

# **CSC 224: Internet Technology I**

## **(2 Credits)**



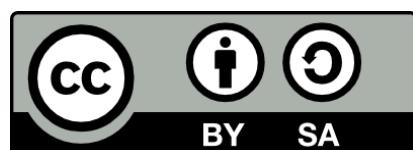
I

Published by the Centre for Open and Distance Learning,  
University of Ilorin, Nigeria

✉ E-mail: codl@unilorin.edu.ng  
🌐 Website: <https://codl.unilorin.edu.ng>

This publication is available in Open Access under the Attribution-ShareAlike-4.0 (CC-BY-SA 4.0) license (<https://creativecommons.org/licenses/by-sa/4.0/>).

By using the content of this publication, the users accept to be bound by the terms of use of the CODL Unilorin Open Educational Resources Repository (OER).



# Course Development Team

## Subject Matter Expert

### **Dr. Akintola Abimbola Ganiyat**

Department of Computer Science  
University of Ilorin, Nigeria

## Instructional Designers

### **Olawale Koledafe**

Center for Open and Distance (CODL)  
University of Ilorin, Nigeria

### **Jibril Mohammed**

Department of Educational Technology,  
University of Ilorin, Nigeria

### **Yusuf Shamsondeen A.**

Department of Educational Technology,  
University of Ilorin, Nigeria

## Language Editors

### **Bankole Ogechi Ijeoma**

Center for Open and Distance (CODL)  
University of Ilorin, Nigeria

# **From the Vice Chancellor**

**C**ourseware development for instructional use by the Centre for Open and Distance Learning (CODL) has been achieved through the dedication of authors and the team involved in quality assurance based on the core values of the University of Ilorin. The availability, relevance and use of the courseware cannot be timelier than now that the whole world has to bring online education to the front burner. A necessary equipping for addressing some of the weaknesses of regular classroom teaching and learning has thus been achieved in this effort.

This basic course material is available in different electronic modes to ease access and use for the students. They are available on the University's website for download to students and others who have interest in learning from the contents. This is UNILORIN CODL's way of extending knowledge and promoting skills acquisition as open source to those who are interested. As expected, graduates of the University of Ilorin are equipped with requisite skills and competencies for excellence in life. That same expectation applies to all users of these learning materials.

Needless to say, that availability and delivery of the courseware to achieve expected CODL goals are of essence. Ultimate attention is paid to quality and excellence in these complementary processes of teaching and learning. Students are confident that they have the best available to them in every sense.

It is hoped that students will make the best use of these valuable course materials.

**Professor S. A. Abdulkareem  
Vice Chancellor**

---

# **Foreword**

**C**ourseware remains the nerve centre of Open and Distance Learning. Whereas some institutions and tutors depend entirely on Open Educational Resources (OER), CODL at the University of Ilorin considers it necessary to develop its own materials. Rich as OERs are and widely as they are deployed for supporting online education, adding to them in content and quality by individuals and institutions guarantees progress. Doing it in-house as we have done at the University of Ilorin has brought the best out of the Course Development Team across Faculties in the University. Credit must be given to the team for prompt completion and delivery of assigned tasks in spite of their very busy schedules.

The development of the courseware is similar in many ways to the experience of a pregnant woman eagerly looking forward to the D-day when she will put to bed. It is customary that families waiting for the arrival of a new baby usually do so with high hopes. This is the apt description of the eagerness of the University of Ilorin in seeing that the centre for open and distance learning [CODL] takes off.

The Vice-Chancellor, Prof. Sulyman Age Abdulkareem, deserves every accolade for committing huge financial and material resources to the centre. This commitment, no doubt, boosted the efforts of the team. Careful attention to quality standards, ODL compliance and UNILORIN CODL House Style brought the best out from the course development team. Responses to quality assurance with respect to writing, subject matter content, language and instructional design by authors, reviewers, editors and designers, though painstaking, have yielded the course materials now made available primarily to CODL students as open resources.

Aiming at a parity of standards and esteem with regular university programmes is usually an expectation from students on open and distance education programmes. The reason being that stakeholders hold the view that graduates of face-to-face teaching and learning are superior to those exposed to online education. CODL has the dual-mode mandate. This implies a combination of face-to-face with open and distance education. It is in the light of this that our centre has developed its courseware to combine the strength of both modes to bring out the best from the students. CODL students, other categories of students of the University of Ilorin and similar institutions will find the courseware to be their most dependable companion for the acquisition of knowledge, skills and competences in their respective courses and programmes.

Activities, assessments, assignments, exercises, reports, discussions and projects amongst others at various points in the courseware are targeted at achieving the objectives of teaching and learning. The courseware is interactive and directly points the attention of students and users to key issues helpful to their particular learning. Students' understanding has been viewed as a necessary ingredient at every point. Each course has also been broken into modules and their component units in sequential order.

At this juncture, I must commend past directors of this great centre for their painstaking efforts at ensuring that it sees the light of the day. Prof. M. O. Yusuf, Prof. A. A. Fajonyomi and Prof. H. O. Owolabi shall always be remembered for doing their best during their respective tenures. May God continually be pleased with them, Aameen.

**Bashiru, A. Omipidan**  
**Director, CODL**

---

# INTRODUCTION

I welcome you to Internet Technology I, a second-semester course. Internet Technology I is a two (2) unit course that provides a general introduction to Internet Technology, covering a brief history of the Internet, how it grew from its humble origins into the worldwide network that is available today, identifying the most popular Internet services such as information retrieval, WWW and communication services.

The relationship between the Internet and the World Wide Web is discussed. The course provides you with comprehensive knowledge on the concepts of Internet Technology, which include its internet architecture and internet protocol. The two most important protocols that allow networks to communicate with one another and exchange information, that is the TCP (Transmission Control Protocol) and IP (Internet Protocol), are also discussed.

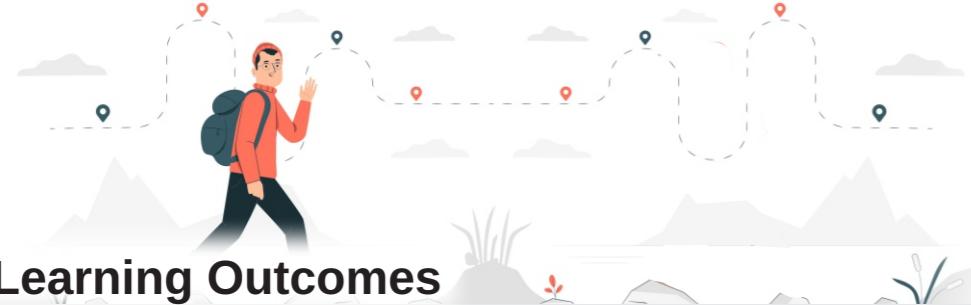
Also, the functions of each layer at the TCP/IP networking model are covered. The brief history of HTML, XML, XHTML and DHTML is addressed. The course also covers in depth, HTML5, CSS and Javascript. The course also discusses the concept of a markup language and how to create web pages using HTML5 elements, CSS and Javascript. the course also discusses other equally important topics like WYSIWYG, Test Editors, including notepad, notepad++ and others.

## Course Goal

The major goal of this course, CSC 224, is to introduce you to the concept of Internet technology and teach you how to develop websites using available technologies.



# WORK PLAN



## Learning Outcomes

At the end of this course, you should be able to:

- I. describe the internet and internet services;

Week 01

- II. State the history and the evolution of Telephony?

