

# Government Polytechnic Lohaghat (Champawat)

(Branch - Information Technology)

Subject: Internet and Web Technology

[Semester 4]

## How to Store Data in Database

Data can be stored in database in database tables using SQL statements these statements are referred to Query. The languages in which queries are written are known as Structured Query Language (SQL). There are following statements used by relational database management system to store and access data to and from database.

- 1- CREATE TABLE Statement
- 2- INSERT INTO Statement
- 3- SELECT FROM Statement

## Example

Persons				
PersonID	LastName	FirstName	Address	District
1001	Maurya	Vivek	Govt Polytechnic Lohaghat	Champawat
1002	Tiwari	Mukesh	Govt Polytechnic Pitthuwala	Dehradun
1003	Uniyal	Ram	Govt Polytechnic Gauchar	Chamoli
1004	Uniyal	Ram	Govt Polytechnic Srinagar	Pauri

```
CREATE TABLE Persons
(
    PersonID Int Primary Key,
    LastName Varchar(255),
    FirstName Varchar(255),
    Address Varchar (255),
    District Varchar (255)
);
```

## How to Insert Data into Database Table

```
INSERT INTO Persons (PersonID, LastName, FirstName, Address, District)
VALUES ('1001', 'Maurya', 'Vivek', 'Govt Polytechnic Lohaghat ', 'Champawat');
```

```
INSERT INTO Persons (PersonID, LastName, FirstName, Address, District)
VALUES ('1002', 'Tiwari', 'Mukesh', 'Govt Polytechnic Pitthuwala', 'Dehradun');
```

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```
INSERT INTO Persons (PersonID, LastName, FirstName, Address, District)
VALUES ('1003', 'Uniyal', 'Ram', 'Govt Polytechnic Gaucher ', 'Chamoli');
```

```
INSERT INTO Persons (PersonID, LastName, FirstName, Address, District)
VALUES ('1004', 'Uniyal', 'Ram', 'Govt Polytechnic Gaucher ', 'Chamoli');
```

## How to Retrieve Data From Database Tables

Select Statement used to retrieve data from database table or tables.

```
SELECT FirstName, LastName FROM Persons
```

Above Query Returns Following data and uniyal Ram is not repeated

LastName	FirstName
Maurya	Vivek
Tiwari	Mukesh
Uniyal	Ram

```
SELECT DISTINCT FirstName, LastName FROM Persons
```

Above Query Returns Following data and uniyal Ram is not repeated

LastName	FirstName
Maurya	Vivek
Tiwari	Mukesh
Uniyal	Ram

```
SELECT DISTINCT FirstName, LastName FROM Persons
```

```
WHERE Address IS NULL;
```

Above Query Returns Nothing from database as no address is NULL in Database Table Persons.

LastName	FirstName

```
SELECT * FROM Persons WHERE PersonID BETWEEN 2 AND 4;
```

Above Query Returns following Result from database as PersonID 3 is lies Between 1002 and 1004 in Database Table Persons.

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PersonID	LastName	FirstName	Address	District
1003	Uniyal	Ram	Govt Polytechnic Gauchar	Chamoli

**UPDATE** Persons **SET** LastName = 'Manohar' **WHERE** PersonID = 1004

The Above Query Changes LastName From **Uniyal** to **Manohar** corresponds to PersonID 1004. Now Original Table will be

PersonID	LastName	FirstName	Address	District
1001	Maurya	Vivek	Govt Polytechnic Lohaghat	Champawat
1002	Tiwari	Mukesh	Govt Polytechnic Pitthuwala	Dehradun
1003	Uniyal	Ram	Govt Polytechnic Gauchar	Chamoli
1004	Manohar	Ram	Govt Polytechnic Srinagar	Pauri

**DELETE FROM** Persons **WHERE** LastName='Sharma';

The Above Query Removes That Row of Database Table Persons Where LastName is 'Sharma';

**SELECT TOP 2** FirstName, LastName **FROM** Persons;

The Above Query Selects FirstName and LastName From First Two Rows (Row Number 1 to Row Number 2) of Database Table Persons.

PersonID	LastName	FirstName	Address	District
1001	Maurya	Vivek	Govt Polytechnic Lohaghat	Champawat
1002	Tiwari	Mukesh	Govt Polytechnic Pitthuwala	Dehradun

**SELECT TOP 2** PersonID **AS** PID, LastName **AS** SurName **FROM** Persons

The Above Query Returns First Two Rows Corresponds to Columns PersonID and LastName and Column Names are Returned as PID and SurName in Result of Query But Column Names are Remain Unchanged in Original Database Table.

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PID	SurName
1001	Maurya
1002	Tiwari

```
SELECT PersonID, FirstName, LastName FROM Persons  
WHERE District= 'Dehradun' AND FirstName='Ram';
```

The Above Query Returns All Rows Corresponds to Columns PersonID, FirstName and LastName of Database Table Persons Where FirstName should be Ram and District should be Dehradun.

PersonID	LastName	FirstName
1004	Manohar	Ram

```
SELECT PersonID, FirstName, LastName FROM Persons  
WHERE District= 'Dehradun' OR FirstName='Ram';
```

The Above Query Returns All Rows Corresponds to Columns PersonID, FirstName and LastName of Database Table Persons Where Either FirstName should be Ram OR District should be Dehradun.

PersonID	LastName	FirstName
1002	Tiwari	Mukesh
1003	Uniyal	Ram
1004	Manohar	Ram

## **Retrieving Data from More Than one Tables**

Data from multiple tables can be fetched using Join Operation of two tables there are three join operations INNER JOIN, LEFT JOIN and RIGHT JOIN respectively out of which we use INNER JOIN to receive data from two or more tables. Suppose we have two tables Persons and Employee respectively.

Person				
PersonID	LastName	FirstName	Address	District
1001	Maurya	Vivek	Govt Polytechnic Lohaghat	Champawat

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1002	Tiwari	Mukesh	Govt Polytechnic Pitthuwala	Dehradun
1003	Manohar	Sunil	Govt Polytechnic Gauchar	Chamoli
1004	Uniyal	Ram	Govt Polytechnic Srinagar	Pauri
1005	Shankar	Vijay	Govt Polytechnic Nainital	Nainital

Employee					
EmpID	PersonID	Designation	Salary	From	To
1	1002	Lecturer	56000	1/1/2000	1/5/2010
2	1003	Reader	67000	1/1/2003	1/3/2010
3	1004	Professor	131000	1/1/2003	NULL
4	1002	Reader	76000	1/5/2010	NULL
2	1003	Professor	67000	1/3/2010	NULL

```
SELECT Persons.PersonID, FirstName, LastName, Designation, Salary
FROM Persons
INNER JOIN Employees ON Employees.EmpID = Persons.PersonID
WHERE Persons.PersonID = 1003 OR Persons.PersonID = 1004
```

OR We Can Use Following Query

```
SELECT P.PersonID, P. FirstName, P.LastName, E.Designation, E.Salary
FROM Persons AS P
INNER JOIN Employees AS E ON E.EmpID = P.PersonID
WHERE E.PersonID = 1003 OR E.PersonID = 1004
```

These Above queries returns following result

PersonID	FirstName	LastName	Designation	Salary	From	To
1003	Sunil	Manohar	Reader	67000	1/1/2003	1/3/2010
1004	Ram	Uniyal	Professor	131000	1/1/2003	NULL
1003	Sunil	Manohar	Professor	67000	1/3/2010	NULL

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## **Stored Procedure**

Stored Procedures are pre compiled queries stored in database and executed whenever called without recompilation. Stored Procedure is compiled only once when it is created or when it is updated by programmer. Here we use above query that returns data from more than one tables and create stored procedure of that query.

```
CREATE PROCEDURE SelectEmployeeDetails (@paramPID1 INT, @paramPID2 INT)
BEGIN
    SELECT P.PersonID, P. FirstName, P.LastName, E.Designation, E.Salary
    FROM Persons AS P
    INNER JOIN Employees AS E ON E.EmpID = P.PersonID
    WHERE P. PersonID = @ paramPID1 OR P. PersonID = @ paramPID2
END
```

## **Calling a Stored Procedure**

