

CLUSTER UNIVERSITY OF JAMMU

SYLLABUS-SEMESTER 4TH (CBCS) - B.A/B.SC COMPUTER APPLICATIONS

(CORE COURSE- THEORY)

COURSE CODE: 1CAPTC0401

COURSE TITLE: NETWORKING & INTERNET

(Syllabus wise Topic Description)

Web page:

A web page or webpage is a document, commonly written in HTML, that is viewed in an Internet browser. A web page can be accessed by entering a URL address into a browser's address bar. A web page may contain text, graphics, and hyperlinks to other web pages and files. A web page is often used to provide information to viewers, including pictures or videos to help illustrate important topics. A web page may also be used as a method to sell products or services to viewers. Multiple web pages make up a website, like our Computer Hope website. When you click a link provided by a search engine, you are accessing a web page. The Internet consists of millions of web pages, with more being added every day.

How to open a web page?

Viewing a web page requires a browser, like Internet Explorer, Edge, Safari, Firefox, or Chrome. For example, you are reading this web page using a browser. Once in a browser, open a web page by entering the URL in the address bar. For example, typing "<https://www.computerhope.com/esd.htm>"

Home page:

A home page (also written as homepage) is the main web page of a website. The term can also refer to one or more pages always shown in a web browser when the application starts up. In this case, it is also known as the start page.

Website

A website (also written as web site) is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. Notable examples are wikipedia.org, google.com, and amazon.com. All publicly accessible websites

collectively constitute the World Wide Web. There are also private websites that can only be accessed on a private network, such as a company's internal website for its employees. Websites are typically dedicated to a particular topic or purpose, such as news, education, commerce, entertainment, or social networking. Hyper linking between web pages guides the navigation of the site, which often starts with a home page. Users can access websites on a range of devices, including desktops, laptops, tablets, and smart phones. The software application used on these devices is called a web browser.

Internet Browser

An internet browser, also known as a web browser or simply a browser, is a software program that you use to view web pages on your computer. The main purpose of an internet browser is to translate the code that computers use to create websites into the text, graphics, and other features of the web pages.

The First Web Browser:

The first web browser was called Worldwide Web and later changed its name to Nexus. Created by Sir Tim Berners-Lee, it was released in 1990 and gave people a basic way to view web pages. Mosaic, was released in 1992, the internet was text-based, bland, and couldn't be used without technical know-how. This limited the number of people who had the ability and the interest to use the internet. The Mosaic browser helped make the internet ubiquitous. The graphical interface made navigating the web easy to understand and the ability to display graphics on websites made web pages more interesting.

Modern Internet Browsers:

Internet browsers have developed into powerful tools that let you safely and quickly access your favorite websites. Modern internet browsers have many helpful features. Tabbed browsing, for example, helps you open up many web pages in individual tabs, instead of needing a resource-intensive separate window for each page. Most browsers are available for free download. The six most popular internet browsers today include:

- Mozilla Firefox
- Google Chrome
- Microsoft Edge (formerly Internet Explorer)
- Apple Safari
- Opera

How Internet Browsers Work:

1. You type a website's URL into your browser's address bar; "http://www.google.com" is an example of a URL.
2. The browser locates and requests that page's information from a web server.

3. The browser receives a file in a computer code like HTML or JavaScript, which includes instructions about how to display the information on that page.
4. The browser interprets that file and displays the page for you to read and interact with. And it does all of this in just a few seconds.

URL: Uniform Resource Locator

Every document on the Web has a unique address. This address is known as Uniform Resource Locator (URL). Several HTML/XHTML tags include a URL attribute value, including hyperlinks, inline images, and forms. All of them use the same syntax to specify the location of a web resource, regardless of the type or content of that resource. That's why it is known a Uniform Resource Locator.

URL Elements

A URL is made of up several parts, each of which offers information to the web browser to help find the page. It is easier to learn the parts of a URL, if you look at the example URL given below, there are three key parts: the scheme, the host address, and the file path.

Address a URL in one of the following two ways:

1. Absolute – An absolute URL is the complete address of a resource. For example `http://www.tutorialspoint.com/html/html_text_links.htm`

Absolute URL requires you to place the entire address on the page that you link to. An example of an absolute URL would look like this:

```
<a href = http://www.example.com/xyz.html>
```

2. Relative – A relative URL indicates where the resource is in relation to the current page. Given URL is added with the `<base>` element to form a complete URL. For example `/html/html_text_links.htm`

The relative URL, on the other hand, does not use the full address. It assumes that the page you type in is on the same site. An example of a relative URL would look like this:

```
<a href = "/xyz.html">
```

Hypertext

Hypertext is text displayed on a computer display or other electronic devices with references (hyperlinks) to other text that the reader can immediately access.[1] Hypertext documents are interconnected by hyperlinks, which are typically activated by a mouse click, key press set or by touching the screen. Apart from text, the term "hypertext" is also sometimes used to describe tables, images, and other presentational content formats with integrated hyperlinks. Hypertext is one of the key underlying concepts of the World Wide Web,[2] where Web pages are often written in the Hypertext Markup Language (HTML). As implemented on the Web, hypertext enables the easy-to-use publication of information over the Internet.