Week 02

## Course Information

This is a compulsory course for students in the Departments of Chemistry, Industrial Chemistry, Geology, Mathematics, Computer Science. You are expected to participate in all the course activities and have minimum of 75% attendance to be able to write the final examination

### Pre-requisite



**CSC 319**  
Introduction to Digital Design  
and Microprocessors

- II. explain the internet architecture and its protocols;

Week 03



## Course Guide

### Module 1

#### General Introduction To Internet Technology

**Unit 1** - History of the Internet

**Unit 2** - The Concepts of Internet Technology



### Module 2

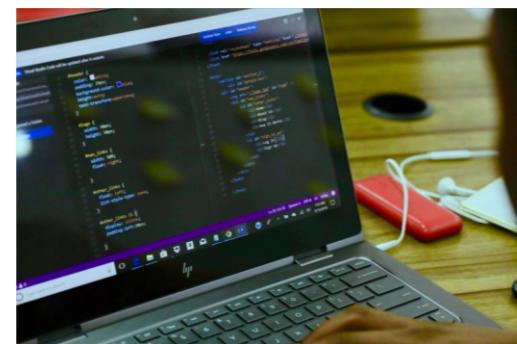
#### Web Page Development

**Unit 1** - HTML, XML, XHTML AND DHTML

**Unit 2** - introduction to HTML5

**Unit 3** - HTML5 elements

**Unit 4** - HTML5 form elements

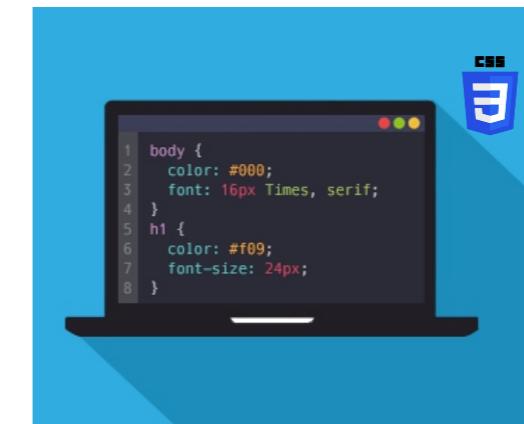


### Module 3

#### Cascading Style Sheets

**Unit 1** - Introduction to Cascading Style Sheets (CSS)

**Unit 2** - Further Implementation of CSS



### Module 4

#### Introduction to JavaScript (JS)

**Unit 1** - Introduction to JavaScript (JS)

**Unit 2** - WYSIWYG and Test Editors



---

# Course Requirements

## Requirements for success

The CODL Programme is designed for learners who are absent from the lecturer in time and space. Therefore, you should refer to your Student Handbook, available on the website and in hard copy form, to get information on the procedure of distance/e-learning. You can contact the CODL helpdesk which is available 24/7 for every of your enquiry.

Visit CODL virtual classroom on <http://codllms.unilorin.edu.ng>. Then, log in with your credentials and click on CSC 224. Download and read through the unit of instruction for each week before the scheduled time of interaction with the course tutor/facilitator. You should also download and watch the relevant video and listen to the podcast so that you will understand and follow the course facilitator.

At the scheduled time, you are expected to log in to the classroom for interaction.

Self-assessment component of the courseware is available as exercises to help you learn and master the content you have gone through.

You are to answer the Tutor Marked Assignment (TMA) for each unit and submit for assessment.

# Embedded Support Devices

## Support menus for guide and references

Throughout your interaction with this course material, you will notice some set of icons used for easier navigation of this course materials. We advise that you familiarize yourself with each of these icons as they will help you in no small ways in achieving success and easy completion of this course. Find in the table below, the complete icon set and their meaning.

		
<b>Introduction</b>	<b>Learning Outcomes</b>	<b>Main Content</b>

		
<b>Summary</b>	<b>Tutor Marked Assignment</b>	<b>Self Assessment</b>
		
<b>Web Resources</b>	<b>Downloadable Resources</b>	<b>Discuss with Colleagues</b>
		
<b>References</b>	<b>Futher Reading</b>	<b>Self Exploration</b>

## Grading and Assessment



TMA



CA



Exam



Total



X



Picture: Set illustration of most common Apps powered by internet technology

Photo: freepik.com

# Module 1

# General Introduction to Internet Technology

## Units

**Unit 1** - History of the Internet

**Unit 2** - The Concepts of Internet Technology





## UNIT 1

# History of the Internet



### Introduction

In this section, it will interest you to know that internet is a worldwide interconnection of computer systems and peripherals for resource sharing, messaging, entertainment and so on. In this unit, you will learn the history of the Internet, the meanings of Internet and WWW, as well as the uses of the Internet.



### Learning Outcomes

#### At the end of this unit, you should be able to:

- 1 Define an Internet
- 2 Give the history of the Internet
- 3 Differentiate between the internet and WWW
- 4 State the different uses of the Internet.



## Main Content

### History of the Internet



1 min

#### Study Tips

ARPANET, was brought online in 1969 and initially connected four major computers at universities in the southwestern US (UCLA, Stanford Research Institute, UCSB, and the University of Utah)

You should note that the idea of the internet was born in the early 1960s by some visionary thinking people when the need to share research information through the use of computer and the development in scientific and military fields rose.

The thinking was that it would be of great value if scientific research information is shared electronically. The proposal of the global network of computers was made by J.C.R. Licklider of MIT in 1962 and he was moved over to the Defense Advanced Research Projects Agency (DARPA) in late 1962 to head the team to develop it.

You should know that a theory known as packet switching which formed the basis of internet connections was developed by Leonard Kleinrock of MIT and later UCLA.

Packet Switching is a mode of data transmission in which messages are broken down to smaller parts before they are sent independently over the available route and are reassembled at the destination.

You should also know that the feasibility of wide-area networking was shown by Lawrence Roberts of MIT when he connected a Massachusetts computer with a California computer in 1965 over dial-up telephone lines.

The packet switching theory was thus confirmed, and Roberts moved over to DARPA in 1966 to develop his plan for ARPANET.

Let me tell you that these visionaries and many more not mentioned here are the real founders of the Internet. You should be aware that the Internet, then known as ARPANET, was brought online in 1969 under a contract led by the renamed Advanced Research Projects Agency (ARPA) which initially connected four major computers at universities in the southwestern US (UCLA, Stanford Research Institute, UCSB, and the University of Utah).

By June 1970, MIT, Harvard, BBN, and Systems Development Corp (SDC) in



01 | Sir Tim Berners-Lee and first World Wide Web page.  
source| Tim Berners Lee/Web



02 | IBM CTSS Compatible time sharing system  
source| IBM



03 | ARPANET interface for Xerox PARC's PDP-10.  
source| Computer History

Santa Monica, California were added. By January 1971, many more were added. After that, the list increased tremendously.

May I let you know that the TCP/IP (Transmission Control Protocol/ Internet Protocol) applies to communication on a network in which the TCP transport is used to deliver data across IP network.

The TCP/IP architecture was first proposed by Bob Kahn at BBN and further developed by Kahn and Vint Cerf at Stanford and others throughout the 1970s led to the maturity of the Internet. It was adopted by the Defense Department in 1980, replacing the earlier Network Control Protocol (NCP) and universally adopted by 1983.

Have it at the back of your mind that in 1986, the National Science Foundation funded NSFNet as a cross country 56 Kbps backbone for the Internet. It was for non-commercial and research uses only. It was sponsored for a decade and was responsible for setting internet rules.

Let me tell you that as the commands for e-mail, FTP,

and telnet were standardized, it became a lot easier for non-technical people to learn to use the nets. It was not easy by today's standards by any means, but it did open up the use of the Internet to more people and in universities in particular.

Other departments besides the libraries, computer, physics, and engineering departments found ways to make good use of the nets, especially to communicate with colleagues around the world and to share files and resources.

Note that while the number of sites on the Internet was small, it was fairly easy to keep track of the resources of interest that were available. However, as more and more universities and organizations along with their libraries connected, the Internet became harder and harder to track.

There was more need for tools to index the available resources. It is important for you that the first effort, other than library catalogs, to index the Internet was created in 1989, as Peter Deutsch and his crew at McGill University in Montreal, created an archiver for ftp sites, which they named Archie. This software would periodically reach out to all known openly available ftp sites, list their files, and build a searchable index of the software. The commands to search Archie were unix commands, and it took some knowledge of unix to use it to its full capability.

In 1991, the first really friendly interface to the Internet was developed at the University of Minnesota. The University wanted to develop a simple menu system to access files and information on campus through its local network.

You should note that in 1989, another significant event took place in making the nets easier to use. Tim Berners-Lee and others at the European Laboratory for Particle Physics, more popularly known as CERN, proposed a new protocol for information distribution.

This protocol, which became the World Wide Web in 1991, was based on hypertext (a system of embedding links in the text to link to other text).

Since the Internet was initially funded by the government, it was originally limited to research, education, and government uses. Commercial uses were prohibited unless they directly served the goals of research and education.

It may interest you to know that this policy continued until the early '90s when independent commercial networks began to grow. It then became possible to route

traffic across the country from one commercial site to another without passing through the government funded NSFNet Internet backbone.

You should also know that Delphi was the first national commercial online service to offer Internet access to its subscribers. It opened up an email connection in July 1992 and full Internet service in November 1992.

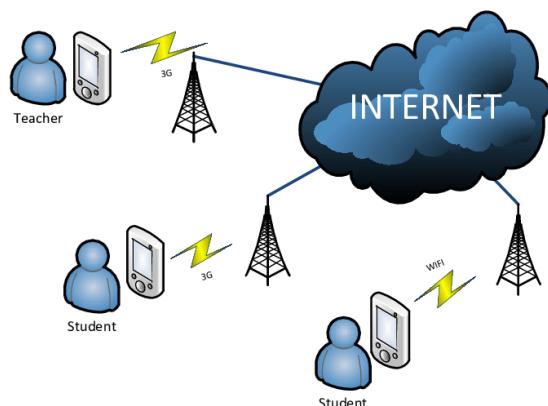
All pretences of limitations on commercial use disappeared in May 1995 when the National Science Foundation ended its sponsorship of the Internet backbone, and all traffic relied on commercial networks.