```
CALL SelectEmployeeDetails (1003, 1004)
```

Data Type Used in MySQL	
INTEGER TYPES (EXACT VALUE)	INTEGER, INT, SMALLINT, TINYINT, MEDIUMINT, BIGINT
FIXED-POINT TYPES (EXACT VALUE)	DECIMAL, NUMERIC
FLOATING-POINT TYPES (APPROXIMATE VALUE)	FLOAT, DOUBLE
BIT-VALUE TYPE	BIT

## **What is URL**

URL is an acronym for Uniform Resource Locator and is a reference (an address) to a resource on the Internet. A URL has two main components:

- 1- Protocol identifier: For the URL <http://example.com>, the protocol identifier is http.
- 2- Resource name: For the URL <http://example.com>, the resource name is example.com.

Note that the protocol identifier and the resource name are separated by a colon and two forward slashes. The protocol identifier indicates the name of the protocol to be used to fetch the resource.

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The example uses the Hypertext Transfer Protocol (HTTP), which is typically used to serve up hypertext documents. HTTP is just one of many different protocols used to access different types of resources on the net.

<http://ubterex.co.in/NominalRoll.aspx?InstID=10&BranchID=12>

- http : Scheme Used or Protocol Used
- ubterex.co.in : Host Name
- File Name : NominalRoll.aspx
- Port Number : 8080 (For http protocol)
- Reference Or Parameters : InstID =10 & BranchID=12

Other protocols include File Transfer Protocol (FTP), Gopher, File, and News. The resource name is the complete address to the resource. The format of the resource name depends entirely on the protocol used, but for many protocols, including HTTP, the resource name contains one or more of the following components:

- 1- Host Name: The name of the machine on which the resource lives.
- 2- Filename : The pathname to the file on the machine.
- 3- Port Number: The port number to which to connect (typically optional).
- 4- Reference: A reference to a named anchor within a resource that usually identifies a specific location within a file (typically optional).

For many protocols, the host name and the filename are required, while the port number and reference are optional. For example, the resource name for an HTTP URL must specify a server on the network (Host Name) and the path to the document on that machine (Filename); it also can specify a port number and a reference.

## **What is DNS?**

The Domain Name Systems (DNS) is the address book of the Internet. Humans access information online through domain names, like <http://ubterex.co.in> or [www.espn.com](http://www.espn.com). Web browsers interact through Internet Protocol (IP) addresses. DNS translates domain names to IP addresses so browsers can load Internet resources.

Each device connected to the Internet has a unique IP address which other machines use to find the device. DNS servers eliminate the need for humans to memorize IP addresses such as 192.168.1.1 (in IPv4), or more complex newer alphanumeric IP addresses such as 2400:cb00:2048:1::c629:d7a2 (in IPv6).

## **How does DNS work?**

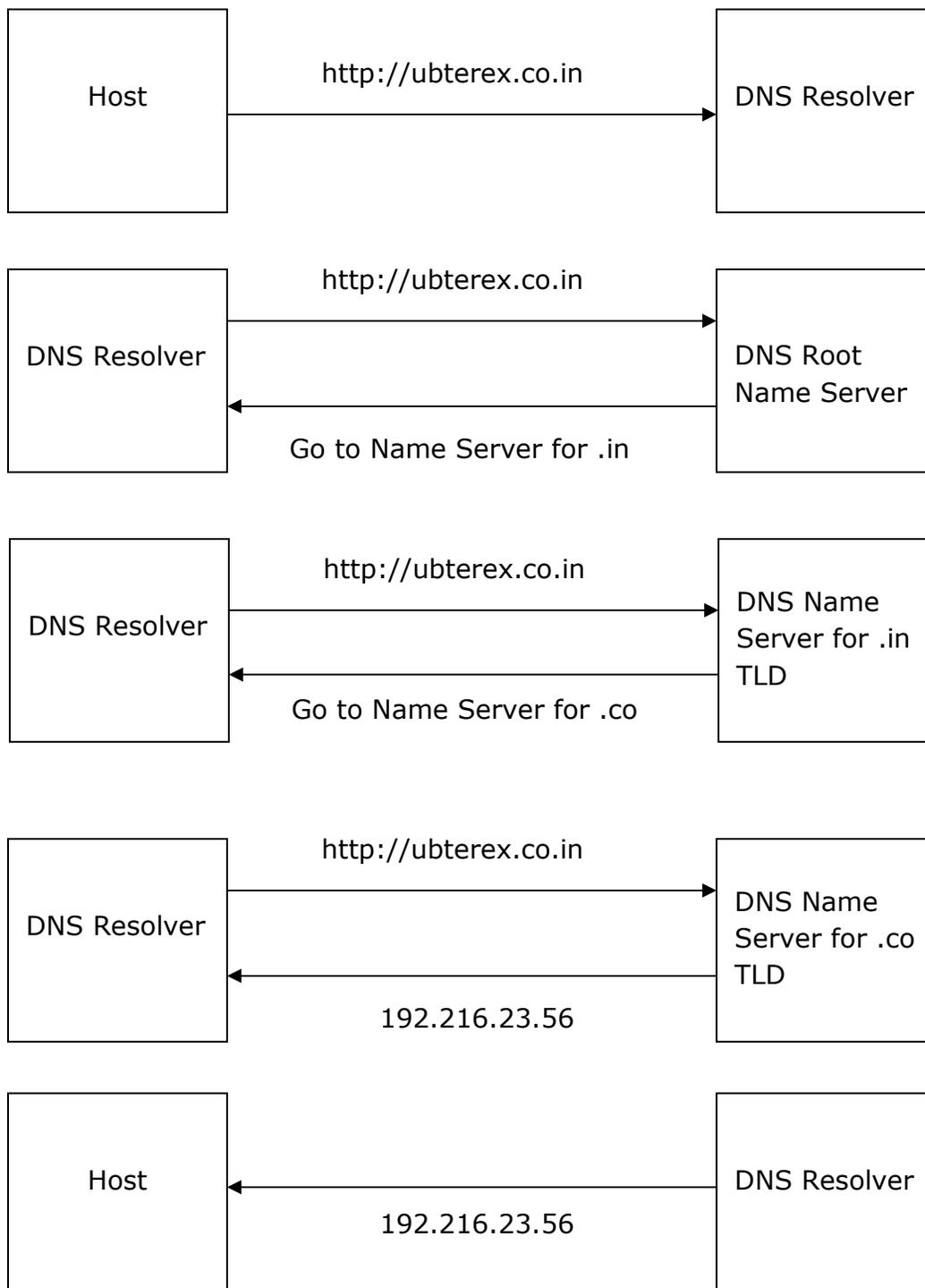
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The process of DNS resolution involves converting a hostname (such as `www.example.com`) into a computer-friendly IP address (such as `192.168.1.1`). An IP address is given to each device on the Internet, and that address is necessary to find the appropriate Internet device - like a street address is used to find a particular home. When a user wants to load a webpage, a translation must occur between what a user types into their web browser (`example.com`) and the machine-friendly address necessary to locate the `example.com` webpage.



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- 1- A user opens a web browser, enters `http://ubterex.co.in` in the address bar, and presses Enter.
- 2- The request for [`http://ubterex.co.in`] is routed to a DNS resolver, which is typically managed by the user's Internet service provider (ISP).
- 3- The DNS resolver for the ISP forwards the request for `http://ubterex.co.in` to a DNS root name server.
- 4- The DNS resolver for the ISP forwards the request for `http://ubterex.co.in` again, this time to one of the TLD (Top Level Domain) name servers for `.in` domains. The name server for `.in` domains responds to the request with the names of the `.co` name servers that are associated with the `http://ubterex.co.in` domain.
- 5- The DNS resolver for the ISP chooses (`.co`) name server and forwards the request for `http://ubterex.co.in` to that name server.
- 6- The `.co` name server looks in the `example.com` hosted zone for the `www.example.com` record, gets the associated value, such as the IP address for a web server, `192.216.23.56`, and returns the IP address to the DNS resolver.
- 7- The DNS resolver for the ISP finally has the IP address that the user needs. The resolver returns that value to the web browser. The DNS resolver also caches (stores) the IP address for `http://ubterex.co.in` for an amount of time that you specify so that it can respond more quickly the next time someone browses to `http://ubterex.co.in`.
- 8- The web browser sends a request for `http://ubterex.co.in` to the IP address that it got from the DNS resolver.
- 9- The web server or other resource at `192.0.2.44` returns the web page for `http://ubterex.co.in` to the web browser, and the web browser displays the page.

## **File Transfer Protocol (FTP)**

File Transfer Protocol (FTP) is an application layer protocol which moves files between local and remote file systems. It runs on the top of TCP, like HTTP. To transfer a file, 2 TCP connections are used by FTP in parallel: control connection and data connection.

### **What is control connection?**

For sending control information like user identification, password, commands to change the remote directory, commands to retrieve and store files etc., FTP makes use of control connection. Control connection is initiated on port number 21.

### **What is data connection?**

For sending the actual file, FTP makes use of data connection. Data connection is initiated on port number 20. FTP sends the control information out-of-band as it

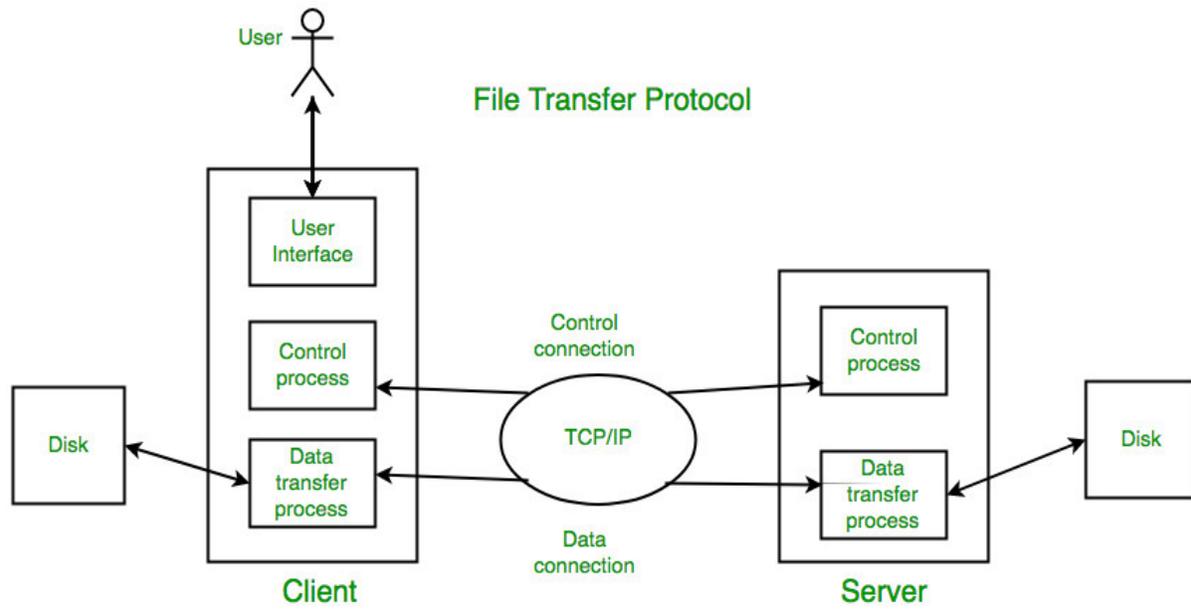
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uses a separate control connection. Some protocols send their control information in request and response header lines and the data in the same TCP connection. For this reason, they are said to send their control information in-band. HTTP and SMTP are such examples.



## Video Conference

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.

## The Hypertext Transfer Protocol (HTTP)

The Hypertext Transfer Protocol (HTTP) is an application layer protocol for distributed, collaborative, hypermedia information systems. 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.

Communication between clients and servers is done by requests and responses:

1. A client (a browser) sends an HTTP request to the web.
2. A web server receives the request.
3. The server runs an application to process the request.
4. The server returns an HTTP response (output) to the browser.
5. The client (the browser) receives the response.

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## Basic Features

There are three basic features that make HTTP a simple but powerful protocol:

HTTP is connectionless: The HTTP client (a browser) initiates an HTTP request and after a request is made, the client waits for the response. The server processes the request and sends a response back after which client disconnect the connection. So client and server know about each other during current request and response only. Further requests are made on new connection like client and server are new to each other.

HTTP is media independent: It means, any type of data can be sent by HTTP as long as both the client and the server know how to handle the data content. It is required for the client as well as the server to specify the content type using appropriate MIME-type.

HTTP is stateless: As mentioned above, HTTP is connectionless and it is a direct result of HTTP being a stateless protocol. The server and client are aware of each other only during a current request. Afterwards, both of them forget about each other. Due to this nature of the protocol, neither the client nor the browser can retain information between different requests across the web pages.

## **What is Ecommerce?**

Ecommerce, also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet.

**Types of Ecommerce Models:** There are four main types of ecommerce models that can describe almost every transaction that takes place between consumers and businesses.

1. **Business to Consumer (B2C):** When a business sells a good or service to an individual consumer (e.g. You buy a pair of shoes from an online retailer).
2. **Business to Business (B2B):** When a business sells a good or service to another business (e.g. A business sells software-as-a-service for other businesses to use)
3. **Consumer to Consumer (C2C):** When a consumer sells a good or service to another consumer (e.g. You sell your old furniture on OLX to another consumer).
4. **Consumer to Business (C2B):** When a consumer sells their own products or services to a business or organization (e.g. An influencer offers exposure to their online audience in exchange for a fee, or a photographer licenses their photo for a business to use).

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## **Examples of Ecommerce**

Ecommerce can take on a variety of forms involving different transactional relationships between businesses and consumers, as well as different objects being exchanged as part of these transactions.

Retail: The sale of a product by a business directly to a customer without any intermediary.

Wholesale: The sale of products in bulk, often to a retailer that then sells them directly to consumers.

## **Email (Electronic Mail)**

Email Short for electronic mail, email (or e-mail) is defined as the transmission of messages over communications networks via three protocols SMTP (Simple Mail Transfer Protocol), POP (Post Office Protocol) and IMAP (Internet Message Access Protocol) respectively. Typically the messages are notes entered from the keyboard or electronic files stored on disk.

Some electronic mail systems are confined to a single computer system or network, but others have gateways to other computer systems, enabling users to send electronic mail anywhere in the world.

Most email systems include a rudimentary text editor for composing messages, but many allow you to edit your messages using any editor you want. You can use the program to send the message to a recipient by specifying the recipient's address. You can also send the same message to several users at once. This is called broadcasting.

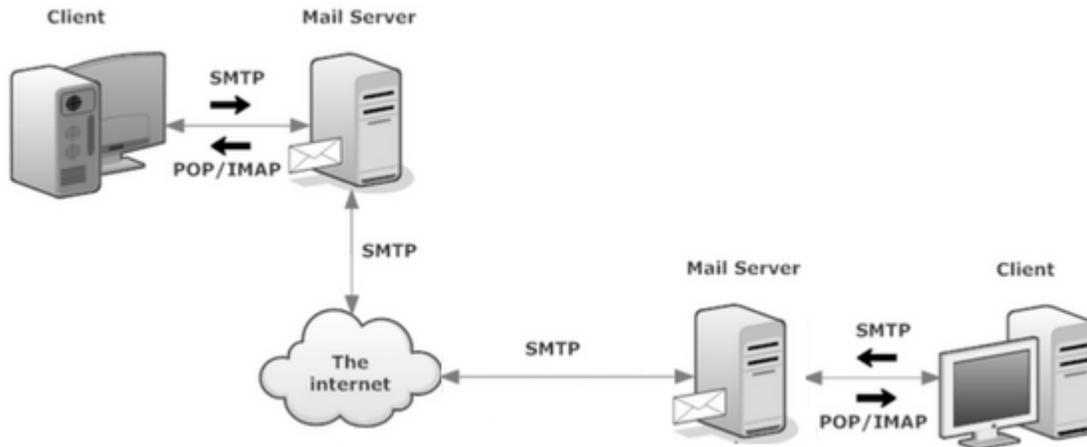
Sent messages are stored in electronic mailboxes until the recipient fetches them. To see if you have any mail, you may have to check your electronic mailbox periodically, although many systems alert you when mail is received. After reading your mail, you can store it in a text file, forward it to other users, or delete it. Copies of memos can be printed out on a printer if you want a paper copy.

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## **What is an ISP?**

The ISP, short for 'Internet Service Provider', is the company that connects your personal computer, notebook, PDA, mobile device, game station, etc. to the Internet. Another name for ISP is IAP, or Internet Access Provider.

The connection between your Internet enabled device and the global network is executed through a specific digital data transmission technology. It represents the transfer of information packets through an Internet Protocol route. According to the method of data transmission, the Internet access that ISPs provide to users can be divided into several types, the most popular of which are:

- 1- Dial-up Internet access.
- 2- DSL (Digital Subscriber Loop or Digital Subscriber Line).
- 3- Cable Internet.
- 4- Wireless Broadband (Wi-BB).
- 5- Wi-Fi Internet.
- 6- ISDN or the Integrated Services Digital Network.

### Dial-up Internet access

This is the oldest method of providing access to the Internet. It uses a telephone line to perform a modem-to-modem connection. For that purpose, the user's computer is attached to a telephone line enabled modem device, which dials into the node of the ISP and starts transferring data between the servers that store websites the user wants to see and their Internet connected device.

### DSL (Digital Subscriber Loop or Digital Subscriber Line)

DSL, short for 'digital subscriber loop' or 'digital subscriber line', is an advanced version of the dial-up Internet access method. In contrast to dial-

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up, DSL uses high frequency to execute a connection over the local telephone network. This allows the Internet and the phone connections to be run on one and the same telephone line and ensures an Asymmetric Digital Subscriber Line (ADSL), where the upload speed is lower than the download speed, and a Symmetric Digital Subscriber Line (SDSL), offering equal upload and download speeds. Of them both, ADSL is much more popular and is even known as just DSL to users.

## Cable Internet

The cable Internet is among the most preferred methods for providing residential Internet access. Technically speaking, it represents a broadband Internet access method, using the high-bandwidth cable television network to transmit data between the global network and the households. To use cable Internet you will need a cable modem at home that will be connected with the CMTS (Cable Modem Termination System) of your cable ISP.

## Wireless Broadband (Wi-BB)

This is a new-generation broadband Internet access technology, allowing the delivery of high-speed wireless Internet within a large area. Wireless broadband ISPs (WISPs) ensure connection speeds that come close to the wired broadband speeds provided by DSL and cable ISPs. To get wireless broadband you need to place a specific dish on your house roof or apartment balcony and point it to the transmitter of your WISP. This type of Internet access is used as an alternative to the wired broadband connection in remote areas.

## Wi-Fi Internet

Wi-Fi (from Wireless Fidelity) has become one of the most widely distributed Internet access methods, with the growing usage of portable computers and Internet enabled mobile devices, such as smart phones. In this sense, it is the most mobile Internet access method within the range of an Internet connected wireless network. Due to its ability to serve mobile devices, Wi-Fi is used in public places such as airports, hotels and restaurants to provide Internet access to customers.

## ISDN

Another online data transmission method worth considering is ISDN or the Integrated Services Digital Network. ISDN represents a telephone system network, integrating a high-quality digital transmission of voice and data over the ordinary phone line. Ensuring a much better data transmission over

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the phone line than an analog line could allow, the ISDN offers a fast upstream/downstream Internet connection speed of 128 kbps.

## **Common Gateway Interface (CGI)**

The common gateway interface (CGI) is a standard way for a Web server to pass a Web user's request to an application program and to receive data back to forward to the user. When the user requests a Web page (for example, by clicking on a Hyperlink or entering a Web site address), the server sends back the requested page. This method or convention for passing data back and forth between the server and the application is called the common gateway interface (CGI). It is part of the Web's Hypertext Transfer Protocol (HTTP).

If you are creating a Web site and want a CGI application to get control, you specify the name of the application in the uniform resource locator (URL) that you code in an HTML file. For example, you might code:

```
<FORM METHOD=POST  
ACTION=http://ubterex.org.in/cgi-bin/frmResult.cpp>
```

The server at ubterex.org.in would pass control to the CGI application called frmResult.cpp to record the entered data and return a confirmation message.

The common gateway interface provides a consistent way for data to be passed from the user's request to the application program and back to the user. Programmer can write a CGI application in a number of different languages. The most popular languages for CGI applications are: C, C++, Java, and PERL.

## **Some Useful Protocols and Their Port Number**

Port	Protocol	Uses
20	FTP - data port (FTP-d).	TCP
21	FTP - control (command) port (FTP-c).	TCP
22	SSH (Secure Shell) - used for secure logins, file transfers.	TCP, UDP
23	Telnet protocol - unencrypted text communications.	TCP, UDP
25	SMTP (Simple Mail Transport Protocol).	TCP, UDP

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53	DNS (Domain Name System).	TCP, UDP
80	HTTP (Hyper Text Transfer Protocol) - used for transferring web pages.	TCP
366	SMTP, Simple Mail Transfer Protocol.	TCP, UDP

## **PHP (Hypertext Preprocessor)**

PHP is a general purpose programming language at server-side used for the purpose of scripting that is primarily designed to develop websites. Initially, it meant Personal Home Page which has now been changed to Hypertext Preprocessor. PHP works in combination of HTML to display dynamic elements on the page. PHP only parses code within its delimiters, such as. Anything outside its delimiters is sent directly to the output and not parsed by PHP.

The leading social networking sites such as Facebook and reputed organizations such as Harvard University are both based on PHP and most popular open-source content management system (CMS) Drupal, WordPress and Joomla are also written in PHP which makes PHP popular and increases its credibility.

This is so because the websites developed using PHP can easily be improved, maintained and updated from time to time. Everything has its pros and cons, therefore PHP also has some advantages and disadvantages which has been discussed later in the article.

## **Advantages of PHP**

The reason behind the popularity of PHP is its several advantages. PHP is most suited for the purpose of web development. The advantages of PHP are discussed briefly below:

- 1- Portability(Platform Independent)
- 2- Performance
- 3- Ease Of Use
- 4- Open Source
- 5- Third-Party Application Support
- 6- Stability in Market
- 7- Community Support

- 1- Portability(Platform Independent): All the PHP based applications can run on various types of platforms. PHP is supported by majority of Operating Systems, some of which includes Solaris, UNIX, Windows and Linux. The mentioned platforms can be used to write codes in PHP and also view web pages or run the PHP based applications. PHP easily interfaces with MySQL and Apache both. An effortless integration of PHP can be done with various other technologies like

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Java and there is no requirement of re-development. Therefore, saving both time and money, giving it an important advantage.

- 2- Performance / High Speed: Speed is the primary need of web development. When compared to other programming languages, PHP is found to be the fastest programming language. PHP performs database related tasks faster than other scripting languages. PHP is faster in both connecting to the database and in using other important applications. The high speed of PHP gives it an advantage over other scripting languages.
- 3- Easy to use PHP is widely used because it is easy to use. In contrast with other programming languages that are complex, PHP is simple, fluent, clean and organized, hence it is a boon for the new users. PHP has a well-organized syntax which is logical at the same time. Command functions of PHP are easily understood as the user can easily figure out from the name of the commands itself what it does. A person who is new to PHP can still code because the syntax is somewhat similar to C.
- 4- Open source: One of the important advantages of PHP is that it is Open Source. Therefore, PHP is readily available and is entirely free. In contrast to other scripting languages used for web development which requires the user to pay for the support files, PHP is open to everyone, anytime and anywhere.
- 5- Third-Party Application Support: One of PHP's Strengths has historically been its support for a wide range of different databases, including MySQL, PostgreSQL, Oracle, and Microsoft SQL Server. PHP 5.3 Supports more than fifteen different database engines, and it includes a common API for database access. XML support makes it easy to read and write XML documents though they were native PHP data structures.
- 6- Stable Language: PHP has been in existence for about twenty-two years. Over this era, many developers have worked on the application to enhance the usage of the application. Lots of bugs are discovered over the years and therefore the bugs are fixed quickly by the team of developers. Based on this, the programming language is currently very stable.
- 7- Community Support: One of the nice things about a community-supported language like PHP is the access it offers to the creativity and imagination of hundreds of developers across the world. Within the PHP community, the fruits of this creativity may be found in PEAR, the PHP Extension and Application Repository and PECL, the PHP Extension Community Library, which contains hundreds of ready-made widgets and extensions that developers can use to painlessly and new functionality to PHP.
- 8- Easy Database Connection: A programming language like PHP is widely used on the internet and needs to connect to the database very often. Therefore, having a feature that could help PHP to connect to database easily is mandatory. Several websites such as the ecommerce websites, require good database management system. PHP has a built-in module that helps it in connecting with database easily. Therefore, PHP has a great demand in the field of web

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development where a data driven website needs to be developed. PHP significantly reduces the time needed in developing the web application that needs an efficient database management system.

## Disadvantages of PHP

Every programming language has its own set of advantages and disadvantages. Similarly PHP has its own set of disadvantages too, which are discussed below:

- 1- Security Issue: The websites must be as secure as possible so that the owner of the website and the users of the website both are safe and protected. PHP is available absolutely free i.e. it is open source in nature. On the one hand it is an advantage to PHP and on the other hand poses a threat too to the website developed using PHP.
- 2- Poor Error Handling: It is widely believed by the developers that PHP has a poor quality of handling errors. PHP lacks debugging tools, which are needed to search for errors and warnings. PHP has less number of debugging tools when compared to other programming languages.

## What is Java Script?

Java Script is a Dynamic Scripting language used along with HTML. It is an interpreted language that is used to add dynamics content in web pages. There are a number of events that will trigger the execution of JavaScript. The JavaScript client-side mechanism provides many advantages over traditional CGI server-side scripts.

## Advantages of JS

1. Interpreted languages: JavaScript is an interpreted language. It requires no compilation process so no compiler is required. The browser interprets JavaScript as it HTML Tags.
2. Easy to learn: The syntax of JavaScript is very easy. Any person can learn it very easily and use it to develop dynamic and attractive websites.
3. Easy to Debug and Test: JavaScript code is interpreted line by line. The errors are indicated along with line number. It is very easy to find error in the code, correct it and test it again.
4. Event-Based Programming: JavaScript is an event-based language. It means that different code segment are executed when certain event occur. For example, a code segment may execute when the user click a button or moves a mouse over an object etc.
5. Procedural Capabilities: JavaScript provides all capabilities of a procedural language. It provides condition checking, loops and branching facilities that can be executed in a web page.

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6. Platform Independence: JavaScript is platform independent language. Any JavaScript-enabled browser can understand and interpreted JavaScript code. Any JavaScript code is executed on different types of hardware a JavaScript program written for.

## Uses of Java Script

1. Input Validation: JavaScript can be used to validate the input. Data entered informs should be validated before it is processed.
2. Mouse Rollover Effects: JavaScript can used to create different buttons with interesting mouse rollover effects. It makes browsing more interesting and attractive.
3. Popup Windows: JavaScript can be used to create popup windows. These windows are normally used to display important announcements, offers and news etc.
4. Dynamic Contents: JavaScript can be used to generate dynamic contents in a website. Different HTML tags can be generated based on the user input etc.
5. User Interaction: JavaScript can be used to interest with the user. The input entered by the user can be processed and proper message can be displayed to the user. The interactive capabilities of a website makes it more interesting and productive for the users.
6. Make XMLHttpRequest() Object: XMLHttpRequest is special JavaScript object that was designed by Microsoft. XMLHttpRequest object call as a asynchronous HTTP request to the Server for transferring data both side without reloading the page. This is known as AJAX (Asynchronous Java Script and XML).

## JavaScript in <head>...</head> section

If you want to have a script run on some event, such as when a user clicks somewhere, then you will place that script in the head as follows –

```
<html>
  <head>
    <script type = "text/javascript">
      function sayHello() {
        alert("Hello World")
      }
    </script>
  </head>
```

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```
<body>
  <input type = "button" onclick = "sayHello()" value = "Say Hello" />
</body>
</html>
```

## **JavaScript in <body>...</body> section**

If you need a script to run as the page loads so that the script generates content in the page, then the script goes in the <body> portion of the document. In this case, you would not have any function defined using JavaScript. Take a look at the following code.

```
<html>
<head><Title> Java Script in Body</Title> </head>
<body>
  <script type = "text/javascript">
    <!--
      document.write("UBTER Roorkee")
    //-->
  </script>

  <p>This is web page body </p>
</body>
</html>
```

## **JavaScript in External File**

As you begin to work more extensively with JavaScript, you will be likely to find that there are cases where you are reusing identical JavaScript code on multiple pages of a site.

You are not restricted to be maintaining identical code in multiple HTML files. The script tag provides a mechanism to allow you to store JavaScript in an external file and then include it into your HTML files.

Here is an example to show how you can include an external JavaScript file in your HTML code using script tag and its src attribute.

```
<html>
<head>
  <script type = "text/javascript" src = "filename.js" ></script>
</head>
<body>
```

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```
.....  
</body>  
</html>
```

## Java Script Function as Form Validation

```
<html>  
<head>  
<script>  
function validateForm()  
{  
    var x = document.RegForm.fname.value;  
    // var x = document.getElementById("fname").value;  
    // var x = document.forms["RegForm"]["fname"].value;  
  
    var flag = 0;  
  
    for (var i = 0; i < x.length; i++)  
    {  
        if(!((x.charCodeAt(i) >= 65 && x.charCodeAt(i) <= 90) ||  
            (x.charCodeAt(i) >= 97 && x.charCodeAt(i) <= 122)))  
        {  
            alert("Name Should Have Only Alphabets");  
            document.getElementById("fname").value = "";  
            return false;  
        }  
    }  
  
    if (x == "")  
    {  
        alert("Name must not be Empty");  
        return false;  
    }  
  
    if (flag == 1) {  
        alert("Name Should Have Only Alphabets");  
        document.getElementById("fname").value = "";  
        return false;  
    }  
  
}
```

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```
</script>
```

```
<style>
```

```
body { background-color: #FDF5E6; text-align : center;}
```

```
#tblOuter
```

```
{
```

```
    background-color : #FDF5E6;
```

```
    border-style : solid;
```

```
    border-color : black;
```

```
    border-width : 0px;
```

```
    width : 80%;
```

```
    height: 600px;
```

```
}
```

```
#tblOuter td {text-align : center; vertical-align : middle;}
```

```
#formLayout
```

```
{
```

```
    background-color : lightblue;
```

```
    border-style : solid;
```

```
    border-color : black;
```

```
    border-width : 1px;
```

```
    width : 50%;
```

```
}
```

```
#formLayout th { background-color: #4CAF70; color: white;}
```

```
#formLayout td {text-align: left; width : 50%}
```

```
#formLayout tr:hover {background-color:#fdb5c6;}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<form name = "RegForm" action=" ../SaveUserData.php"
```

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```
onsubmit="return validateForm()" method="post">
```

```
<table id = "tblOuter" align = "center">
```

```
<tr>
```

```
<td>
```

```
<table id = "formLayout" align = "center">
```

```
<tr>
```

```
<th colspan = "2"> User Registration: </th>
```

```
</tr>
```

```
<tr>
```

```
<td class = "left"> Name: </td>
```

```
<td class = "left"><input type="text"
```

```
id = "fname" name="fname"></td>
```

```
</tr>
```

```
<tr>
```

```
<td class = "left"></td>
```

```
<td><input type="submit" value="Submit"></td>
```

```
</tr>
```

```
<tr> <th colspan = "2">.</th></tr>
```

```
</td>
```

```
</tr>
```

```
</form>
```

```
</body>
```

```
</html>
```

## Some Important Acronyms

SN	Acronym	Meaning
1	API	Application Programming Interface
2	ASCII	American Standard Code for Information Interchange
3	CSS	Cascading Style Sheets
4	DOM	Document Object Model
5	DHTML	Dynamic Hypertext Markup Language
6	GIF	Graphics Information Format

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7	HTML	Hypertext Markup Language
8	HTTP	Hypertext Transfer Protocol
9	IDE	Integrated Development Environment
10	JASON	Java Script Object Notation
11	PDF	Portable Document Format
12	PHP	Hypertext Preprocessor
13	SOAP	Simple Object Access Protocol
14	SDK	Software Development Kit
15	SSL	Secure Socket Layer
16	TLS	Transport Layer Security
17	XML	Extensible Markup Language
18	XHTML	Extensible Hypertext Markup Language
19	Wi-Fi	Wireless Fidelity

## What is AJAX?

AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script. Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display. AJAX communicates over HTTP Protocol.

Conventional web applications transmit information to and from the sever using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server. With AJAX, when you hit submit, JavaScript will make a request to the server, interpret the results, and update the current screen. In the purest sense, the user would never know that anything was even transmitted to the server. XML is commonly used as the format for receiving server data, although any format, including plain text, can be used.

## Advantages of AJAX

- 1- Reduce the traffic travels between the client and the server. Response time is faster so increases performance and speed.
- 2- You can use JSON (JavaScript Object Notation) which is alternative to XML. JSON is key value pair and works like an array.
- 3- Ready Open source JavaScript libraries available for use – JQuery, Prototype, Scriptaculous, etc.
- 4- AJAX is a web browser technology independent of web server software.
- 5- A user can continue to use the application while the client program requests information from the server in the background.

## Disadvantages of AJAX

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- 1- It can increase design and development time. AJAX Application is More complex than building classic web application
- 2- Security is less in AJAX application as all files are downloaded at client side.
- 3- Search Engine like Google cannot index AJAX pages.
- 4- JavaScript disabled browsers cannot use the application.
- 5- The last disadvantage, XMLHttpRequest object itself. Due to security constraints, you can only use it to access information from the host that served the initial page. If you need to display information from another server, it is not possible within the AJAX.

## **What is Dynamic Web Page**

A static webpage is the conventional way of developing pages using only HTML and CSS (and possibly some js to manipulate some content). Static web page remains same until it is changed by the programmer. Unlike static web page dynamic web page is generated by server side programming language like PHP, JSP, and ASP.NET etc. Dynamic web page is interactive and contents are changed according to user input, geography and time. Dynamic page receives user request as a parameters and then processes the requests, read data from database and finally write html page for user.

## **The Feature of Dynamic Webpage**

Page management  
File Collection  
Search opportunity  
Menus in management  
Color and font management

## **Example**

E-Commerce Websites.  
E- Business Website  
Jobs Searching Web Sites  
Database drive website  
Social Networking Web Sites.

## **Advantages of This Dynamic Web Page**

Easy To Update: Dynamic web page can be easily updated as per the needs of the owner. No expert knowledge is needed in changing the contents of dynamic web page as it provides master pages that can update contents easily.

Smooth Navigation: A dynamic website offers a smooth navigation by allowing partial rendering of page, validation of page at client with the help of Java Script, AJAX and JQuery, JASON etc.

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Simpler to Manage: Contents dynamic web page are organized in a database makes it much easier to manage and edit. Website Administrator need to change contents in database using master forms.

More Interactive: A dynamic site allows you to personalize user experience. It does this with features like recently viewed items and pages, personalized product suggestions, and location.

## **Disadvantages of This Dynamic Web Page**

Development Cost is High: Dynamic websites can cost big bucks in their development and even the hosting cost is high. However, once developed they would not cost additional money for any updates or changes.

Slow Processing: Dynamic web page has a number of functions to perform like database access and has complex technology, the dynamic websites becomes slower to process and load.