The Hypertext Transfer Protocol (HTTP) is an application-level protocol for distributed, collaborative, hypermedia information systems. This is the foundation for data communication for the World Wide Web (i.e. internet) since 1990. HTTP is a generic and stateless protocol which can be used for other purposes as well using extensions of its request methods, error codes, and headers. Basically, HTTP is a TCP/IP based communication protocol, that is used to deliver data (HTML files, image files, query results, etc.) on the World Wide Web. The default port is TCP 80, but other ports can be used as well. It provides a standardized way for computers to communicate with each other. HTTP specification specifies how clients' request data will be constructed and sent to the server, and how the servers respond to these requests.

Internet service provider (ISP)

An Internet service provider (ISP) is a company that provides customers with Internet access. Data may be transmitted using several technologies, including dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects. Typically, ISPs also provide their customers with the ability to communicate with one another by providing Internet email accounts, usually with numerous email addresses at the customer's discretion. Other services, such as telephone and television services, may be provided as well. The services and service combinations may be unique to each ISP. An Internet service provider is also known as an Internet access provider (IAP).

The Internet began as a closed network between government research laboratories and universities and colleges. As universities and colleges began giving Internet access to their faculty and other employees, ISPs were created to provide Internet access to those employees at home and elsewhere. The first ISP began in 1990 as The World, based in Brookline, Massachusetts. Individual customers and businesses pay ISPs for Internet Access. ISPs are interconnected to one another at network access points. In turn, ISPs pay other, larger ISPs for their Internet access, which in turn pay still other ISPs. This cascades multiple times until

transmissions reach a Tier 1 carrier, which is an ISP capable of reaching every other network on the Internet without purchasing IP transit or paying settlements. However, it is difficult to determine the status of a network because the business agreements to pay settlements are not made public. However, the situation is more complex than simply a single connection established to an upstream ISP. ISPs may have more than one point of presence (PoP), which is an access point to the Internet comprised of a physical location housing servers, routers, ATM switches and digital/analog call aggregators. Some ISPs have thousands of PoPs. Multiple PoPs may have separate connections to an upstream ISP. And each ISP may have upstream ISPs and connections to each one of them at one or multiple PoPs.

Web server

A Web server is a computer system that hosts websites. It runs Web server software, such as Apache or Microsoft IIS, which provides access to hosted webpages over the Internet. Most Web servers are connected to the Internet via a high-speed connection, offering OC-3 or faster data transmission rates. A fast Internet connection allows Web servers to support multiple connections at one time without slowing down. Any computer can be used as a Web server, as long as it is connected to the Internet and has the appropriate software installed. However, most Web servers are 1U rack-mounted systems, meaning they are flat, trimmed down computers that can be mounted on a server rack. Most Web hosting companies have several server racks, which each contain multiple servers. This is the most space-efficient way to host a large number of websites from a single location. Web servers typically host multiple websites. Some only host a few, while others may host several hundred. Web servers that host websites for multiple users are called "shared hosts." This is the most common type of hosting solution and is used for personal sites, small business sites, and websites run by small organizations. Web servers that only host websites for a single person or company are called "dedicated hosts."

Download and Upload

Downloading means receiving data or a file from the Internet on your computer. Uploading means sending data or a file from your computer to somewhere on the Internet.

Downloading

when you download a file you will start the download by clicking a link to that file. If you click the link, your browser should prompt you to select one of two methods for downloading the file. Open with will download the file and load it immediately in the specified program. Save File will download it and save it to your hard drive. Either way, once you click OK, the download begins. Your browser will indicate the progress and time remaining on the download. Once the download is complete, either the file will be

saved to your computer or it will open in the program you selected.

Uploading

if a site allows uploads, it will have an upload utility to help perform the file transfer. Each site handles this process differently, but we'll give some common examples. Usually, the site will have help pages to walk you through the upload process. Many sites have an upload button that opens a dialog box. For example, Facebook has a camera icon that begins the upload process. A dialog box will appear, prompting you to select a file. Browse to the location where your file is stored, select it, and then click the Open button. Afterward, a progress bar tracking the upload process will appear on the page.

Online & Offline

Online means that a computer, device, or a person is connected to a network, and usually this means the Internet.

Off-line means the computer, device, or person is not connected to a network, cannot be reached, and cannot communicate with any other computer or device.

When you are online, it means you are connected to a computer network, and for most personal users this network is the Internet. In addition, it can also mean that you are using your email or instant messaging program that allows you to communicate with another person. While online, you can do anything on the Internet, from sending and receiving emails or instant messages, engage in a video call with someone, use social network tools, work and even play games that require an Internet connection to work.

When you are offline, you are only able to view local copies of WebPages that you had open during your last time online. These copies are stored locally in your local storage and can often be viewed even without an Internet connection. If you are considered "offline" on a Smartphone, you can still do regular phone things like engage in voice calls, text message with other people and play games that don't require an Internet connection. You are unable to browse the Internet on your Smartphone or tablet while offline. Likewise, you cannot play any game that requires you be online, and you cannot stream music or video from the Internet while offline, but you can play anything that's stored on your device, since it's stored in your device's local memory.

WWW (World Wide Web)

The World Wide Web (WWW) is combination of all resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP). "The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge."

