

Course: Web Programming**Code: 15CS52T****Study Material****Note:**

1. These notes are intended for use by students in 15CS52T.
2. These notes are provided free of charge and may not be sold in any shape or form.
3. These notes are not a substitute for material covered during course lectures.
4. If you miss a class, you should definitely obtain both these notes and notes written by a student who attended the class.
5. Material from these notes is obtained from various sources, including, but not limited to, the following:
 - Programming the World Wide Web, 7th edition, Robert W. Sebesta
 - <http://www.tutorialspoint.com/>
 - <http://www.w3schools.com/>
 - Web Programming – Building Internet Applications, 3rd edition, Chris Bates, Wiley Publisher .

UNIT-I: Fundamentals and Introduction to XHTML

Session No. 1

A brief introduction about the Internet

Origins:

* 1960s

- U.S. Department of Defense (DoD) became interested in developing a new large-scale computer network.
- The purposes of this network were communications, program sharing and remote computer access for researchers working on defense- related contracts.
- The DoD's Advanced Research Projects Agency (ARPA) funded the construction of the first such network. Hence it was named as ARPAnet.
- The primary early use of ARPAnet was simple text-based communications through e-mail.

* Late 1970s and early 1980s

- BITNET, which is an acronym for *Because It's Time NETwork*, began at the City University of New York. It was built initially to provide electronic mail and file transfers.
- CSNET is an acronym for *Computer Science NETwork*. Its initial purpose was to provide electronic mail.

*1990s

- NSFnet which was created in 1986 replaced ARPAnet by 1990.
- It was sponsored by the National Science Foundation (NSF).
- By 1992 NSFnet, connected more than 1 million computers around the world.
- In 1995, a small part of NSFnet returned to being a research network. The rest became known as the *Internet*.

What Is the Internet?

- The Internet is a huge collection of computers connected in a communications network.
- The Transmission Control Protocol/Internet Protocol (TCP/IP) became the standard for computer network connections in 1982.
- Rather than connecting every computer on the Internet directly to every other computer on the Internet, normally the individual computers in an organization

are connected to each other in a local network. One node on this local network is physically connected to the Internet.

- So, the Internet is actually a *network of networks*, rather than a network of computers.
- Obviously, all devices connected to the Internet must be uniquely identifiable.

Internet Protocol Addresses

- The Internet Protocol (IP) address of a machine connected to the Internet is a unique 32-bit number.
- IP addresses usually are written (and thought of) as four 8-bit numbers, separated by periods.
- The four parts are separately used by Internet-routing computers to decide where a message must go next to get to its destination.
- Although people nearly always type domain names into their browsers, the IP works just as well.
- For example, the IP for United Airlines (www.ual.com) is 209.87.113.93. So, if a browser is pointed at <http://209.87.113.93>, it will be connected to the United Airlines Web site.

Domain Names

- The IP addresses are numbers. Hence, it would be difficult for the users to remember IP address. To solve this problem, text based names were introduced. These are technically known as *domain name system (DNS)*.
- These names begin with the names of the host machine, followed by progressively larger enclosing collection of machines, called *domains*. There may be two, three or more domain names. DNS is of the form **hostname.domainName.domainName**.
- Example dtek.karnataka.gov.in

The steps for conversion from DNS to IP:

The DNS has to be converted to IP address before destination is reached. This conversion is needed because computer understands only numbers. The conversion is done with the help of *name server*.

- As soon as domain name is provided, it will be sent across the internet to contact name servers.
- This name server is responsible for converting domain name to IP
- If one of the *name servers* is not able to convert DNS to IP, it contacts other name server.
- This process continues until IP address is generated.
- Once the IP address is generated, the host can be accessed.
- The hostname and all domain names form what is known as **FULLY QUALIFIED DOMAIN NAME**.

This is as shown below:

