INTERNET & ITS APPLICATIONS

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Introduction

- Computer Stands for Common Oriented Machine Particularly Used for Trade, Education and Research.
- Computer can also be defined as Common Operated Machine Particularly Used for Trade, Education and Research.

Contd…

- A Computer is an electronic device that accepts raw data as input, can store and processes the data (typically in binary form) according to a set of instructions (programs) to produce the desired result (Output) as information.
- **Data** – Data is defined as an unprocessed collection of raw facts, suitable for communication and processing.

For Example, Praveen, CS Department, APCAS are data. This will not give any meaningful data.

- **Information** is a collection of facts from which conclusions of facts from which conclusions maybe drawn. In Simple words, data is the raw facts that is processed to give meaningful , ordered or structured information.

Example: Praveen from CS Department of APCAS. This information conveys some meaning.

- Computer data is considered as the information processed or stored by a computer. This information may be in the form of text documents, images, audio clips, software programs, or other types of data.
- An **Instruction** is a group of bits that define operations such as add, subtract, multiply, shift and compliment.

Characteristics of a Computer

- The characteristics of computer are high speed of operations, accuracy, reliability, flexibility, and economy coupled with efficiency in storing and processing data.
  - High Speed: Computers have the ability to perform routine tasks at a greater speed than human beings. They can perform millions of calculations in seconds.
  - Accuracy: Computers are used to perform tasks in a way that ensures total accuracy.
  - Storage: Computers can store a large amount of information. An item of data or any instruction stored in the memory can be retrieved by the computer at lightning speeds.

- Automation: Computers can be instructed to perform comp) tasks automatically (which increases productivity).
- Diligence: Computers can perform the same task repeatedly and with the same accuracy without getting tired.
- Versatility: Computers are flexible to perform both simple and complex tasks.
- Cost-effectiveness: Computers reduce the amount of paperwork, and human effort, thereby reducing costs.

Application/ Uses of Computers

- Computers are used everywhere. There are several uses of computers which are as follows.
  - Desktop publishing - With desktop publishing, you can create page layouts for entire books on your personal computer.
  - Computers in Medicine - You can diagnose diseases. Software is used in magnetic resonance imaging to examine the internal organs of the human body. Software is used for performing surgery. Computers are used to store patient data.
  - Mathematical Calculations - Thanks to computers, which have computing speeds of over a million calculations per second, we can perform the biggest of mathematical calculations.

- Banks - All financial transactions are done by computer software. They provide security, speed, and convenience.
- Travel - One can book air tickets or railway tickets and make hotel reservations online.
- Telecommunications - Software is widely used here. Also, all mobile phones have software embedded in them.
- Defence - There is software embedded in almost every weapon. Software is used for controlling the flight and targeting ballistic missiles. Software is used to control access to atomic bombs.
- E-Learning - Instead of a book, it is easier to learn from E-learning software.

- Gambling - You can gamble online instead of going to a casino.
- Examinations - You can take online exams and get instant results. You can check your examination results online.
- Computers in Business - Shops and supermarkets use the software, which calculates the bills. Taxes can be calculated and paid online. Accounting is done using computers. One can predict future trends of business using an artificial intelligence software. Software is used in major stock markets. One can do trading online. There are fully automated factories running on software.

- Certificates - Different types of certificates can be generated. It is very easy to create and change layouts.
- ATM machines - The computer software authenticates the user and dispenses cash.
- Marriage - There are matrimonial sites through which one can search for a suitable groom or bride.
- News - There are many websites through which you can read the latest or earlier news.
- Alumni Associations - There are many alumni websites through which you can regain contact with your classmates.

- Robotics - Robots are controlled by software.
- Washing Machines - They operate using the software.
- Microwave Oven - They are operated by software.
- Planning and Scheduling - Software can be used to store contact information, generating plans, scheduling appointments, and deadlines.
- Plagiarism - Software is available that can examine content for plagiarism.

- Greeting Cards - You can send and receive greetings online, suiting different occasions.
- Sports - Software is used for making umpiring decisions in games. There is simulation software by using which sportsperson can practice his skills. Computers also to identify flaws in technique.
- Aero planes — Pilots train on software, which simulates flying.
- Weather analysis — Supercomputers are used to analyze predict the weather.

APPLICATIONS OF COMPUTERS IN DIFFERENT FIELDS

Applications of Computers in Education

- Computer education is becoming mandatory in most universities across the world. They basically teach the subjects which enable the students to acquire a job in the software engineering Industry, Teachers use computers as teaching aids with a provision for spare time to enable students to interact with teacher at the end of the session. Nowadays, colleges are setting up such a system where student and faculty attendance, syllabus, schedule of tests, exams, etc., are put on the web, and students, their parents, and faculties can access it from anywhere and get updated.

Applications of Computers in Industries

- Mostly, the software or the hardware that is produced by companies would be used to automate the manual task. An industry, capable of producing such products is called the software industry. Other companies that use these services are called clients. Computers can be used to produce patterns in textile industries, color combinations in paint industries, automate the operation of a machine in an industry using robotics, etc.

Applications of Computers in Business

- They are used in commercial organizations to accomplish clerical and administrative work. Tax calculations, salary slip preparations, etc., can be done using computers. Stock market predictions can be, done. Banks are using computers to maintain the accounts and. transactions. E-banking is picking up popularity because of the flexibility of banking from an armchair. Excluding the matter of much-talked security, they are used comfortably by the customers. E - 'Shopping is one more concept gaining popularity in an industry where a customer can buy the displayed items by paying through credit card or cash on delivery options.

Applications of Computers in Entertainment

- Animations and Special Effects for the movies are done using high-end workstations. In the Titanic movie, they used 100 high-end Linux workstations in parallel to produce special effects. Also, the movies and music are available in the form of CDs, VCDs, and DVDs which cost less compared to watching movies at theatres. People prefer to watch them through these media in their leisure time. Kids enjoy playing games using computers.

Data Representation

- **Computer data** is a piece of information processed or stored by a computer. This information may be in the form of text documents, images, audio clips, software programs, or other types of data. Computer data may be processed by the computer's CPU and is stored in files and folders on the computer's hard disk.
- Computer data is a bunch of ones and zeros, known as binary data. Because all computer data is in binary format, it can be created, processed, saved, and stored digitally. This allows data to be transferred from one computer to another using a network connection or various media devices. It also does not deteriorate over time or lose quality after being used multiple times.
- **A Computer program** is a collection of instructions that can be executed by a computer to perform a specific task.
- A computer program is usually written by a computer programmer using a programming language.

- A bit is the short form of Binary digit which can be ‘0’ or ‘1’. It is the basic unit of data in computers.
- A nibble is a collection of 4 bits (Binary digits).
- A collection of 8 bits is called Byte.
- A byte is considered as the basic unit of measuring the memory size in the computer.

- A collection of 1024 bytes is called Kilo Byte (KB).
- A collection of 1024 Kilo bytes is called Mega Byte (MB).
- A collection of 1024 mega bytes is called Giga Byte (GB).
- A collection of 1024 Giga bytes is called Terra Byte (TB).
- A collection of 1024 Terra Bytes is called Peta Byte (PB).
- A collection of 1024 Peta bytes is called Exa Byte (EB).
- A collection of 1024 Exa bytes is called Zetta Byte (ZB).
- A collection of 1024 Zetta bytes is called Yotta Byte (YB).

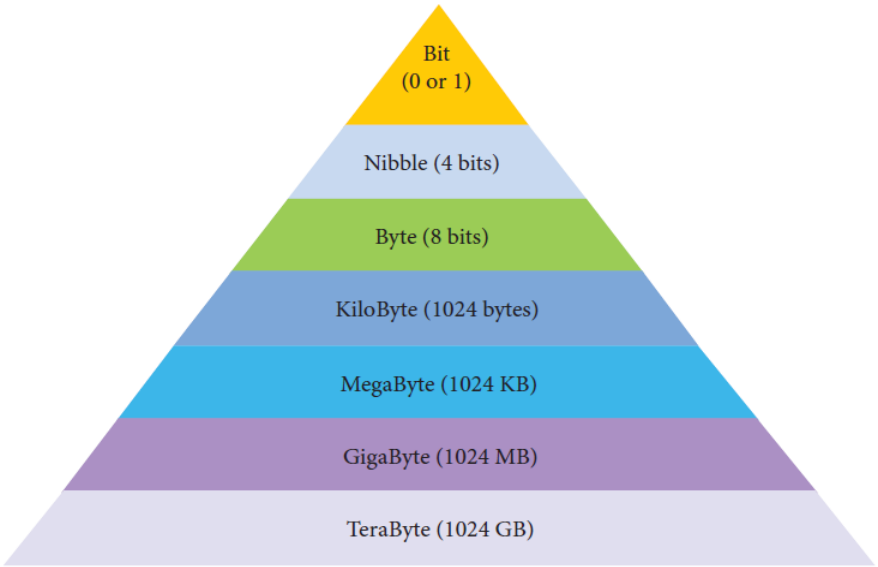


Figure 2.2 Data Representation

Programming Languages

- Language is defined as a means of communication.
- A programming language is a formal language comprising a set of instructions that produce various kinds of output. Programming languages are used in computer programming to implement algorithms.
- Programming Language provides communication between human and the machine.
- There are three types of programming language
  - Machine Language
  - Assembly Language
  - High Level Language

Machine Language

- Computer can understand only the language of Digital Electronics. Digital Electronics deals with presence and absence of voltages. Within the computer there are two logics can play their role. These logics are −
  - **Positive Logic** − Here presence of voltage will be denoted by 1 and absence of voltage will be denoted by 0
  - **Negative Logic** −Here presence of voltage will be denoted by 0 and absence of voltage will be denoted by 1
- But obviously computer can follow anyone of the logics at a time, not both the logics simultaneously. To make the computer understand, a program can be written using only 0s and 1s. The data can also be specified and represented using only 0s and 1s. Such a program is called Machine Language

- Machine language was the first in the evolution of computer programming languages.
- Computer directly understands a program written in the machine language. So as a result, machine language program does not require any translator to convert from one form to another.
- In fact, even to this day, basically computers understand only the 0s and 1s.

Disadvantages

- – Writing a program in machine language has the following drawbacks.
- It is very tiresome to work with and highly error prone. While writing the program, a 1 and 0 can get interchanged due to typographical error. But then it is very difficult to locate it for correction. So a machine language program is very difficult to debug.
- Just having a look at the program, it is very difficult to visualize the function of the program. In fact, it is very difficult to make out whether a particular bit sequence is an instruction in the program, or a data value, or the output result. As instructions, data, output and operands, all are represented using 0s and 1s in machine language.
- Machine language programs are platform and architecture-dependent. The same program does not work on another computer by a different manufacturer. This is because machine language is different for different computers. Say the bite pattern 11110000 means addition in one architecture but might be representing subtraction in another architecture as well.

Advantages

- The Machine language program is executed faster than a program written in a high-level language (high-level language is discussed a little later). The efficiency of the program solely depends on the complexity of the program itself.
- A translator like compiler or interpreter is not needed and so results in a cheaper computer system.

Assembly Language

- After machine level language, the next level of development in the evolution of computer languages was the Assembly Language.
- Machine level language uses only the binary language. But on the other hand, assembly language uses mnemonics or symbolic instructions in place of a sequence of 0s and 1s.
- As example, we can consider that, to add register A and B in a particular computer, assembly language uses the mnemonic 'ADD B' in place of 10001111. In assembly language, we use symbolic names to denote addresses and data.
- A number of such examples are dealt with in the successive chapters. Thus writing a program in assembly language has advantages over writing the same in a machine language.

Disadvantages

- Assembly language programs are platform dependent. Mnemonics in one architecture, may not work in another architecture. This is because each architecture has got a dedicated set of mnemonics. As example, ADD B in one architecture means the content of accumulator will get added with register B. But in another architecture its meaning may differ. In other words, a program written in assembly language is also not portable.
- Assembly language program writer, must be highly conversant with the organization and architecture of the computer system being used.
- An assembler, which is a translator program, is needed for translating the assembly language program into machine code. But each assembly language instruction is translated into only one instruction in the machine language. Assembler programs are not costly; they are quite cheap.

Advantages

- Compared to machine language programs, programs in assembly language is less tiresome to work with and much less error prone. While writing the program, if a typographical error occurred due to oversight, then also it is much easier to debug the code and find the error and rectify it. Assembler program can detects errors and can produce required error messages accordingly.
- By a glance through the program codes and mnemonics, it is much easier to visualize the function of the program.
- Compared to high level language written program execution speed, program written in assembly language will be faster and almost same as the speed of execution of the same program written in machine level language.

High Level Programming Language

- High level language is the next development in the evolution of computer languages. Examples of some high-level languages are given below
  - PROLOG (for “PROgramming LOGic”)
  - FORTRAN (for ‘FORrmula TRANslation’)
  - LISP (for “LISt Processing”)
  - Pascal (named after the French scientist Blaise Pascal).
- High-level languages are like English-like language, with less words also known as keywords and fewer ambiguities. Each high level language will have its own syntax and keywords. The meaning of the word syntax is grammar.

Disadvantages

- A high level language program can't get executed directly. It requires some translator to get it translated to machine language. There are two types of translators for high level language programs. They are interpreter and compiler. In case of interpreter, prior execution, each and every line will get translated and then executed. In case of compiler, the whole program will get translated as a whole and will create an executable file. And after that, as when required, the executable code will get executed. These translator programs, specially compilers, are huge one and so are quite expensive.
- The machine language code generated by the compiler might not be as compact as written straightaway in low-level language. Thus a program written in high-level language usually takes longer time to execute.

Advantages

- High-level language programs are easy to get developed. While coding if we do some errors then we can easily locate those errors and if we miss then during compilation those errors would get detected by the compiler. And the programmer will initiate respective corrections to do needful accordingly.
- By a glance through the program it is easy to visualize the function of the program.
- The programmer may not remain aware about the architecture of the hardware. So people with our hardware knowledge can also do high level language programming.
- The same high level language program works on any other computer, provided the respective compiler is available for the target new architecture. So high-level languages are portable.
- Productivity against high level language programming is enormously increased.

Machine Language	Assembly Language
Machine language is only understand by the computers.	Assembly language is only understand by human beings not by the computers.
In machine language data only represented with the help of binary format(0s and 1s), hexadecimal and octadecimal.	In assembly language data can be represented with the help of mnemonics such as Mov, Add, Sub, End etc.
Machine language is very difficult to understand by the human beings.	Assembly language is easy to understand by the human being as compare to machine language.
Modifications and error fixing cannot be done in machine language.	Modifications and error fixing can be done in assembly language.
Machine language is very difficult to memorize so it is not possible to learn the machine language.	Easy to memorize the assembly language because some alphabets and mnemonics are used.
Execution is fast in machine language because all data is already present in binary format.	Execution is slow as compared to machine language.
There is no need of translator.The machine understandable form is the machine language.	Assembler is used as translator to convert mnemonics into machine understandable form.
Machine language is hardware dependent.	Assembly language is the machine dependent and it is not portable.

S.NO	High Level Language	Low Level Language
1.	It is programmer friendly language.	It is a machine friendly language.
2.	High level language is less memory efficient.	Low level language is high memory efficient.
3.	It is easy to understand.	It is tough to understand.
4.	It is simple to debug.	It is complex to debug comparatively.
5.	It is simple to maintain.	It is complex to maintain comparatively.
6.	It is portable.	It is non-portable.
7.	It can run on any platform.	It is machine-dependent.
8.	It needs compiler or interpreter for translation.	It needs assembler for translation.
9.	It is used widely for programming.	It is not commonly used now-a-days in programming.

Personal computer (PC)

- Personal computer (PC), a digital computer designed for use by only one person at a time.
- A typical personal computer consists of a central processing unit (CPU), which contains the computer's arithmetic, logic, and control circuitry on an integrated circuit; two types of computer memory, main memory, such as digital random-access memory (RAM), and auxiliary memory, such as magnetic hard disks and special optical compact discs, or read-only memory (ROM) discs (CD-ROMs and DVD-ROMs); and various input/output devices, including a display screen, keyboard and mouse, modem, and printer.

- A personal computer (PC) is a multi-purpose computer whose size, capabilities, and price make it feasible for individual use.
- Personal computers are intended to be operated directly by an end user, rather than by a computer expert or technician.
- Personal computers first appeared in the late 1970s. One of the most popular personal computers was the Apple-II, introduced in 1977 by Apple Computer.
- In 1981, IBM entered the fray with its personal computer known as IBM-PC. The IBM PC quickly became the Personal computer of choice.

- Personal computers fall into several categories, differentiated mainly by their sizes:
- **A Desktop Computer** is a personal computer designed for regular use at a single location on or near a desk or table due to its size and power requirements.
- The most common configuration has a case that houses the power supply, motherboard (a printed circuit board with a microprocessor as the central processing unit (CPU), memory, bus, and other electronic components, disk storage (usually one or more hard disk drives, solid state drives, optical disc drives, and in early models a floppy disk drive); a keyboard and mouse for input; and a computer monitor, speakers, and, often, a printer for output.
- The case may be oriented horizontally or vertically and placed either underneath, beside, or on top of a desk.

Notebook Computers

- An extremely lightweight personal computer. Notebook computers typically weigh less than 6 pounds and are small enough to fit easily in a briefcase. Aside from size and portability, the principal difference between a notebook computer and a personal computer is the display screen. Notebook computers use a variety of techniques, known as flat-panel technologies, to produce a lightweight and non-bulky display screen.
- The quality of notebook display screens varies considerably. Many notebook display screens are limited to VGA resolution. Active-matrix screens produce very sharp images, but they do not refresh as rapidly as full-size monitors.
- In terms of computing power, modern notebook computers are nearly equivalent to personal computers. They have the same CPUs, memory capacity, and disk drives. However, all this power in a small package is expensive.

Laptop Computers

- A laptop computer is a small personal computer. They are designed to be more portable than traditional desktop computers, with many of the same abilities. Laptops are able to be folded flat for transportation and have a built-in keyboard and touchpad.

Tablet Computer

- A tablet computer, commonly shortened to tablet, is a mobile device, typically with a mobile operating system and touchscreen display processing circuitry, and a rechargeable battery in a single, thin and flat package. Tablets, being computers, do what other personal computers do, but lack some input/output (I/O) abilities that others have. Modern tablets largely resemble modern smartphones, the only differences being that tablets are relatively larger than smartphones, with screens 7 inches (18 cm) or larger, measured diagonally, and may not support access to a cellular network.
- The touchscreen display is operated by gestures executed by finger or digital pen (stylus), instead of the mouse, touchpad, and keyboard of larger computers. P

Internet as Infrastructure

- Internet is a network of network that connect computers all over the world.
- A Computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications.
- Internet is a collection of government, academic, commercial, individual and other sites.

History of Internet

- Paul Baran proposed a distributed network based on data in message blocks in the early 1960s and Donald Davies conceived of packet switching in 1965 at the National Physical Laboratory (NPL) and proposed building a national commercial data network in the UK.
- In 1969,Department of Defense (DoD) USA created a small network of four computers called ARPANET (**A**dvanced **R**esearch **P**rojects **A**gency **Net**work).
- This Network was setup for the military purpose.
- The Primary goal of ARPANET was to allow multiple users to send and receive information simultaneously over the communication path.
- ARPANET used packet switching to allow multiple computers to communicate on a single network using TCP.

- On October 29, 1969, ARPAnet delivered its first message: a “node-to-node” communication from one computer to another. (The first computer was located in a research lab at University of California, Los Angeles and the second was at Stanford University, California; each one was the size of a small house.
- The ARPANET was successful, and many universities joined the network.
- This ARPANET was divided into two parts MILNET and ARPANET.
- MILNET was used for military related sites and ARPANET for non-military related sites.
- The technology continued to grow in the 1970s after scientists Robert Kahn and Vinton Cerf developed Transmission Control Protocol and Internet Protocol, or TCP/IP, a communications model that set standards for how data could be transmitted between multiple networks.

- During the 1970's networks like BITNET and USENET came into being.
- Around 1980's NSFNET (National Science Foundation Network) was created.
- In the early 1980s, the National Science Foundation (NSF) funded national supercomputing centers at several universities in the United States, and provided interconnectivity in 1986 with the NSFNET project. Thus creating network access to these supercomputer sites for research and academic organizations in the United States. International connections to NSFNET, the emergence of architecture such as the Domain Name System, and the adoption of TCP/IP internationally on existing networks marked the beginnings of the Internet.
- ARPANET adopted TCP/IP on January 1, 1983, and from there researchers began to assemble the "network of networks" that became the modern Internet.

History of World Wide Web

- The online world then took on a more recognizable form in 1990, when computer scientist Tim Berners-Lee invented the World Wide Web (linking hypertext documents into an information system, accessible from any node on the network).
- While it's often confused with the internet itself, the web is actually just the most common means of accessing data online in the form of websites and hyperlinks.
- The web helped popularize the internet among the public, and served as a crucial step in developing the vast trove of information that most of us now access on a daily basis.

- In October 1994, Tim Berners Lee founded an organization called the World Wide Web Consortium (W3C). The W3C is a standard organization which regulates the standards for Web Technologies.
- Since the mid-1990s, the Internet has had a revolutionary impact on culture, commerce, and technology, including the rise of near-instant communication by electronic mail, instant messaging, voice over Internet Protocol (VoIP) telephone calls, video chat, and the World Wide Web with its discussion forums, blogs, social networking services, and online shopping sites.
- Increasing amounts of data are transmitted at higher and higher speeds over fiber-optic networks operating at 1 Gbit/s, 10 Gbit/s, or more.

- The Internet's takeover of the global communication landscape was rapid in historical terms: it only communicated 1% of the information flowing through two-way telecommunications networks in the year 1993, 51% by 2000, and more than 97% of the telecommunicated information by 2007.
- The Internet continues to grow, driven by ever greater amounts of online information, commerce, entertainment, and social networking services. However, the future of the global network may be shaped by regional differences.