The Web, as it's commonly known, is often confused with the internet. Although the two are intricately connected, they are different things. The internet is, as its name implies, a network -- a vast, global network that incorporates a multitude of lesser networks. As such, the internet consists of supporting infrastructure and other technologies. In contrast, the Web is a communications model that, through HTTP, enables the exchange of information over the internet. Tim Berners-Lee is the inventor of the Web and the director of the W3C, the organization that oversees its development. Berners-Lee developed hypertext, the method of instant cross-referencing that supports communications on the Web, making it easy to link content on one web page to content located elsewhere. The introduction of hypertext revolutionized the way people used the internet. In 1989, Berners-Lee began work on the first World Wide Web server at CERN. He called the server "httpd" and dubbed the first client "WWW." Originally, WWW was just a WYSIWYG hypertext browser/editor that ran in the NeXTStep environment.

The World Wide Web has been widely available since 1991.

Telnet

Telnet is an application protocol used on the Internet or local area network to provide a bidirectional interactive text-oriented communication facility using a virtual terminal connection. User data is interspersed in-band with Telnet control information in an 8-bit byte oriented data connection over the Transmission Control Protocol (TCP).

Telnet was developed in 1969 beginning with RFC 15, extended in RFC 855, and standardized as Internet Engineering Task Force (IETF) Internet Standard STD 8, one of the first Internet standards. The name stands for "**te**letype **net**work".

Historically, Telnet provided access to a command-line interface on a remote host. However, because of serious security concerns when using Telnet over an open network such as the Internet, its use for this purpose has waned significantly in favor of SSH.

The term *telnet* is also used to refer to the software that implements the client part of the protocol. Telnet client applications are available for virtually all computer platforms. *Telnet* is also used as a verb. *To telnet* means to establish a connection using the Telnet protocol, either with a command line client or with a graphical interface. For example, a common directive might be: "*To change your password, telnet into the server, log in and run the [passwd](#) command.*" In most cases, a user would be *telnetting* into a Unix-like server system or a network device (such as a router).

Telnet is a client-server protocol, based on a reliable connection-oriented transport. Typically, this protocol is used to establish a connection to Transmission Control Protocol (TCP) port number 23, where a Telnet server application (telnetd) is listening. Telnet, however, predates TCP/IP and was originally run over Network Control Program (NCP) protocols.

Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. Through Telnet, an administrator or another user can access someone else's computer remotely. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

FTP (File Transfer Protocol)

File Transfer Protocol (FTP) is a standard Internet protocol for transmitting files between computers on the Internet. *File Transfer Protocol (FTP)* is the commonly used protocol for exchanging files over the Internet. FTP uses the Internet's TCP/IP protocols to enable data transfer. FTP uses a client-server architecture, often secured with SSL/TLS. FTP promotes sharing of files via remote computers with reliable and efficient data transfer.

How FTP Works

FTP works in the same way as HTTP for transferring Web pages from a server to a user's browser and SMTP for transferring electronic mail across the Internet in that, like these technologies.

FTP uses a client-server architecture. Users provide authentication using a sign-in protocol, usually a username and password, however some FTP servers may be configured to accept anonymous FTP logins where you don't need to identify yourself before accessing files. Most often, FTP is secured with SSL/TLS.

How to FTP

Files can be transferred between two computers using FTP software. The user's computer is called the local host machine and is connected to the Internet. The second machine, called the remote host, is also running FTP software and connected to the Internet.

- The local host machine connects to the remote host's IP address.
- The user would enter a username/password (or use anonymous).
- FTP software may have a GUI, allowing users to drag and drop files between the remote and local host. If not, a series of FTP commands are used to log in to the remote host and transfer files between the machines.

E-mail

Short for electronic mail, e-mail or email is information stored on a computer that is exchanged between two users over telecommunications. More plainly, e-mail is a message that may contain text, files, images, or other attachments sent through a network to a specified individual or group of individuals.

The first e-mail was sent by Ray Tomlinson in 1971. Tomlinson sent the e-mail to himself as a test e-mail message, containing the text "something like QWERTYUIOP." However, despite sending the e-mail to himself, the e-mail message was still transmitted through ARPANET.

By 1996, more electronic mail was being sent than postal mail.

E-mail address breakdown

The first portion of all e-mail addresses, the part before the @ symbol, contains the alias, user, group, or department of a company. In our above example, support is the Technical Support department at Computer Hope.

Next, the @ (at sign) is a divider in the e-mail address; it's required for all SMTP e-mail addresses since the first message was sent by Ray Tomlinson.

Finally, computerhope.com is the domain name to which the user belongs. The .com is the TLD (top-level domain) for our domain.

How to send and receive e-mail

E-mail program

To send and receive e-mail messages, you can use an e-mail program, also known as an e-mail client, such as Microsoft Outlook or Mozilla Thunderbird. When using an e-mail client, you must have a server that stores and delivers your messages, hosted by your ISP or in some cases, another company. An e-mail client needs to connect to a server to download new e-mail, whereas e-mail stored online is always available to any Internet-connected device.

Online e-mail

An alternative way of sending and receiving e-mail (and the more popular solution for most people) is an online e-mail service or webmail. Examples include Hotmail (now Outlook.com), Gmail, and Yahoo Mail.

Writing an e-mail

When writing an e-mail message, it should look something like the example window below. As you can see, several fields are required when sending an e-mail:

The To field is where you type the e-mail address of the person who is the recipient of your message.

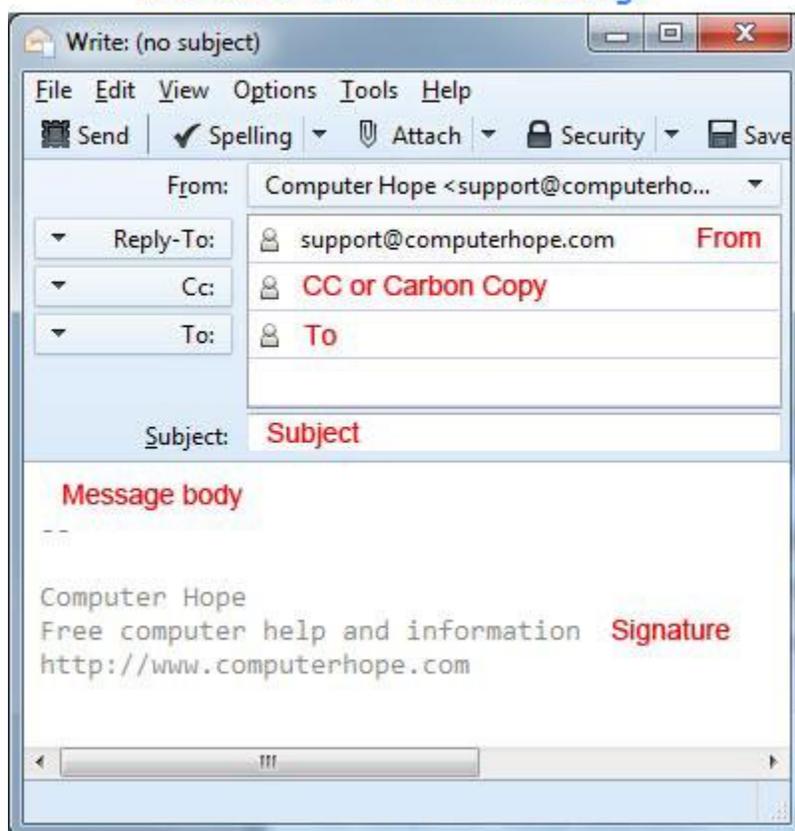
The From field should contain your e-mail address.

If you are replying to a message, the To: and From: fields are automatically filled out. If it's a new message, you'll need to specify the recipients in the To: field, either by selecting them from your contact list, or manually typing the full email addresses. If you are manually specify more than one recipient (as in a group e-mail), the addresses should be separated by a comma and a space, or by pressing the Tab key.

The Subject should consist of a few words describing the e-mail's contents. The subject lets the recipient see what the e-mail is about, without opening and reading the full e-mail. This field is optional.

- The CC ("Carbon Copy") field allows you to specify recipients who are not direct addressees (listed in the "To" field). For instance, you can address an e-mail to Jeff and CC Linda and Steven. Although the e-mail is addressed to Jeff, Linda and Steven also receive a copy and everyone can see who received the e-mail. This field is optional.
- The BCC ("blind carbon copy") field is similar to CC, except the recipients are secret. Each BCC recipient will receive the e-mail, but will not see who else received a copy. The addressees (anyone listed in the "To" field) remain visible to all recipients. This field is optional.
- Finally, the Message Body is the location you type your main message. It often contains your signature at the bottom; similar to a handwritten letter.

Basics of an e-mail message



What Is Social Networking?

Social networking is the use of Internet-based social media sites to stay connected with friends, family, colleagues, customers, or clients. Social networking can have a social purpose, a business purpose, or both, through sites such as Facebook, Twitter, LinkedIn, and Instagram, among others. Social networking has become a significant base for marketers seeking to engage customers.

Marketers use social networking for improving conversion rates. Building a following provides access to and interaction with new, recent and old customers. Sharing blog posts, images, videos or comments on social media allows followers to react, visit the company's website and become customers.

A company may use social networking to demonstrate its customer service level and enrich its relationships with consumers. For example, if a customer complains about a product or service on Twitter, the company may address the issue immediately, apologize, and take action to make it right. However, criticism of a brand can spread very quickly on social media.

- *Social networking provides robust marketing opportunities for companies but can also put them at risk for PR disasters.*
- *The most popular social network as of early 2019 is Facebook.*
- *Marketers use social networking for increasing brand recognition and encouraging brand loyalty.*
- *Social networking is constantly evolving, so keeping up with changes can be challenging.*

A social network is a social structure made up of a set of social actors (such as individuals or organizations), sets of dyadic ties, and other social interactions between actors. The social network perspective provides a set of methods for analyzing the structure of whole social entities as well as a variety of theories explaining the patterns observed in these structures.[1] The study of these structures uses social network analysis to identify local and global patterns, locate influential entities, and examine network dynamics.

Web search engine

A web search engine or Internet search engine is a software system that is designed to carry out web search (Internet search), which means to search the World Wide Web in a systematic way for particular information specified in a textual web search query. The search results are generally presented in a line of results, often referred to as search engine results pages (SERPs). The information may be a mix of links to web pages, images, videos, infographics, articles, research papers, and other types of files. Some search engines also mine data available in databases or open directories. Unlike web directories, which are maintained only by human editors, search engines also maintain real-time information by running an algorithm on a web crawler. Internet content that is not capable of being searched by a web search engine is generally described as the deep web.....

In 1996, Netscape was looking to give a single search engine an exclusive deal as the featured search engine on Netscape's web browser.

Google adopted the idea of selling search terms in 1998, from a small search engine company named goto.com.

A search engine maintains the following processes in near real time:

- Web crawling
- Indexing
- Searching

Web search engines get their information by web crawling from site to site. The "spider" checks for the standard filename robots.txt, addressed to it. The robots.txt file contains directives for search spiders, telling it which pages to crawl. After checking for robots.txt and either finding it or not, the spider sends certain information back to be indexed depending on many factors, such as the titles, page content, JavaScript, Cascading Style Sheets (CSS), headings, or its metadata in HTML meta tags.

Video conferencing

A video conference is a live, visual connection between two or more people residing in separate locations for the purpose of communication. At its simplest, video conferencing provides transmission of static images and text between two locations. At its most sophisticated, it provides transmission of full-motion video images and high-quality audio between multiple locations.

In the business world, desktop video conferencing is a core component of unified communications applications and web conferencing services, while cloud-based virtual meeting room services enable organizations to deploy video conferencing with minimal infrastructure investment.

The components of a video conferencing system include:

- A network for data transfer, usually a high-speed broadband Internet connection, which uses similar technology as voice over Internet protocol (VoIP). Local area network (LAN) and integrated services digital network (ISDN) connections are occasionally used as well.
- Two or more video cameras or webcams that provide video input.
- Two or more microphones either located on the individual or within the device that provide audio input.
- A computer screen, monitor, TV or projector that can broadcast video output.
- Headphones, laptop speakers or professional speakers that can be used for audio output.
- Hardware or software based coding and decoding technology, called codecs, which can compress analog audio and video (AV) data into digital packets on the distributing end and then decompress the data at the endpoint.
- Acoustic echo cancellation (AEC) software which reduces audio delays and supports real time

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How video conferencing works

The video conferencing process can be split into two steps: compression and transfer.

During compression, the webcam and microphone capture analog AV input. The data collected is in the form of continuous waves of frequencies and amplitudes which represent the captured sounds, colors, brightness, depth and shades. In order for this data to be transferred over a normal network -- instead of requiring a network with massive bandwidth -- codecs must be used to compress the data into digital packets, allowing the captured AV input to travel faster over broadband or Wi-Fi Internet.

During the transfer phase, the digitally compressed data is sent over the digital network to the receiving computer. Once it reaches the endpoint, the codes decompress the data and convert it back into analog audio and video, allowing the receiving screen and speakers to correctly view and hear the AV data.

Importance and benefits of video conferencing

Video conferencing is important because it joins people who would not normally be able to form a face-to-face connection. In businesses, it can increase productivity amongst employees as well as provide an improved way of communicating and interacting with colleagues, partners and customers.

For businesses, the tangible benefits of video conferencing include lower travel costs -- especially for employee training -- and shortened project times as a result of improved communications among team members.

The intangible benefits of video conferencing include more efficient meetings with the exchange of non-verbal communications and a stronger sense of community among business contacts, both within and between companies, as well as with customers. On a personal level, the face-to-face connection adds non-verbal communication to the exchange and allows participants to develop a stronger sense of familiarity with individuals they may never actually meet in person.

Electronic Commerce (e-commerce)

E-Commerce or Electronic Commerce means buying and selling of goods, products, or services over the internet. E-commerce is also known as electronic commerce or internet commerce. These services provided online over the internet network. Transaction of money, funds, and data are also considered as E-commerce. These business transactions can be done in four ways: Business to Business (B2B), Business to Customer (B2C), Customer to Customer (C2C), and Customer to Business (C2B). The standard definition of E-commerce is a commercial transaction which is happened over the internet. Online stores like Amazon, Flipkart, Shopify, Myntra, EBay, Quikr, Olx are examples of E-commerce websites. By 2020, global retail e-commerce can reach up to \$27 Trillion.

E-commerce is a popular term for electronic commerce or even internet commerce. The name is self-explanatory; it is the meeting of buyers and sellers on the internet. This involves the transaction of goods and services, the transfer of funds and the exchange of data.

As of now, e-commerce is one of the fastest growing industries in the global economy. As per one estimate, it grows nearly 23% every year. And it is projected to be a \$27 trillion industry by the end of this decade.

Types of E-Commerce Models

Electronic commerce can be classified into four main categories. The basis for this simple classification is the parties that are involved in the transactions. So the four basic electronic commerce models are as follows,

1. Business to Business

This is Business to Business transactions. Here the companies are doing business with each other. The final consumer is not involved. So the online transactions only involve the manufacturers, wholesalers, retailers etc.

2. Business to Consumer

Business to Consumer. Here the company will sell their goods and/or services directly to the consumer. The consumer can browse their websites and look at products, pictures, read reviews. Then they place their order and the company ships the goods directly to them. Popular examples are Amazon, Flipkart, Jabong etc.

3. Consumer to Consumer

Consumer to consumer, where the consumers are in direct contact with each other. No company is involved. It helps people sell their personal goods and assets directly to an interested party. Usually, goods traded are cars, bikes, electronics etc. OLX, Quikr etc follow this model.

4. Consumer to Business

This is the reverse of B2C, it is a consumer to business. So the consumer provides a good or some service to the company. Say for example an IT freelancer who demos and sells his software to a company. This would be a C2B transaction.