## Internet

1 min



SAQ 1



You should know that the Internet is a global system of interconnected computer networks that provides a variety of information and communication facilities. It consists of organized networks using a standardized communication protocol.

You should also know that the internet connects millions of private, public, academic, business, and government networks, of local to global scope, linked by a broad array of electronic, wireless and optical networking technologies.

It carries a vast range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail.

## WWW and the Internet

1 mins

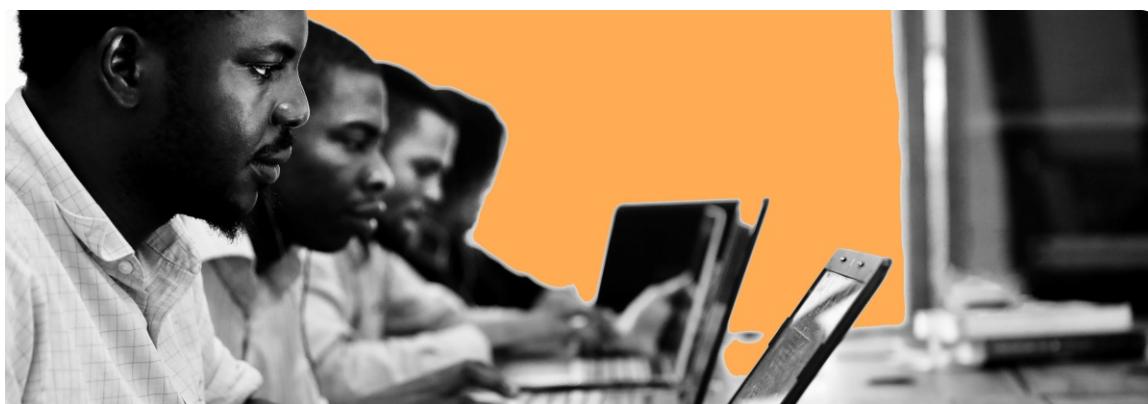


SAQ 3

It is necessary you learn that, the Internet which is the internetwork is frequently mentioned as the Net, and it is the result of interconnecting computer networks with special gateways or routers.

It could also interest you to know that the Internet and World Wide Web can be found in daily language with many people using both interchangeably, and not knowing the difference. Nonetheless, the Internet and the World Wide Web mean different things.

The Internet is a universal data communication of computer systems and peripherals—it has both hardware and software structure that provides connectivity among the resources. May I tell you that the World Wide Web, on the other hand, is one of the services provided over the Internet. It is a collection of interconnected documents and other resources, linked by hyperlinks and URLs.



04

## Services Provided by Internet

Have it at the back of your mind that internet services provide users with a means of access to vast information and different applications. There are three (3) main services provided by the internet, which are:



04 | Sir Tim Berners-Lee and first World Wide Web page.  
source| Tim Berners Lee/Web

- **Information Retrieval Services:** This offers easy access to present information on the internet. It includes file transfer protocol (FTP) which enables users to transfer files, Archie which is used to search files

by its name, and Gopher used to search documents on remote sites.

- **World Wide Web (WWW):** Provides access to different files spread across several servers on the internet. The files usually contain graphics, audio, texts, video and hyperlinks. An example of a WWW application is video conferencing.
- **Communication Service:** This is information interchange among persons or groups. It can be achieved through the use of email, telnet, newsgroup and mailing list.

### Activity 1

#### Services Provided by the Internet

##### Tasks

- Visit any establishment in your locale, observe and note how they use internet for their day-to-day activities. Check the internet connections in the establishment.

Discuss your findings with your colleagues using the course forum in the LMS.



## Uses of the Internet

2 mins



SAQ 2

Here, I will be telling you the various uses of the internet which are as follows:

## **1. Communication:**

I want you to know that the internet can be used to connect with people both far and near. It permits computer users to remotely access other computers and information easily, anywhere in the world. This may be done with or without security in the form of authentication or encryption protocols depending on the communication requirements.

Electronic mails (e-mail), Voice over internet protocol (VoIP), Social Media (Facebook, WhatsApp, Instagram), Blogs and many more are forms of internet communications.

## **2. Education:**

You should also bear in mind that the internet has improved education in numerous ways. The availability of books in different areas of specialization, expert views, online help centres and other learning resources on the internet has made the learning process easier, faster and more fun for diverse people.

Let me say that there are accessible websites targeted at learning available for the users of the internet to learn from. Endless amount of knowledge can be gained from visits to the learning websites. I want you to know that educational materials from pre-school up to post-doctoral are available in different languages and formats.

Apart from the educational resources that can be shared over the internet, the internet has also facilitated educational development through virtual schools, distance learning, as well as other online certification programmes. The internet has facilitated both formal and informal education.

## **3. Leisure and Entertainment:**

Let me emphasize that the users of the internet can amuse themselves in different ways with the time spent online. It provides different ways in which users can unwind and enjoy themselves like playing games, listening to music, chatting, watching movies, and many more. It allows its users to pick any of these activities wherever and whenever.

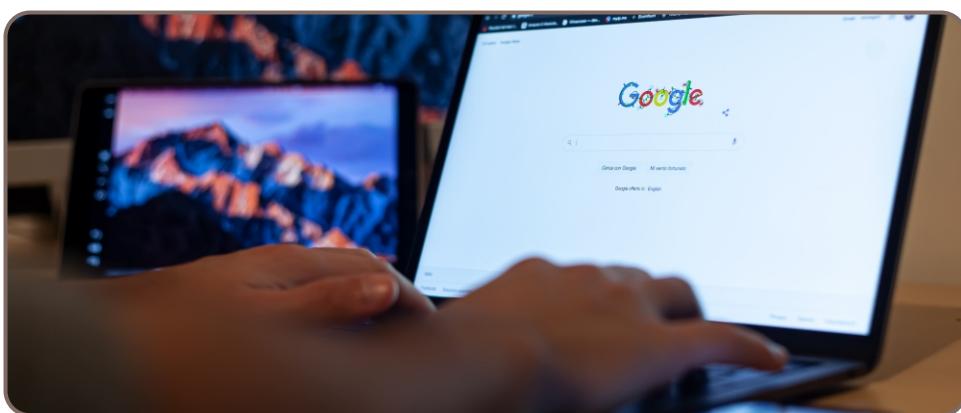
## 4. Flexibility:

You should also know that the era of rigid office hours is no more. The internet allows users to have flexible working hours depending on the organization as well as working from different locations. With the help of the internet, it is possible to work from home, share information, and also collaborate with other industries. An accountant can audit the record of an organization in a different country from the comfort of his home.

## 5. Online Booking:

It will interest you to know that booking can be done in different ways aside from the traditional physical means. It can be done online faster and easier just with a click of the mouse. Online bookings are available for hotel reservations, bus tickets, train tickets, airline booking and others.

You need to know that there are other uses of the internet which include instantaneous sharing of ideas and knowledge, job search, blogging, financial transaction, real-time updates, research, online shopping and so on.



05



05 | using Google for assignment and researches

source| luca-samarco on pexels

06 | online games are forms of leisure and entertainment

source| screen-post on unsplash



06



## •Summary

You have learnt that the Internet is a worldwide connection of computer networks that provides a variety of information and communication facilities. I further explained that World Wide Web is one of the services provided by the internet. Others are email, file transfer, chatting and so on.



### Self-Assessment Questions



1. Define Internet.
2. State five uses of the internet.
3. Differentiate between the internet and WWW.



### Tutor Marked Assessment

- Give the history of the Internet.
- Explain the services provided by the Internet.



