

## Unit-2

# Application of Internet

# Website Basic

# Internet

- The Internet is essentially a global network of computing resources. You can think of the Internet as a physical collection of routers and circuits as a set of shared resources.
- Some common definitions given in the past include –  
A network of networks based on the TCP/IP communications protocol.  
A community of people who use and develop those networks.

## Internet-Based Services

- Some of the basic services available to Internet users are –
- **Email** – A fast, easy, and inexpensive way to communicate with other Internet users around the world.
- **Telnet** – Allows a user to log into a remote computer as though it were a local system.
- **FTP** – Allows a user to transfer virtually every kind of file that can be stored on a computer from one Internet-connected computer to another.
- **UseNet news** – A distributed bulletin board that offers a combination news and discussion service on thousands of topics.
- **World Wide Web (WWW)** – A hypertext interface to Internet information resources.

# WWW (World Wide Web)

- WWW stands for **World Wide Web**. A technical definition of the World Wide Web is – All the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP).
- In simple terms, The World Wide Web is a way of exchanging information between computers on the Internet, tying them together into a vast collection of interactive multimedia resources.

# HTTP(Hypertext Transfer Protocol)

- HTTP stands for Hypertext Transfer Protocol. This is the protocol being used to transfer hypertext documents that makes the World Wide Web possible.
- A standard web address such as Yahoo.com is called a URL and here the prefix **http** indicates its protocol

# URL(Uniform Resource Locator)

- URL stands for **Uniform Resource Locator**, and is used to specify addresses on the World Wide Web.
- A URL is the fundamental network identification for any resource connected to the web (e.g., hypertext pages, images, and sound files).
- A URL will have the following format –  
protocol://hostname/other\_information

# Website

- Currently you are on our website [Tutorialspoint.com](http://Tutorialspoint.com) which is a collection of various pages written in HTML markup language.
- This is a location on the web where people can find tutorials on latest technologies. Similarly, there are millions of websites available on the web.
- Each page available on the website is called a *web page* and first page of any website is called *home page* for that site.
- These can be differentiated as:

- 1. Static Website**
- 2. Dynamic Website**
- 3. Responsive Website**

## **Static Website**

- Static Websites, also known as fixed websites are the most simplistic websites which contains web pages which with fixed content.
- This means their content do not change depending on the user.
- Static websites are built using simple HTML code and display same information to every user.
- The codes are fixed for each page so the information provided on the page does not change unless it is manually updated. Generally, static websites are cheaper and easier to create.

## **Dynamic Website:**

- Dynamic Websites, also known as fluid websites contain dynamic web pages that are generated in real time.
- This means that the web pages will display different content each time the site is visited.
- These pages include web scripting code, such as PHP, ASP or JSP.
- Dynamic pages access information from a database. Hence, webmaster may only need to update the database record in order to alter the content of dynamic pages.
- Unlike Static websites, dynamic websites have more personal and interactive user experience.

## **Responsive Website:**

- There is another type for websites which is widely used these days.
- These websites are called as Responsive Websites which are optimised for Smartphone and tablets.
- Responsive websites used actually look different on each device.
- These websites are built using a mobile-first approach.
- A large proportion of the users use mobile phones to view the site.
- for responsive web design services, whether they work on small scale or large as it offers best experience to such users.

# Web Browser

- Web Browsers are software installed on your PC. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.
- Web browser while you are navigating through my site [tutorialspoint.com](http://tutorialspoint.com). On the Web, when you navigate through pages of information this is commonly known as *browsing or surfing*.
- We will see different type of Web browsers in a separate chapter.

# Web Server

- Every Website sits on a computer known as a Web server.
- This server is always connected to the internet.
- Every Web server that is connected to the Internet is given a unique address made up of a series of four numbers between 0 and 256 separated by periods.
- For example, 68.178.157.132 or 68.122.35.127.

# **SMTP (Simple Mail Transfer Protocol )Server**

- SMTP stands for **Simple Mail Transfer Protocol Server**.
- This server takes care of delivering emails from one server to another server.
- When you send an email to an email address, it is delivered to its recipient by a **SMTP Server**.

# ISP(Internet Service Provider)

- ISP stands for Internet Service Provider.
- They are the companies who provide you service in terms of internet connection to connect to the internet.
- You will buy space on a Web Server from any Internet Service Provider.
- This space will be used to host your Website.

# Hyperlink

- A hyperlink or simply a link is a selectable element in an electronic document that serves as an access point to other electronic resources.
- Typically, you click the hyperlink to access the linked resource.
- Familiar hyperlinks include buttons, icons, image maps, and clickable text links.

# HTML(Hyper Text Markup Language)

- HTML stands for **Hyper Text Markup Language**. This is the language in which we write web pages for any Website. Even the page you are reading right now is written in HTML.
- This is a subset of Standard Generalized Mark-Up Language (SGML) for electronic publishing, the specific standard used for the World Wide Web.

# DNS(Domain Name System)

- DNS stands for **Domain Name System**.
- When someone types in your domain name, www.example.com, your browser will ask the Domain Name System to find the IP that hosts your site.
- When you register your domain name, your IP address should be put in a DNS along with your domain name.
- Without doing it your domain name will not be functioning properly.

# Web Hosting:

- Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet.
- A web host, or web hosting service provider, is a business that provides the technologies and services needed for the website or webpage to be viewed in the Internet.
- Websites are hosted, or stored, on special computers called servers.
- Internet users want to view your website, all they need to do is type your website address or domain into their browser.
- Their computer will then connect to your server and your WebPages will be delivered to them through the browser.

# Network Security Concepts:

- **Cyber Law :**

Cyber law---->Virtual Reality

Cyber Crimes---> Technology

# Meaning :

- Cyber law is the term used to describe a law that deals with issues related to the **internet, technological and electronic element, communication technology, including computers, software, hardware and information systems.**
- Cyber crime is a generic term that refers to all criminal activities one using the medium of communication technology components, the internet, cyber space and the world wide web(WWW).

# Categories of Cyber Law:

- 1. Using a Computer to target other computer e.g hacking, virus attacking etc.....
- 2. Using a Computer to commit crimes e.g online fraud, Cyber terrorism etc....

# Importance of Cyber Law :

- Cyber law is concerned with every individual these days.
- This is primarily because we all use internet in same or other form daily
- Internet is used when we **create any account online, while performing E-commerce transactions, net banking, for e-mails etc.....**
- Cyber law is important because it touches almost all aspects of transaction and activities on and concerning the internet, the world wide web and cyber space.
- Cyber law protects every individuals from getting trapped in any **cyber violations.**

# Scope of Cyber Law :

- There is a tremendous scope of cyber law in India as the numbers of activities through internet is on increase with the changing times, the requirement for cyber laws and their application is gathering momentum.

# What is Technology :

- Technology means that tools, techniques and sources of power to make life easier or more pleasant and work more productive.

# Cyber Jurisprudence :

- Cyber – Virtual reality
- Jurisprudence- Derives from the Latin term **Juris + Prudentia**, which means **the study or knowledge of law.**
- **Cyber Jurisprudence** is the study of laws which is directly related to cyber crimes.
- **Cyber jurisprudence** also describes the principles of legal issues, which exclusively regulates the cyberspace and internet.

# Firewall

- A firewall is a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules.
- Firewalls have been a first line of defence in network security for over 25 years. They establish a barrier between secured and controlled internal networks that can be trusted and untrusted outside networks, such as the Internet.
- A firewall can be hardware, software, or both.
- There are three types of Firewall

## 1. Packet Filters

- Packet Filter Firewall controls the network access by analyzing the outgoing and incoming packets.
- It lets a packet pass or block its way by comparing it with pre-established criteria like allowed IP addresses, packet type, port number,

## 2. Stateful Inspection

- Stateful Packet Inspection (SPI), which is also sometimes called dynamic packet filtering, is a powerful firewall architecture which examines traffic streams from end to end.
- These smart and fast **firewalls** use an intelligent way to ward off the unauthorized traffic by analyzing the packet headers and inspecting the state of the packets along with providing proxy services.

### **3.Proxy Server Firewalls**

- Also called the application level gateways, Proxy Server Firewalls are the most secured type of firewalls that effectively protect the network resources by filtering messages at the application layer.
- Proxy **firewalls** mask your IP address and limit traffic types. They provide a complete and protocol-aware security analysis for the protocols they support.
- Proxy Servers offers the best Internet experience and results in the network performance improvements.

# Cookies

- **Cookies** are text files with small pieces of data — like a username and password — that are used to identify your computer as you use a computer network.
- Data stored in a cookie is created by the server upon your connection. This data is labelled with an ID unique to you and your computer.
- **Different types of cookies - Magic Cookies and HTTP Cookies**
  - Magic Cookies
  - HTTP Cookies

## 1. Magic Cookies:

- "Magic cookies" are an old computing term that refers to packets of information that are sent and received without changes.
- Commonly, this would be used for a login to computer database systems, such as a business internal network.
- This concept predates the modern "cookie" we use today.

## 2. HTTP Cookies

- "HTTP cookies" are a repurposed version of the "magic cookie" built for internet browsing.
- Web browser programmer Lou Montulli used the "magic cookie" as inspiration in 1994.
- He recreated this concept for browsers when he helped an online shopping store fix their overloaded servers.

# Hackers and Crackers

## Hackers :

- Hackers are kind of good peoples who does hacking for the good purpose and to obtain more knowledge from it.
- They generally find loop holes in the system and help them to cover the loop holes. Hackers are generally programmers who obtain advance knowledge about operating systems and programming languages.
- These people never damage or harm any kind of data.

## ● Crackers :

- Crackers are kind of bad people who breaks or violates the system or a computer remotely with bad intentions to harm the data and steal it.
- Crackers destroy data by gaining an unauthorized access to the network.
- Their works are always hidden as they are doing illegal stuff. Bypasses passwords of computers and social media websites, can steal your bank details and transfer money from bank.