Examples of E-Commerce

Amazon

Flipkart

eBay

Fiverr

Upwork

Olx

Quikr

Advantages of E-Commerce

1. E-commerce provides the sellers with a global reach. They remove the barrier of place (geography). Now sellers and buyers can meet in the virtual world, without the hindrance of location.
2. Electronic commerce will substantially lower the transaction cost. It eliminates many fixed costs of maintaining brick and mortar shops. This allows the companies to enjoy a much higher margin of profit.
3. It provides quick delivery of goods with very little effort on part of the customer. Customer complaints are also addressed quickly. It also saves time, energy and effort for both the consumers and the company.
4. One other great advantage is the convenience it offers. A customer can shop 24×7. The website is functional at all times, it does not have working hours like a shop.
5. Electronic commerce also allows the customer and the business to be in touch directly, without any intermediaries. This allows for quick communication and transactions. It also gives a valuable personal touch.

Disadvantages of E-Commerce

1. The start-up costs of the e-commerce portal are very high. The setup of the hardware and the software, the training cost of employees, the constant maintenance and upkeep are all quite expensive.

2. E-commerce industry has a high risk of failure. Many companies riding the dot-com wave of the 2000s have failed miserably. The high risk of failure remains even today.
3. At times, e-commerce can feel impersonal. So it lacks the warmth of an interpersonal relationship which is important for many brands and products. This lack of a personal touch can be a disadvantage for many types of services and products like interior designing or the jewelry business.
4. Security is another area of concern. Only recently, we have witnessed many security breaches where the information of the customers was stolen. Credit card theft, identity theft etc. remain big concerns with the customers.
5. Then there are also fulfillment problems. Even after the order is placed there can be problems with shipping, delivery, mix-ups etc. This leaves the customers unhappy and dissatisfied.

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E-Commerce or Electronic Commerce means buying and selling of goods, products, or services over the internet. E-commerce is also known as electronic commerce or internet commerce. These services provided online over the internet network. Transaction of money, funds, and data are also considered as E-commerce. These business transactions can be done in four ways: Business to Business (B2B), Business to Customer (B2C), Customer to Customer (C2C), Customer to Business (C2B). The standard definition of E-commerce is a commercial transaction which is happened over the internet. Online stores like Amazon, Flip kart, Shopify, Myntra, EBay, Quikr, Olx are examples of E-commerce websites. By 2020, global retail e-commerce can reach up to \$27 Trillion.

E-commerce is a popular term for electronic commerce or even internet commerce. The name is self-explanatory; it is the meeting of buyers and sellers on the internet. This involves the transaction of goods and services, the transfer of funds and the exchange of data.

As of now, e-commerce is one of the fastest growing industries in the global economy. As per one estimate, it grows nearly 23% every year. And it is projected to be a \$27 trillion industry by the end of this decade.

Types of E-Commerce Models

Electronic commerce can be classified into four main categories. The basis for this simple classification is the parties that are involved in the transactions. So the four basic electronic commerce models are as follows,

1. Business to Business

This is Business to Business transactions. Here the companies are doing business with each other. The final consumer is not involved. So the online transactions only involve the manufacturers, wholesalers, retailers etc.

2. Business to Consumer

Business to Consumer. Here the company will sell their goods and/or services directly to the consumer. The consumer can browse their websites and look at products, pictures, read reviews. Then they place their order and the company ships the goods directly to them. Popular examples are Amazon, Flipkart, Jabong etc.

3. Consumer to Consumer

Consumer to consumer, where the consumers are in direct contact with each other. No company is involved. It helps people sell their personal goods and assets directly to an interested party. Usually, goods traded are cars, bikes, electronics etc. OLX, Quikr etc follow this model.

4. Consumer to Business

This is the reverse of B2C, it is a consumer to business. So the consumer provides a good or some service to the company. Say for example an IT freelancer who demos and sells his software to a company. This would be a C2B transaction.

Examples of E-Commerce

- Amazon
- Flipkart
- eBay
- Fiverr
- Upwork
- Olx
- Quikr

Advantages of E-Commerce

- E-commerce provides the sellers with a global reach. They remove the barrier of place (geography). Now sellers and buyers can meet in the virtual world, without the hindrance of location.
- Electronic commerce will substantially lower the transaction cost. It eliminates many fixed costs of maintaining brick and mortar shops. This allows the companies to enjoy a much higher margin of profit.
- It provides quick delivery of goods with very little effort on part of the customer. Customer complaints are also addressed quickly. It also saves time, energy and effort for both the consumers and the company.
- One other great advantage is the convenience it offers. A customer can shop 24×7. The website is functional at all times, it does not have working hours like a shop.
- Electronic commerce also allows the customer and the business to be in touch directly, without any intermediaries. This allows for quick communication and transactions. It also gives a valuable personal touch.

Disadvantages of E-Commerce

- The start-up costs of the e-commerce portal are very high. The setup of the hardware and the software, the training cost of employees, the constant maintenance and upkeep are all quite expensive.
- Although it may seem like a sure thing, the e-commerce industry has a high risk of failure. Many companies riding the dot-com wave of the 2000s have failed miserably. The high risk of failure remains even today.
- At times, e-commerce can feel impersonal. So it lacks the warmth of an interpersonal relationship which is important for many brands and products. This lack of a personal touch can be a disadvantage for many types of services and products like interior designing or the jewelry business.
- Security is another area of concern. Only recently, we have witnessed many security breaches where the information of the customers was stolen. Credit card theft, identity theft etc. remain big concerns with the customers.
- Then there are also fulfillment problems. Even after the order is placed there can be problems with shipping, delivery, mix-ups etc. This leaves the customers unhappy and dissatisfied.

