UNIT 1

Introduction to Web Technology

➢ Introduction to Web:

The World Wide Web (WWW), also known as the Web, is an information system that uses the Internet to access linked hypertext documents. With a web browser, one can view web pages that may contain text, images, videos, and other multimedia and navigate between them via hyperlinks.

The Web was invented in 1989 by Tim Berners-Lee, a British computer scientist, while working at CERN, the European Organization for Nuclear Research. The first web browser, called World Wide Web, was released in 1991.

The Web is a complex system, but it is based on a few simple principles. These principles are:

- **Hypertext:** Hypertext is the ability to link one document to another. This allows users to navigate through web pages by clicking on links.
- **Universal Resource Locators (URLs):** A URL is a unique identifier for a web page. URLs are used to tell web browsers where to find web pages.
- **Standards:** The Web is based on a number of standards, such as HTTP, HTML, and CSS. These standards ensure that web pages can be accessed by all web browsers.

The Web is a powerful tool that has changed the way we live and work. It has made information more accessible and has helped to connect people from all over the world. The Web is still evolving, and it is impossible to predict what the future holds. However, one thing is for sure: the Web will continue to play an important role in our lives.

➢ Protocols governing the web:

The World Wide Web is a complex system that relies on a number of protocols to function. These protocols define how different parts of the Web interact with each other, and they ensure that web pages can be accessed and displayed correctly by web browsers.

Some of the most important protocols governing the Web include:

- **Hypertext Transfer Protocol (HTTP):** HTTP is the protocol that defines how web browsers and web servers communicate with each other. When a user requests a web page, the web browser sends a request to the web server

using HTTP. The web server then sends the requested web page back to the web browser.

- **Hypertext Markup Language (HTML):** HTML is the markup language that is used to create web pages. HTML defines the structure of a web page, including the text, images, and other elements.
- **Cascading Style Sheets (CSS):** CSS is a style sheet language that is used to control the appearance of web pages. CSS defines the font, size, colour, and other properties of text and other elements on a web page.
- **Uniform Resource Locators (URLs):** A URL is a unique identifier for a web page. URLs are used to tell web browsers where to find web pages.
- **Internet Protocol (IP):** IP is the protocol that defines how data is routed across the Internet. IP addresses are used to identify computers on the Internet.
- **Transmission Control Protocol (TCP):** TCP is the protocol that ensures that data is delivered reliably across the Internet. TCP connections are used to transfer web pages between web browsers and web servers.
- **E-Mail:** It is a method of exchanging digital messages across the Internet or other computer networks.
- **Telnet**: Telnet lets you remotely log into another system and browse files and directories on that remote system.
- **Simple Mail Transfer Protocol (SMTP)**: This protocol is used for transferring e-mail between computers.
- **Gopher:** Gopher is a collection of rules implemented for searching, retrieving as well as displaying documents from isolated sites. Gopher also works on the client/server principle.

These are just a few of the many protocols that govern the Web. These protocols ensure that the Web is a reliable and efficient way to access information.

➢ Web Development Strategies:

Strategy: The first step in the web development process for a developer is to make a strategy for developing a web page or web site. In the strategy phase, web developer has to done the following:

- Deciding goals and objectives
- Developing team
- Make the appropriate analysis associated with problem and review the analysis
- Formulate a list of tasks

There are many different web development strategies that can be used to create a successful website. Some of the most important strategies include:

- **Planning:** Before you start developing your website, it is important to have a plan. This plan should include your goals for the website, your target audience, and the content that you will be including.
- **Design:** The design of your website is important because it is the first thing that users will see. Make sure that your design is visually appealing and easy to navigate.
- **Development:** The development of your website is where you will put your plan into action. This is where you will create the pages, add the content, and make sure that everything works correctly.
- **Testing:** Once your website is developed, it is important to test it thoroughly. This will help you to identify any errors or problems before your website goes live.
- **Launch:** Once your website is tested and ready to go, it is time to launch it. This is when you will make it available to the public.
- **Maintenance:** Once your website is launched, it is important to maintain it. This includes keeping the content up-to-date and fixing any errors that may occur.

By following these strategies, you can create a successful website that meets your goals and meets the needs of your target audience.

➢ Web Applications:

A web application is a computer program that is accessed through a web browser. Web applications are delivered on the World Wide Web to users with an active network connection.

