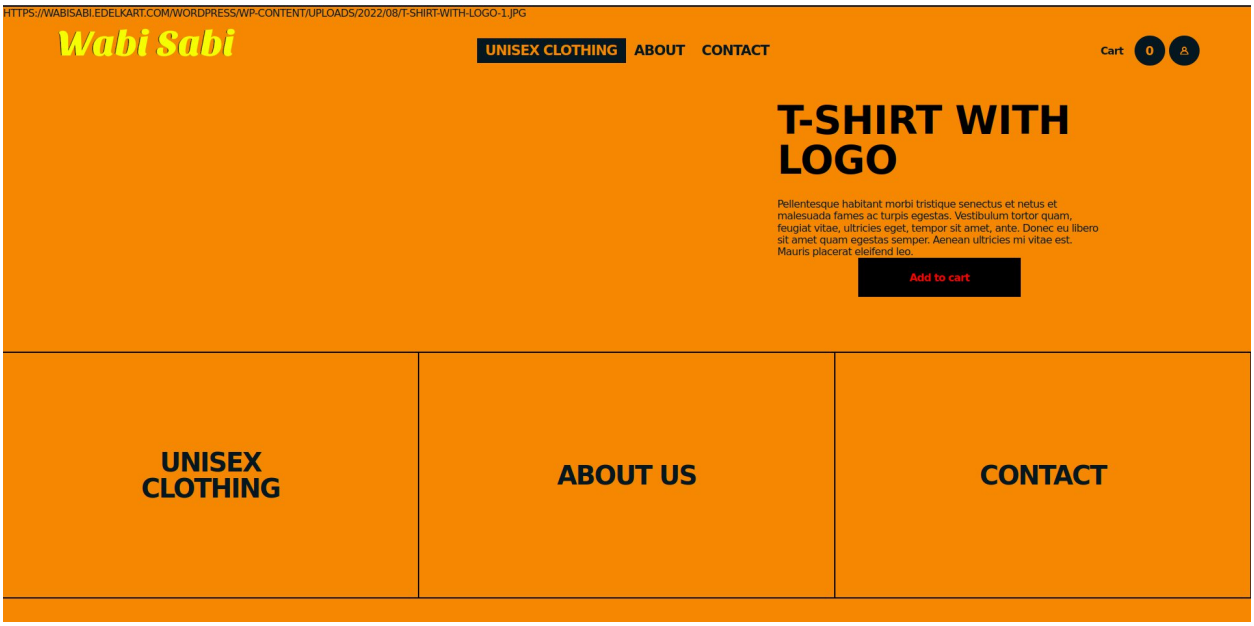

fig. 3.3 Product Page

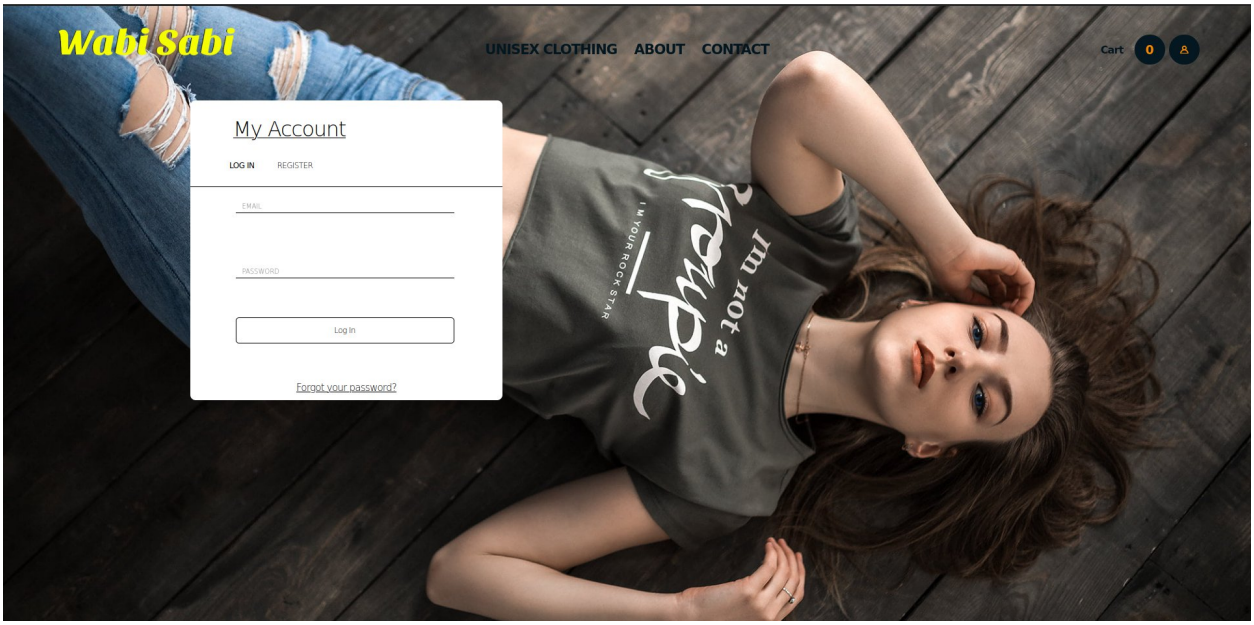

fig. 3.4 Login Page

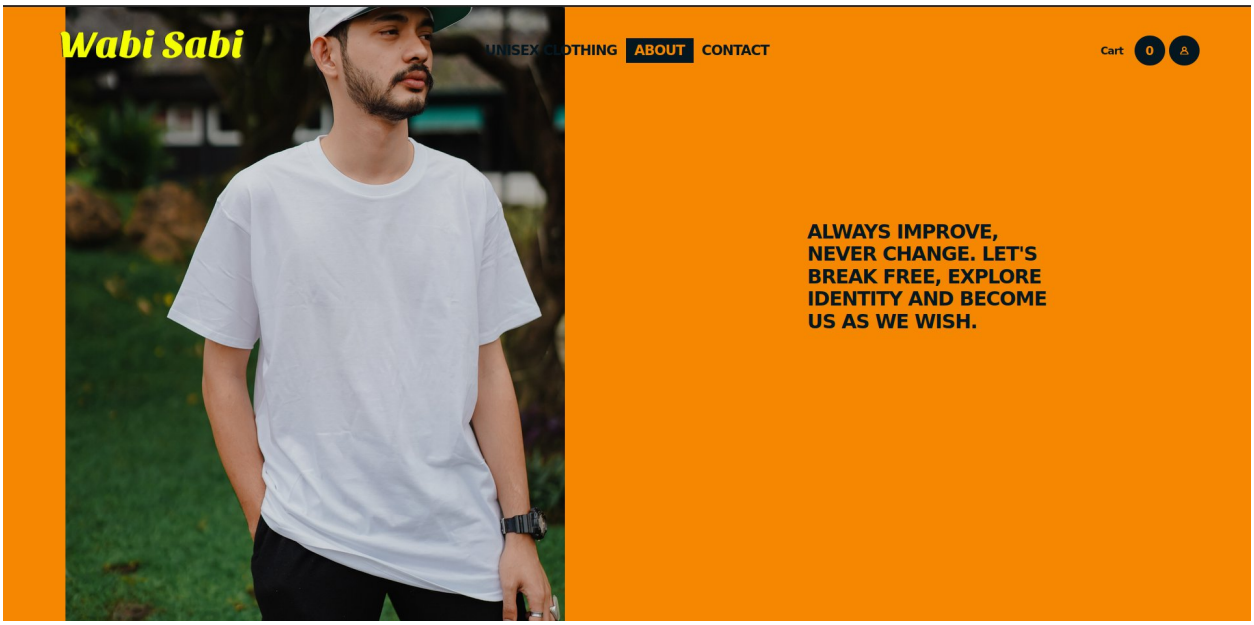

fig. 3.5 About Page

3.2.2 Tech Stack Description

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3.1.2.2 Function of Wordpress

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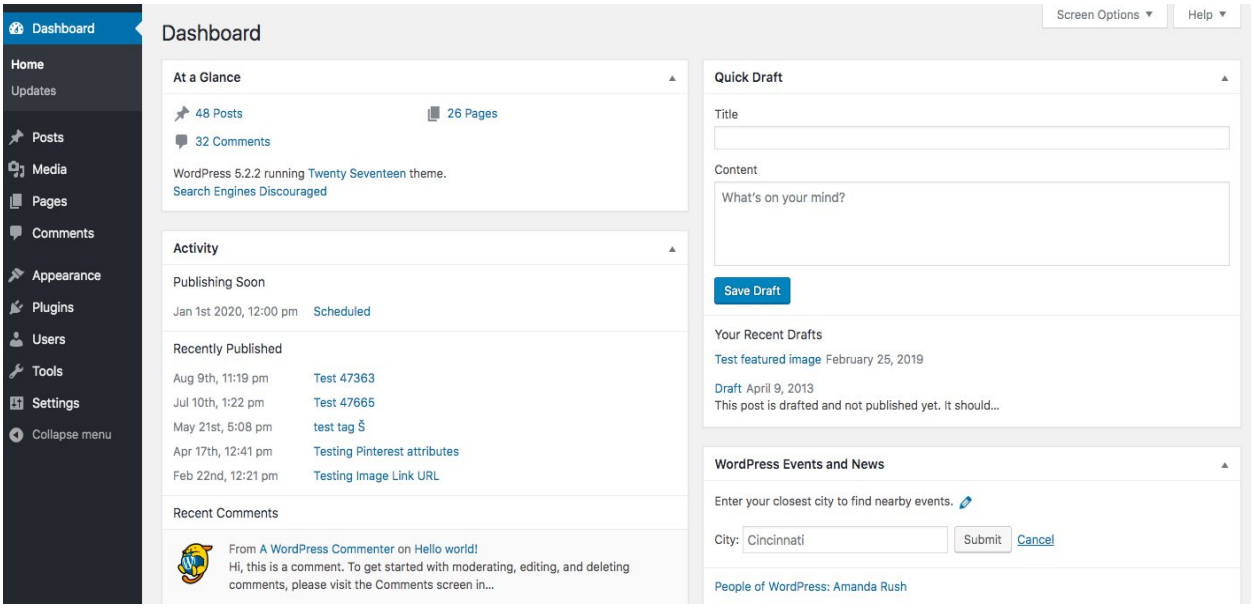

fig. 2.1 Wordpress

A WordPress theme is a collection of files that define the appearance and layout of a WordPress website. It includes templates for the different pages and components of the site, as well as style sheets that control the visual design of the site, such as the color scheme and font.

WordPress themes can be installed on a WordPress site to quickly and easily change the appearance of the site. There are thousands of themes available, both free and premium (paid), and

they can be used to create a wide range of different types of websites, including business websites, blogs, and e-commerce sites.

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Gatsby is a powerful tool for building websites and web applications that are fast, secure, and accessible. One of the main advantages of using Gatsby is its ability to generate a static version of your site, which can be served to users without the need for server-side rendering. This can greatly improve the performance of your site, since the HTML, CSS, and JavaScript are delivered to the user's browser in a pre-rendered format.

Gatsby uses React, a popular JavaScript library for building user interfaces, as its foundation. This means that developers who are familiar with React will be able to quickly pick up Gatsby and start building their site. However, even if you have no React experience, Gatsby's syntax and structure are relatively easy to learn.

In addition to its static site generation capabilities, Gatsby also provides a number of other features that can help developers create high-performance websites. For example, it includes built-in support for asset optimization, which can help reduce the size of your site's images and other assets, and it also has a powerful plugin system that can be used to add functionality such as analytics, forms handling, and more.

Gatsby also support GraphQL, a query language that allows developers to retrieve exactly the data they need, in the format they want, from their chosen data source (CMS, APIs, local files..)

Another advantage of Gatsby is its large and active community, which has developed a wide range of plugins and tutorials that can help developers get started with their projects.

Overall, Gatsby is a great choice for building high-performance websites and web applications, especially for developers who are already familiar with React, or who are looking to build a static site that pulls data from different sources.

Gatsby uses GraphQL to retrieve data from various sources, and it allows developers to define their data requirements in a declarative way. This means that you can specify exactly what data you need for a specific page or component, and Gatsby will handle the data fetching and management for you.

The process of using GraphQL with Gatsby can be broken down into a few basic steps:

1. Define your data requirements: To start using GraphQL in Gatsby, you'll need to define your data requirements in the form of a GraphQL query. This query defines what data you need and how it should be structured.
1. Use the Gatsby graphql tag: Gatsby provides a graphql tag that you can use to execute your GraphQL queries. You can use this tag to retrieve the data you need for a specific page or component, and the data is available in the data prop.
1. Use the retrieved data: Once you've retrieved the data, you can use it to build your page or component. The data will be in the format that you specified in your GraphQL query, so you can easily access and use the data in your templates.

An example of how to use GraphQL in Gatsby

```
import { graphql } from "gatsby"

export const query = graphql`
  query {
    allProduct {
      edges {
        node {
          name
          price
          image {
            publicURL
          }
        }
      }
    }
  }
`
```

In this example, we are defining a GraphQL query in our component file, querying all the products we have in our data source and retrieving their name, price, and image. Then we are looping through the data and using it to render a list of products.

Gatsby's GraphQL support makes it easy to retrieve data from various sources and to query and manipulate data before it's being passed to the component, which can greatly simplify the process of building an e-commerce website or a blog with dynamic data.

GraphQL is a query language for your API. It is a relatively new technology that was developed and open-sourced by Facebook in 2015. It allows developers to request exactly the data they need from an API, and nothing more. This can be a significant improvement over traditional REST (Representational State Transfer) APIs, which typically require developers to make multiple requests to the server in order to retrieve all the data they need for a single page or feature.

With GraphQL, the client can specify exactly what data it needs in a single request. The server will then respond with only that data, making it more efficient and less cumbersome.

One of the main benefits of using GraphQL is its flexibility. Because the client can request exactly the data it needs, it can be used to build a wide range of different types of applications. For example, GraphQL can be used to build web and mobile apps, IoT devices, and even serverless functions.

Another benefit of GraphQL is its ability to handle complex data relationships. REST APIs typically require multiple requests to retrieve related data, but with GraphQL, the client can specify all the data it needs in a single request.

GraphQL also has a built-in type system, which means that it can be used to validate the data being sent to and from the server. This can help prevent errors and improve the reliability of your application.

Gatsby uses GraphQL for retrieving data from various sources, and it also provides a built-in GraphiQL for developers to test and query the data, which can be a great way for developers to explore the data and understand the data structure.

Overall, GraphQL is a powerful technology that can be used to build efficient, flexible, and scalable APIs. It's not the only way to build an API but it's a good alternative to the REST standard, and it's being adopted by many companies as a way to improve their API development.

3.1.4 HTML (Hypertext Markup Language):-

The first version of HTML was written by Tim Berners-Lee in 1993. Since then, there have been many different versions of HTML. The most widely used version throughout the 2000's

was HTML 4.01, which became an official standard in December 1999.Another version, **XHTML**, was a rewrite of HTML as an XML language. XML is a standard markup language that is used to create other markup languages. Hundreds of XML languages are in use today, including GML (Geography Markup Language), MathML, MusicML, and RSS (Really Simple Syndication). Since each of these languages was written in a common language (XML), their content can easily be shared across applications.