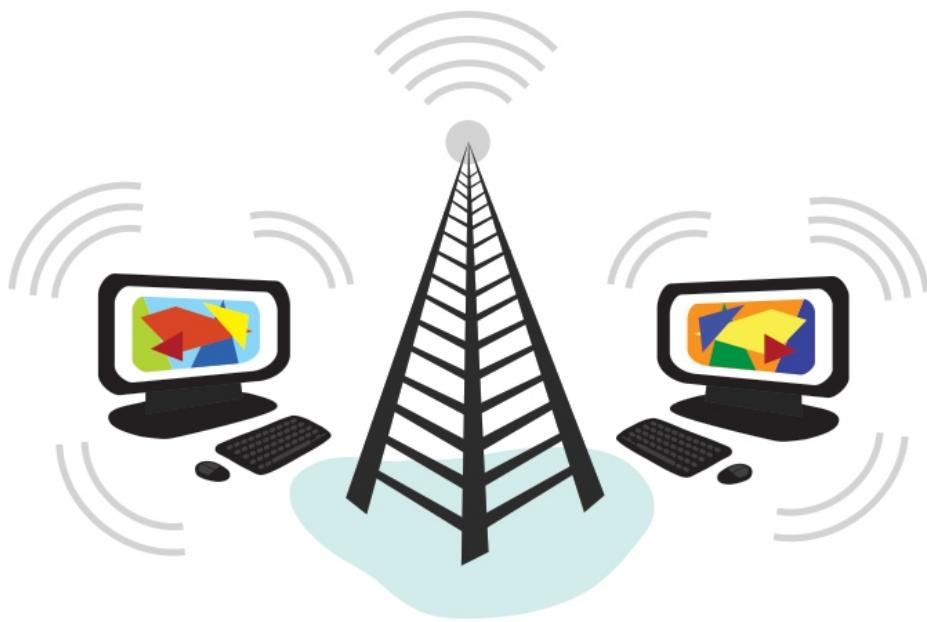
### Further Reading

- [https://www.tutorialspoint.com/internet\\_technologies/internet\\_services.htm](https://www.tutorialspoint.com/internet_technologies/internet_services.htm)
- <https://www.edn.com/electronics-news/4351406/Top-10-uses-of-the-Internet>
- <https://www.edn.com/electronics-news/4351406/Top-10-uses-of-the-Internet>
- <http://top-10-list.org/2013/06/22/top-10-uses-of-internet/>



### References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc



## UNIT 2

# The Concepts of Internet Technology



### Introduction

In this unit, you will learn that the concept of Internet Technology deals with the architecture and transmission protocol used in connecting computer devices and peripherals to communicate with each other. You learn that internet architecture is the connection of communicating devices and the rules or protocol guiding the communication.



### Learning Outcomes

#### At the end of this unit, you should be able to:

- ① Define Internet Architecture
- ② Describe Internet Protocol
- ③ Differentiate between the TCP/IP Layers



## Main Content

### Internet Architecture



3 mins



SAQ 1

**L**et me say that Internet architecture means network arrangement or inter-networking of hundreds of standalone networks connected to share resource using a joint protocol. You should also note that the internet architecture is structured around Transmission Control Protocol/Internet Protocol which is a collection of communication rules used to connect network devices on the internet.

I should point out that the devices on the internet are usually of different inner hardware, software and technical design. You know that communication with TCP/IP is from end to end on the internet once the network is established. This is to facilitate communication of all nodes connected regardless of the location. The unambiguous design of internet architecture has aided its growth from high level to a higher level.

Let us consider that the internet architecture appears like a big tree with many branches. For instance, a person can access the internet from home over a modem to a local Internet Service Provider (ISP) like MTN, GLO, 9mobile to connect to a regional network that is connected to a national network. At work, a work station can be connected to a Local Area Network (LAN) using the organization's connection to a corporate Intranet connected to numerous national Internet Service Providers.

It is important you note that local ISPs connect users to regional networks which connect to national networks that are then connected to large bandwidth networks on the Internet backbone. ISPs usually have several network interconnections in order to provide continuous availability. The internet backbone functions with very high bandwidth networks that are typically supported by governments, corporate bodies, big organizations along with other ISPs.

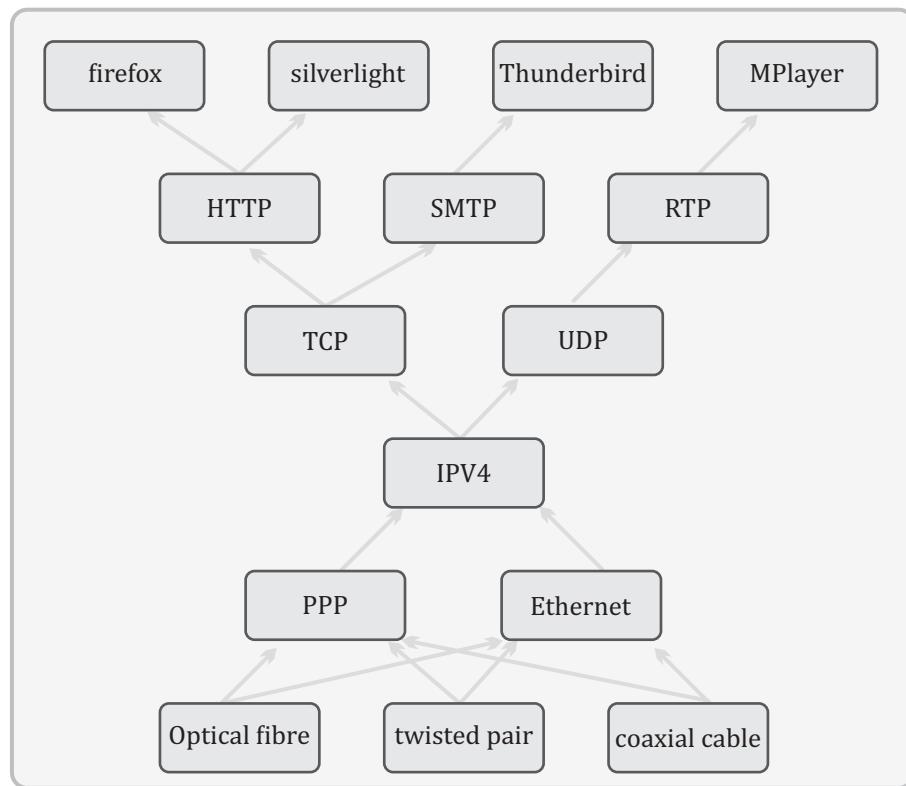


07 | underwater fibre optic sea cables installation  
source| wikicommons

Furthermore, I will like to tell you that the practical setup consists of global connections through underwater cables and satellite links to ensure connection among countries and continents. The backbone includes several packets passing over switches that show non-linear patterns found in analog systems. Communication in the form of packet moves within the Internet networks until it gets to the destination network where the local network is responsible for delivering it to the rightful recipient. It will interest you to know that the price for internet bandwidth is determined by ISPs using different means at a fixed rate for each megabit per second, especially if constant availability is guaranteed.

## Internet Protocol

1 min



**Figure 2:** This illustration of the hourglass Internet architecture shows the six layers, from top to bottom: specific applications, application protocols, transport protocols, network protocols, data-link protocols and physical layer protocols. (Credit: Constantine Dovrolis)



SAQ 2

I want you to know that Internet protocols are a set of rules guiding information sharing on the internet. Communication amongst computer devices and peripherals across several networks is facilitated through the protocols.

It is important you know that there are two major protocols that ensure the cooperation of different networks and interchange of information, namely, Transmission Control Protocol TCP and Internet Protocol IP. They are often regarded as TCP/IP.

May I let you know that the protocol includes File Transfer Protocol FTP, Real-Time Transfer Protocol RTP, Trivial File Transfer Protocol TFTP and so on

# TCP/IP Architecture Model

 | 2 mins

SAQ 2

The TCP/IP model comprises of 4 layers depicted in figure 3 below.

Application	Layer 1
Transport	Layer 2
Internet	Layer 3
Link	Layer 4

Figure 3 TCP/IP layer

## 1. Link Layer:

The Link Layer is the lowest layer of the internet protocol. It is the networking scope of the local network connection in which a host is attached. It is used to move packets between the Internet

Layer interfaces of two different hosts on the same link. It provides reliable transfer of information between two adjacent nodes, Flow control, and creates frames or packets from bits

## 2. Internet Layer:

You need to know that sending packets from one network to another outside the host network is enabled through internet layer. Also, you should note that sending data from one network to another is called routing. Routing can be in two ways;

- Host addressing and identification
- Packet routing

## 3. Transport Layer:

It may interest you to learn that the Transport Layer's duties comprise of end-to-end message transfer abilities irrespective of the underlying network, as well as error control, segmentation, flow control, congestion control, and

application addressing (port numbers).

You should also note that the end-to-end message transmission can be characterized as either a connection-oriented (obtained using Transmission Control Protocol) or connectionless (obtained using User Datagram Protocol (UDP)).

The transport layer can be viewed as a transport. The Transport Layer can be thought of as a transport mechanism, e.g., a vehicle with the responsibility to make sure that its contents (passengers/goods) reach their destination safely and soundly unless another protocol layer is responsible for safe delivery.



I will like you to know that Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) are transport layer protocols. Have it at the back of your mind that the layer offers this service of connecting applications by the use of service ports. It is important you know that since IP offers a lone best-effort delivery, it is the first layer of the TCP/IP model to provide reliable service. TCP provides reliable connection-oriented for applications with a large amount of data transfer at a period while UDP connectionless of applications is not reliable, and delivery of packets is not guaranteed.