Web 1.0

- Web 1.0 refers to the first stage of the World Wide Web evolution.
- Earlier, there were only few content creators in Web 1.0 with the huge majority of users who are consumers of content.
- Personal web pages were common, consisting mainly of static pages hosted on ISP-run web servers, or on free web hosting services.
- According to Berners-Lee, is the "Read-only Web." In other words, the early web allowed us to search for information and read it. There was very little in the way of user interaction or content generation.

- In Web 1.0 advertisements on websites while surfing the internet is banned.
- Also, in Web 1.0, Ofoto is an online digital photography website, on which user could store, share, view and print digital pictures.
- Web 1.0 is a content delivery network (CDN) which enables to showcase the piece of information on the websites. It can be used as personal websites.
- It costs to user as per pages viewed. It has directories which enable user to retrieve a particular piece of information.

Four design essentials of a Web 1.0 site include:

1. Static pages.
2. Content is served from the server's file-system.
3. Pages built using Server Side Includes or Common Gateway Interface (CGI).
4. Frames and Tables used to position and align the elements on a page.

Web 2.0

- Web 2.0 refers to World Wide Website which highlight user-generated content, usability and interoperability for end users.
- Web 2.0 is also called participative social web. It does not refer to a modification to any technical specification, but to modify in the way Web pages are designed and used.
- According to Tim Berners Lee, Web 2.0 is considered as "Read Write" Web.
- The transition is beneficial but it does not seem that when the changes are occurred. An interaction and collaboration with each other is allowed by Web 2.0 in a social media dialogue as creator of user-generated content in a virtual community.
- Web 1.0 is enhanced version of Web 2.0.

- The web browser technologies are used in Web 2.0 development and it includes AJAX and JavaScript frameworks.
- Recently, AJAX and JavaScript frameworks have become a very popular means of creating web 2.0 sites.

Five major features of Web 2.0 –

- Free sorting of information, permits users to retrieve and classify the information collectively.
- Dynamic content that is responsive to user input.
- Information flows between site owner and site users by means of evaluation & online commenting.
- Developed APIs to allow self-usage, such as by a software application.
- Web access leads to concern different, from the traditional Internet user base to a wider variety of users.

Usage of Web 2.0 –

The social Web contains a number of online tools and platforms where people share their perspectives, opinions, thoughts and experiences. Web 2.0 applications tend to interact much more with the end user. As such, the end user is not only a user of the application but also a participant by these 8 tools mentioned below:

1. Podcasting
2. Blogging
3. Tagging
4. Curating with RSS
5. Social bookmarking
6. Social networking
7. Social media
8. Web content voting

Web 3.0

- It refers the evolution of web utilization and interaction which includes altering the Web into a database. In enables the upgradation of back-end of the web, after a long time of focus on the front-end (Web 2.0 has mainly been about AJAX, tagging, and another front-end user-experience innovation). Web 3.0 is a term which is used to describe many evolutions of web usage and interaction among several paths. In this, data isn't owned but instead shared, where services show different views for the same web / the same data.
- The Semantic Web (3.0) promises to establish "the world's information" in more reasonable way than Google can ever attain with their existing engine schema. This is particularly true from the perspective of machine conception as opposed to human understanding. The Semantic Web necessitates the use of a declarative ontological language like OWL to produce domain-specific ontologies that machines can use to reason about information and make new conclusions, not simply match keywords.

Web 3.0 Features

- **Semantic Web:** The succeeding evolution of the Web involves the Semantic Web. The semantic web improves web technologies in demand to create, share and connect content through search and analysis based on the capability to comprehend the meaning of words, rather than on keywords or numbers.
- **Artificial Intelligence:** Combining this capability with natural language processing, in Web 3.0, computers can distinguish information like humans in order to provide faster and more relevant results. They become more intelligent to fulfil the requirements of users.
- **3D Graphics:** The three-dimensional design is being used widely in websites and services in Web 3.0. Museum guides, computer games, ecommerce, geospatial contexts, etc. are all examples that use 3D graphics.

- **Connectivity:** With Web 3.0, information is more connected thanks to semantic metadata. As a result, the user experience evolves to another level of connectivity that leverages all the available information.
- **Ubiquity:** Content is accessible by multiple applications, every device is connected to the web, the services can be used everywhere.

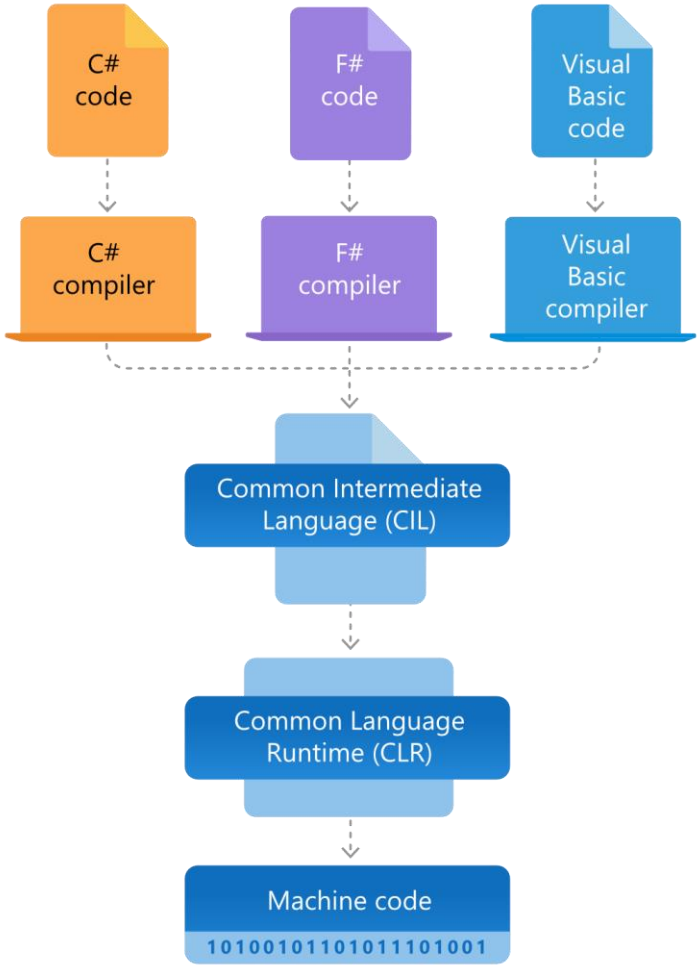
Web 1.0	Web 2.0	Web 3.0
Mostly Read-Only	Wildly Read-Write	Portable and Personal
Company Focus	Community Focus	Individual Focus
Home Pages	Blogs / Wikis	Live-streams / Waves
Owning Content	Sharing Content	Consolidating Content
Web Forms	Web Applications	Smart Applications
Directories	Tagging	User Behaviour
Page Views	Cost Per Click	User Engagement
Banner Advertising	Interactive Advertising	Behavioural Advertising

Micro Software .Net

- .NET is a free, cross-platform, open source developer platform for building many different types of applications.
- With .NET, you can use multiple languages, editors, and libraries to build for web, mobile, desktop, games, and IoT.
- .NET is a developer platform made up of tools, programming languages, and libraries for building many different types of applications.
- There are various implementations of .NET. Each implementation allows .NET code to execute in different places—Linux, macOS, Windows, iOS, Android, and many more.
  - **.NET Framework** is the original implementation of .NET. It supports running websites, services, desktop apps, and more on Windows.
  - **.NET Core** is a cross-platform implementation for running websites, services, and console apps on Windows, Linux, and macOS. .NET Core is open source on GitHub.
  - **Xamarin/Mono** is a .NET implementation for running apps on all the major mobile operating systems, including iOS and Android.
- .NET Standard is a formal specification of the APIs that are common across .NET implementations. This allows the same code and libraries to run on different implementations.

Architecture of .NET Framework

- The two major components of .NET Framework are the Common Language Runtime and the .NET Framework Class Library.
  - The Common Language Runtime (CLR) is the execution engine that handles running applications. It provides services like thread management, garbage collection, type-safety, exception handling, and more.
  - The Class Library provides a set of APIs and types for common functionality. It provides types for strings, dates, numbers, etc. The Class Library includes APIs for reading and writing files, connecting to databases, drawing, and more.
- .NET applications are written in the C#, F#, or Visual Basic programming language. Code is compiled into a language-agnostic Common Intermediate Language (CIL). Compiled code is stored in assemblies—files with a .dll or .exe file extension.
- When an app runs, the CLR takes the assembly and uses a just-in-time compiler (JIT) to turn it into machine code that can execute on the specific architecture of the computer it is running on.


C# code
F# code
Visual Basic code
C# compiler
F# compiler
Visual Basic compiler
Common Intermediate Language (CIL)
Common Language Runtime (CLR)
Machine code
10100101101011101001

- **Memory management.** In many programming languages, programmers are responsible for allocating and releasing memory and for handling object lifetimes. In .NET Framework apps, the CLR provides these services on behalf of the app.
- **A Common Type System.** In traditional programming languages, basic types are defined by the compiler, which complicates cross-language interoperability. In .NET Framework, basic types are defined by the .NET Framework type system and are common to all languages that target .NET Framework.
- **Development frameworks and technologies.** .NET Framework includes libraries for specific areas of app development, such as ASP.NET for web apps, ADO.NET for data access, Windows Communication Foundation for service-oriented apps, and Windows Presentation Foundation for Windows desktop apps.

- **Language interoperability.** Language compilers that target .NET Framework emit an intermediate code named Common Intermediate Language (CIL), which, in turn, is compiled at runtime by the common language runtime. With this feature, routines written in one language are accessible to other languages, and programmers focus on creating apps in their preferred languages.
- **Version compatibility.** With rare exceptions, apps that are developed by using a particular version of .NET Framework run without modification on a later version.
- **Side-by-side execution.** .NET Framework helps resolve version conflicts by allowing multiple versions of the common language runtime to exist on the same computer. This means that multiple versions of apps can coexist and that an app can run on the version of .NET Framework with which it was built. Side-by-side execution applies to the .NET Framework version groups 1.0/1.1, 2.0/3.0/3.5, and 4/4.5.x/4.6.x/4.7.x/4.8.

Java

- Java is a powerful general-purpose programming language. It is used to develop desktop and mobile applications, big data processing, embedded systems, and so on.
- Java programming language was originally developed by Sun Microsystems which was initiated by James Gosling and released in 1995 as core component of Sun Microsystems' Java platform (Java 1.0 [J2SE]).
- The latest release of the Java Standard Edition is Java SE 8. With the advancement of Java and its widespread popularity, multiple configurations were built to suit various types of platforms. For example: J2EE for Enterprise Applications, J2ME for Mobile Applications.
- The new J2 versions were renamed as Java SE, Java EE, and Java ME respectively. Java is guaranteed to be **Write Once, Run Anywhere**.

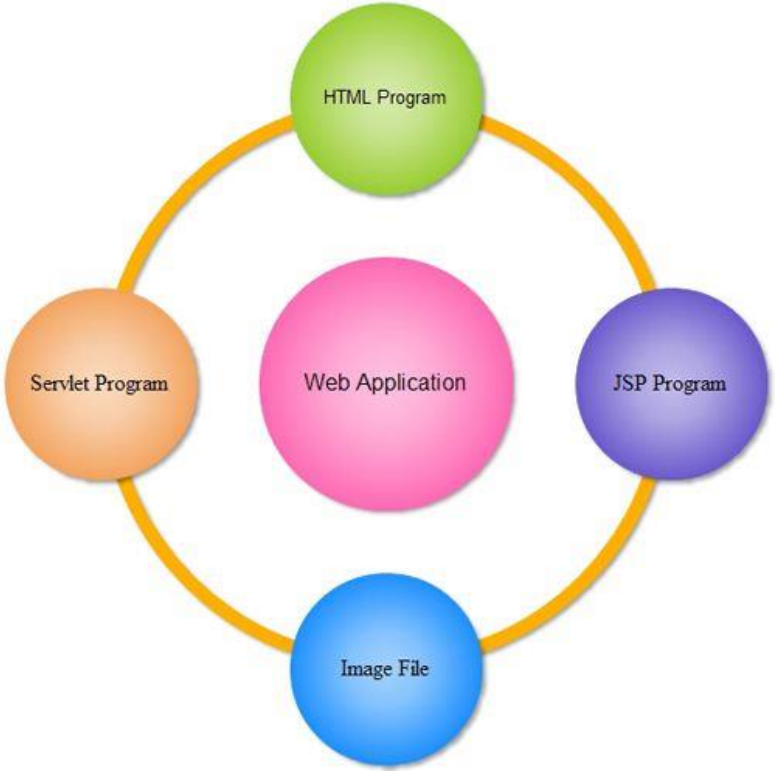
- Java is –
  - **Object Oriented –** In Java, everything is an Object. Java can be easily extended since it is based on the Object model.
  - **Platform Independent –** Unlike many other programming languages including C and C++, when Java is compiled, it is not compiled into platform specific machine, rather into platform independent byte code. This byte code is distributed over the web and interpreted by the Virtual Machine (JVM) on whichever platform it is being run on.
  - **Simple –** Java is designed to be easy to learn. If you understand the basic concept of OOP Java, it would be easy to master.
  - **Secure –** With Java's secure feature it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption.

- **Architecture-neutral** – Java compiler generates an architecture-neutral object file format, which makes the compiled code executable on many processors, with the presence of Java runtime system.
- **Portable** – Being architecture-neutral and having no implementation dependent aspects of the specification makes Java portable. Compiler in Java is written in ANSI C with a clean portability boundary, which is a POSIX subset.
- **Robust** – Java makes an effort to eliminate error prone situations by emphasizing mainly on compile time error checking and runtime checking.
- **Multithreaded** – With Java's multithreaded feature it is possible to write programs that can perform many tasks simultaneously. This design feature allows the developers to construct interactive applications that can run smoothly.
- **Interpreted** – Java byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light-weight process.

- **High Performance** – With the use of Just-In-Time compilers, Java enables high performance.
- **Distributed** – Java is designed for the distributed environment of the internet.
- **Dynamic** – Java is considered to be more dynamic than C or C++ since it is designed to adapt to an evolving environment. Java programs can carry extensive amount of run-time information that can be used to verify and resolve accesses to objects on run-time.

Web Resource

- A web resource is anything that can be obtained from the World Wide Web. Some examples are web pages, e-mail, information from databases, and web services.
- The logic and data of stand alone, desktop applications are specific to that computer where these applications are running. The logics and data of client-server applications, two-tier applications like JDBC applications are specific to one network where they are running. In the above said two-tier, client-server applications the server allows only known clients (recognized clients).
- To provide global visibility and accessibility to the logics and data of the applications. These applications allow both known and unknown clients having 24×7 accesses to the resources and logic data.
- When website is under development/testing in a software company then it is called as web application. Once web application is hosted on to the internet network by purchasing domain name (https://www.apcas.in) and space in the internet network is called as website.


HTML Program
Servlet Program
Web Application
JSP Program
Image File

- Browser window generates request to web application.
- Web server takes the request and passes the request to appropriate web resource program of web application.
- This web resource program will process the request and generates the results.
- In this process the web resource program talks with DB s/w if necessary.
- Web resource program sends the result to web server.
- Web server sends the result to browser window as http response in the form of web page.

Types of web resources

- There are many different types of online resources, some of them are appropriate for research and some are not. It really depends on the type of content you are looking for. Here are a few that you may find useful for research:
- Current information such as stock quotes, sports scores, weather, and news.
- Information on colleges, museums, government agencies or non-profit organizations.
- Online job postings, shopping, auctions, or travel services.
- While these sources may not be used in research often, they're still the best at the type of content they offer. Examples: Ebay, Etsy, Orbitz.
- Library databases, scholarly journals, and eBooks.
- Search Engines and Databases:Tools with which to search the Web as a whole, databases that search publications.
- Labor: Lists sites with information on worker's rights, health and companies' labor record. Also includes organized labor research guides.

INTRODUCTION TO HTML

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II BCom

HTML

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage, which is the most widely used language on Web to develop web pages.
- HTML was created by Tim Berners-Lee in 1991.
- The first ever version of HTML was HTML 1.0, but the first standard version was HTML 2.0, published in 1999.
- HTML is the combination of Hypertext and Markup language.
- Hypertext defines the link between the web pages.
- Markup language is used to define the text document within tag which defines the structure of web pages.

HTML Verisons

HTML Version	Year
HTML 1.0	1991
HTML 2.0	1995
HTML 3.2	1997
HTML 4.01	1999
XHTML	2000
HTML 5	2014

Features of HTML:

- It is easy to learn and easy to use.
- It is platform independent.
- Images, video and audio can be added to a web page.
- Hypertext can be added to text.
- It is a markup language.

Why learn HTML?

- It is a simple markup language. Its implementation is easy.
- It is used to create a website.
- Helps in developing fundamentals about web programming.
- Boost professional career.

- **Advantages:**
  - HTML is an easy to learn, easy to apply and it's totally free you will just need a text editor and a browser.
  - It is supported by all browsers.
  - It can be integrated with other languages like CSS, JavaScript etc.
- **Disadvantages:**
  - HTML can only create static webpages. For dynamic webpages, other languages have to be used.
  - A large amount of code has to be written to create a simple web page.
  - There is Lack of security in HTML.
  - HTML language is not centralized i.e. all the web-pages that are connected, you have to design them separately else need to use CSS.
  - HTML become complex when you try to create a huge website.

HTML Tags

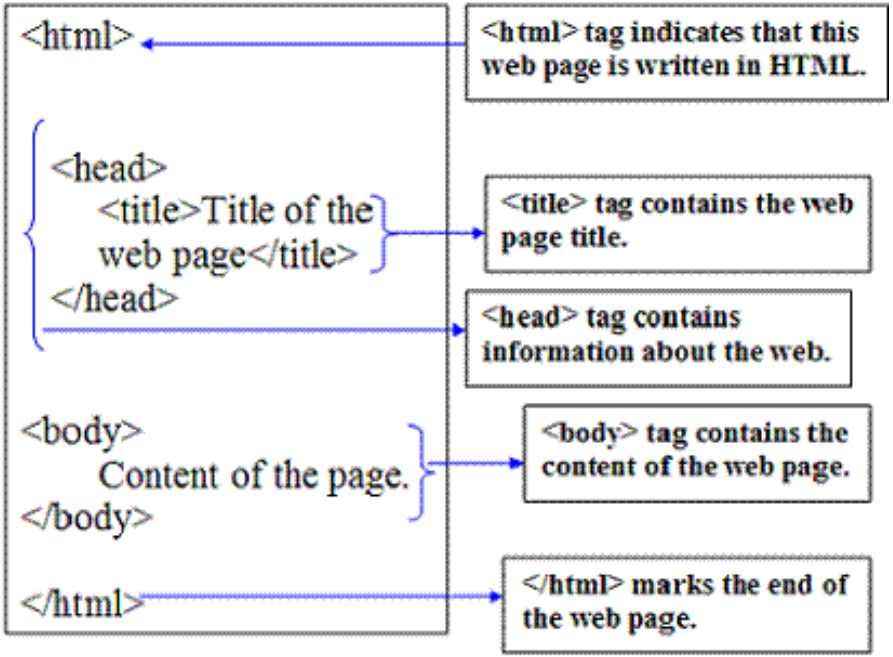
- HTML tags are like keywords which defines that how web browser will format and display the content.
- Tags are used to represent various elements of web page like Header, Footer, Title, Images etc.,
- With the help of tags, a web browser can distinguish between an HTML content and a simple content.
- When a web browser reads an HTML document, browser reads it from top to bottom and left to right.
- HTML is made up of tags and its attributes. Tags are known as elements of HTML. Additional information such as color, alignment etc., can be included with an HTML tag is known as **Attribute**. Attributes are used to improve the appearance of an HTML document.

- All HTML tags must enclosed within < > these brackets.
- HTML tags are normally comes with pairs like and
- The first tag in a pair is the start tag, the second tag is the end tag.
- Start and end tags are also called as opening tags and closing tags.
- It is mandatory to include closing tags. If omitted, the browser applies the effect of the opening tag until the end of page.
- Tags are of two types
  - Paired or Container Tags
  - Singular or Empty Tags

- **Paired tags or Container Tags:**
  - Paired tags require an opening tag that turns a formatting feature on and a closing tag that turns the feature off.
  - Paired tags must surround the text you want formatted with that feature.
  - For example, <u> and </u> will underline text.
- **Singular Tags or Empty Tags:**
  - Unpaired tags work alone, and are usually placed before the text you want formatted.
  - For Example, The <hr> which is used to draw horizontal line across the width of the document and line break
 tags are empty tags.

Structure of HTML

- All HTML documents must begin with opening tag <html> and ending with </html>.
- An HTML Document is mainly divided into two parts:
  - **HEAD:** This contains the information about the HTML document. For Example, Title of the page, version of HTML, Meta Data etc. This section begins with <head> and ends with </head>. The <title>….. </title> is used to display the title of the web page in browser window.
  - **BODY:** This contains everything you want to display on the Web Page. The Body Section begins with <body> and ends with </body> . Every content enclosed within this tag will be shown on the web page, it maybe a text or images or audios or videos or even links.


<html>
<head>
<title>Title of the
web page</title>
</head>
<body>
Content of the page.
</body>
</html>
<html> tag indicates that this web page is written in HTML.
<title> tag contains the web page title.
<head> tag contains information about the web.
<body> tag contains the content of the web page.
</html> marks the end of the web page.

Simple Webpage


```
<html>
<head>
        <title> First Web page </title>
</head>
<body>
        Welcome to B.Com Students
</body>
</html>
```

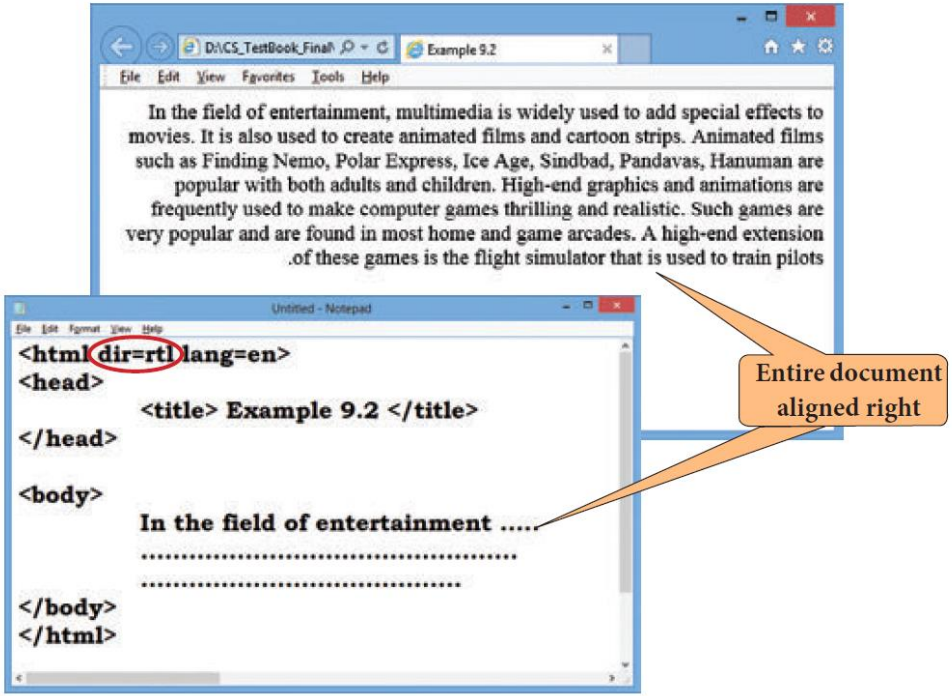
Attributes

- Attributes are special words used inside a tag to specify additional information to a tag.
- Attributes should be placed within the opening tag.
- Most of the tags support specialized attributes and there are also a few global elements that can be used with any tag.
- Global elements are common to all HTML elements; they can be used on all elements.

Attributes of <html> tag

- The <html> tag is used to specify the beginning and closing of an HTML document.
- This tag does not have any effect on appearance of document.
- This is only used to make browsers and other programs, known that this is an HTML document.
- <html> tag has two attributes viz. **dir and lang** to specify the text direction and language setting respectively.

attribute	Value to be set to attribute	Description
dir	ltr (align left-to-right) rtl (align right-to-left)	dir attribute specifies the direction of the text to be aligned within the entire document. It is global attribute. • ltr is the default value • rtl is used for Arabian languages.
lang	Predefined language code English – en Tamil – ta Telugu – te	lang attribute specify the language used with in the document. Predefined language code will be used for this purpose. Malayalam – ml; Kannada – kn; Hindi – hi; French – fr; German – de;


D:\CS_TextBook_Final\
Example 9.2
File Edit View Favorites Tools Help
In the field of entertainment, multimedia is widely used to add special effects to movies. It is also used to create animated films and cartoon strips. Animated films such as Finding Nemo, Polar Express, Ice Age, Sindbad, Pandavas, Hanuman are popular with both adults and children. High-end graphics and animations are frequently used to make computer games thrilling and realistic. Such games are very popular and are found in most home and game arcades. A high-end extension .of these games is the flight simulator that is used to train pilots
Untitled - Notepad
File Edit Format View Help
<html dir=rtl lang=en>
<head>
<title> Example 9.2 </title>
</head>
<body>
In the field of entertainment ....
.....
.....
</body>
</html>
Entire document aligned right

Attributes of <body> tag

- The <body> tag defines the document's body. The contents of an HTML page reside within the <body> tag. <body> tag contains several attributes.

  (i) Background Color: bgcolor = color

- By default all the browsers display the text on white background. However, the background color of the browser can be changed by using **bgcolor** tag.
- The tag to change background colour:

  <body bgcolor = color_name/color_code>

Illustration 10.1 – HTML code to change background colour of a browser

```
<html>
<head>
        <title> Background Colour change </title>
</head>
        <body bgcolor = yellow>
                This is my browser with different colour
</body>
</html>
```

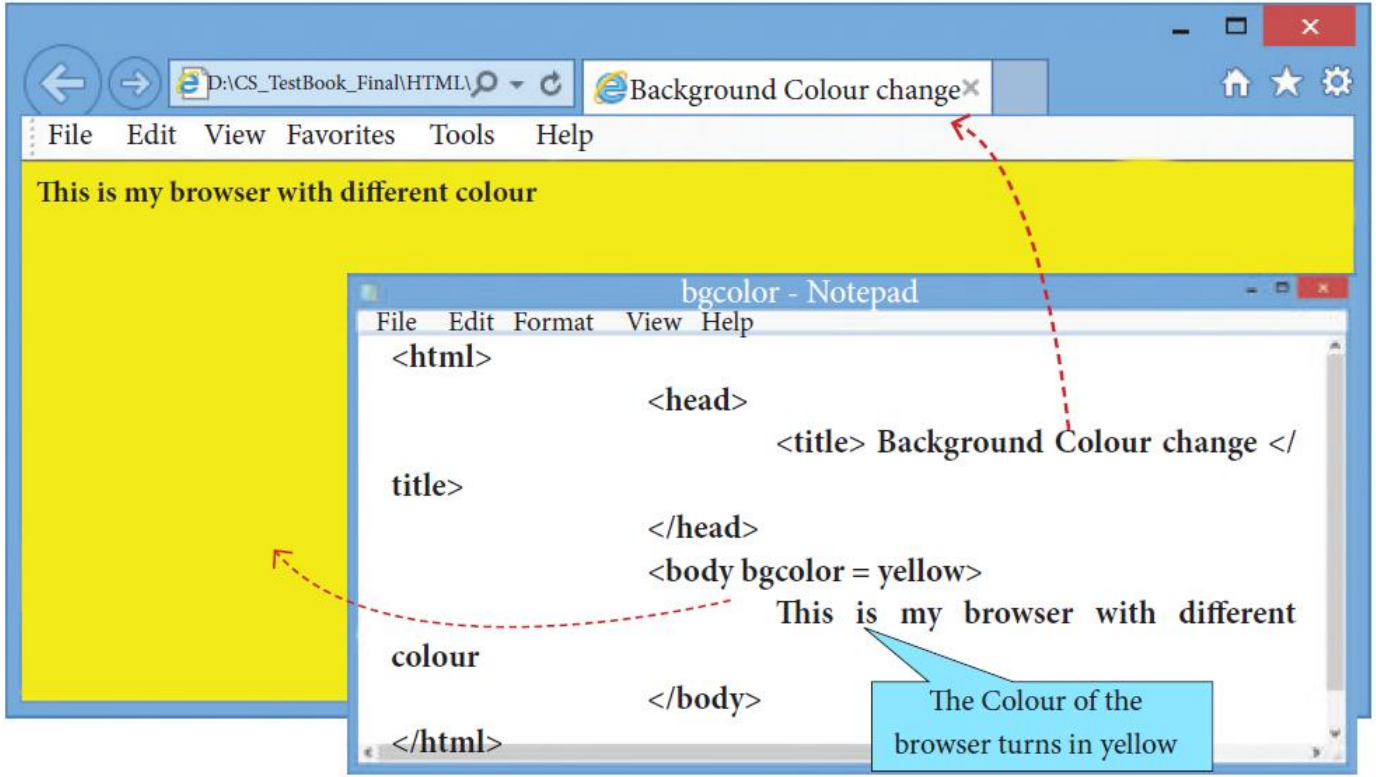


Figure 10.9 Internet Explorer with Yellow background

- In the above HTML code, colour name has been used to change the background color of the browser's body section.
- Generally colors in HTML are represented as six digit hexadecimal values.
- Color name can be used for only few colors. But, color code (hexadecimal value) will be more flexible to handle colors.
- The six digit hexadecimal value is the combinations of three, two digit number sequence represent a color. First two digits represent Red, next two digits for Green and last two digits for Blue (RGB) in the range of 00 – FF.
- For example, 000000 is black and FFFFFF is white. FF0000 is bright red.
- Modern browsers support nearly 140 colors.
- Color code should be prefixed with #.

- The following table shows some basic colors with their hexadecimal code.

Table 10.2 – Some basic Color names with code

Color Name	Hexadecimal value	Color Name	Hexadecimal value
Red	#FF0000	Olive	#808000
Blue	#0000FF	White	#FFFFFF
Green	#008000	Black	#000000
Yellow	#FFFF00	Maroon	#800000
Lime	#00FF00	Grey	#808080
Purple	#800080	Aqua	#00FFFF
Silver	#C0C0C0	Brown	#A52A2A

- To know the complete color code visit:
- https://www.w3schools.com/tags/ref_colornames.asp

File Edit View History Bookmarks Tools Help

Background Colour change

file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/color.html 300% Search

This is my browser with different colour

color - Notepad

File Edit Format View Help

```
<html>
<head>
<title> Background Colour change </title>
</head>
<body bgcolor = #87CEFA>
This is my browser with different colour
</body>
</html>
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

To change the background text Color

- Body text Colour: text = color
- The default text colour of body section is “black”, it is often called as automatic color.
- The text attribute within body tag is used to change the text colour.
- The tag to change body text colour:

<body text = color_name/color_code>

File Edit View History Bookmarks Tools Help

Background Colour and Text chang

file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/color.html 300%

Search

This is my browser with different colour and Text

color - Notepad

File Edit Format View Help

```
<html>
<head>
<title> Background Colour and Text change </title>
</head>
<body bgcolor = #87CEFA Text= #FF00FF>
This is my browser with different colour and Text
</body>
</html>
```

Ln 6, Col 50 100% Windows (CRLF) UTF-8

To change the Background Image

- Background image: **background=image**
- An image or picture can be applied as background to a webpage. While inserting an image as background, the text will be displayed on top of the image.
- Background images can be a texture or bitmap or even a photo.
- When you insert a small image, the browser takes the image and repeats it across and down to fill browser window. Inserting animated images (GIF images) creates more interesting.
- The tag to apply an image as background:
- <body background = “image_name_with_extenstion”>

Illustration 10.3 – HTML code to apply an image as background

```
<html>
<head>
        <title> Image as background </title>
</head>
        <body background = "flower01.gif">
        This is my browser with an image as background
</body>
</html>
```

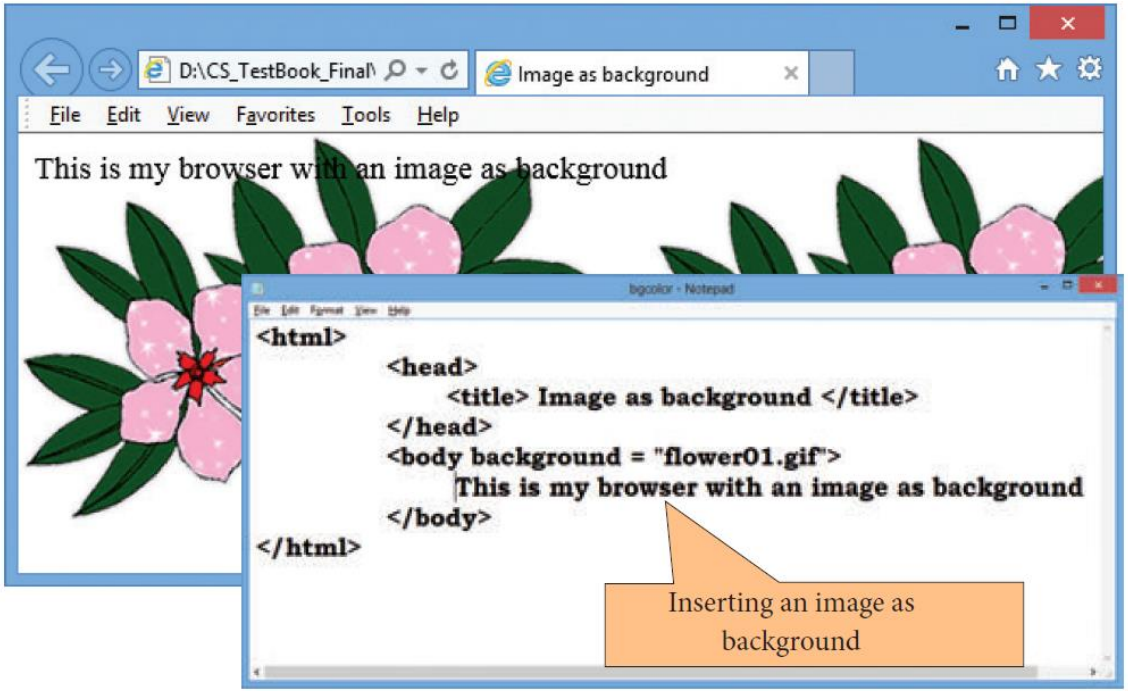
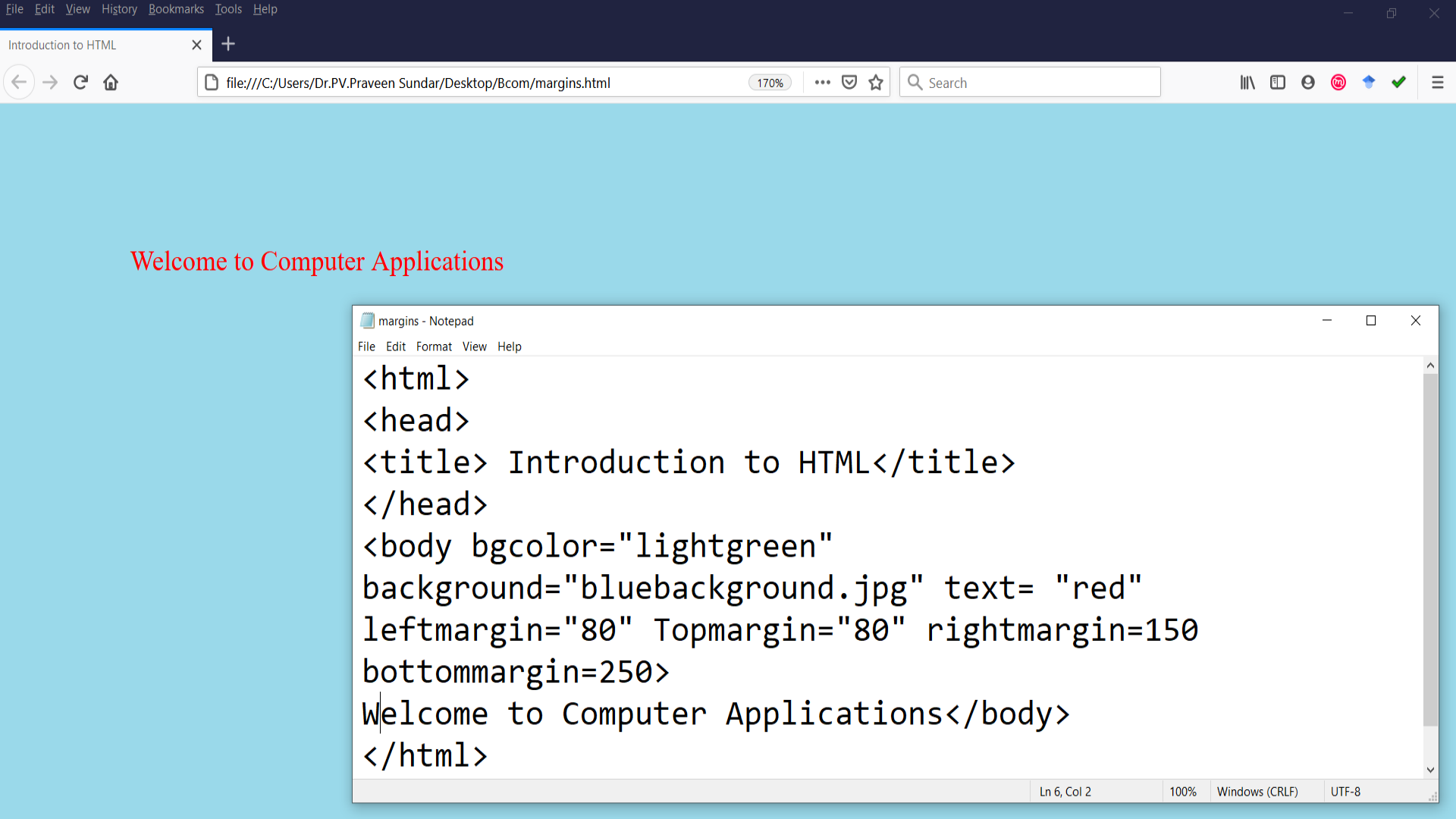


Figure 10.10 Internet Explorer with an image as background

- While including an image as background, the image file name is not required to be in double quotes. The code <body background = flower01.gif> can also produce the same result.
- If your image file name is long or split as two more words or along with path, should be specify within double quotes.
- Remember that, if the image file and HTML source are located in different locations i.e. in different folder or drive, file path should be clearly specified along with image file name. In the above case, image file and HTML source file both are located within the same folder. So, path name is not mentioned.
- For example, If the image file is somewhere in a folder (say Images folder in E: drive), you must specify its full path within double quotes as given below.
- **<body background = "E:\Images\ flower01.gif">**

Setting Margin Values

- Setting Margins: margin = value
- The margin refers the blank area from left, right, top edge or Bottom Edge of the browser window.
- Generally there is no default margin setting in any browser. If you want to leave some space as margin to left,right,top or bottom; leftmargin or topmargin or rightmargin or bottommargin attributes will be used respectively.
- The tag to specify the left, right, top and bottom margin:
- **<body leftmargin = value topmargin = value rightmargin=value bottom margin=value>**
- The Value is referred as pixels (72 pixels to an inch)


File Edit View History Bookmarks Tools Help
Introduction to HTML
file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/margins.html
170%
Search
Welcome to Computer Applications
margins - Notepad
File Edit Format View Help
<html>
<head>
<title> Introduction to HTML</title>
</head>
<body bgcolor="lightgreen"
background="bluebackground.jpg" text= "red"
leftmargin="80" Topmargin="80" rightmargin=150
bottommargin=250>
Welcome to Computer Applications</body>
</html>
Ln 6, Col 2
100%
Windows (CRLF)
UTF-8

Headings

- Headings are used to include titles to sections of a web page.
- HTML has six levels of headings viz. <h1> to <h6>.
- The number with h indicates the level of heading. Header tags are display the body text as bolder and larger in size according to its level.
- The syntax of heading tags:
- <h…> Heading text </h…>

HTML code with Headings


```
<html>
        <head>
                <title> Heading </title>
</head>
<body>
        <h1> Welcome to Computer Application</h1>
        <h2> Welcome to Computer Application</h2>
        <h3> Welcome to Computer Application</h3>
        <h4> Welcome to Computer Application</h4>
        <h5> Welcome to Computer Application</h5>
        <h6> Welcome to Computer Application</h6>
</body>
</html>
```

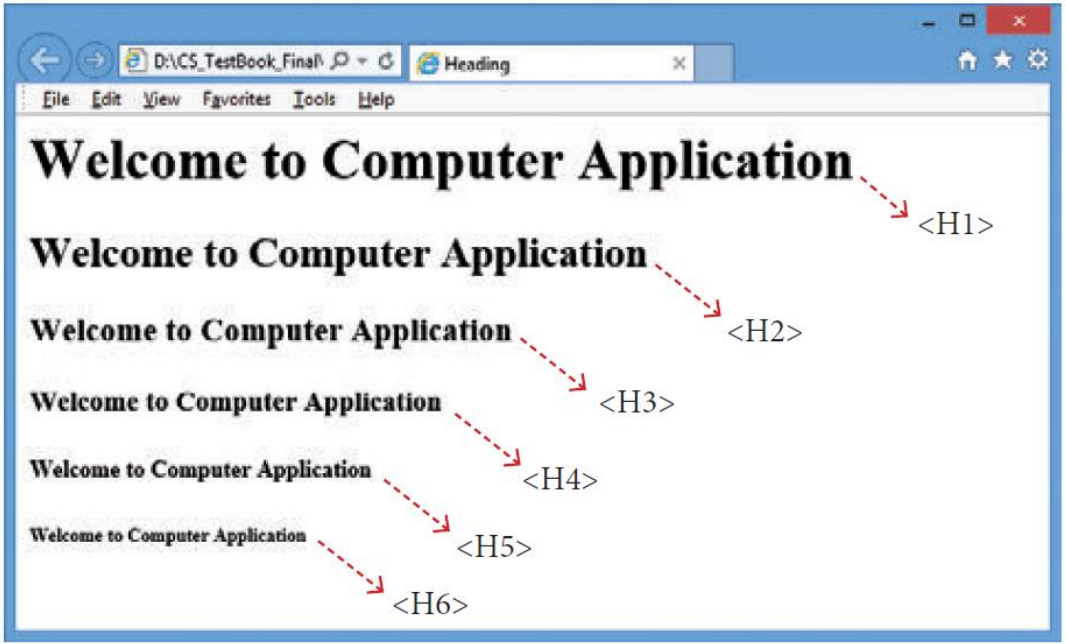


Figure10.12 – Different levels of Headings

Attribute of Headings tag

- Align is an attribute to set right, center and justify alignment to headings. Left if the default alignment, so that it is not supported in latest version of HTML. Justify alignment is not supported by older browsers.
- The tag is to specify the alignment to headings:

  <h# align = value>

- Where # is the level number, value may be Right, Center or Justify. Justify alignment only used for paragraphs.

```
<html>
        <head>
                <title> Heading </title>
</head>
<body>
        <h1 align=center> Welcome to Computer Application </h1>
        <h2 align=right> Welcome to Computer Application </h2>
</body>
</html>
```


E:\CS_TestBook_Final\
Heading
File Edit View Favorites Tools Help
Welcome to Computer Application
Welcome to Computer Application
<h1 align=center> Welcome to Computer Application </h1>
<h2 align=right> Welcome to Computer Application </h2>

Line Breaks and Paragraphs

- Browser applications are having some special rules for displaying text.
- They do not recognize returns, tabs or even more than one space between words.
- Usually, HTML document with multiple lines of text, browser will display it as a single line.
- The **
** tag is used for line break.
- The
 is an empty tag, does not have close tag and attribute.
- It should be placed at the end of a line

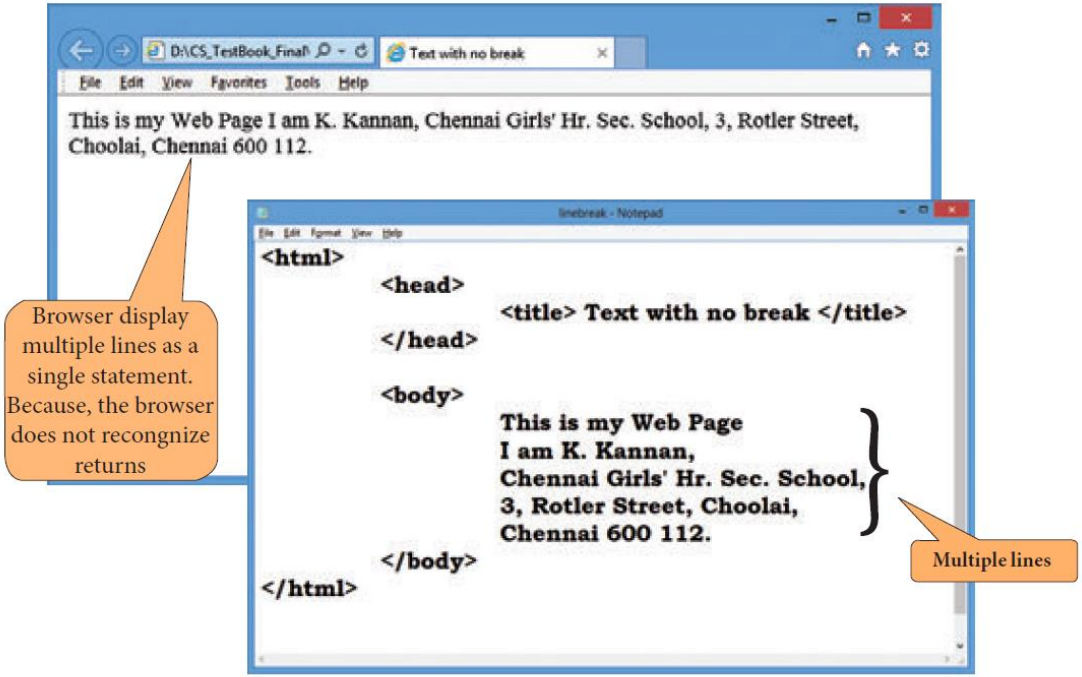


Figure 10.14 Multiline statement displayed as Single line

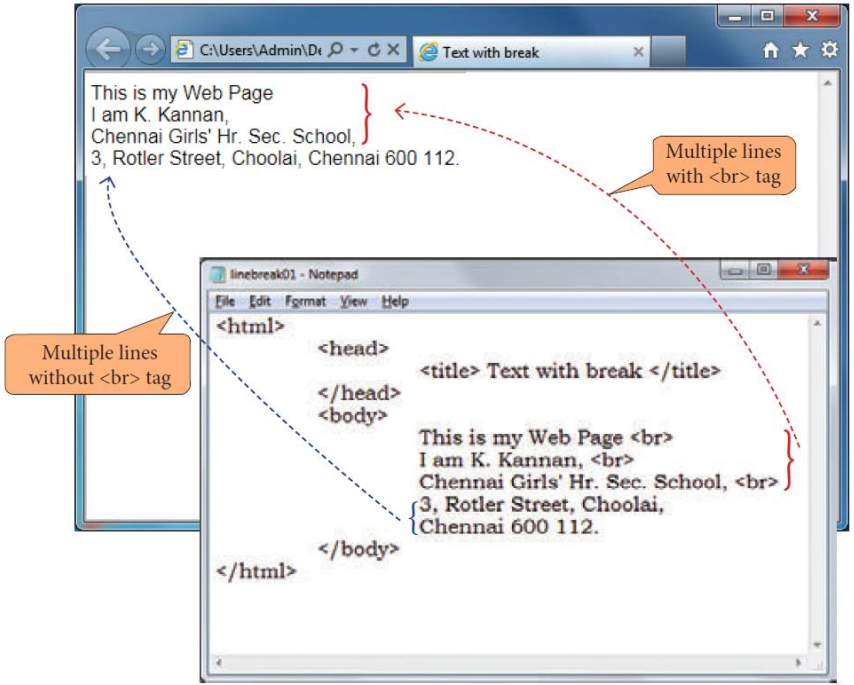


Figure 10.15 Usage of
 tag

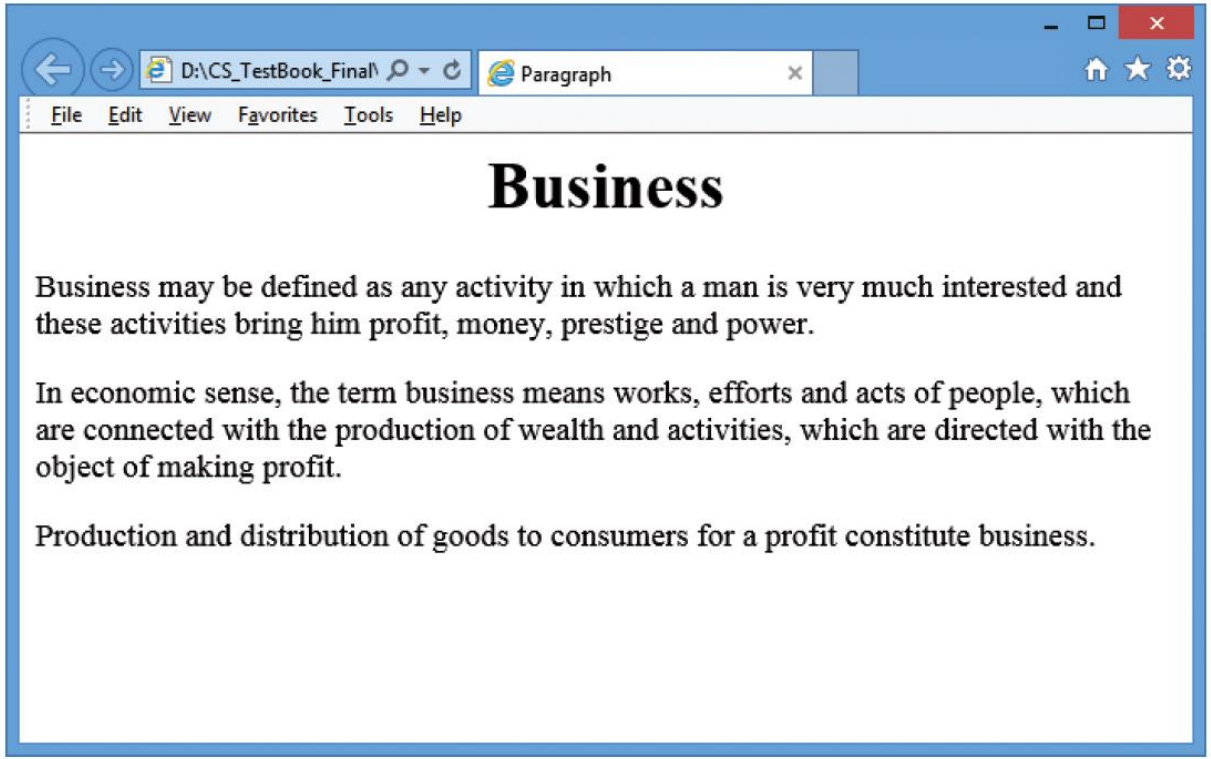
Paragraph Tag

- In HTML, paragraphs are created using the tag.
- The content what you type between and is identified as a paragraph and display as a paragraph by the browser. Because, the browser does not recognize returns (Pressing “Enter” Key).
- Remember that in word processors, pressing “Enter” key is identifying a paragraph.

HTML Code to create a paragraph


```
<html>
        <head>
                <title> Paragraph </title>
</head>
<body>
        <h1 align=center> Business </h1>
<p> Business may be defined as any activity in which a man is very much interested and these activities bring him profit, money, prestige and power. </p> <p> In economic sense, the term business means works, efforts and acts of people, which are connected with the production of wealth and activities, which are directed with the object of making profit.</p> <p> Production and distribution of goods to consumers for a profit constitute business. </p>
</body>
</html>
```

Browser with paragraphs

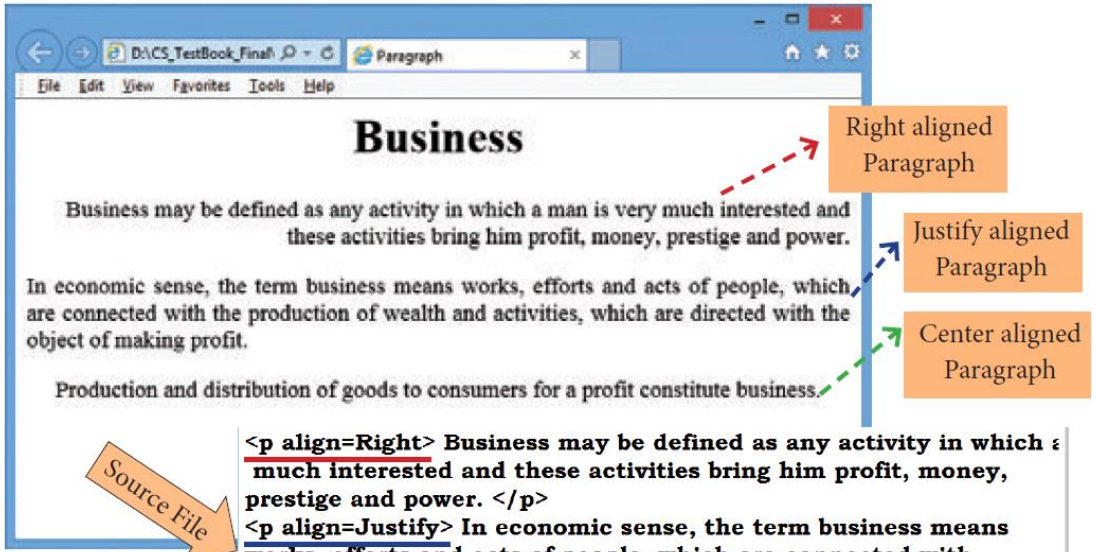


Changing Paragraph alignment

- In HTML documents more are four paragraph alignments viz. Left, Right, Center and Justify.
- The text that you type between and is by default aligned to left.
- To change the alignment of a paragraph align attribute can be used with tag.
- The tag to specify the alignment to paragraphs:

  ** **

- Where alignment can either be Right, Center or Justify.


D:\CS_TestBook_Final\
Paragraph
File Edit View Favorites Tools Help
Business
Business may be defined as any activity in which a man is very much interested and these activities bring him profit, money, prestige and power.
In economic sense, the term business means works, efforts and acts of people, which are connected with the production of wealth and activities, which are directed with the object of making profit.
Production and distribution of goods to consumers for a profit constitute business.
Right aligned Paragraph
Justify aligned Paragraph
Center aligned Paragraph
Source File
 Business may be defined as any activity in which a
much interested and these activities bring him profit, money,
prestige and power.
 In economic sense, the term business means
works, efforts and acts of people, which are connected with
the production of wealth and activities, which are directed with
the object of making profit.
 Production and distribution of goods
to consumers for a profit constitute business.

Comments

- Comments are used to describe the page or provide some kind of indication of the status of the page.
- The tag <!> is used to create comments.
- In HTML, the text what you type within this tag is considered as comments and it is ignored by the browser.
- Comments never show up onscreen.
- Comments can be placed anywhere in HTML document.
- The general form of comments:

  <! comments >

File Edit View History Bookmarks Tools Help

First Web page

file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/simple.html 200% Search

Welcome to B.Com Students

simple - Notepad

File Edit Format View Help

```
<html>
<head>
        <title> First Web page </title>
</head>
<body>
        Welcome to B.Com Students
        <! This is an Example for Comments>
</body>
</html>
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

Text Formatting Tags of HTML

- Formatting text is very important as well as interesting task in creating web pages.
- Formatting is purely based on the imagination and creativity of the programmer.
- Format the text such as making bold, italic, underline, changing font style, font size, font color and more.
- **<b>, <i>, <u>** are the tags to make the text as bold, italic and underline. These are all container tags.
- In addition to bold and italic tags, HTML provides , tags to make the text as bold and italics. These tags are container tags.

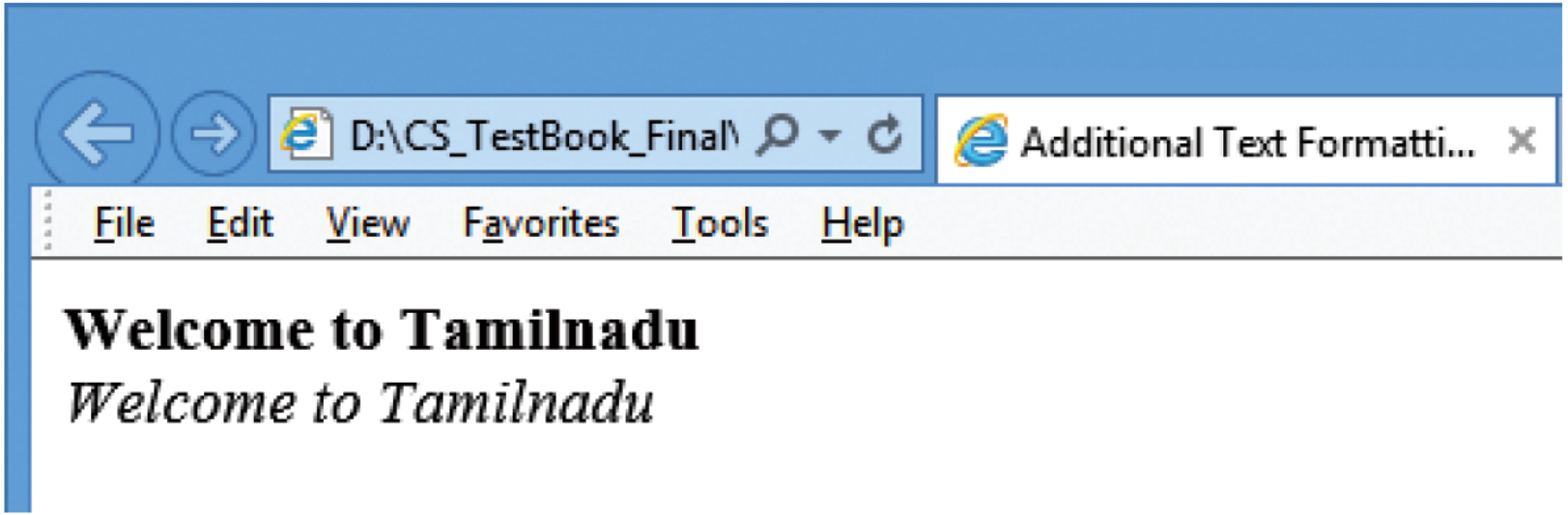
- ** : Important text**
- The tag is a phrase tag. It is used to define important text. This tag displays the text as bold.
- ** - Emphasized text**
- The tag is used to emphasize the text. That means, when you use this tag, the text will be in italics.
- Visually these two tags display the contents as very similar as <b> and <i> respectively. But, technically the meaning of and is “Important” not just bold and italics.
- The **<big>** tag is used to define the text bigger in size than the normal size. It is often used to call attention a text.
- The **<small>** tag is used to define the text smaller than the current size.

```
<html>
<head>
        <title> Text Formatting </title>
</head>
<body>
        <h1 align = center>  Kancheepuram </h1>
        <b> Kanchipuram is part of Tondaimandalam </b> <br>
        <i> Kanchipuram is 72 km away from Chennai </i>  <br>
        <u> It is the administrative headquarters of Kancheepuram District. </u>
<br>
        <b><i> Kanchipuram is well-connected by road and rail. </i> </b>
    <p> Chennai <b> International Airport </b> is the nearest domestic and
    international airport to the town, which is located at Tirusulam in Kanchipuram
    district. </p>
</body>
</html>
```


D:\CS_TestBook_Final\
Text Formatting
File Edit View Favorites Tools Help
Kanchipuram
Kancheepuram is part of Tondaimandalam
Kanchipuram is 72 km away from Chennai
It is the administrative headquarters of Kanchipuram District.
Kanchipuram is well-connected by road and rail.
Chennai International Airport is the nearest domestic and international airport to the town, which is located at Tirusulam in Kanchipuram district.

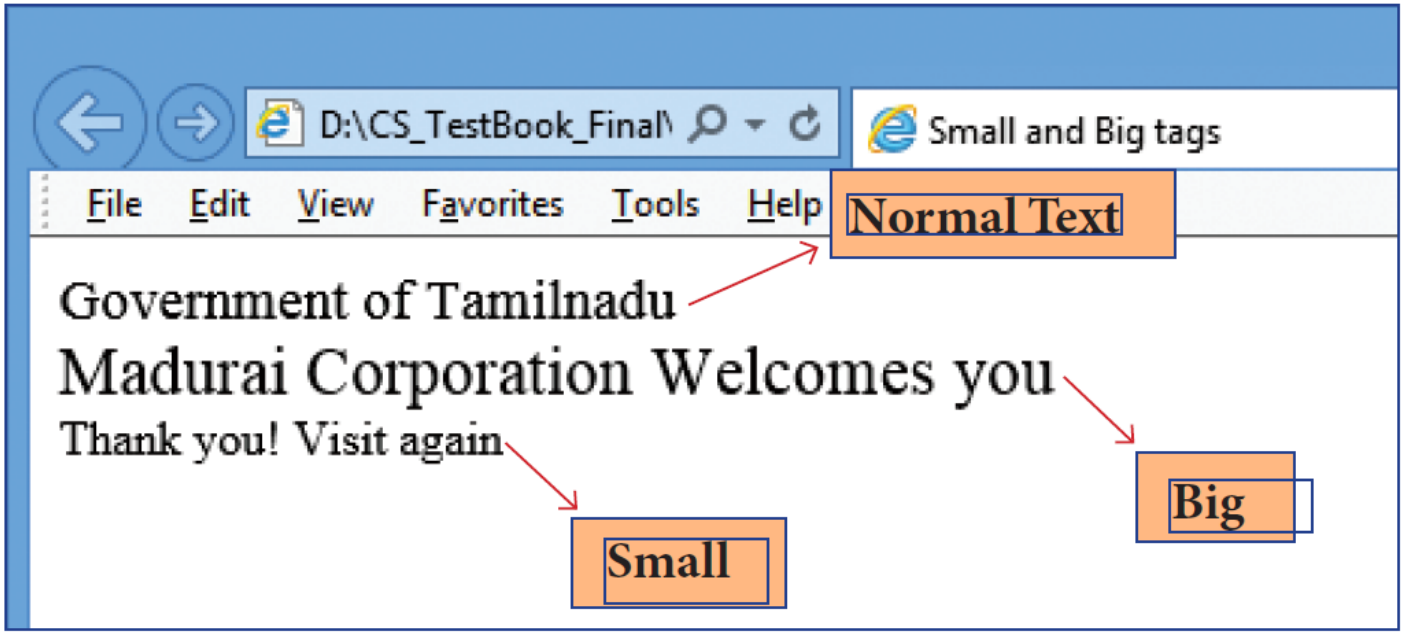
Usuage of Strong and em tag


```
<html>
    <head>
        <title> Additional Text Formatting Tags </title>
    </head>
    <body>
        <strong> Welcome to Tamilnadu  </strong> <br>
        <em> Welcome to Tamilnadu </em>
    </body>
    </html>
```


D:\CS_TestBook_Final\
Additional Text Formatti...
File Edit View Favorites Tools Help
Welcome to Tamilnadu
Welcome to Tamilnadu

Usage of <big> and <small>


```
<html>
<head>
<title> Small and Big tags </title>
</head>
<body>
        Govenment of Tamilnadu <br>
        <big>  Madurai Corporation welcomes you </big> <br>
        <small> Thank you! Visit again </small>
</body>
</html>
```

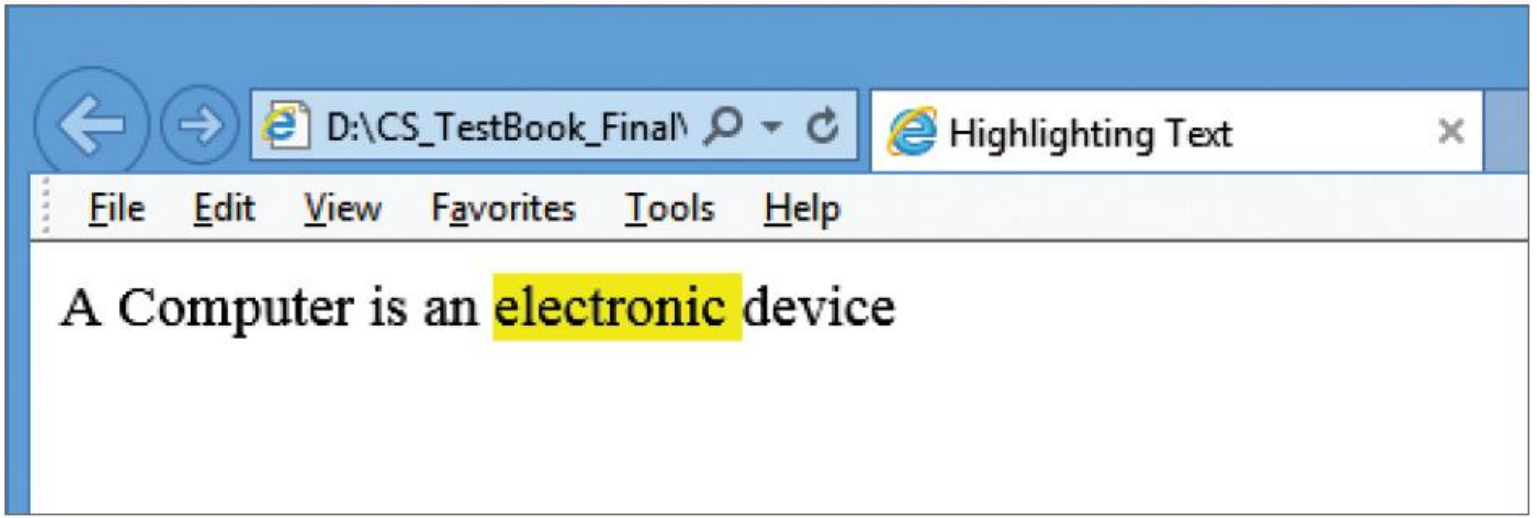

D:\CS_TestBook_Final\
Small and Big tags
File Edit View Favorites Tools Help
Normal Text
Government of Tamilnadu
Madurai Corporation Welcomes you
Thank you! Visit again
Big
Small

Highlighting Text

- Highlighting is an important formatting feature is used to call attention to the reader.
- The **<mark>** tag is used to highlight the text in HTML.
- This is also a container tag.
- Whatever the text given between <mark> and </mark> will be displayed as highlighting with default color (mostly yellow).

Usage of <mark>


```
<html>
<head>
<title> Highlighting text </title>
</head>
<body>
        A Computer is an <mark> electronic </mark> device
</body>
</html>
```

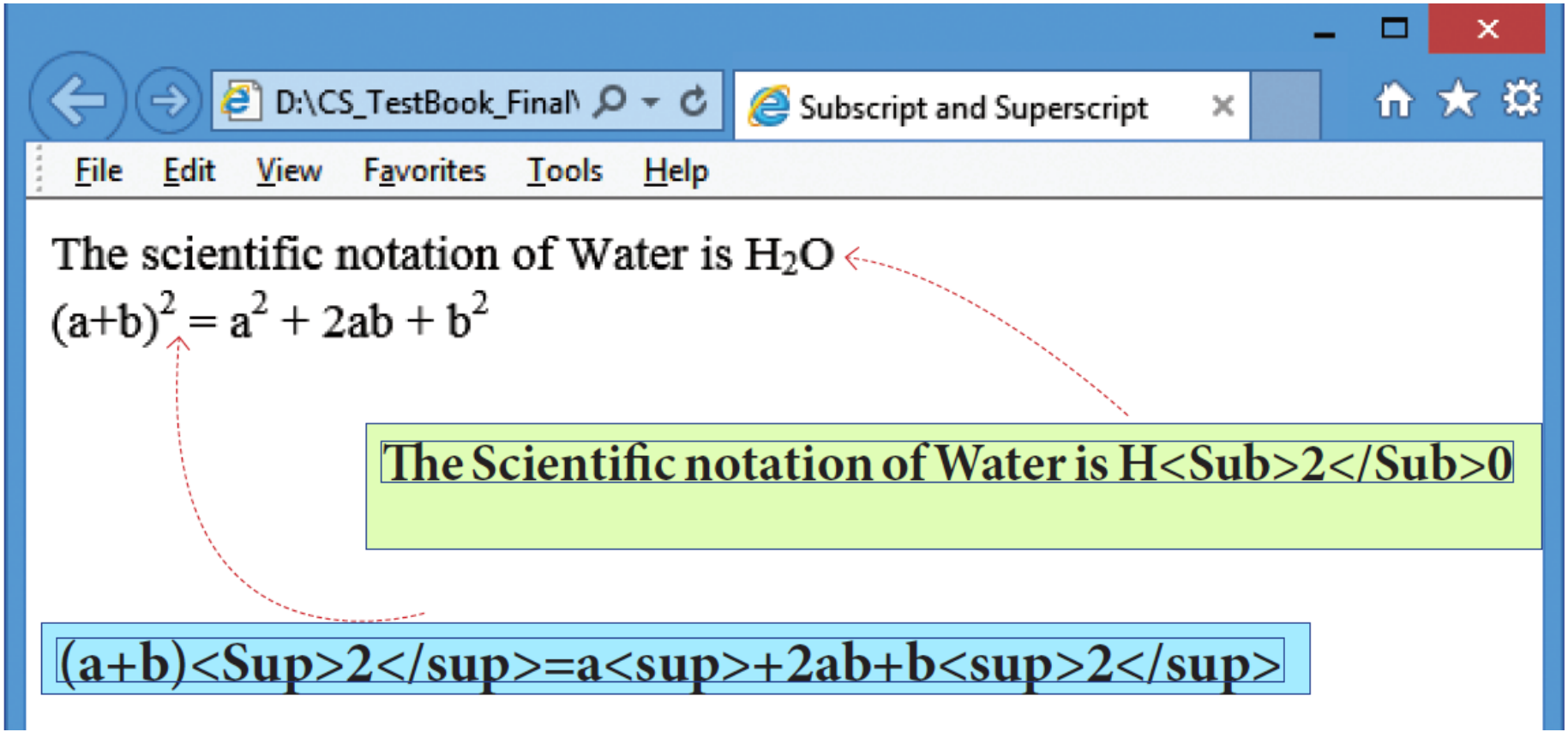

D:\CS_TestBook_Final\
Highlighting Text
File Edit View Favorites Tools Help
A Computer is an electronic device

Subscript and Superscript

- A Subscript is a way to display a character or a number below the normal line of type. For example: The scientific notation for water is H_2O. It should be written as H_2O. Here, 2 is appearing below the normal line. This is called **Subscript**.
- A Superscript is also a way to show a character or a number above the normal line of type. For example: The familiar algebra equation "a plus b the whole square" should be written as $(a+b)^2$. Here, the square value 2 is appearing above the normal line. This is called **Superscript**.
- Usually, the subscript and the superscript character or number is smaller than the rest of the text.
- In HTML, the <sub> and <sup> tags are used to create subscript and superscripts respectively.
- As like as other formatting tags, this is also a container tag.
- The text or number given between _{and} will be displayed as **Subscript**. Same as subscript, the text or number given between ^{and} will be displayed as Superscript.

Usage of <sub> and <sup>

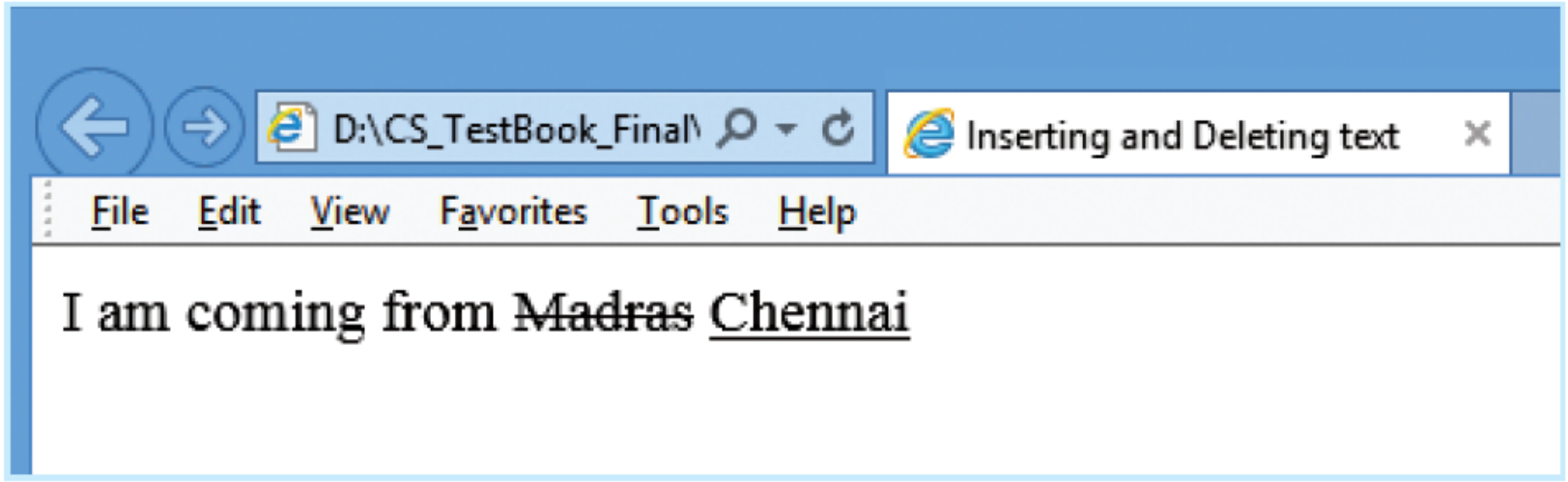

```
<html>
<head>
<title> Subscript and Superscript </title>
</head>
<body>
        The scientific notation of Water is H<sub>2</sub>O <br>
        (a+b)<sup>2</sup> = a<sup>2</sup> + 2ab + b<sup>2</sup>
</body>
</html>
```


D:\CS_TestBook_Final\
Subscript and Superscript
File Edit View Favorites Tools Help
The scientific notation of Water is H_2O
$(a+b)^2 = a^2 + 2ab + b^2$
The Scientific notation of Water is H₂0
(a+b)²=a^{+2ab+b²}

Inserting and Deleting

- **<del>** and **<ins>** tags are used to markup a segment of text as deleted or inserted respectively. These two tags are container tags.
- The text what you specify between <del> and </del> will be displayed as strike through.
- The text you specify between <ins> and </ins> will be shown as underlined.
- To display a text as wrong text, the **<s>** tag can be used to show the text as strike through style.
- The <s> and <del> tags are display the text in similar way. This is also a container tag.
- The text you specify between <s> and </s> will be display in strike through style.

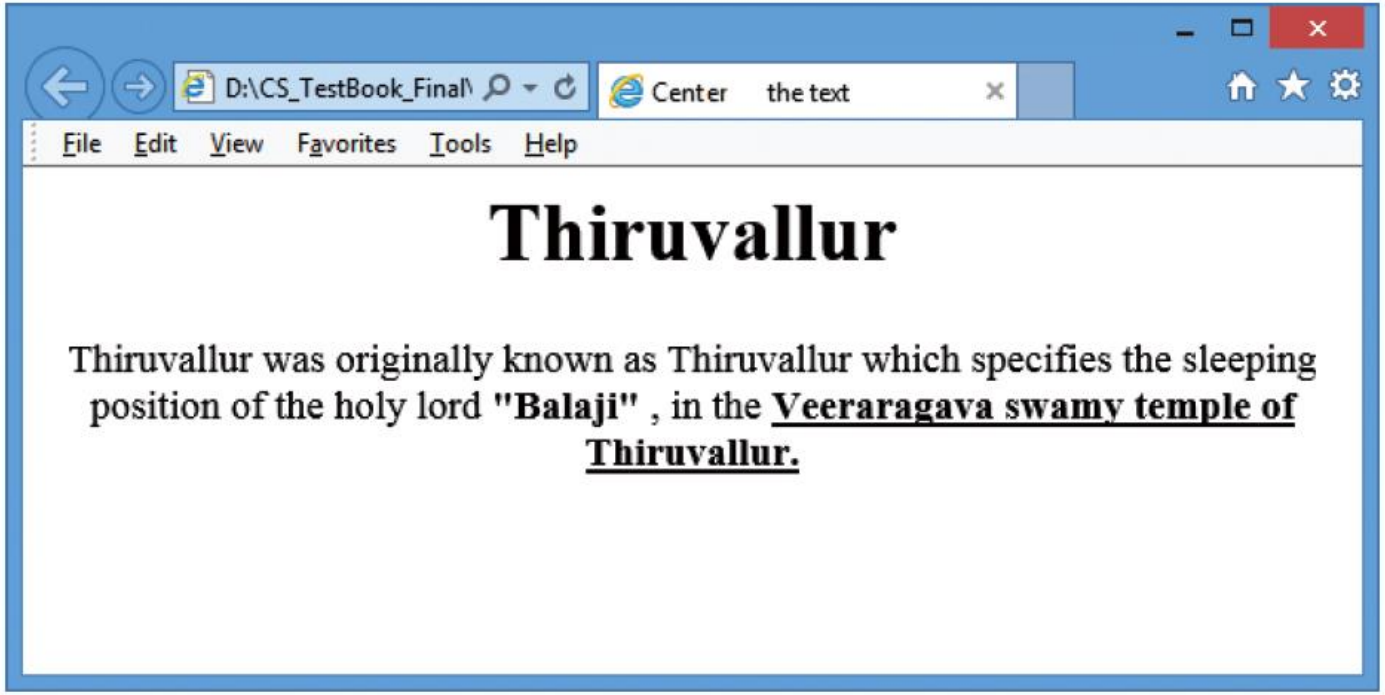
```
<html>
<head>
<title> Inserting and Deleting text </title>
</head>
<body>
                I am coming from <del> Madras</del>  <ins> Chennai </ins>
</body>
</html>
```


D:\CS_TestBook_Final\
Inserting and Deleting text
File Edit View Favorites Tools Help
I am coming from Madras Chennai

The Center Tag

- Paragraphs can be centered with Align attribute with <p> tag.
- For non-paragraph text contents can be centered with tag.
- The tag is used to centralize a segment of text.
- It is a container tag. That means, what you type between and will be displayed in the center of the browser.

```
<html>
    <head>
        <title> Center the text </title>
    </head>
    <body>
        <h1 align = center> Thiruvallur </h1>
    <center> Thiruvallur was originally known as Thiruvallur which specifies the
    sleeping position of the holy lord <b> "Balaji" <b>, in the
    <b> <u> Veeraragava swamy temple of Thiruvallur. </b> </u> </center>
</body>
</html>
```


D:\CS_TestBook_Final\
Center the text
File Edit View Favorites Tools Help
Thiruvallur
Thiruvallur was originally known as Thiruvallur which specifies the sleeping position of the holy lord "Balaji" , in the Veeraragava swamy temple of Thiruvallur.

Changing font style, size and color

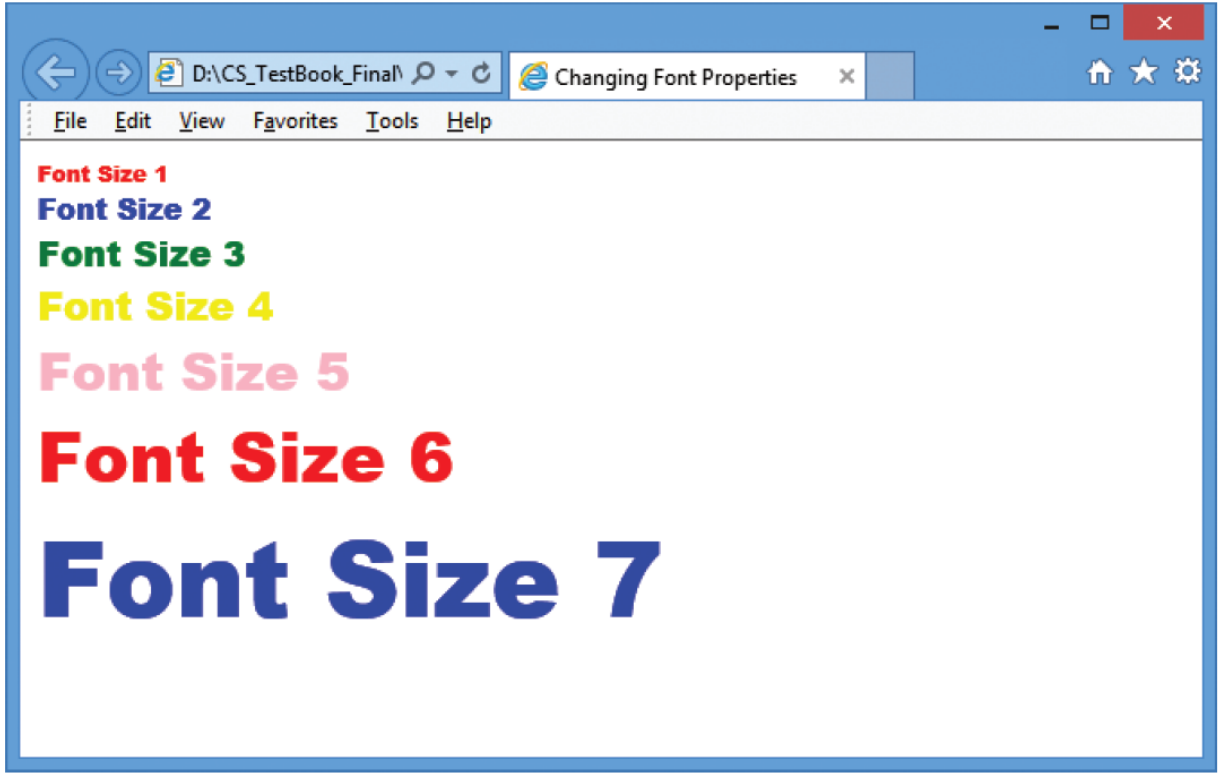
- The <font> tag is used to change the style, size and color of text.
- It is also a container tag.
- It is generally used for changing the appearance of a short segment of text.
- A font is a named set of certain style of character and number. Each font looks different from other fonts.
- Generally some fonts are used for specific purpose. For example, Times New Roman is a style of font usually used for preparing office documents. Arial is another font style which is used for publishing work. Variety of fonts available in internet at free of cost.
- Generally, a browser shows the contents as default system font setting. Every system has different font setting with another system.

- The general form of <font> tag with attributes:

```
<font face= “font_name” size=value color=color_name / color_code>
        Text to be displayed
</font>
```

- The **face** is an attribute to set different font style. The name of a font has multiple words it should be specified within double quote.
- The **size** attribute is used to set size of the text. The size can have an absolute value from 1 to 7. These predefined sizes are known as virtual size. Each virtual size is successively 20% larger than the previous one.
- The **color** attribute is used to set the color to the text. As you leant earlier color name or color code in hexadecimal may be used.

```
<html>
<head>
<title> Changing Font Properties </title>
</head>
<body>
        <font face="Arial Black" size=1 color=red> Font Size 1 </font> <br>
        <font face="Arial Black" size=2 color=blue> Font Size 2 </font> <br>
        <font face="Arial Black" size=3 color=green> Font Size 3 </font> <br>
        <font face="Arial Black" size=4 color=yellow> Font Size 4 </font> <br>
        <font face="Arial Black" size=5 color=pink> Font Size 5 </font> <br>
        <font face="Arial Black" size=6 color=red> Font Size 6 </font> <br>
        <font face="Arial Black" size=7 color=blue> Font Size 7 </font> <br>
</body>
</html>
```


D:\CS_TestBook_Final\
Changing Font Properties
File Edit View Favorites Tools Help
Font Size 1
Font Size 2
Font Size 3
Font Size 4
Font Size 5
Font Size 6
Font Size 7

Multiple fonts with face attribute:

- As discussed earlier, the face attribute of font tag is used to change font style of a segment of text. In face attribute, it is possible assign more than one font-name at a time within double quotes with comma.
- For example,

```
<font face = "Bookman old style1, Broadway1, Forte, Arial">
        Welcome to HTML
</font>
```

- Browser first tries to find out whether the font-name in the list is supported or not. If the first font is not supported by the browser, then it displays the text in second font, otherwise it will display next one. If no font in the list is supported, then the browser display the in the default font.

- In the above code, consider the font names “Bookman old style1” and “Broadway1” are not supported by any browser. (Because, the names has been changed).
- So, the text “Welcome to HTML” will be displayed in “Forte” style.
- If the browser does not supported “Forte” font, the text will be displayed in “Arial” font, otherwise the browser shows the text as in default font setting.
- In the case of Internet explorer, the “Times New Roman” is the default font to display the contents.

Section Break

- The <hr> (Horizontal Rules) tag, which is known as “Thematic Breaks” separate sections of an HTML document visually.
- It produces a horizontal line spread across the width of the browser. This is an empty tag, which means the tag has no closing tag.

Attributes of <hr> tag

- The <hr> tag having four attributes viz. size, width, noshade and color. These attributes are used to set size, width, 3D appearance and color to the horizontal line respectively.
- The general syntax of <hr> tag with attributes:
  - **<hr size=value width=value noshade, color=color_name/code>**

Size:

- Thickness of the horizontal line can be changed with size attribute.
- The size is given in terms of pixels. A pixel is one of the tiny dots that make up the display on computer.
- Generally, 72 pixels equal to an inch. Pixel is usually referred as points.
- For example: The code <hr size = 72> display a horizontal line with 1 inch thickness. The default size is 3 pixels.

Width:

- The width attribute specifies the horizontal width of the rule line.
- The default rule is drawn across the full width of the browser.
- The value of the width attribute may be the exact width of the rule in pixel or a certain percentage.
- Usually, the value of the width is specified as percentage. 100% is the default width.
- For example:
  - <hr width = 50%> display an half of a horizontal rule line on the browser window.

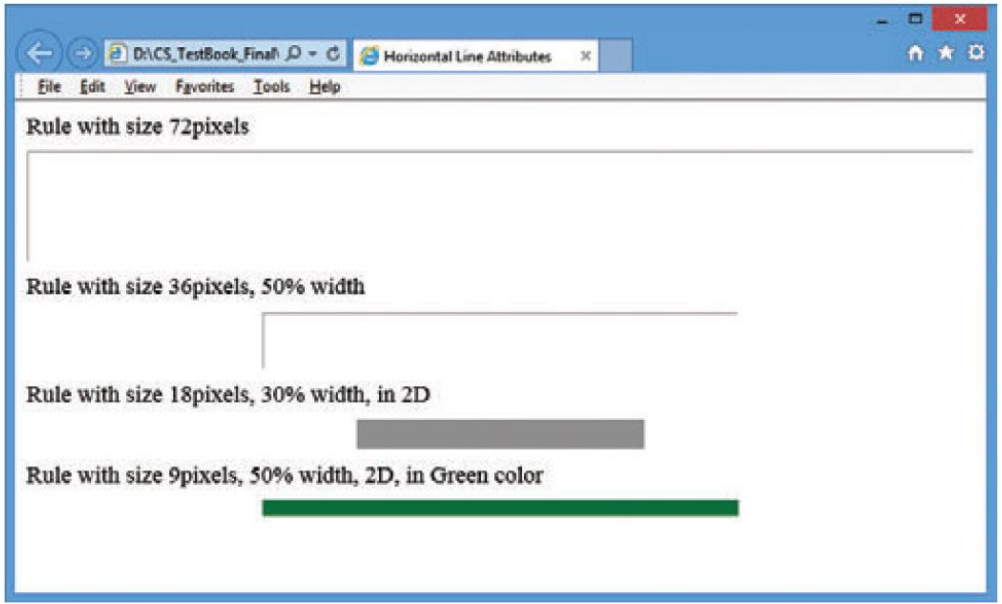
Noshade:

- The default view of a horizontal rule line is 3D. So, no need to specify the term “noshade” as an attribute with <hr> tag.
- If you specify the attribute “noshade” turn off 3D view, turns on 2D view. Noshade is a Boolean type attribute.

Color:

- The horizontal line is displayed in gray color by default.
- The color attribute is used to change is default color to desired color.

```
<html>
<head>
        <title> Horizontal Line Attributes </title>
</head>
<body>
        Rule with size 72pixels
        <hr size = 72>
        Rule with size 36pixels, 50% width
        <hr size = 36 width=50%>
        Rule with size 18pixels, 30% width, in 2D
        <hr size = 18 width=30% noshade>
        Rule with size 9pixels, 50% width, 2D, in Green color
        <hr size = 9 width = 50% noshade color=Green>
</body>
</html>
```


D:\CS_TestBook_Final\
Horizontal Line Attributes
File Edit View Favorites Tools Help
Rule with size 72pixels
Rule with size 36pixels, 50% width
Rule with size 18pixels, 30% width, in 2D
Rule with size 9pixels, 50% width, 2D, in Green color

Special Characters

- In HTML, special characters are typically those that can't be easily typed into a keyboard or may cause display issues if typed or pasted into a web page.
- If you plan to use any of the special characters on this page, you should use either the HTML entity name or the HTML entity number. This will ensure that it displays correctly in most/all browsers.
- For example, if you want to display a copyright symbol "©", you should use either © or © in your code.
- All the special characters must be ended with semicolon. (;)
- For Complete references of Special characters refer the following url: https://dev.w3.org/html5/html-author/charref
- Following are some of the special characters.

Character	Entity Number	Entity Name	Description
"	"	"	quotation mark
'	'	'	apostrophe
&	&	&	ampersand
<	<	<	less-than
>	>	>	greater-than
∀	∀	∀	For All
∂	∂	∂	Partial Differential
∃	∃	∃	There Exists
∅	∅	∅	Empty Sets
∇	∇	∇	Nabla
∈	∈	∈	Element Of
∉	∉	∉	Not An Element Of
∋	∋	∋	Contains As Member
∏	∏	∏	N-ary Product
∑	∑	∑	N-ary Summation

Character	Entity Number	Entity Name	Description
Α	Α	Α	Greek Capital Letter Alpha
Β	Β	Β	Greek Capital Letter Beta
Γ	Γ	Γ	Greek Capital Letter Gamma
Δ	Δ	Δ	Greek Capital Letter Delta
Ε	Ε	Ε	Greek Capital Letter Epsilon
Ζ	Ζ	Ζ	Greek Capital Letter Zeta
©	©	©	Copyright Sign
®	®	®	Registered Sign
€	€	€	Euro Sign
™	™	™	Trademark
←	←	←	Leftwards Arrow
↑	↑	↑	Upwards Arrow
→	→	→	Rightwards Arrow
↓	↓	↓	Downwards Arrow
♠	♠	♠	Black Spade Suit
♣	♣	♣	Black Club Suit
♥	♥	♥	Black Heart Suit
♦	♦	♦	Black Diamond Suit

Character	Entity Number	Entity Name	Description
«	«	«	angle quotation mark (left)
¬	¬	¬	negation
			soft hyphen
¯	¯	¯	spacing macron
°	°	°	degree
±	±	±	plus-or-minus
²	²	²	superscript 2
³	³	³	superscript 3
´	´	´	spacing acute
µ	µ	µ	micro
¶	¶	¶	paragraph
·	·	·	middle dot
¸	¸	¸	spacing cedilla
¹	¹	¹	superscript 1
º	º	º	masculine ordinal indicator
»	»	»	angle quotation mark (right)

Character	Entity Number	Entity Name	Description
¼	¼	¼	fraction 1/4
½	½	½	fraction 1/2
¾	¾	¾	fraction 3/4
¿	¿	¿	inverted question mark
×	×	×	multiplication
÷	÷	÷	Division
			non-breaking space
¡	¡	¡	inverted exclamation mark
¢	¢	¢	cent
£	£	£	pound
¤	¤	¤	currency
¥	¥	¥	yen
¦	¦	¦	broken vertical bar
§	§	§	section
¨	¨	¨	spacing diaeresis

The Copyright Symbol is : ©
The Registered rank is : ®
The Fractional parts are ½, ¼, ¾
The Mathematical Symbols are ÷,<,>,≤,≥,∀, ∂, ∃, ∅
The Spad, Club and hearts are : ♠,♣, ♥
Direction Symbols are : ←↑→↓

Specialchar - Notepad

File Edit Format View Help

```
<html>
<head>
<title> Special Characters</title>
</head>
<body>
<h2>
<Pre>
The Copyright Symbol is : &copy;
The Registered rank is  : &reg;
The Fractional parts are &frac12, &frac14, &frac34;
The Mathematical Symbols are
&divide,&lt,&gt,&le;,&ge;,&forall;, &part;, &exist;,
&empty;
The Spad, Club and hearts are : &spades;,&clubs;,
&hearts;
Direction Symbols are : &#8592;&#8593;&#8594;&#8595;
</pre>
</h2>
</body>
</html>
```

Ln 16, Col 8 100% Windows (CRLF) UTF-8

Tables in HTML

- Table is grid of rows and columns.
- The tables were officially introduced with HTML 3.2.
- Tables are useful for the general display of tabular data. Representing table in HTML is heavy on tags.
- Tags to create table elements
- There are five core tags are used to create a table in HTML. They are,
  - **<table>** tag is used to create a table.
  - **<tr>** tag defines table rows
  - **<th>** tag defined table columns
  - **<td>** tag is used to specify the data in a cell
  - **<caption>** tag defines title for the table
- Apart from these five core tags, **<tbody>**, **<thead>** and **<tfoot>** tags are also used to define and control whole sections of table. All the above tags are container tags.

```
<html>
<head>
        <title> Creating Table </title>
</head>
        <body bgcolor="PaleGoldenRod">
        <Table border=1>
        <Caption> Books and Authors </Caption>
<TR>
        <TH> Book </TH>
        <TH> Author </TH>
        <TH> Publisher </TH>
</TR>
<TR>
        <TD> Foxpro 2.5 </TD>
        <TD> R.K. Taxali </TD>
        <TD> BPB Publications </TD>
</TR>
<TR>
        <TD> Visual Basic .NET </TD>
        <TD> Jeffrey R. Shapiro </TD>
        <TD> Tata McGraw Hill </TD>
</TR>
<TR>
        <TD> Core Java Vol 1 </TD>
        <TD> Horstmann Cornell </TD>
        <TD> Pearson </TD>
</TR>
</Table>
</body>
<html>
```

Creating Table

- In the above HTML code, the <Table border=1> tag creates a table structure with border.
- The code <Caption> Books and Authors </Caption> display the text specified between <Caption> as title to the table.
- The above code contains four set of <tr> blocks. First block of <tr> creates a table row with three column headings with the help of <th> tag.
- The <th> tag is used as Table heading, the column heading were aligned center and text becomes bold by default.
- Rest of the <tr> blocks display the contents what you specify within <td> tags.
- All the tags used with table were container tags. So, each and every tag should be closed with their closing tag.

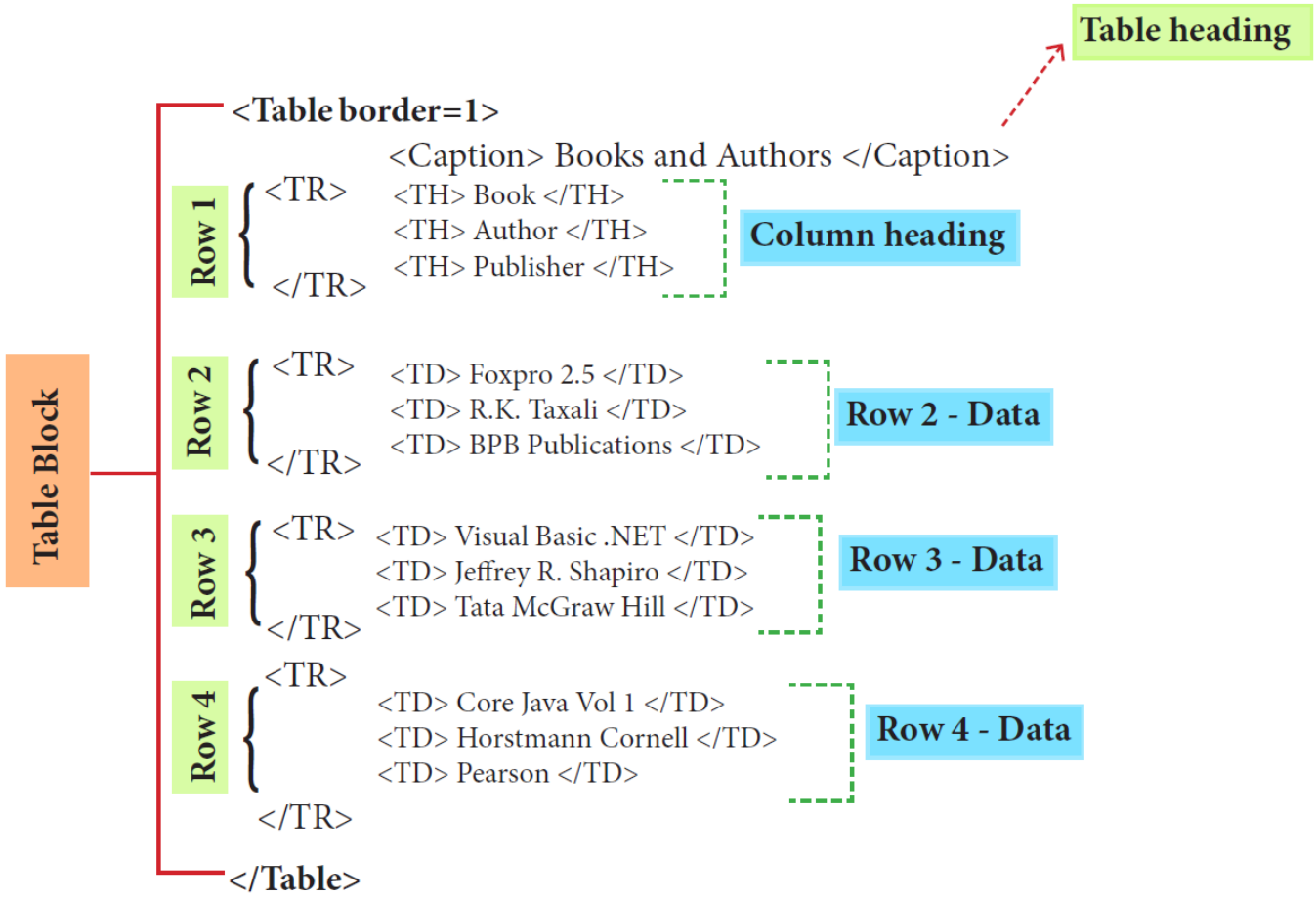
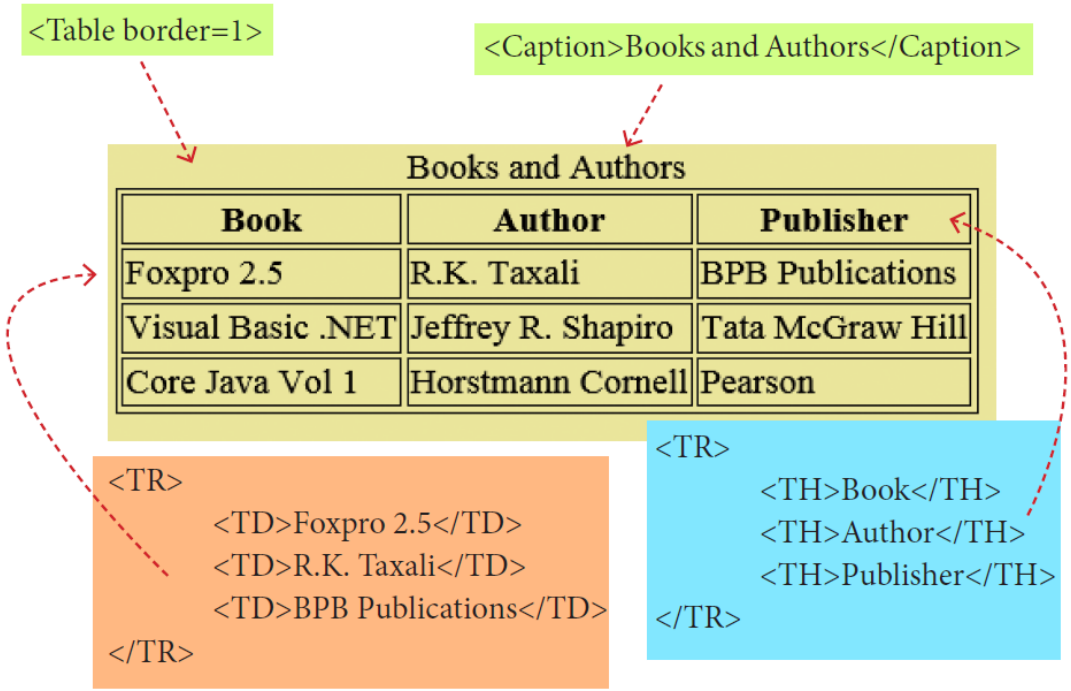


Table heading
<Table border=1>
<Caption> Books and Authors </Caption>
Table Block
Row 1
<TR>
<TH> Book </TH>
<TH> Author </TH>
<TH> Publisher </TH>
</TR>
Column heading
Row 2
<TR>
<TD> Foxpro 2.5 </TD>
<TD> R.K. Taxali </TD>
<TD> BPB Publications </TD>
</TR>
Row 2 - Data
Row 3
<TR>
<TD> Visual Basic .NET </TD>
<TD> Jeffrey R. Shapiro </TD>
<TD> Tata McGraw Hill </TD>
</TR>
Row 3 - Data
Row 4
<TR>
<TD> Core Java Vol 1 </TD>
<TD> Horstmann Cornell </TD>
<TD> Pearson </TD>
</TR>
Row 4 - Data
</Table>

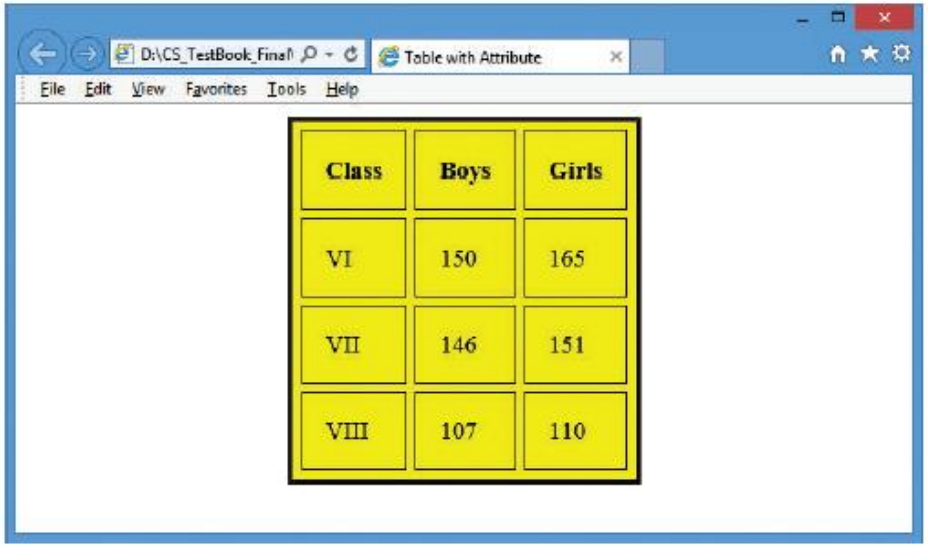

<Table border=1>
<Caption>Books and Authors</Caption>
Books and Authors
Book
Author
Publisher
Foxpro 2.5
R.K. Taxali
BPB Publications
Visual Basic .NET
Jeffrey R. Shapiro
Tata McGraw Hill
Core Java Vol 1
Horstmann Cornell
Pearson
<TR>
<TD>Foxpro 2.5</TD>
<TD>R.K. Taxali</TD>
<TD>BPB Publications</TD>
</TR>
<TR>
<TH>Book</TH>
<TH>Author</TH>
<TH>Publisher</TH>
</TR>

Attributes of Table

The <table> is a container tag. There are several attributes to improve the layout of the table. They are listed below:

- **Cellspacing:** It is used to set the space between cells in a table. The value should be in pixels
- **Cellpadding:** It is used to set the space between the contents of a cell and its border. the value should be in pixels.
- **Border:** Border attribute with <table> tag is used to specify the thickness of the border lines around the table. The value of the border attribute should be a non zero value in pixels. If its value is zero, HTML displays the table without border.
- **Bordercolor:** It is used to apply the color to the border lines.
- **Align:** It is used to set the position of the table within the browser window. Left is the default position. Right or center may be the value of align attribute.
- **Bgcolor:** It is used to apply background colour to the table.
- **Height and Width:** These two attributes are used to specify the height and width of a table in terms of pixels or percentage.

```
<html>
<head>
<title> Table with Attribute </title>
</head>
<body>
<table cellspacing=5 cellpadding=15 border=4 bordercolor=blue align=center
bgcolor=yellow>
<TR>
        <TH> Class </TH>
        <TH> Boys </TH>
        <TH> Girls </TH>
</TR>
<TR>
        <TD> VI </TD>
        <TD> 150 </TD>
        <TD> 165 </TD>
</TR>
<TR>
        <TD> VII </TD>
        <TD> 146 </TD>
        <TD> 151 </TD>
</TR>
<TR>
        <TD> VIII </TD>
        <TD> 107 </TD>
        <TD> 110 </TD>
</TR>
</table>
</body>
</html>
```


D:\CS_TestBook_Final\
Table with Attribute
File Edit View Favorites Tools Help
Class
Boys
Girls
VI
150
165
VII
146
151
VIII
107
110

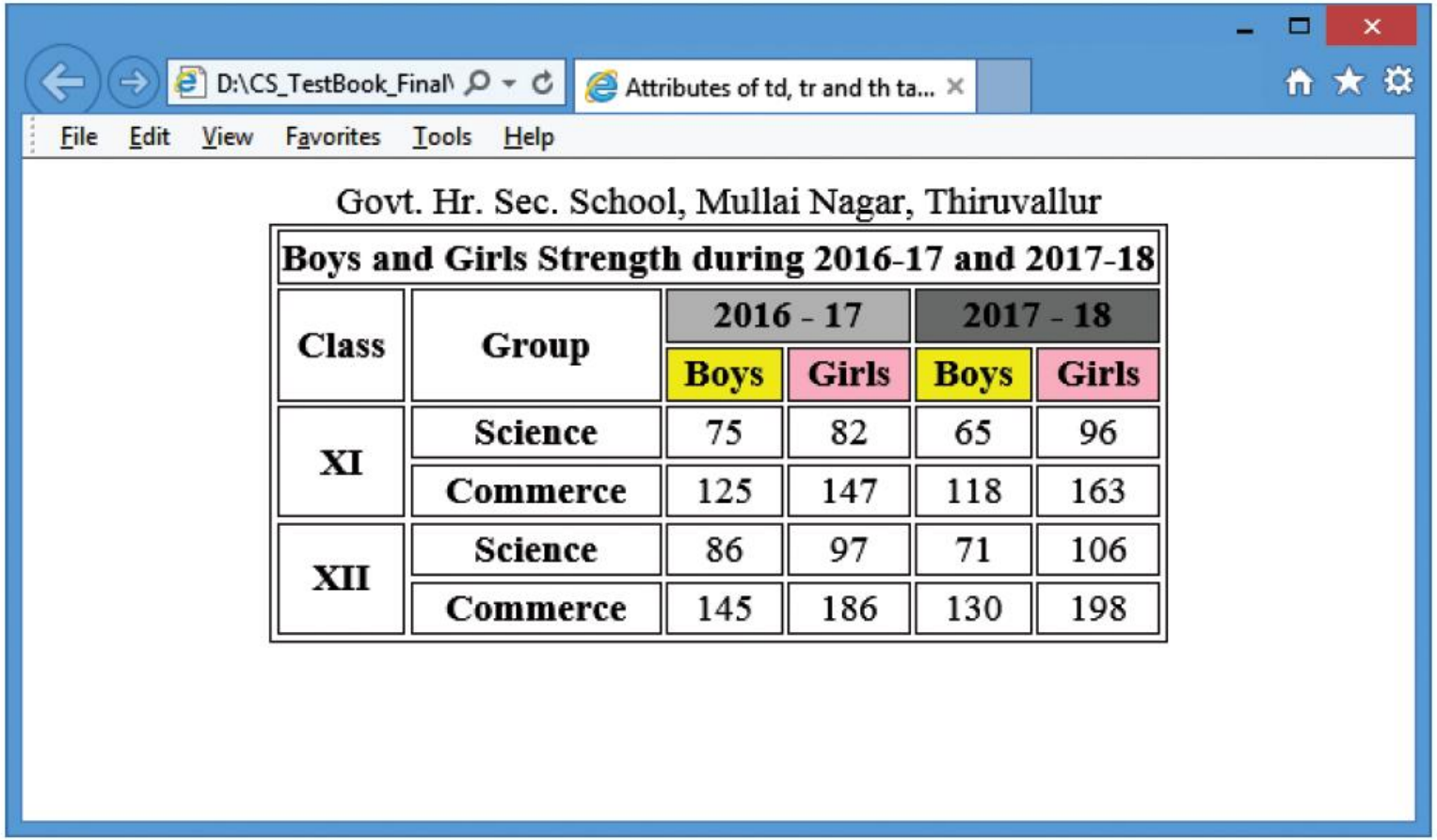
Attributes of <TD>, <TH> and <TR> tags:

- **Align:** Used to specify the horizontal alignment of content within a cell. Left is the default alignment. Possible values are Right and Center.
- **VAlign:** Used to specify the vertical alignment of the contents within a cell. Bottom is the default alignment. Possible values are Top and Middle
- **Width:** Used to specify the width of a cell in terms of pixels or percentage.
- **Bgcolor** attribute is used to apply a particular colour to the background of a cell.
- **Background** attribute is used to apply an image or picture as background of a cell.
- **Rowspan** attribute is used to merge two or more cells in a row as a single cell.
- **Colspan** attribute is used to merge to two or more cells in a column as a single cell.

```
<html>
<head>
<title> Attributes of td, tr and th tags </title>
</head>
<body>
<table border align=center>
<Caption> Govt. Hr. Sec. School, Mullai Nagar, Thiruvallur
<tr>
<th colspan=6> Boys and Girls Strength during 2016-17 and 2017-18 </th>
</tr>
<tr align=center>
<th rowspan=2> Class </th>
<th rowspan=2> Group </th>
<th colspan=2 bgcolor=silver> 2016 - 17 </th>
<th colspan=2 bgcolor=gray> 2017 - 18 </th>
</tr>
<tr>
```

```
<th bgcolor=yellow> Boys </th>
<th bgcolor=pink> Girls </th>
<th bgcolor=yellow> Boys </th>
<th bgcolor=pink> Girls </th>
</tr>
<tr align=center>
<th rowspan=2> XI </th>
<th> Science </th>
<td> 75 </td>
<td> 82 </td>
<td> 65</td>
<td> 96 </td>
</tr>
<tr align=center>
<th> Commerce </th>
<td> 125 </td>
<td> 147 </td>
<td> 118 </td>
<td> 163 </td>
</tr>
```

```
<tr align=center>
<th rowspan=2> XII </th>
<th> Science </th>
<td> 86</td>
<td> 97 </td>
<td> 71</td>
<td> 106 </td>
</tr>
<tr align=center>
<th> Commerce </th>
<td> 145 </td>
<td> 186 </td>
<td> 130 </td>
<td> 198 </td>
</tr>
</table>
</body>
</html>
```



Govt. Hr. Sec. School, Mullai Nagar, Thiruvallur

Boys and Girls Strength during 2016-17 and 2017-18					
Class	Group	2016 - 17		2017 - 18	
		Boys	Girls	Boys	Girls
XI	Science	75	82	65	96
	Commerce	125	147	118	163
XII	Science	86	97	71	106
	Commerce	145	186	130	198

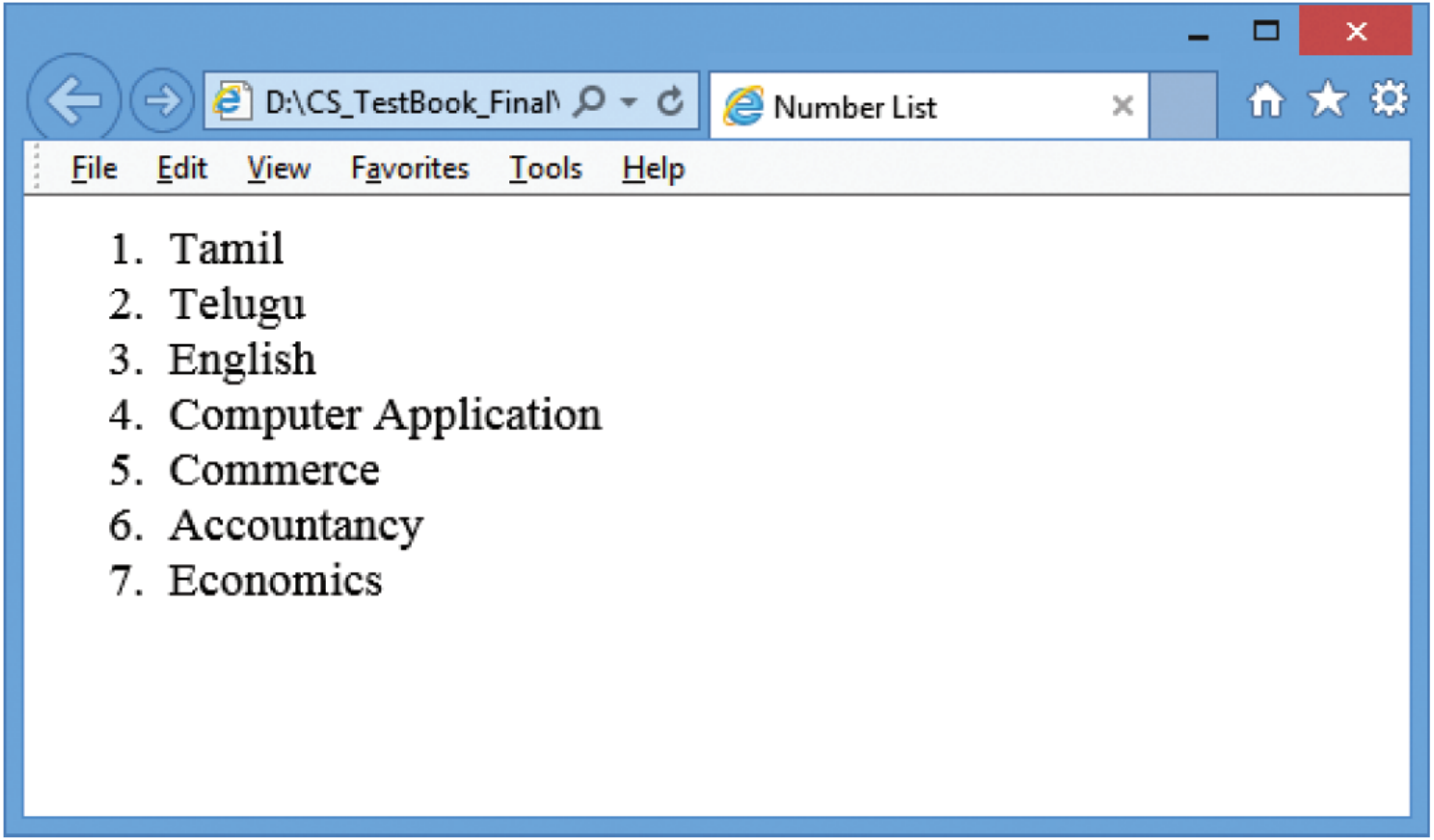
Lists in HTML

- HTML supports three types of lists viz. Numbered, Unnumbered and Definition.
- These lists are called as Ordered List, Unordered List and Definition List respectively.

Numbered List / Ordered List

- Numbered list is created within the tag pair <OL> ….. </OL> tag.
- The tag <LI> is used to present the list item in the list.
- Ordered list displays items in a numerical or alphabetical order. Both <OL> and <LI> tags are container tags.

```
<html>
<head>
<title> Number List </title>
</head>
<body>
<OL>
<LI> Tamil </LI>
<LI> Telugu </LI>
<LI> English </LI>
<LI> Computer Application </LI>
<LI> Commerce </LI>
<LI> Accountancy </LI>
<LI> Economics </LI>
</OL>
</body>
</html>
```

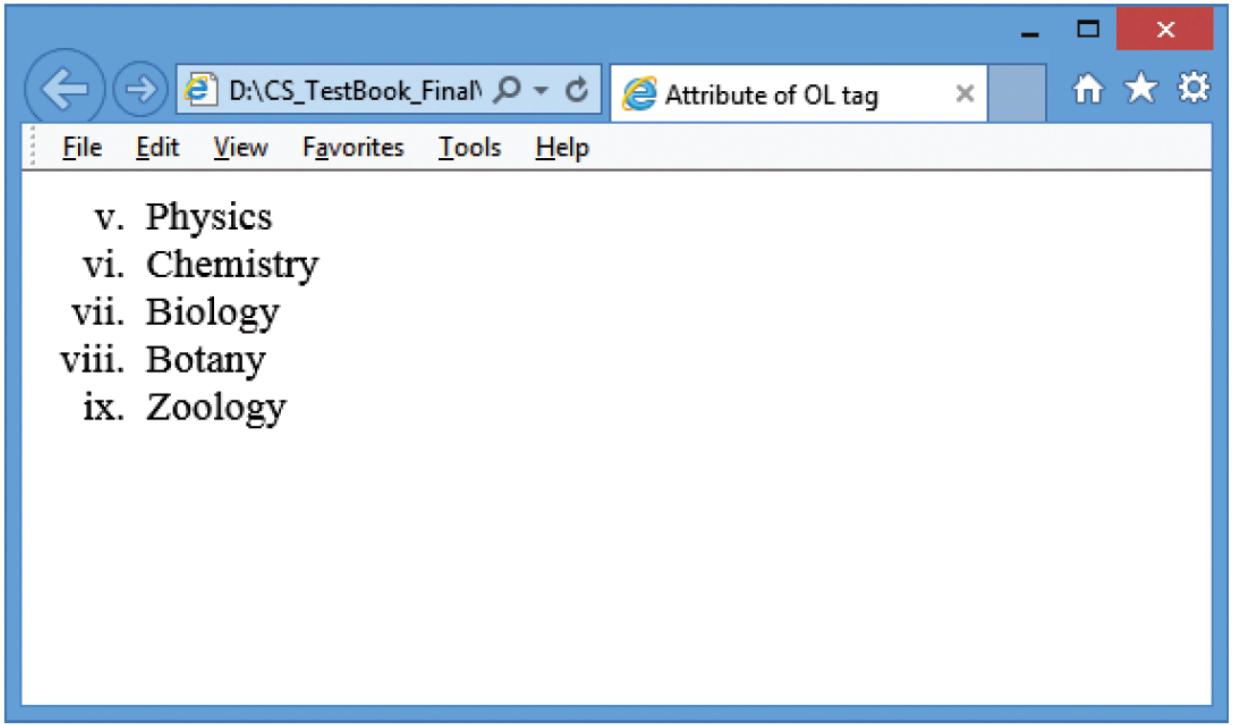

D:\CS_TestBook_Final\
Number List
File Edit View Favorites Tools Help
1. Tamil
2. Telugu
3. English
4. Computer Application
5. Commerce
6. Accountancy
7. Economics

Attributes of Ordered List:

- There are two attributes can be used to customize ordered list, they are
  - **Type** - changing numbering style
  - **Start** - changing numbering order.
- **Type** – is used to change the number style. The default number style is standard Arabic numerals (1,2,3,……).
- **Start** – is used to specify the number of letter with which start the list. The default starting point is 1. The value of the start attribute should be a decimal number, regardless of the numbering style being used.

Type value	Numbering style
1	Standard Arabic Numerals 1,2,3,4,……
a	Lowercase letters a, b, c, d, ……
A	Uppercase letter A, B, C, D ……..
i	Lowercase Roman numerals i, ii, iii, iv, v ……
I	Uppercase Roman numerals I, II, III, IV, V ……..

```
<html>
<head>
<title> Attribute of OL tag </title>
</head>
<body>
        <OL type=i start=5>
                <LI> Physics
                <LI> Chemistry
                <LI> Biology
                <LI> Botany
                <LI> Zoology
        </OL>
</body>
</html>
```

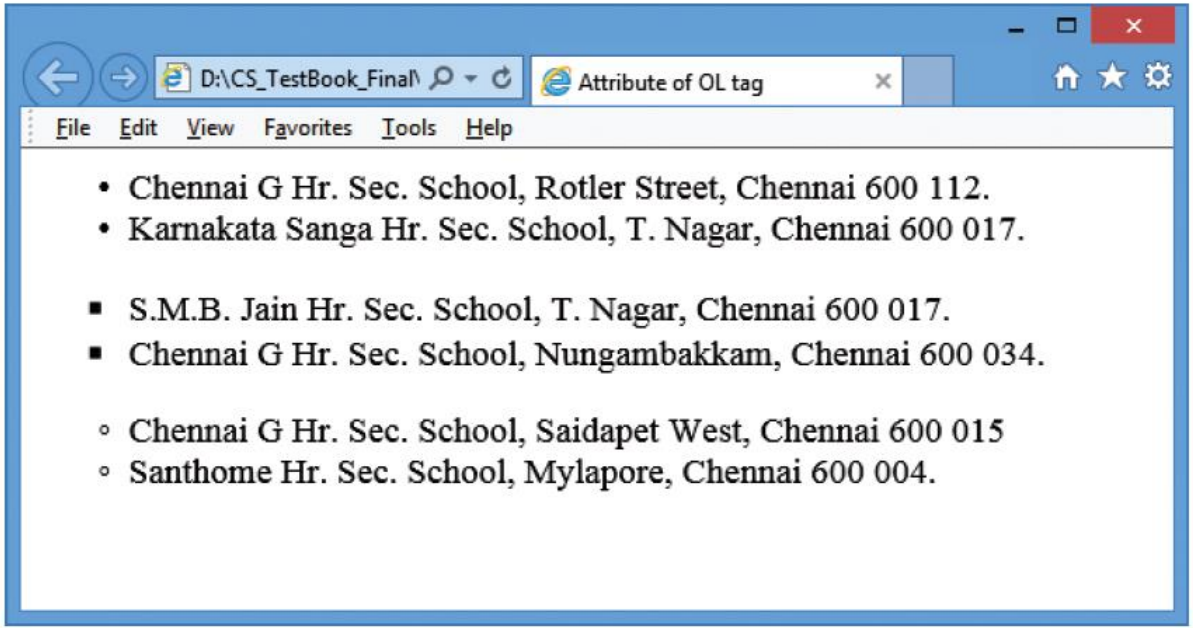

D:\CS_TestBook_Final\
Attribute of OL tag
File Edit View Favorites Tools Help
v. Physics
vi. Chemistry
vii. Biology
viii. Botany
ix. Zoology

Un-numbered List / Unordered List

- Unordered lists are often referred as bulleted lists.
- Instead of numbers, each element in the list has prefixed with a special bullet symbol.
- Unordered list is surrounded within <UL> ..... </UL> tags.
- As discussed earlier, each list element is defined by <LI> tag.
- **Attribute of Unordered List:** Like ordered list, type attribute is used to customize bullet style for the list of elements. By default, a solid circle is used as bullets.

Type value	Numbering style
Disc	• A solid circle
Square	■ A solid square
Circle	oAn unfilled circle

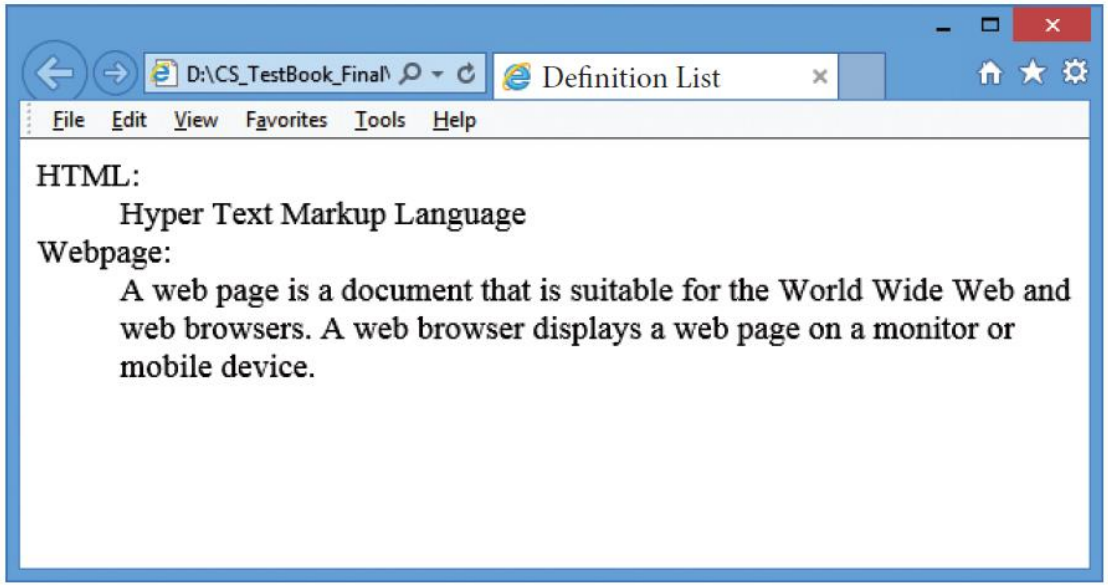
```
<html>
<head>
<title> Attribute of UL tag </title>
</head>
<body>
        <UL>
                <LI> Chennai G Hr. Sec. School, Rotler Street, Chennai 600 112.
                <LI> Karnakata Sanga Hr. Sec. School, T. Nagar, Chennai 600 017.
        </UL>
        <UL type=square>
                <LI> S.M.B. Jain Hr. Sec. School, T. Nagar, Chennai 600 017.
                <LI> Chennai G Hr. Sec. School, Nungambakkam, Chennai 600 034.
        </UL>
        <UL type=circle>
                <LI> Chennai G Hr. Sec. School, Saidapet West, Chennai 600 015
                <LI> Santhome Hr. Sec. School, Mylapore, Chennai 600 004.
        </UL>
</body>
</html>
```


D:\CS_TestBook_Final\
Attribute of OL tag
File Edit View Favorites Tools Help
Chennai G Hr. Sec. School, Rotler Street, Chennai 600 112.
Karnakata Sanga Hr. Sec. School, T. Nagar, Chennai 600 017.
S.M.B. Jain Hr. Sec. School, T. Nagar, Chennai 600 017.
Chennai G Hr. Sec. School, Nungambakkam, Chennai 600 034.
Chennai G Hr. Sec. School, Saidapet West, Chennai 600 015
Santhome Hr. Sec. School, Mylapore, Chennai 600 004.

Definition List

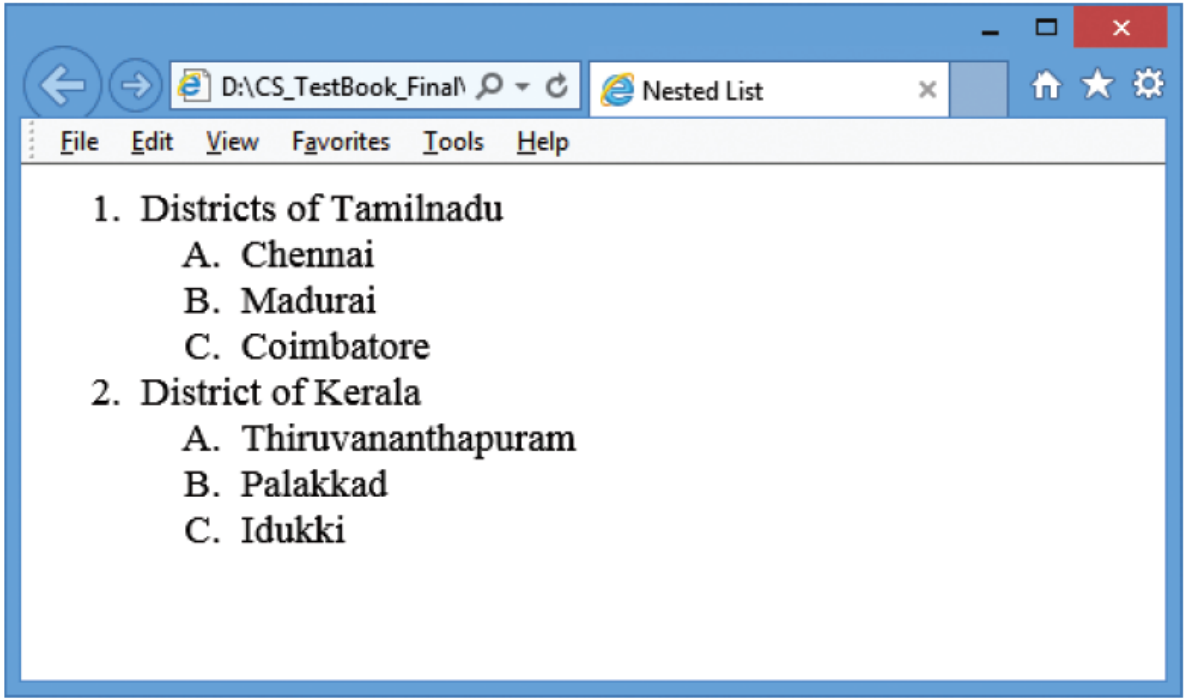
- Definition list is different from other two types of list. No bullet or number is provided for the list items. In this list type, the list element has two parts.
  - A definition term
  - The definition description
- Definition list is surrounded within <DL> ……. </DL> tags.
- Definition term is presented in between <DT> ….. </DT> tag and
- Definition description should be surrounded within <DD> …… </DD> tag.

```
<html>
<head>
<title> Definition List </title>
</head>
<body>
        <DL>
        <DT> HTML: </DT>
                <DD> Hyper Text Markup Language </DD>
        <DT> Webpage:
<DD> A web page is a document that is suitable for the World Wide Web and
web browsers. A web browser displays a web page on a monitor or mobile device.
</DD>
        </DL>
</body>
<html>
```


D:\CS_TestBook_Final\
Definition List
File Edit View Favorites Tools Help
HTML:
Hyper Text Markup Language
Webpage:
A web page is a document that is suitable for the World Wide Web and web browsers. A web browser displays a web page on a monitor or mobile device.

Nested Lists

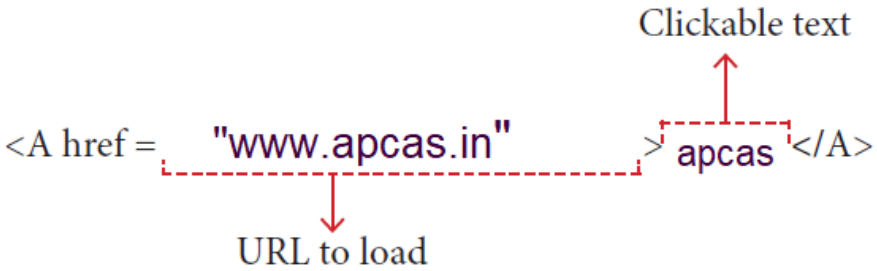

```
<html>
<head>
<title> Nested List </title>
</head>
<body>
<OL>
        <LI> Districts of Tamilnadu
        <UL type=A>
                <LI> Chennai
                <LI> Madurai
                <LI> Coimbatore
        </UL>
        <LI> District of Kerala
        <UL type=A>
                <LI> Thiruvananthapuram
                <LI> Palakkad
                <LI> Idukki
        <UL>
        </OL>
<body>
<html>
```


D:\CS_TestBook_Final\
Nested List
File Edit View Favorites Tools Help
1. Districts of Tamilnadu
A. Chennai
B. Madurai
C. Coimbatore
2. District of Kerala
A. Thiruvananthapuram
B. Palakkad
C. Idukki

Links:

- Link is an important feature of HTML to connect web resources.
- Link in HTML is used to create hyperlinks to web content.
- Web content may be an HTML document or an external webpage or any multimedia content such as an image, video, audio, animation etc., or even a part of the current document.
- There are two important things needs to create a link in HTML,
  - The name of the file or URL to which you want to link
  - The text that will serve as the clickable link.
- The anchor tag **<A>** is used to create links along with **HREF** attribute. HREF is abbreviated as "Hypertext Reference".
- Structure of an anchor tag with href:
- **<A href = " Web content path / URL "> Text – Clickable link </A>**

Example:



- The above link code creates the target of the hyperlink to the website
- https://www.apcas.in. At the time the user clicks the link, the browser opens the home page of the URL.

- **Internal Links:**
  - Creating a link to a particular section of the same document is known as Internal Link.
  - To create an internal like, the attribute Name is used along with <A> tag.
  - The Name attribute of <A> tag establish the link to the content within the document.
- **External Link:**
  - Establish link with an external web page in known as external linking.
  - It is made possible by providing the URL of the external file in the HREF attribute of <A> tag of the current page.

```
<html>
<head>
<title> South India </title>
</head>
<body>
<h1 align = center> South India </h1>
<p> South India is the area encompassing the Indian states of
<A href = #AP> Andhra Pradesh, </A>
<A href = #KR> Karnataka, </A>
<A href = #KL> Kerala, </A>
<A href = #TN> Tamil Nadu </A> and Telangana as well as the union territories of Lakshadweep, Andaman and Nicobar Islands and Puducherry, occupying 19% of India's area (635,780 km2 or 245,480 sq mi). </p>
<A Name = AP><B> Andhra Pradesh </B> </A>
<p> Andhra Pradesh is one of the 29 states of India.  Situated in the south-east of the country, it is the eighth-largest state in India. The largest city in Andhra Pradesh is Visakhapatnam. </p>
<A Name = KR> <B> Karnataka </B> </A>
<p> Karnataka is a state in the south western region of India. It was formed on 1 November 1956, with the passage of the States Reorganisation Act. Originally known as the State of Mysore, it was renamed Karnataka in 1973. The capital and largest city is Bangalore (Bengaluru). </p>
<A Name = KL> <B> Kerala </B> </A>
<p> Kerala is a state in South India on the Malabar Coast. It was formed on 1 November 1956 following the States Reorganisation Act by combining Malayalam-speaking regions. It is divided into 14 districts with the capital being Thiruvananthapuram.</p>
<A Name = TN> <B> Tamilnadu </B> </A>
<p> Tamil Nadu literally 'The Land of Tamils' or 'Tamil Country' is one of the 29 states of India. Its capital and largest city is Chennai (formerly known as Madras). </p>
</body>
</html>
```

South India

South India is the area encompassing the Indian states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana as well as the union territories of Lakshadweep, Andaman and Nicobar Islands and Puducherry, occupying 19% of India's area (635,780 km2 or 245,480 sq mi).

Andhra Pradesh

Andhra Pradesh is one of the 29 states of India. Situated in the south-east of the country, it is the eighth-largest state in India. The largest city in Andhra Pradesh is Visakhapatnam.

Karnataka

Karnataka is a state in the south western region of India. It was formed on 1 November 1956, with the passage of the States Reorganisation Act. Originally known as the State of Mysore, it was renamed Karnataka in 1973. The capital and largest city is Bangalore (Bengaluru).

Kerala

Kerala is a state in South India on the Malabar Coast. It was formed on 1 November 1956 following the States Reorganisation Act by combining Malayalam-speaking regions. It is divided into 14 districts with the capital being Thiruvananthapuram.

Tamilnadu

Tamil Nadu literally 'The Land of Tamils' or 'Tamil Country' is one of the 29 states of India. Its capital and largest city is Chennai (formerly known as Madras).

File Edit View History Bookmarks Tools Help

Links

file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/external link.html

Search

Welcome to

Adhiparasakthi College of Arts and Science,Kalavai

external link - Notepad

File Edit Format View Help

```
<html>
<head>
<title> Links </title>
</head>
<body>
<h1 align=center>
Welcome to <br>
<A href = "https://www.apcas.in">
Adhiparasakthi College of Arts and Science,Kalavai </A>
</h1>
</body>
</html>
```

Inserting Images

- Images are essential element to make an HTML presentation as more attractive manner.
- Moreover images are used to depict many complex concepts in simple way.
- To make more attractive and communicative web pages, images should be added in the appropriate places.
- Images displayed on the web page should be converted to universally supported format.
- Most of the browsers supports, GIF, JPEG and PNG images formats. HTML-5 introduces SVG images.

Inserting Images with HTML document

- The <IMG> tag along with the attribute src (Source) is used to add images in HTML document.
- General format:

  <img src = image_name_with_extension>

  (OR)

  <img src = URL>

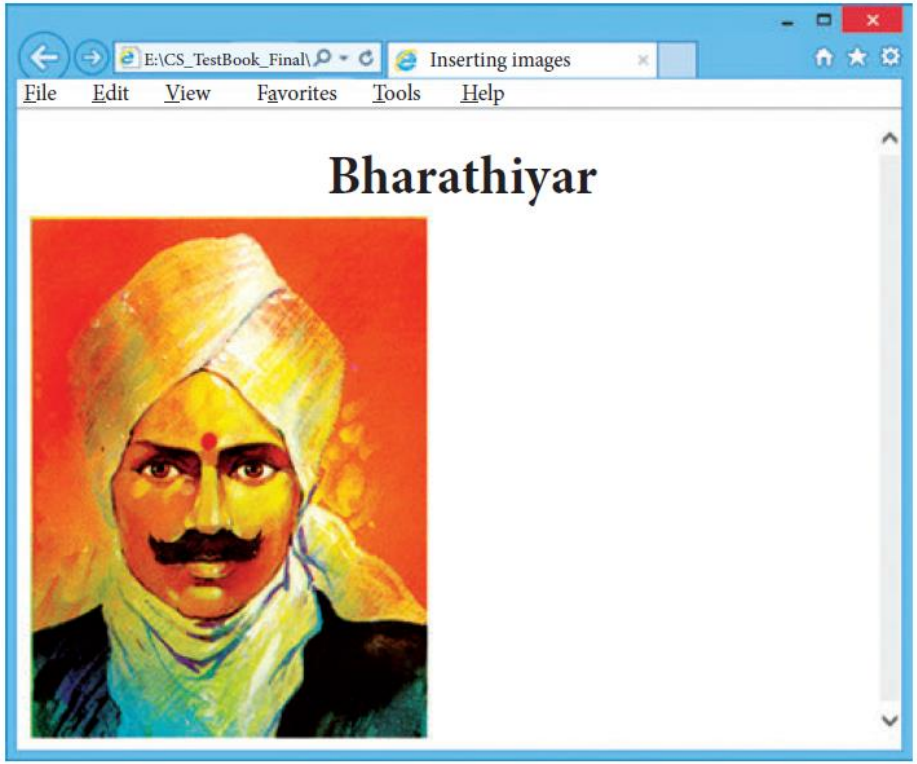
- Example:

  <img src = image1.gif>

- Src attribute is the main attribute used to specify the file name of the image to be inserted. If the image is not in the current working folder, the image file name should clearly specify with the path of the file or URL, where the file is available.
- Example:

  <img src = “D:\images\animals\cat.jpeg”>

```
<html>
<head>
<title> Inserting Images </title>
</head>
<body>
        <h1 align = center> Bharathiyar </h1>
        <img src = bharathiyar.gif>
</body>
</html>
```


E:\CS_TestBook_Final\
Inserting images
File Edit View Favorites Tools Help
Bharathiyar

Other Attributes of <img> tag:

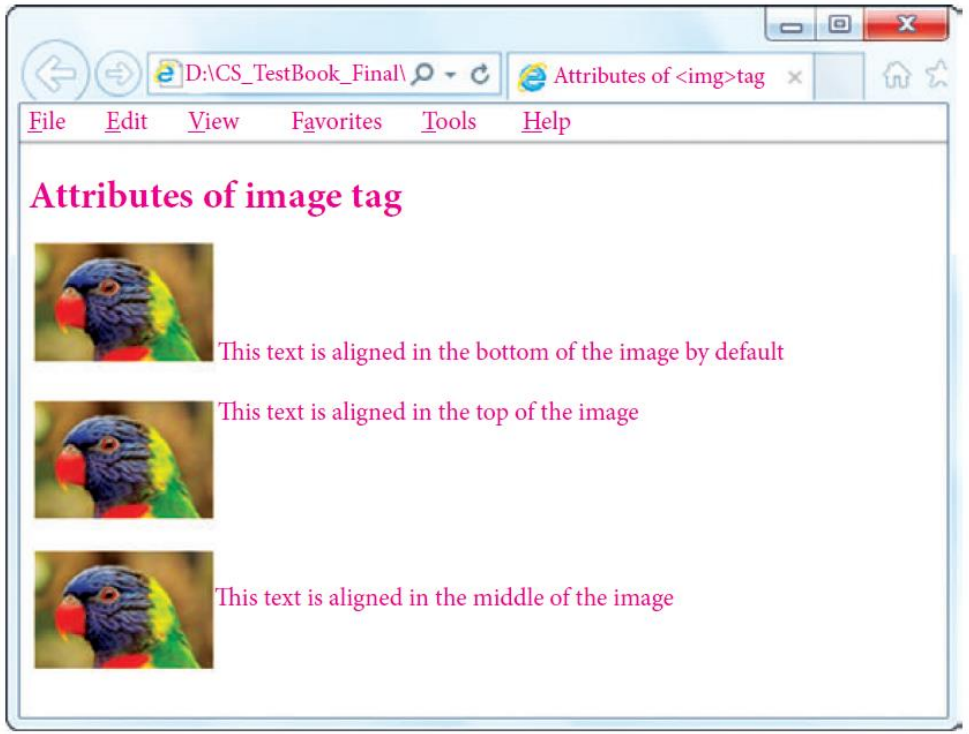
- Other than src, the <img> tag has many attributes the enable to control how the image is presented on the page.
- **Alt (Alternative Text):** The alt attribute within <img> tag is used to describe the image, so that some text is conveyed even when the image cannot be displayed.

  Example: **<img src = bharathiyar.gif alt = "National Poet of India">**
- **Width and Height:** Width and Height attributes are used to set the width and height of an image. The values of these attributes should be either pixels or percentage of its actual size. If these attributes are not specified, the browser displays the image in its original size.
- **Vspace (Vertical Space) and Hspace (Horizontal Space):** Vspace and Hspace attributes are used to set Vertical and Horizontal space between the images.

```
<html>
<head>
<title> Inserting Images </title>
</head>
<body>
<h1 align = center> Mahakavi Bharathi </h1>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20> <br>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20>
<img src = bharathiyar.gif alt = "National Poet of India" Width = 20%  Height = 25%
vpace = 20  Hspace = 20> <br>
</body>
</html>
```

- **Align:** The align attribute used to aligns the image with respect to the base line of the text. This attribute has the following values.
  - **Bottom –** Aligns the bottom of the image with the baseline of the text. This is the default setting.
  - **Middle –** Aligns the middle of the image with the baseline of the text.
  - **Top –** Aligns the top of the image with the baseline of the text.
  - **Left and Right** values of Align attribute:
- Using left and right values with align attribute, displayed the image on the left and right side of the text.

```
<html>
<head>
        <title> Attributes of <img> tag </title>
</head>
<body>
<h2> Attributes of image tag </h2>
        <img src="D:\Images\Bird.jpg" alt="Parrot Image">
        This text is aligned in the bottom of the image by default  <br> <br> <br>
        <img src="D:\Images\Bird.jpg" alt="Parrot Image" align=top>
        This text is aligned in the top of the image <br><br>
        <img src="D:\Images\Bird.jpg" alt="Parrot Image" align=middle>
        This text is aligned on the middle of the image
</body>
</html>
```


D:\CS_TestBook_Final\
Attributes of <img>tag
File Edit View Favorites Tools Help
Attributes of image tag
This text is aligned in the bottom of the image by default
This text is aligned in the top of the image
This text is aligned in the middle of the image

Scrolling text using <Marquee>

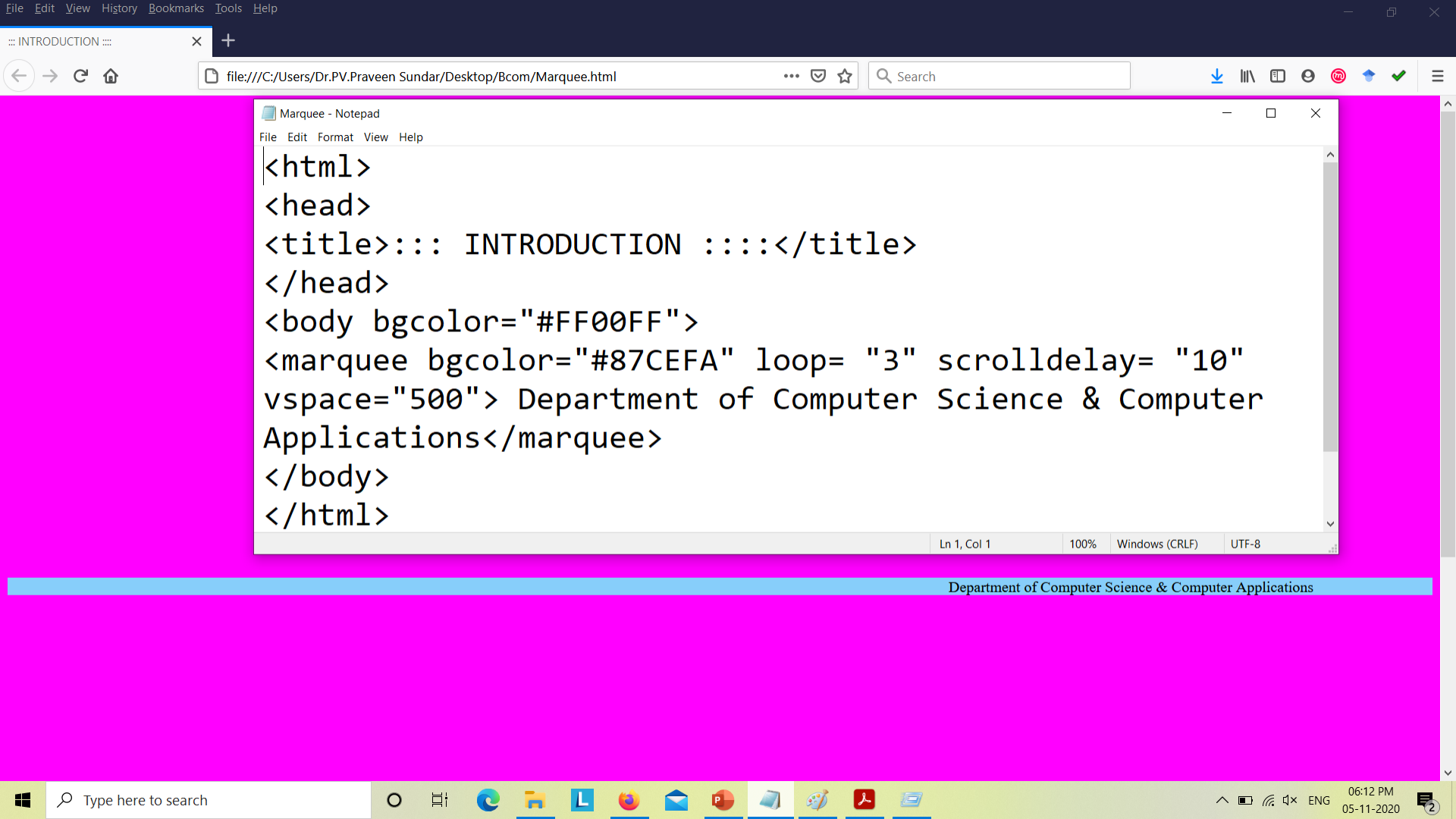
- In HTML, a piece of text or image can be moved horizontally or vertically by using <marquee> tag. This feature makes a web page as more attractive.

General format: **<marquee> Text or image to be scroll </marquee>**

Attributes of <marquee>

- **Height and Width:** These attributes are used to set height and width of the marquee. The values should be either in pixels or in percentage of browser window.
- **Direction:** This is used to specify the direction of the movement of text or image. The text or image will move towards right to left by default. So, the default direction is left. The Possible values are 'up', 'down', 'left' or 'right'.
- **Behaviour:** This attribute is used to specify the type of scrolling. The values are 'scroll', 'slide' and 'alternate'.
- **Scrolldelay:** This attribute is used to define the time delay between each jump. The time unit should be in seconds.

- **Scrollamount:** This is used to define the speed of the scroll.
- **Loop:** This is for defining how many times the marquee element should repeat on the screen. The default value is 'infinite', which means the marquee element scrolls endlessly.
- **Bgcolor:** This is used to specify the background color to the marquee elements.
- **Hspace and Vspace:** This is for defining the horizontal and vertical space around the marquee. The value can be in pixels or percentage.


File Edit View History Bookmarks Tools Help
::: INTRODUCTION ::::
file:///C:/Users/Dr.PV.Praveen Sundar/Desktop/Bcom/Marquee.html
Search
Marquee - Notepad
File Edit Format View Help
<html>
<head>
<title>::: INTRODUCTION ::::</title>
</head>
<body bgcolor="#FF00FF">
<marquee bgcolor="#87CEFA" loop= "3" scrolldelay= "10"
vspace="500"> Department of Computer Science & Computer
Applications</marquee>
</body>
</html>
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8
Department of Computer Science & Computer Applications
Type here to search
ENG
06:12 PM
05-11-2020

FRAMES

- HTML frames are used to divide your browser window into multiple sections where each section can load a separate HTML document.
- A collection of frames in the browser window is known as a frameset.
- The window is divided into frames in a similar way the tables are organized: into rows and columns.
- Frames are used to show one or more html documents in a one window.
- Present documents in multiple views.
- To use frames on a page we use <frameset> tag instead of <body> tag.
- The <frameset> tag defines, how to divide the window into frames.
- The rows attribute of <frameset> tag defines horizontal frames and cols attribute defines vertical frames. Each frame is indicated by <frame> tag and it defines which HTML document shall open into the frame.

Attribute	Value	Description
frameborder	1. (No) 2. (Yes)	Specifies whether or not to display a border around a frame
longdesc	*URL*	Specifies a page that contains a long description of the content of a frame eg: longdesc = "framedescription.htm"
marginheight	*pixels*	Specifies the height of the space between the top and bottom of the frame's borders and its contents.
marginwidth	*pixels*	Specifies the width of the space between the left and right of the frame's borders and the frame's content.
name	*text*	Specifies the name of a frame
noresize	noresize	Specifies that a frame is not resizable
scrolling	Yes, no, auto	Specifies whether or not to display scrollbars in a frame
src	*URL*	Specifies the URL of the document to show in a frame

Eg:1

```
<html>
<title> Frames </title>
<frameset rows="30%,70%">
<frame src="introduction.html"
name="top">
<frame src="hobbies.html"
name="Bottom">
</frameset>
</frame>
</html>
```

Eg:2

```
<html>
<title> Frames </title>
<frameset cols="25%,*,25%">
 <frame src = "nested tables.html" >
<frame src = "tables.html">
<frame src = "hobbies.html">
</frameset>
</html>
```

Advantages and Disadvantages of HTML

Advantages	Disadvantages
1. The first advantage it is widely used. 2. Every browser supports HTML language. 3. Easy to learn and use. 4. It is by default in every window so you don't need to purchase extra software. 5. You can integrate HTML with CSS, JavaScript, php etc.	1. It can create only static and plain pages so if we need dynamic pages then HTML is not useful. 2. Need to write a lot of code for making a simple webpage. 3. Security features are not good in HTML. 4. If we need to write long code for making a webpage then it produces some complexity

POINTS ABOUT HTML:

- HTML is used to create web pages.
- HTML used many tags to make a webpage. So it is a tag-based language.
- The tags of HTML are surrounded by the angular bracket.
- It can use wide ranges of colors, objects, and layouts.
- Very useful for beginners in web designing field.

Monthly savings

Firstname	Lastname	Age
Jill	Smith	50
Eve	Jackson	94

My Favorite Hobbies

Hobbies

1. Listening Music
2. Reading Books
3. Developing Mobile Apps
4. Long drive in Bike
5. Writing blogs in Blogger

"Education is not the learning of facts, but training of the mind to think". - *Albert Einstein.*

Home

index - Notepad

File Edit Format View Help

```
<html>
<title> :::: Header and Footer :::: </title>
<frameset rows="15%,*,40%" frameborder=0 >
<frame src="header.html">
<frameset cols="30%,*,30%">
<frame src="likes.html">
<frame src="dislikes.html">
<frame src="myhobby.html">
</frameset>
<frame src="footer.html">
</frameset>
</html>
```

Ln 12, Col 8 100% Windows (CRLF) UTF-8

Type here to search

ENG 02:34 AM 05-02-2021

About Myself

Date: 06 / 01 / 2020

Likes

1. Natural Places
2. Holy bath in Rivers
3. Time with childrens
4. Shreya Ghoshal Voice
5. Tandoori Dishes

Dislikes

i. Noise
ii. Polution
iii. Irresponsible peoples
iv. Cheating people
v. Smoking

My Favorite Hobbies

Hobbies

- Listening Music
- Reading Books
- Developing Mobile Apps
- Long drive in Bike
- Writing blogs in Blogger

Contact us

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Thank you