## **HACKER**

The good people who hack for knowledge purposes.

Hackers share the knowledge and never damages the data.

Hackers program or hacks to check the integrity and vulnerability strength of a network.

They are skilled and have a advance knowledge of computers OS and programming languages.

They work in an organisation to help protecting there data and giving them expertise on internet security.

Hackers have legal certificates with them e.g. CEH certificates.

## **CRACKER**

The evil person who breaks into a system for benefits.

If they found any loop hole they just delete the data or damages the data.

Crackers do not make new tools but use someone else tools for there cause and harm the network.

They may or may not be skilled, some of crackers just knows a few tricks to steal data.

These are the person from which hackers protect organisations .

Crackers may or may not have certificates, as there motive is to stay anonymous.

# Types of Payment System

# Payment System

- **Definition :**
- A **payment system** is any **system** used to settle **financial transactions** through the transfer of monetary value. This includes the institutions, instruments, people, rules, procedures, standards, and technologies that make its exchange possible.

# Types of Payment System

- 1. Digital Cash
- 2. Electronic Cheque
- 3. Smart Card
- 4. Debit/Credit Card

# 1.Digital Cash:

- The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. “Faceless, Paperless, Cashless” is one of professed role of Digital India.
- As part of promoting cashless transactions and converting India into less-cash society, various modes of digital payments are available.
- **Digital Payment Methods**
- Banking Cards.
- **USSD.**
- AEPS.
- UPI.
- Mobile Wallets.
- Banks Pre-paid Cards.
- Point of Sale.
- **Internet Banking.**

## 2. Electronic Cheque

- Electronic Cheque is a digital version of a paper check and is also known as an electronic check, online check, internet check, and direct debit.
- Electronic Cheque use the Automated Clearing House (ACH) to direct debit from a customer's checking account into a merchant's business bank account, with the help of a payments processor.
- Electronic Cheque are transmitted electronically, making transactions quicker, safer and easier. Read on for more info.

## **Advantages of Electronic Cheque:**

- Pay Quickly and Control Your Cash Flow. ...
- Save **Money**. ...
- Save Time. ...
- Pay More Safely and Securely. ...
- Compatible With Your Current Accounting Software. ...
- Pay from Anywhere, Anytime.

## **Disadvantages of Electronic Cheque:**

- Fraud Potential
- Errors and Reduced Float

# Smart Card

- A smart card is a physical card that has an [embedded](#) integrated chip that acts as a security token.
- Smart cards are typically the same size as a driver's license or credit card and can be made out of metal or plastic.
- They connect to a reader either by direct physical contact (also known as [chip and dip](#)) or through a short-range wireless connectivity standard such as radio-frequency identification ([RFID](#)) or near-field communication ([NFC](#)).
- Smart cards are designed to be tamper-resistant and use encryption to provide protection for in-memory information.
- Smart cards are used for a variety of applications, though most commonly are used for credit cards and other payment cards.

## Types of smart cards

- **Contact smart cards** are the most common type of smart card.
- **Contactless smart cards** require only close proximity to a card reader to be read; no direct contact is necessary for the card to function.
- **Dual-interface cards** are equipped with both contactless and contact interfaces.
- **Hybrid smart cards** contain more than one smart card technology.
- **Memory smart cards** contain memory chips only and can only store, read and write data to the chip; the data on memory smart cards can be over-written or modified, but the card itself is not programmable so data can't be processed or modified programmatically.
- **Microprocessor smart cards** have a microprocessor embedded onto the chip in addition to memory blocks.

# Debit/Credit Card:

- Credit Card and Debit Card typically look almost identical, with 16-digit card numbers, expiration dates, and personal identification number (PIN) codes.

## Debit Card:

Debit cards allow bank customers to spend money by drawing funds they have deposited at the bank.

Debit cards offer the convenience of credit cards and many of the same consumer protections when issued by major payment processors like Visa or MasterCard.

- **Standard debit cards** draw on your bank account.
- **Electronic Benefits Transfer (EBT) cards** are issued by state and federal agencies to allow qualifying users to use their benefits to make purchases.
- **Prepaid debit cards** give people without access to a bank account a way to make electronic purchases up to the amount that was pre-loaded on the card.



## Credit Card:

Credit cards allow consumers to borrow money from the card issuer up to a certain limit in order to purchase items or withdraw cash.

Credit cards are issued in four categories:

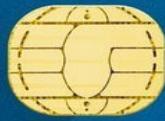
**1. Standard cards** simply extend a line of credit to their users.

**2. Rewards cards** offer cash back, [travel points](#), or other benefits to customers.

**3. Secured credit cards** require an initial cash deposit that is held by the issuer as collateral.

**4. Charge cards** have no preset spending limit, but often do not allow unpaid balances to carry over from month to month.

# Credit Card



1234 5678 9012 3456

CARDHOLDER NAME

05/19