#### 4. Application Layer:

I will like you to know that the Application Layer is the topmost level of protocols that is used by most applications for network communication. It is important to note that several standard TCP/IP services and utilities exist in the application layer. Let us consider this examples of application layer protocols including the File Transfer Protocol (FTP) and the Simple Mail Transfer Protocol (SMTP), Telnet, Domain Name System (DNS).

##### Activity 1

##### TCP/IP Architecture Model

###### Tasks

- Observe the network arrangement of different computer devices.

###### Questions

- Describe the network arrangement?





## - •Summary

In this unit, we have discussed the network arrangement of different computer devices and peripherals that could be referred to as computer architecture. You also learnt that the internet architecture is structured around several communication rules known as TCP/IP.

As we discussed earlier, the TCP/IP model comprises of the Link Layer, Internet Layer, Transport Layer, and Application Layer



### Self Assessment Questions



1. Define Internet Architecture.
2. Describe Internet Protocol.
3. Differentiate between the link layer and the internet layer.



### Tutor Marked Assessment

- Define Internet protocol.
- List and explain each layer of the TCP/IP model



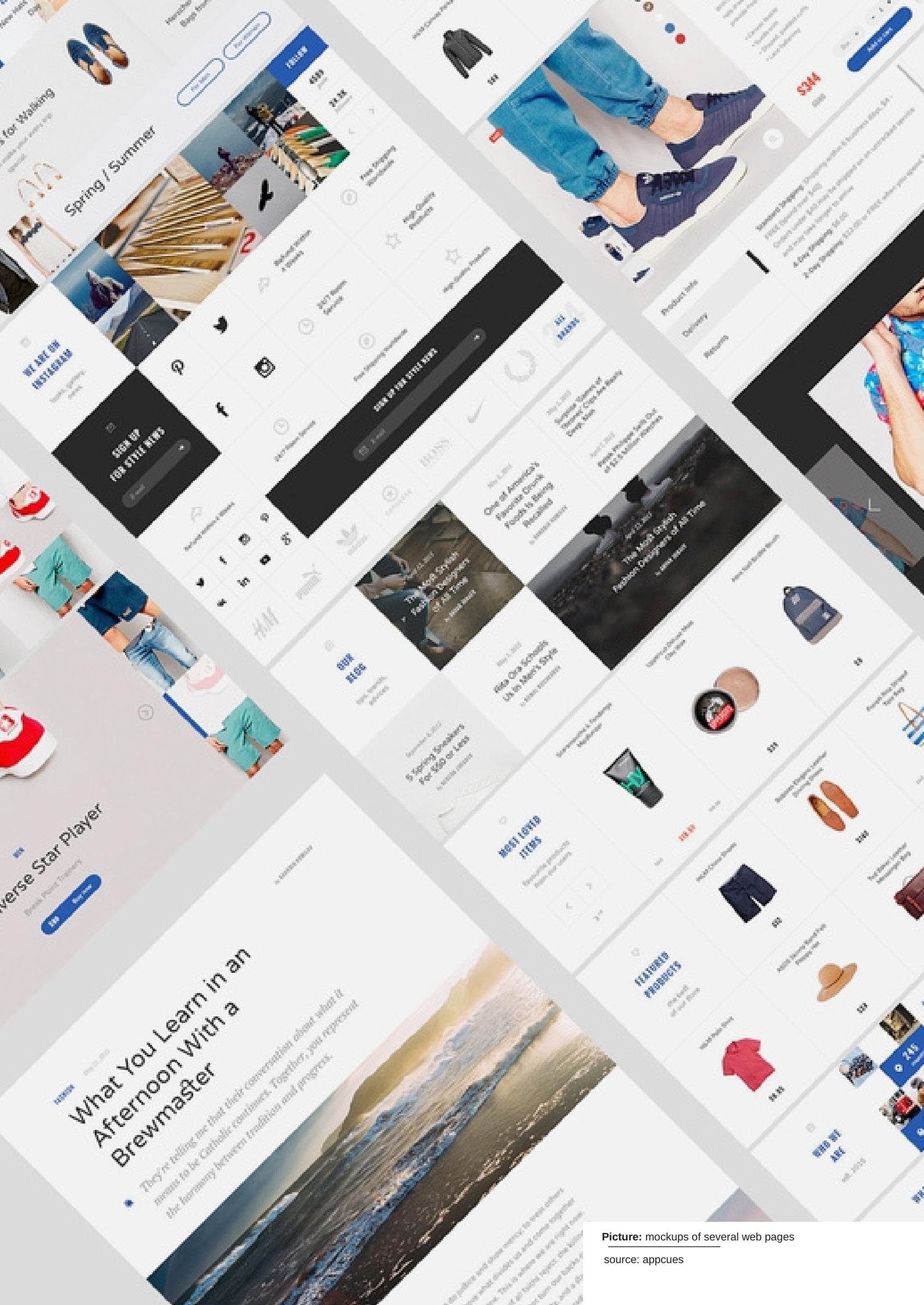
### Further Reading

- [https://www.livinginternet.com/i/iw\\_arch.htm](https://www.livinginternet.com/i/iw_arch.htm)
- <http://home.ubalt.edu/abento/650/reviewInternet/sld005.htm>
- <https://study.com/academy/lesson/application-layer-protocols-type-s-uses.html>
- <http://top-10-list.org/2013/06/22/top-10-uses-of-internet/>



### References

- RFC 3439; R. Bush, D. Meyer; Some Internet Architectural Guidelines and Philosophy; Dec 2002
- RFC 3819; P. Karn, Ed.; Advice for Internet Subnetwork Designers; July 2004
- RFC 3945; E. Mannie, Ed.; Generalized Multi-Protocol Label Switching (GMPLS) Architecture; October 2004



## What You Learn in an Afternoon With a Brewmaster

They're telling me that their conversation about what it means to be Catholic continues. Together, you represent the harmony between tradition and progress.

Picture: mockups of several web pages

source: appcues



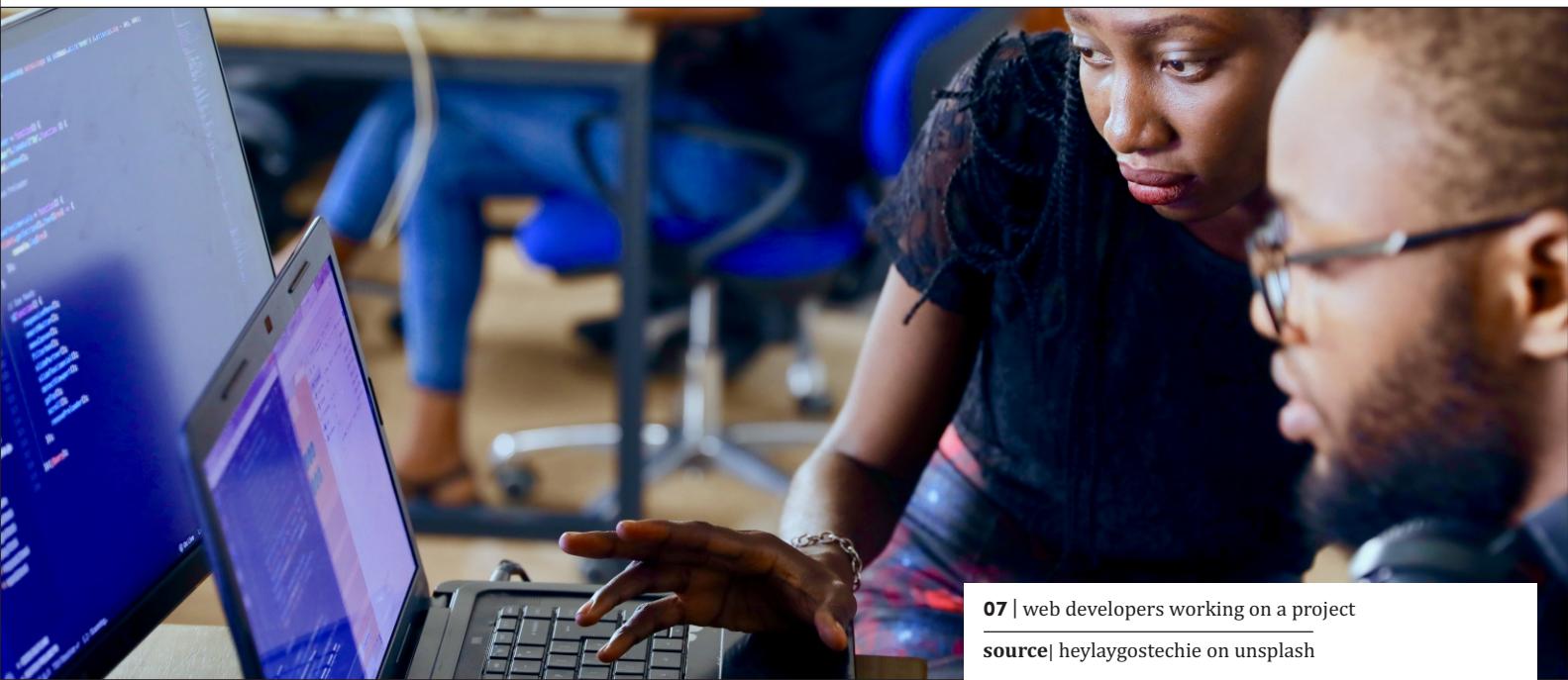
## Module 2

# Web Page Development

## Units

- Unit 1** - HTML, XML, XHTML AND DHTML
- Unit 2** - introduction to HTML5
- Unit 3** - HTML5 elements
- Unit 4** - HTML5 form elements





07 | web developers working on a project

source| [heylaygostechie](#) on unsplash

## UNIT 1

# HTML, XML, XHTML AND DHTML



### Introduction

In this unit, I will give you a brief history of some markup languages like HTML, XML, XHTML, and DHTML. I will also describe the structure of each markup language with simple examples.



### Learning Outcomes

#### At the end of this unit, you should be able to:

- 1 Describe SGML
- 2 Describe HTML
- 3 Differentiate between HTML and DHTML
- 4 Differentiate between XML and XHTML
- 5 Write codes in each of the markup languages

## Main Content

### History of HTML

 5 mins

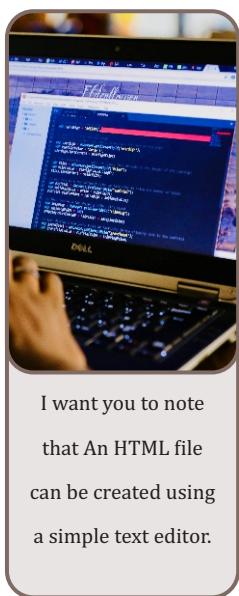


07 | Internet Explorer 1.0 Showing Yahoo.com Homepage (1995)  
source| pcworld.com



**I**t may interest you to know that Hypertext Markup Language (HTML) is a programming language that uses a technique called markup to produce hypertext. A markup language is a set of markup tags. HTML documents are described by HTML tags. Each HTML tag describes different document contents. The markup tags tell the Web browser how to display the page.

It is important you note that the essentials of hypertext were initially proposed by Vannevar Bush in 1945 and formed the basis for the groundwork for Tim Berners-Lee and others to create the World Wide Web, HTML HTTP (HyperText Transfer Protocol) and URLs (Universal Resource Locators) in 1990. HTML was mainly written by Tim Berners-Lee and was aided by his contemporaries at CERN, an international scientific organization based in Geneva, Switzerland. The World Wide Web Consortium is the collection of



individuals responsible for the setting of procedural principles for the Web, and Tim Berners-Lee directs it.

You should also note that HTML is the official language of the World Wide Web; it is used to form documents on the web. I will like you to note that HTML is a product of SGML (Standard Generalized Markup Language). SGML is a complex, procedural specification describing markup languages, particularly the ones used in electronic document exchange, document management, and document publishing. Let me say that HTML was initially invented to permit individuals not specialized in SGML to publish and exchange scientific and other technical documents. The exchange in HTML is achieved by linking documents electronically using hyperlinks which indicate where the name hypertext markup language came from.

You should also bear in mind that the look, structure and layout of the webpage are defined by HTML through the use of its attribute called a tag. HTML tags are majorly responsible for the webpage display. It is important you take note of this Example; A tag is `<p>` which means a paragraph break. The HTML codes are hidden from the viewer, though it is the result that is viewed by the user.

Many recommendations were made by the World Wide Web Consortium to regulate HTML in the '90s, and it signified the official version. Thus the birth of HTML 2.0 in September 1995, HTML 3.2 in January 1997 and HTML 4.01 in December 1999.

## HTML Tags

HTML tags are keywords (tag names) surrounded by angle brackets:

```
<tagnname> content </tagnname>
```

HTML tags normally come in pairs like `<p>` and `</p>`. The first tag in a pair is the start tag; the second tag is the closing tag. The end tag is written like the start tag, but with a slash before the tag name

# HTML Editors

Let me say that for learning HTML, a text editor like Notepad (PC) orTextEdit (Mac) is recommended. Follow the 4 steps below to create your first web page with Notepad.

## Steps

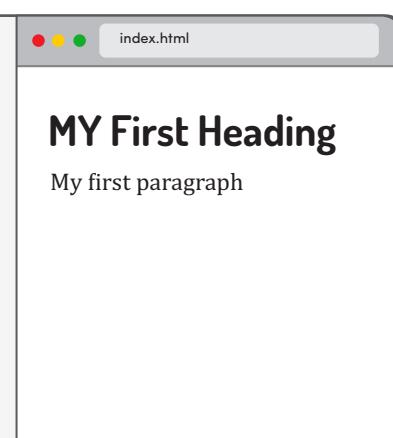
- Step 1: Open Notepad
  - Step 2: Write Some HTML
  - Step 3: Save the HTML Page with the extension .html
  - Step 4: View HTML Page in Your Browser
  - Step 5: Open the saved HTML file in your favourite browser.



## HTML Example

It is important you note that different html tags can be used in developing webpages, example of such are `<p>` , `<br>` , `<h1>` and many more. In a small HTML document:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <h1>My First Heading</h1>
    <p>My first paragraph.</p>
  </body>
</html>
```



### Study Tips

Don't forget that the purpose of a web browser (Opera Mini, Mozilla, Chrome, IE, Firefox, Safari) is to read HTML documents and display them. The browser does not display the HTML tags, but uses them to determine how to display the document:

- Every DOCTYPE statement describes the document type to be HTML, the text in-between `<html>` and `</html>` defines an HTML document.
- The text between `<head>` and `</head>` gives information about the document. This means that information about the webpage should be placed between the opening and closing head tag.
- The text between `<title>` and `</title>` gives a title for the document. Both contents of head and title tags are not directly visible.
- The text between `<body>` and `</body>` defines the content visible to the user of the webpage
- The text between `<h1>` and `</h1>` describes a heading with a size h1. Size can be from h1 to h6
- The text between `<p>` and `</p>` describes a paragraph

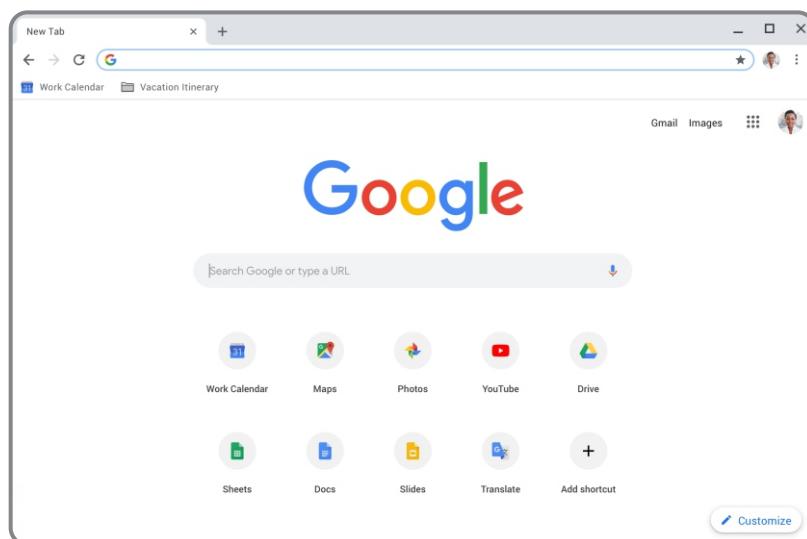
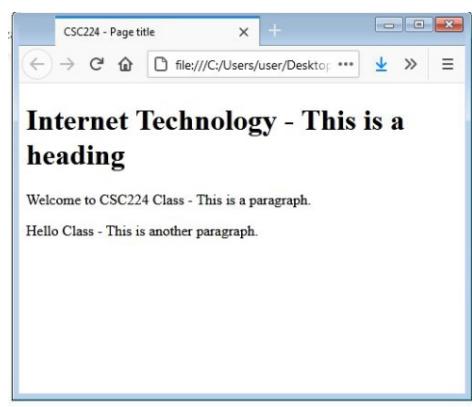


Figure 2.2 Web Browser

```
<html>
  <head>
    <title>CSC224 - Page title </title>
  </head>
  <body>
    <h1>Internet Technology - This is a heading</h1>
    <p>Welcome to CSC224 Class - This is a paragraph.</p>
    <p>Hello Class - This is another paragraph.</p>
  </body>
</html>
```



Note: The browser displays only the <body> area

## History of XML

4 mins

**M**ay I let you know that XML stands for eXtensible markup language. It arose as a means to overcome the weaknesses of SGML and HTML that were both successful markup languages, though limited in some ways.

It is important to note that SGML on its own is an international standard for markup data and has been in existence since the 1980s. It is a very dominant and extensible procedure for semantic markup, which is predominantly suitable for cataloging and indexing data. Similar to XML, SGML can be used to produce an unlimited amount of markup languages though it is complex and expensive for everyday use of the web. Adding SGML capability to a word processor could multiply the price. Lastly, you should note that the commercial browsers do not intend to ever support SGML.

However, you should be aware that HTML is free, easy and generally supported. HTML was initially developed to offer a very easy form of SGML that can be used by ordinary people. You need to know that HTML had some flaws, so discussions started in 1996 about how to develop a markup language that will have the strength and extensibility of SGML though with the ease of HTML. SGML was then sliced, and all the unessential, unused, ambiguous parts were removed, leaving a lean markup engine: XML.

It is very important for you to note that XML's description and requirement was written on a 26 page document compared to 500+ pages of SGML description and requirement. Most importantly, have it at the back of your mind that XML could perform all the good features of SGML. XML has evolved over the years, by the middle of 1997, the eXtensible Linking Language

**Study Tips**

I want you to know that XML enables programmers to create markup for almost any type of information and enable the programmer to define the tag and document structure by allowing tags to interact with one another.

XLL project was underway and by the summer of 1997, Microsoft had launched the Channel Definition Format (CDF) as one of the first real-world applications of XML. I will like you to know that XML, in general, had the following goals: Internet usability, SGML compatibility, reserve, brevity, legibility, general purpose stability, Ease of authoring, Reduction of elective features

XML 1.0 achieved the goals, and the following were outlined

- XML was developed to describe data,
- It is a markup language like HTML
- The tags in XML are not predefined like you have in html. Each user must design his own tags
- XML is a W3C recommendation

It is of great importance for you to know that an XML file contains markup tags and has dot (.) xml extension. It can be edited using Notepad, Pico and other text editors. Web browsers such as chrome, explorer, safari and many more can be used to render it.

**Example**

I will like you to consider this example:  
Write a note from Sade to Tobi and store as XML

```
<note>
  <to>Tobi</to>
  <from>Sade</from>
  <heading>Notice</heading>
  <body>Let us meet this weekend!</body>
</note>
```

Note  
To: Tobi  
From: Sade  
Let us meet this weekend

You should know that the note includes sender's and receiver's information as well as the head and body of the message. XML does not do anything. The information is wrapped in tags.

## Difference between XML and HTML

 | 3 mins

XML	HTML
<ul style="list-style-type: none"> <li>• XML was designed to carry data - with emphasis on what data is</li> <li>• XML tags are not predefined</li> <li>• These tags are "invented" by the author of the XML document. For example &lt;to&gt; and &lt;from&gt;</li> <li>• XML is easily extensible</li> <li>• It simplifies data sharing, data transport, platform changes and data availability</li> </ul>	<p>HTML was designed to display data - with a focus on how data looks</p> <p>HTML tags are predefined</p> <p>HTML works with predefined tags like &lt;p&gt;, &lt;h1&gt;, &lt;table&gt;, etc.</p>



SAQ 2

## History of XHTML

Do you know that XHTML stands for the eXtensible hypertext markup language, and its use is mainly to display contents on webpages. XHTML codes should be marked up rightfully with corresponding tags to form well derived documents. It is important you note that XHTML has passed through many changes since its inception by W3C.

It grew from HTML to oblige a vital resolution on WWW. A lot of pages on the WWW hold what can be regarded as bad HTML. It is said to be because most of the codes have issues like improper opening and closing of tags, attributes may not be properly quoted. Therefore, I will like you to note that XHTML came to being to correct these errors. As such, XHTML provides perfection to existing HTML code by ensuring that all tags are properly closed, properly nested and attributes are quoted appropriately.

It is good you have it at the back of your mind that XHTML codes are more effective and have better usability for webpage visitors.

It is very important you note that XHTML 1.0 was recommended by W3C on January 26, 2000. It was similar to HTML 4.01 but consist of XHTML language rules that users must comply with. The ability to display the content of webpages found in HTML and the ability to markup tags correctly to form documents found in XML were combined to form XHTML. You should also

know that with the introduction of XHTML, web developers had to classify their documents into one of three document types namely, transitional (documents that contain deprecated features), frameset (documents that contain frames and can also contain deprecated features), and strict (documents that contain no deprecated features and no frames).

## Importance of XHTML

It may interest you to know that there are many pages on the internet that contain codes deemed to be “bad” HTML codes. The bad codes work well in almost all web browsers even as they do not trail HTML guiding rules.

```
<html>
  <head>
    <title>This is bad HTML</title>
  <body>
    <h1>Bad HTML
    <p>This is a paragraph
  </body>
```

I want you to know that the code above works fine in almost all web browsers, especially browsers on portable devices like handheld devices, though it contains bad coding style since the tags are not properly closed.

Its important you know that XML is a markup language in which documents must be marked up correctly where every opened tag must be closed appropriately. XHTML was developed by combining the strengths of HTML and XML.

You need to know that XHTML elements must be properly nested, closed, and must be in lowercase. Also, XHTML must have a <!DOCTYPE>

### This is incorrect:

```
<p>This is a paragraph
<p>This is another paragraph
```

### This is correct:

```
<p>This is a paragraph</p>
<p>This is another paragraph</p>
```

### In XHTML

```
<p><i> This text on a new paragraph and italic</i></p>
```

**While in HTML the same can be written in properly without any issue**

```
<p><i> This text on a new paragraph and italic</p></i>
```

Don't forget to note that XHTML attributes must also be in lowercase and the values must be quoted. Attributes cannot be minimized.

**This is incorrect:**



A line break: <br>  
A horizontal rule: <hr>  
An image: 

**This is correct:**



A line break: <br />  
A horizontal rule: <hr />  
An image: 

### XHTML Attribute Names Must Be In Lower Case

**This is incorrect:**



```
<table WIDTH="100%">
```

**This is correct:**



```
<table width="100%">
```

### Attribute Values Must Be in Quotes

**This is incorrect:**