HTML (Hypertext Markup Language) is a markup language used to structure and format content on the web. It is the standard markup language for creating web pages and is used to define the structure and layout of a web document by using a variety of tags and attributes. HTML consists of a series of elements, which are represented by tags. These tags are used to mark the start and end of an HTML element and are usually enclosed in angle brackets.

```
<!DOCTYPE html>
<html>
<head>
    <title> My First Page </title>
</head>
<body>
    <p> Welcome to <em> Simplilearn!! </em></p>
    <p>
        This is the <b>HTML</b> tags <u>article.</u>
        <a href="https://www.simplilearn.com/"> This is the link to
        Simplilearn website</a>


    </p>


</body>
</html>
```

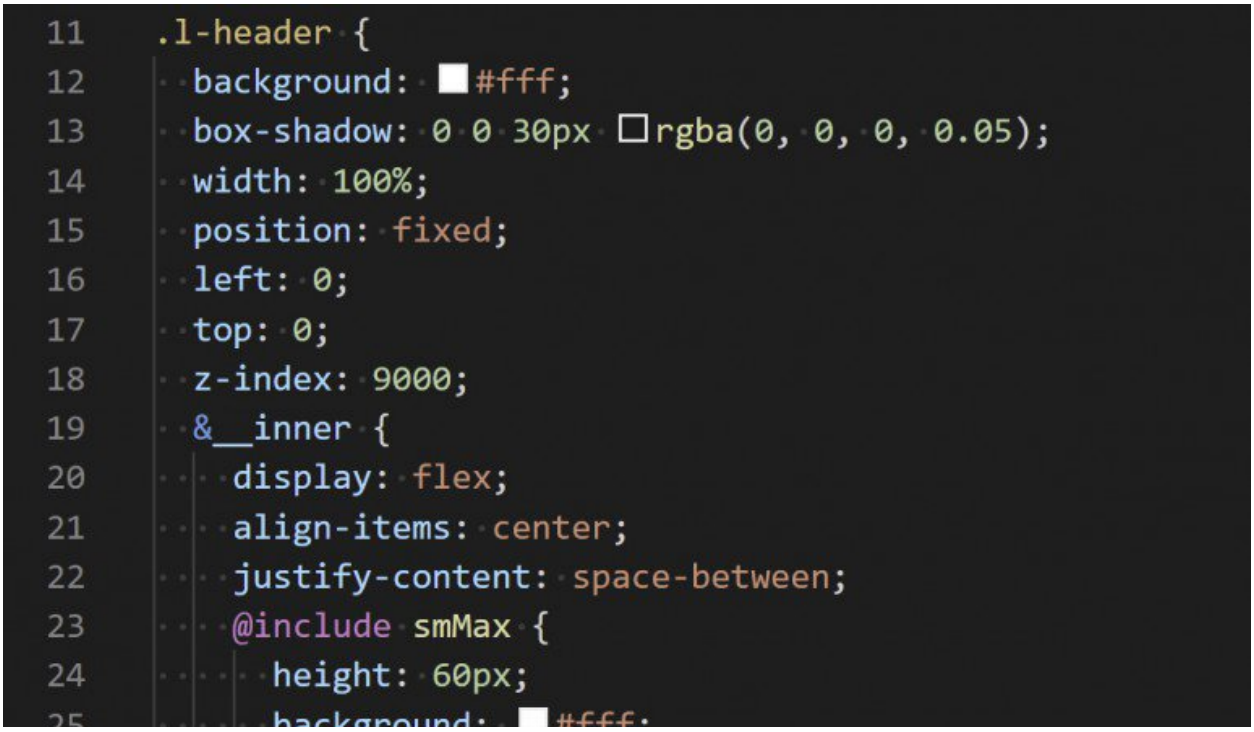
HTML can be used to add formatting and structure to text, create links, embed images and media, and create forms for user input. It is a fundamental technology that is essential for building websites and is used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive and dynamic web pages.

