Unit 1: Web

Web

The World Wide Web, commonly known as the web, is a collection of websites or web pages stored in web servers and linked to local computers via the internet. These websites include text pages, digital photos, audio, and videos, among other things. Users can access the content of these sites through the internet from anywhere in the world using devices such as computers, laptops, cell phones, etc. The WWW, along with the internet, allows you to retrieve and display text and media on your device.

The web, or www, serves as a communication platform for users to acquire and exchange information across the internet. Unlike in a book, where we move from one page to another sequentially, on the World Wide Web(WWW), we follow a web of hypertext links to visit a web page and then use that web page to move to other desired web pages. To access the internet, you must have a browser installed on your computer. For example, web browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge, and so on allow you to access the internet.

Internet

The Internet is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business and government networks. It is linked by a broad array of electronic, wireless and optical networking technologies. Internet can be used in online communication, software sharing, exchange of views, posting product promotions, sending/receiving e-mails, online journals/magazines, online shopping, audio/video conferencing etc.

The internet is the most important tool and prominent resource that practically everyone on the planet uses. It links millions of computers, websites, and servers. We can send emails, images, movies, messages, and many more things to our loved ones via the internet. In other words, the Internet is a vast network of interconnected computers and electronic devices (that support the internet). It establishes a communication medium for sharing and receiving information. If your device is connected to the internet, you can access all the applications, websites, social networking apps, and other services. Nowadays, the internet is regarded as the fastest medium for transferring and receiving data.

Advantages of Internet

1. It is a great medium of sharing and has increased connectivity.
2. With the internet, banking has now become easier. Long tiresome waiting lines have been eliminated since the introduction of e-banking platforms.
3. E-commerce websites are one of the great advantages of the internet. One can buy groceries, clothes, household items, and much more with the internet.
4. The Internet is also a great source of entertainment. One can watch videos and movies, listen to music, and play games, without any hassle.
5. Social media platforms like Facebook, Instagram, and Twitter have brought the world closer.
6. The education system has also transformed. With the internet, any student across the world can attend online classes.

Who Owns the Internet?

No one actually owns the Internet, and no single person or organization controls the Internet. But when we connect our computing device to internet through network we own some portion of Internet. We can use or provide some of the internet services from or to others.

History of Internet

The development of internet started when the US Defense Department set up the ARPANET (Advanced Research Project Agency Network) also known as ARPA to establish failure proof communication network for defense department of US. This architecture was later adopted by educational institute for exchange of views among research scholars and then it was set open to public since 1994.

There has been a dramatic growth in the number of internet users since its inception. As a result, the number of computer networks that are connected has grown exponentially too. It started with only connecting less than ten computers initially. Today, 440 million computers can be connected directly, making life easier for people across the globe. Sharing information and knowledge has become extremely easy for those that have access to the Internet. The country with the highest number of internet users is China, with 1.4 billion users, followed by India with 1.3 billion and the United States of America with a little over 0.3 billion users.

Is Web and Internet the Same?

No. Internet is not synonymous with World Wide Web. The Internet is a massive network of networks, a networking infrastructure i.e. physical structures. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet.

The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet. It is an information-sharing model that is built on top of the Internet.

Difference between Internet and WWW

Internet	WWW
It consists of mainly hardware and infra-structure.	It is a service of Internet provided with the help of software.
It consists of computers, communication channels, communication devices etc.	It consists of software, files, folders etc. stored on various computers.
It is controlled with the help of Internet Protocol suite.	It is mainly controlled with the help of HTTP.
It is basic infrastructure and independent of WWW.	WWW is dependent of Internet for its working.

Brief History of Web

Sir Tim Berners-Lee is a British computer scientist. He was born in London, and his parents were early computer scientists, working on one of the earliest computers.

After graduating from Oxford University, Berners-Lee became a software engineer at CERN, European Organization for Nuclear Research, a large particle physics laboratory near Geneva, Switzerland. Scientists come from all over the world to use its accelerators, but Sir Tim noticed that they were having difficulty sharing information.

In March 1989, Tim laid out his vision for what would become the web in a document called “Information Management: A Proposal”. The web was never an

official CERN project. He began work using a NeXT computer, one of Steve Jobs' early products.

By October of 1990, Tim had written the three fundamental technologies that remain the foundation of today's web (and which you may have seen appear on parts of your web browser):

HTML: The markup (formatting) language for the web.

URI: Uniform Resource Identifier. A kind of "address" that is unique and used to identify to each resource on the web. It is also commonly called a URL.

HTTP: Hypertext Transfer Protocol. Allows for the retrieval of linked resources from across the web.