M-commerce (mobile commerce)

Mobile commerce popularly known as m-commerce is actually just a subset of e-commerce. The term itself was coined in 1997 by Kevin Duffy. It is essentially a way of carrying thousands and millions of retail shops in your pocket.

Mobile commerce, also known as m-commerce or m commerce, is the use of wireless handheld devices like cellphones and tablets to conduct commercial transactions online, including the purchase and sale of products, online banking, and paying bills.

- *Mobile commerce refers to business or purchases conducted over mobile devices like cellphones or tablets.*
- *Mobile commerce has increased rapidly as security issues have been resolved.*
- *Companies like Apple and Google have introduced their own mobile commerce services.*

Mobile commerce is an increasingly large subset of electronic commerce, a model where firms or individuals conduct business over the internet. The rapid growth of mobile commerce has been driven by a number of factors, including increased wireless handheld device computing power, a proliferation of m-commerce applications, and the broad resolution of security issues.

Special Considerations:

- *Ways to Improve Mobile Commerce*

Quick-loading web pages are likely to win more sales because consumers can be impatient, and they demand instant gratification. Mobile checkouts must let buyers easily enter payment information, preferably with mobile wallets that eliminate the use of manual entry, thereby reducing human error and facilitating a smoother checkout experience.

- *Mobile Commerce Videos and Marketing*

Mobile applications that use videos to demonstrate a product's key features are likely to generate more revenue. For example, an online foreign exchange broker who sends video links that demonstrate his new mobile trading application is likely to win more clients.

- *Mobile Web and Mobile Applications*

Consumers typically use Google and/or social media promotions to initiate online shopping searches. Consequently, browsers tend to drive more transactions than mobile applications. For this reason, consumers often pair the use of mobile applications with mobile websites to enhance their overall shopping experience.

Applications of M-commerce

Other than the straightforward m-commerce transactions of buying and selling of goods and services, they have so many applications. Let us take a look at a few examples,

- **Mobile Banking:** Using a mobile website or application to perform all your banking functions. It is one step ahead of online banking and has become commonplace these days. For example, in Nigeria, the majority of banking transactions happen on mobile phones.

- **Mobile Ticketing and Booking:** Making bookings and receiving your tickets on the mobile. The digital ticket or boarding pass is sent directly to your phone after you make the payment from it. Even in India now IRTC and other services provide m-ticketing services.
- E-bills: This includes mobile vouchers, mobile coupons to be redeemed and even loyalty points or cards system.
- Auctions: Online auctions having now been developed to be made available via mobile phones as well.
- Stock Market Reports and even stock market trading over mobile applications.

Advantages of M-commerce

- It provides a very convenient and easy to use the system to conduct business transactions.
- Mobile commerce has a very wide reach. A huge part of the world's population has a mobile phone in their pocket. So the sheer size of the market is tremendous.
- M-commerce also helps businesses target customers according to their location, service provider, the type of device they use and various other criteria. This can be a good marketing tool.
- The costs of the company also reduced. This is due to the streamlined processes, now transaction cost, low carrying cost and low order processing cost as well.

Disadvantages of M-commerce

- The existing technology to set up an m-commerce business is very expensive. It has great start-up costs and many complications arise.
- In developing countries, the networks and service providers are not reliable. It is not most suitable for data transfer.
- Then there is the issue of security. There are many concerns about the safety of the customer's private information. And the possibility of a data leak is very daunting.

VoIP - Voice over Internet Protocol

VoIP is short for **Voice over Internet Protocol**.

Voice over Internet Protocol is a category of hardware and software that enables people to use the Internet as the transmission medium for telephone calls by sending voice data in packets using IP rather than by traditional circuit transmissions of the PSTN.

Voice over Internet Protocol (VoIP), is a technology that allows you to make voice calls using a broadband Internet connection instead of a regular (or analog) phone line. Some VoIP services may only allow you to call other people using the same service, but others may allow you to call anyone who has a telephone number - including local, long distance, mobile, and international numbers. Also, while some VoIP services only work over your computer or a special VoIP phone, other services allow you to use a traditional phone connected to a VoIP adapter.

Advantages of VoIP

One advantage of VoIP is that the telephone calls over the Internet do not incur a surcharge beyond what the user is paying for Internet access, much in the same way that the user doesn't pay for sending individual emails over the Internet.

There are many Internet telephony applications available. Some, like CoolTalk and NetMeeting, come bundled with popular Web browsers. Others are stand-alone products. VoIP also is referred to as *Internet telephony*, *IP telephony*, or *Voice over the Internet (VOI)*.

Disadvantages of VoIP

- Some VoIP services don't work during power outages and the service provider may not offer backup power.
- Not all VoIP services connect directly to emergency services through 9-1-1.
- VoIP providers may or may not offer directory assistance/white page listings.