Web applications are used for a variety of purposes, including:

- **E-commerce:** Web applications are used to sell products and services online. Some popular e-commerce web applications include Amazon, eBay, and Walmart.
- **Social media:** Web applications are used to connect with friends and family, share photos and videos, and stay up-to-date on current events. Some popular social media web applications include Facebook, Twitter, and Instagram.
- **Email:** Web applications are used to send and receive email. Some popular email web applications include Gmail, Yahoo Mail, and Outlook.
- **Office productivity:** Web applications are used to create and edit documents, spreadsheets, and presentations. Some popular office productivity web applications include Google Docs, Microsoft Office 365.

- **Education:** Web applications are used to deliver educational content. Some popular educational web applications include Khan Academy, Coursera, and Udacity.
- **Entertainment:** Web applications are used to play games, watch movies, and listen to music. Some popular entertainment web applications include Netflix, Hulu, and Spotify.

Here are some of the benefits of using web applications:

- **Accessibility:** Web applications can be accessed from anywhere with an internet connection. This makes them ideal for businesses that want to reach a global audience.
- **Cost-effectiveness:** Web applications can be developed and hosted for a fraction of the cost of traditional software applications. This makes them a cost-effective option for businesses of all sizes.
- **Scalability:** Web applications can be easily scaled up or down to meet the needs of a growing business. This makes them a flexible option for businesses that are experiencing rapid growth.
- **Security:** Web applications can be secured using a variety of measures, such as firewalls, passwords, and encryption. This makes them a secure option for businesses that handle sensitive data.

How web applications work -

Web applications do not need to be downloaded since they are accessed through a network. Users can access a web application through a web browser, such as Google Chrome, Mozilla Firefox or Safari.

For a web app to operate, it needs a web server, application server and database. Web servers manage the requests that come from a client, while the application server completes the requested task. A database stores any necessary information.

Web applications typically have short development cycles and small development teams. Developers write most web apps in JavaScript, HTML5 or CSS. Client-side programming typically utilizes these languages, which help build an application's front-end. Server-side programming creates the scripts a web app will use. Languages such as Python, Java and Ruby are commonly used in server-side programming.

➢ Web project:

A web project is a set of tasks that are performed to create a website or web application. Web projects can be small or large, simple or complex. They can be developed by individuals or teams, and they can be used for a variety of purposes.

1. The first step in any web project is to define the project goals. What do you want the website or web application to do? Who is your target audience? What are your budget and timeline constraints?

2. Once you have defined your project goals, you can start to plan the project. This includes identifying the tasks that need to be completed, estimating the time and resources required for each task, and creating a project schedule.

3. The next step is to start developing the website or web application. This involves creating the content, designing the layout, and coding the functionality.

4. Once the website or web application is developed, it needs to be tested to make sure it works properly. This includes testing the functionality, the design, and the content.

5. Once the website or web application is tested, it is ready to be launched. This involves making the website or web application available to the public.

Web projects can be a great way to learn new skills, build your portfolio, and start your own business. If you are interested in web development, I encourage you to start a web project today.

➢ **Web team:**

A web team is a group of people who work together to create and maintain a website or web application. The team may be made up of different people with different skills, such as web developers, designers, content writers, and project managers.

The roles and responsibilities of a web team can vary depending on the size and complexity of the website or web application. However, some common roles and responsibilities include:

- **Web developers:** Web developers are responsible for creating the code that makes a website or web application work. They may use a variety of programming languages, such as HTML, CSS, and JavaScript.
- **Web designers:** Web designers are responsible for creating the look and feel of a website or web application. They may use a variety of tools, such as Adobe Photoshop and Illustrator.

- **Content writers**: Content writers are responsible for creating the text content for a website or web application. They may write articles, blog posts, and other types of content.
- **Project managers**: Project managers are responsible for overseeing the development and maintenance of a website or web application. They may coordinate the work of the web team and ensure that the project stays on track.

A web team can be a valuable asset to any business or organization that wants to create a successful website or web application. By working together, the team can bring their skills and expertise to bear on the project and create a product that meets the needs of the target audience.

Here are some of the benefits of having a web team:

- **Increased efficiency:** A web team can help to increase the efficiency of the website or web application development process. By working together, the team can share ideas and resources, and they can learn from each other's experiences.
- **Improved quality:** A web team can help to improve the quality of the website or web application. By having different people with different skills working on the project, the team can ensure that all aspects of the project are considered.
- **Reduced costs:** A web team can help to reduce the costs of website or web application development. By working together, the team can share resources and expertise, and they can negotiate better deals with vendors.