Tim also wrote the first web page editor/browser ("WorldWideWeb.app") and the first web server ("httpd"). By the end of 1990, the first web page was https://info.cern.ch served on the open internet, and in 1991, people outside of CERN were invited to join this new web community.

Tim founded the World Wide Web Consortium (W3C), an international community devoted to developing open web standards in 1994. The early web community produced some revolutionary ideas that are now spreading far beyond the technology sector:

In 2009, Sir Tim established the World Wide Web Foundation. The Web Foundation is advancing the Open Web as a means to build new society by connecting everyone, raising voices and enhancing participation.

Web page

The hypertext document on the WWW is known as web page. It is the fundamental unit of the web. It contains links, texts, images, audio and video as well as other Internet services. Simply saying, the web page is the electronic document of softcopy that contains collection of related information found in Internet.

A web page is developed by using HTML (Hyper Text Markup Language). It enables to embed hyperlink in the document. Using this hyperlink, user can jump from one web page to another.

Web pages can be static or dynamic. Static pages show the same content each time they are viewed. Dynamic pages have content that can change each time they are

accessed. These pages are typically written in scripting languages such as PHP, Perl, ASP or JSP. The scripts in the pages run functions on the server that returns the content from database. The information is returned as HTML code which is interpreted by browser. Client computer can't view the server side scripting languages.

Hypertext:- Hypertext refers to a digital text, which is more than just text as it can include information in various media formats such as text, graphics, sound, images, video, hyperlinks.

Structure and components of Webpage

1. **Header**
   The first structural area is the header and it runs across the top of all web pages. Its prime location makes it one of the most valuable areas. Anyone visiting your website will see the header first. Likewise, they'll see the header again on any subsequent pages they visit. This repetition can help build brand awareness, so be sure that it is an accurate reflection of your company.Your header should be simple and easy to read.

2. **primary menu navigation**
   A clear and concise primary navigation structure is important and often undervalued. Organize your content into logical categories and subcategories. This will make it easy for your website visitors to find the information they need quickly.The horizontal primary navigation bar is typically located below or above the header. On the other hand, vertical navigation is located either in the right or left sidebar.

3. **body or primary content**
   The third structural section is the body/primary content area and it contains most of the unique content of a page. For example, in the body of a page you will see feature articles, photo galleries, forms, and calls to action. All the elements used to communicate your message, text, images, video and audio, can be found here.

4. **Sidebar**
   Sidebars have many purposes. The space is often used for information that doesn't naturally fit on the page or might get lost. In addition, blog pages

frequently have sidebars. This space is ideal for search forms and secondary navigation menus such as recent posts, categories and tags. Blog sidebars can be used to highlight RSS or newsletter subscription forms.

5. **Footer**

   The final structural part of a website, the footer, is found at the bottom of the page. The footer often contains contact info, copyright notices and a navigation menu. Footers can provide quick access to content without needing to scroll back to the top of the page.

Website

A website is a set of related web pages linked through hyperlinks published by an organization or an individual. Generally, a website contains a home page along with other additional web pages. Each and every website has its own address known as URI (Uniform Resource Identifier) or URL (Uniform Resource Locator). All the websites on the Internet form the WWW.

Web Pages vs. Websites

Webpage	Website
1. It is a small part of a website and may contain various contents, such as text media, and hyperlinks to other webpages.	1. It is a collection of multiple webpages linked together under a unique domain.
2. It is a single document on the internet that is linked to a specific URL under the respective domain.	2. It is a collection of several documents associated with a specific domain.
3. It is the content that is displayed on the website.	3. It is a place to put and display content.
4. Webpage addresses typically include a protocol, domain name, domain extension and file path along with the file extension.	4. Website addresses usually include a protocol, domain name and domain extension.
5. https://google.com/admin.html	5. https://google.com

Static vs Dynamic pages

Static Web Pages	Dynamic Web Pages
1. Pages will remain same until someone changes it manually.	1. Content of pages are different for different visitors.
2. Static Web Pages are simple in terms of complexity.	2. Dynamic web pages are complicated.
3. Information are change rarely.	3. Information are change frequently.
4. Static Web Page takes less time for loading than dynamic web page.	4. Dynamic web page takes more time for loading.
5. In Static Web Pages, database is not used.	5. In dynamic web pages, database is used.
6. Static web pages are written in languages such as: HTML, JavaScript, CSS, etc.	6. Dynamic web pages are written in languages such as: CGI, AJAX, ASP, ASP.NET, etc.
7. Static web pages does not contain any application program .	7. Dynamic web pages contains application program for different services.
8. Static web pages require less work and cost in designing them.	8. Dynamic web pages require comparatively more work and cost in designing them.