3.1.4 CSS(Cascading Style Sheets):-

The saga of CSS starts in 1994. Håkon Wium Lie works at CERN – the cradle of the Web – and the Web is starting to be used as a platform for electronic publishing. One crucial part of a

publishing platform is missing, however: There is no way to style documents. For example, there is no way to describe a newspaper-like layout in a Web page. Having worked on personalized newspaper presentations at the MIT Media Laboratory, Håkon saw the need for a style sheet language for the Web. Style sheets in browsers were not an entirely new idea. The separation of document structure from the document's layout had been a goal of HTML from its inception in 1990. Tim Berners-Lee wrote his NeXT browser/editor in such a way that he could determine the style with a simple style sheet. However, he didn't publish the syntax for the style sheets, considering it a matter for each browser to decide how to best display pages to its users. In 1992, Pei Wei developed a browser called Viola, which had its own style sheet language.CSS (Cascading Style Sheets) is a style sheet language used for describing the look and formatting of a document written in HTML. CSS is used to control the style of a web page, including elements such as the layout, colors, and fonts.

CSS is a separate file from an HTML document and is linked to the HTML file using a link element in the head of the HTML document. The CSS file contains a set of rules that specify how the elements in the HTML document should be displayed. Each rule consists of a selector and a declaration. The selector identifies the element or elements that the rule applies to, and the declaration specifies the style properties and values that should be applied to the selected elements.



```
.l-header {
  background: #fff;
  box-shadow: 0 0 30px rgba(0, 0, 0, 0.05);
  width: 100%;
  position: fixed;
  left: 0;
  top: 0;
  z-index: 9000;
  &__inner {
    display: flex;
    align-items: center;
    justify-content: space-between;
    @include smMax {
      height: 60px;
      background: #fff;
```

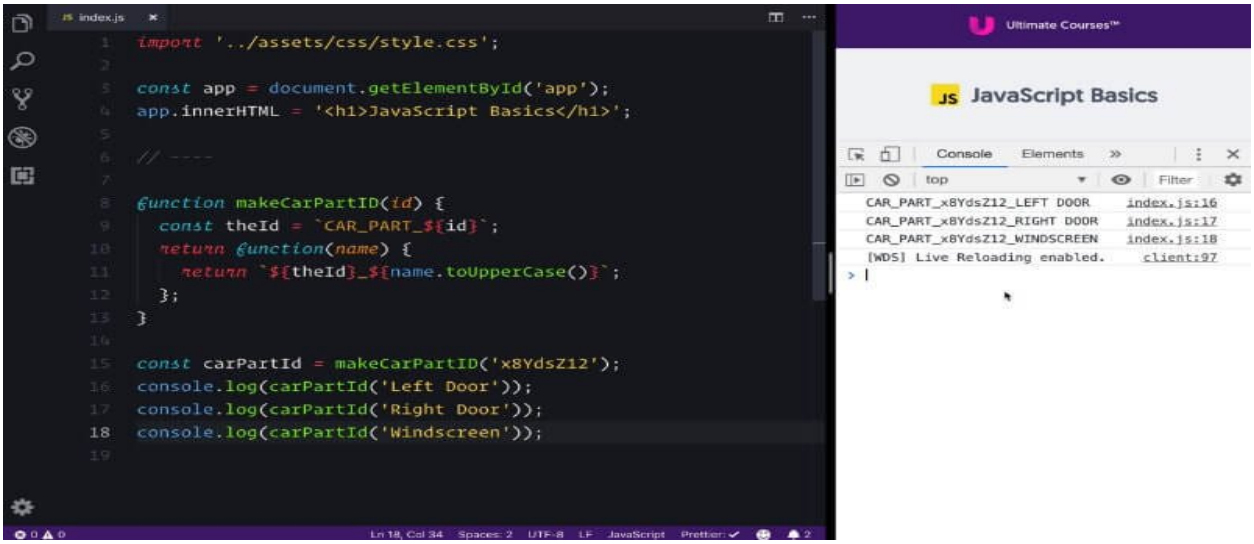
3.1.5 JavaScript:-

JavaScript was created at Netscape Communications by Brendan Eich in 1995. Netscape and Eich designed JavaScript as a scripting language for use with the company's flagship web browser, Netscape Navigator. Initially known as LiveScript, Netscape changed the name to JavaScript so they could position it as a companion for the Java language, a product of their partner, Sun Microsystems. Apart from some superficial syntactic similarities, though, JavaScript is in no way related to the Java programming language.After its release, more and more browsers started adding JavaScript support. Still, for much of its history JavaScript was not regarded as a serious programming language. Its earliest releases suffered from notable performance and security issues, but developers had no alternatives. If they wanted to run programs in the browser, they had to use JavaScript.