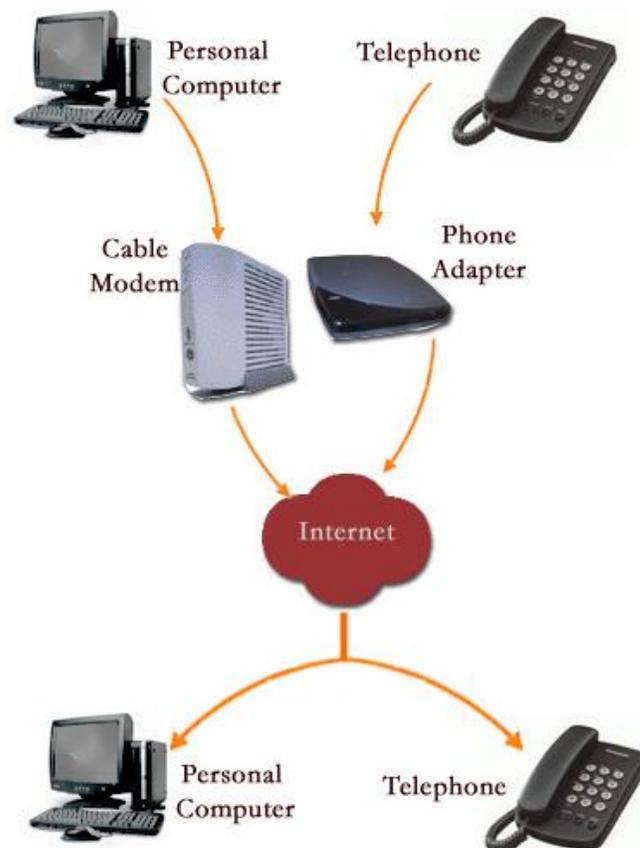
There are two major reasons to use VOIP

- **Lower Cost:** In general phone service via VOIP costs less than equivalent service from traditional sources. This is largely a function of traditional phone services either being monopolies or government entities. There are also some cost savings due to using a single network to carry voice and data. This is especially true when users have existing under-utilized network capacity that they can use for VOIP without any additional costs.
- **Increased functionality:** VOIP makes easy some things that are difficult to impossible with traditional phone networks.

- Incoming phone calls are automatically routed to your VOIP phone where ever you plug it into the network. Take your VOIP phone with you on a trip, and anywhere you connect it to the Internet, you can receive your incoming calls.
- Call center agents using VOIP phones can easily work from anywhere with a good Internet connection.

How VoIP / Internet Voice Works

VoIP services convert your voice into a digital signal that travels over the Internet. If you are calling a regular phone number, the signal is converted to a regular telephone signal before it reaches the destination. VoIP can allow you to make a call directly from a computer, a special VoIP phone, or a traditional phone connected to a special adapter. In addition, wireless "hot spots" in locations such as airports, parks, and cafes allow you to connect to the Internet and may enable you to use VoIP service wirelessly.



What is a Blog?

Definition of blog

A blog (shortening of “weblog”) is an online journal or informational website displaying information in the reverse chronological order, with the latest posts appearing first. It is a platform where a writer or even a group of writers share their views on an individual subject.

What is the purpose of a blog?

There are many reasons to start a blog for personal use and only a handful of strong ones for business blogging. Blogging for business, projects, or anything else that might bring you money has a very straightforward purpose – to rank your website higher in Google SERPs, a.k.a. increase your visibility.

As a business, you rely on consumers to keep buying your products and services. As a new business, you rely on blogging to help you get to these consumers and grab their attention. Without blogging, your website would remain invisible, whereas running a blog makes you searchable and competitive. So, the main purpose of a blog is to connect you to the relevant audience. Another one is to boost your traffic and send quality leads to your website.

The more frequent and better your blog posts are, the higher the chances for your website to get discovered and visited by your target audience. Which means, a blog is an effective lead generation tool. Add a great call to action (CTA), and it will convert your website traffic into high-quality leads. But a blog also allows you to showcase your authority and build a brand. When you use your niche knowledge for creating informative and engaging posts, it builds trust with your audience. Great blogging makes your business look more credible, which is especially important if your brand is still young and fairly unknown. It ensures presence and authority at the same time.

Blog structure

The appearance of blogs changed over time, and nowadays blogs include different items. But, most blogs include some standard features and structure. Here are common features that a typical blog will include:

- Header with the menu or navigation bar
- Main content area with highlighted or latest blog posts
- Sidebar with social profiles, favorite content, or call-to-action
- Footer with relevant links like a disclaimer, privacy policy, contact page, etc.

Blogs and websites

A majority of people still wonder whether there is any difference between a blog and a website. What is a blog and what is a website? It's even more challenging to differentiate between the two today. Many companies are integrating blogs into their sites to perform the same function.

What differentiates blogs from websites?

Blogs need frequent updates. Good examples include a food blog sharing meal recipes or a company writing about their industry news.

Blogs promote perfect reader engagement. Readers get a chance to comment and voice their different concerns to the viewer. Static websites, on the other hand, consists of the content presented on static pages. Static website owners rarely update their pages. Blog owners update their site with new blog posts on a regular basis.

Key elements that identify a blog post from a static page include a publishing date, author reference, categories, and tags within a byline. While not all blog posts have all those byline elements, static website pages do not have any of these items. From a visitor perspective, the content on a static site will not change from one visit to the next. The content on a blog, yet, has the potential to offer something new each day, week, or month. Depending on the blog owner's publishing schedule.