In 2008, the creation of Google's open-source Chrome V8, a high-performance JavaScript engine, provided a crucial turning point for JavaScript. The subsequent proliferation of fast JavaScript engines made it possible for developers to build sophisticated browser-based applications with performance that competed with desktop and mobile applications.

Soon after, Ryan Dahl released an open-source, cross-platform environment called Node.js. It provided a way to run JavaScript code from outside a browser. It freed JavaScript from the browser's confines and led directly to JavaScript's current popularity. Today, you can use JavaScript to write all kinds of applications, including browser, server, mobile, and desktop

applications. Most major online companies today, including Facebook, Twitter, Netflix, and Google, all use JavaScript in their products.



3.1.6 GSAP:-

GSAP, or the Greensock Animation Platform, is a suite of JavaScript libraries for creating high-performance animations on websites and web applications. It is widely regarded as one of the

best animation libraries available, and is used by many professional web developers to create a wide range of different types of animations.

One of the key features of GSAP is its ability to create highly performant animations, even on older or less powerful devices. This is achieved through the use of advanced techniques such as requestAnimationFrame, a method that allows animations to be synced with the device's display refresh rate, resulting in smoother animations.

GSAP also has a wide range of features that can be used to create a wide variety of different types of animations. For example, it includes tools for animating CSS properties, SVG attributes, and even JavaScript objects, allowing you to create highly customized and complex animations.

GSAP also provides a lot of built-in easing function and a powerful timeline system to help you orchestrate multiple animations together. It also allows you to stagger and stagger reverse the animations for more complex animation sequences.

One of the main advantages of GSAP is that it is framework-agnostic, this means you can use it with any framework or no framework at all.

Overall, GSAP is a powerful and flexible library that can be used to create high-performance animations on websites and web applications. It is widely used by professional web developers and it's a great choice if you want to create smooth and complex animations on your website.

GSAP (Greensock Animation Platform) is a suite of JavaScript libraries that provides a wide range of tools for creating high-performance animations on websites and web applications. At its core, GSAP is built on a system of tweening, which is a method of gradually changing a property's value over time. The basic process of using GSAP to create an animation involves the following steps:

1. Select the element or elements you want to animate. You can use CSS selectors, DOM nodes, or any other method to select the elements you want to animate.
2. Define the starting and ending values of the animation. This can be done using an object literal, an array, or any other data structure that supports key-value pairs.

3. Choose the animation duration and easing. The duration is the length of time the animation should take to complete, and the easing is the rate at which the animation should progress. GSAP provides a variety of built-in easing functions, such as linear, ease-in, and ease-out, or you can define your own easing function.
4. Create the animation. You can use the TweenLite or TweenMax class from the GSAP library to create the animation. You'll need to pass in the element or elements you selected, the starting and ending values, the duration, and the easing.
5. Start the animation. Once the animation is created, you can start it by calling the play() method on the Tween instance.

Here is an example of a simple animation created using GSAP:-

```
// Create a new animation
var tl = new TweenLite.to("#my-element", 1, {
  x: 200, // move element 200px to the right
  ease: Power1.easeInOut // use the Power1 easing function
});

// Start the animation
tl.play();
```

In this example, the TweenLite.to() function is used to create a new animation, which will move the element with an id of "my-element" 200 pixels to the right over the course of one second. The Power1.easeInOut easing function is used to control the rate of the animation. Finally, the play() method is called on the animation instance to start it.

GSAP also provide various other functionalities such as controlling the animation progress, reversing the animation, pausing, reversing and many more. It also provide a built-in timeline system, where you can add multiple animations and control them together, which is very useful for creating complex animation sequences.

References

I Completed This work With the Help of These Sites :

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