```
<table width=100%>
```

**This is correct:**



```
<table width="100%">
```

## How to Convert HTML to XHTML

You should have it at the back of your mind that HTML codes can be converted to XHTML by following the simple rules of XHTML. The first step is to add <!DOCTYPE> to the first line of the page and xmlns attribute. This is necessary since it is both <!DOCTYPE> and xmlns are mandatory for valid XHTML pages.

I want you to know that all elements' names must be changed to lowercase for valid XHTML, all empty elements should be closed, and all attribute values must be in quotes.

## Validation

Did you know that the process of checking if a webpage follows the required standards of coding is called validation? The validation process provides a means of error detection and ensures that a webpage obeys with the required web rules.

It is also important you know that there is a need to ensure that programmers understand the concept of style. Clearly written codes help to achieve better readability and maintenance.

I want you to know that consistency is also required for spacing, indentation and nesting. Commenting is also an important aspect of coding. Comments provide information about the code to the programmer and future users of the code. It can also be used to deactivate non-working codes instead of deleting it.

### Activity 1

#### HyperText Markup Language

##### Tasks

- You have been employed to design a website for an organization, which of the markup languages would you adopt, and why?



## History of DHTML



1 mins

**I**t is very vital for you to note that Standard Generalized Markup Language (SGML) was approved by the International Standards Organization (ISO) in 1986 for describing and formatting documents. SGML is big, very powerful and was used by enormous organizations that needed high document standards. Data growth was high as the internet grew. I want you to know that since SGML is big and expensive, it could not provide a fast, simple Web publishing.

I want you to bear in mind that the display of data through SGML is boring for the general market of the Internet and HTML was created. HTML is a good tool for publishing small file size documents over the Internet. However, you should be informed that HTML in its traditional form, is not powerful enough to create the interactive and multitude-rich documents that today's commercial web sites demand.

HTML has limitation over the control of page layout. It also cannot specify the exact location of texts and images. The features that HTML lacks can be found in a programming language called JavaScript.

It may interest you to note that DHTML means Dynamic Hypertext Markup Language, and it is the combination of both HTML and JavaScript. The main features of DHTML are real-time positioning of data, dynamic fonts (Netscape Communicator), changing the tags and properties, and data binding (Internet Explorer).

DHTML requires four autonomous mechanisms to work: HTML, Cascading Style Sheets, Scripting and the Document Object Model.



### - •Summary

You have learnt that Hypertext Markup Language (HTML) is a programming language that uses a technique called markup to produce hypertext to display webpages. You also learnt that XML stands for eXtensible markup language. It arose as a means for overcoming the weaknesses of SGML and HTML that were both successful markup languages, though limited in some ways. XHTML came to being to correct HTML errors. As such, XHTML provides perfection to existing HTML code by ensuring that all tags are properly closed, properly nested and attributes are quoted appropriately. Don't forget that I told you that DHTML is the combination of both HTML and JavaScript.



## Self Assessment Questions



1. Describe SGML in detail.
2. Differentiate between SGML and DHTML.



## Tutor Marked Assessment

- Differentiate between HTML and DHTML.
- Differentiate between XML and XHTML.
- List 10 HTML tags and explain their functions.



## Further Reading

- [https://www.google.com.ng/search?ei=EH-PXKarD4HfkXMXqiIAQ&q=sgml+vs+html&oq=sgml&gs\\_l=psy-ab.1.2.0l2j0i20i263j0l7.486728.489547..496032...1.0..2.284.1370.0j6j1.....0....1..gws-wiz.....6..0i71j0i67j0i131j35i39j0i10.FSdRUjJPT4s](https://www.google.com.ng/search?ei=EH-PXKarD4HfkXMXqiIAQ&q=sgml+vs+html&oq=sgml&gs_l=psy-ab.1.2.0l2j0i20i263j0l7.486728.489547..496032...1.0..2.284.1370.0j6j1.....0....1..gws-wiz.....6..0i71j0i67j0i131j35i39j0i10.FSdRUjJPT4s)
- <https://thehistoryoftheweb.com/brief-history-hypertext/>
- <https://www.w3.org/People/Raggett/book4/ch02.html/>
- <http://www.extropia.com/tutorials/xml/history.html/>



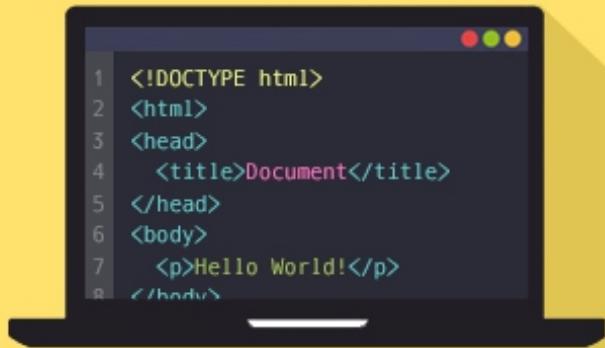
## References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.





# HTML5



## UNIT 2

### INTRODUCTION TO HTML5



#### Introduction

In this unit, you will learn about HTML5. HTML5 initial announcement was in January 2008, and it got a wide browser support. It has since then received some updates to make it better. Though the markup language is still developing, it is an upgrade over its earlier version (HTML) which was a flash application. With the developed HTML5, programmers do not have to take their work to Photoshop environment. I want you to know that a lot of long scripts in HTML have been reduced to a simple tag in HTML5 which makes the work of a programmer simpler. Features like <canvas> for 3D images, <articles> for aimed paragraph makes it supersedes HTML.



#### Learning Outcomes

##### At the end of this unit, you should be able to:

- ① highlight elements of the new html5
- ② describe the structure of html5
- ③ create a table using html5



## Main Content

---

### New HTML5 Elements



1 mins



**I**t is important for you to understand that In HTML5, most of the HTML tags are available and usable with the addition of some new tags. The new elements are Semantic, Control Attributes, Graphics, and Multimedia. Each of these elements has supporting tags associated with it. Lets take this as an example:

Semantic Elements are

<article>, <section>, <header> and <footer>

Control Attributes are date, time, range and calendar.

Graphic Elements are

<svg>, <canvas>

Multimedia elements are

<audio>, <video>

I want you to have it at the back of your mind that apart from the new elements, HTML5 also has some new Application Program Interfaces (API) like the Geolocation, Drag and Drop, Local Storage, and Application Cache. I want you to understand that Although some tags were removed from HTML5 while some were replaced.

For example, <big>, <center>, <basefone>, <font>, <strike>, and <tt> can be access with CSS.

The <object> is used in place of <applet>, <abbr> is used in place of <acronym>.

## HTML5 Structure

4 mins



**L**et me inform you that the DOCTYPE is the first element in the HTML5 structure. It begins every html5 document. Its good you understand that the declaration is a guideline to the web about what variant of codes the page is composed of. It is declared below:

## <DOCTYPE html>



SAQ 2

I want you to know that the doctype declaration is followed by the character encoding (charset) declaration, which also guides the web on available character set. The element <meta charset="UTF-8"> is used. The character set used in html5 is UTF-8. Have it at the back of your mind that the UTF-8 is an 8 bit code unit of character encoding used for encoding all possible characters, code point that is defined by Unicode.

I want us to take this for an example:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Document title</title>
  </head>
  <body>
    content to be displayed
  </body>
</html>
```

## <html> Element

I want you to know that HTML is an opening element of HTML5. It informs the browser that the content of the file is written in HTML. The content is completely wrapped in html tags. The syntax is <html>. The <html> tag is followed by the <head>tag which houses the charset and title tags.

## HTML Meta Tag

Another important aspect I will want you to note is the HTML meta tag which is used for declaring metadata for the HTML record.

```
<meta charset="UTF-8">
```

You should know that the metadata can be used to recover web pages, create pages, report, bring up words and many more.

The Meta charset quality indicates the character encoding for the HTML report. The Meta charset quality could be generally overridden utilizing the lang characteristic on any component. I want you to know that the Meta charset quality is new in Html5, and replaces the requirement for:

```
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
```

### Here is the Syntax for META Tag

```
<meta charset="UTF-8">
<meta name="description" content="Put here your meta description." />
<meta name="keywords" content="Put here keyword separated with comma." />
<meta name="author" content="html5andcss3" />
```

### Example:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <meta name="description" content="Put here meta description." />
    <meta name="keywords" content="Put here keywords" />
    <meta name="author" content="html5andcss3" />
    <title>Title of document</title>
  </head>
  <body>
    Sample Page
  </body>
</html>
```

## BODY Tag

Let me tell you that the body tag comes immediately after the closing head tag `</head>`. You should know that the content within the opening and closing body tag is displayed on the web browser. The body tag is very important to html codes. You should consider it important to note that the tag responsibility is mainly to send messages to the browser about what to display on the web.

### Syntax for BODY Tag

```
<body>
  Content to be displayed on web comes here
</body>
```

## Complete Example

```
<!DOCTYPE html>
<html>
  <head>
    <title>How to use body tag</title>
  </head>
  <b><b>
    Content to be displayed on web comes here
  </b></b>
</html>
```

## Comment Tag <!-- -->

Another important you need to know is that a comment can be a single line statement, or it can span across several lines. When the comment is on a single line, it can be written as:

```
<!--single line comment -->
```

With a space before the start of the comment and a space after.

Comments spanning several lines are written with <!-- and --> on separate lines

```
<!--
  Sample comment spanning more than one line. Sample comment spanning
  more than one line. Sample comment spanning more than one line.
  Sample comment spanning more than one line. Sample comment spanning
  more than one line. Sample comment spanning more than one line.
-->
```

### Example:

```
<!DOCTYPE html>
<html>
  <head>
    <title>How to use body tag</title>
  </head>
  <b><b>
    <!--The code within the comment tag
        will not be displayed by the browser. -->
  </b></b>
</html>
```

## Writing Style and Coding Convention



| 4 mins

**Y**ou should be informed that there are different coding styles available for web developers to use in HTML. I want you to know that some web developers change their coding styles from html to xhtml, where developers must write valid and well-articulated codes. Web developers using html5 are advised to create their own best practice, style guide and coding conventions.

It may interest you to know that one of the best practices is for web developers to maintain a style; single style structure enables others to recognize your work. Also, it is good to always declare the document type at the beginning of the document, i.e. `<!DOCTYPE html>` or `<!doctype html>` for lower case consistency.

### Lowercase or Uppercase?

I want you to know that in html5, lowercase and uppercase elements name can be used interchangeably, though it is recommended to use lowercase. It is easier and more consistent to use lowercase; also, because xhtml enforces lowercase, developers are advised to use lowercase that is widely believed to be cleaner for html5.

#### Example:

Bad Example	Very Bad	Good
<pre>&lt;ARTICLE&gt; &lt;h3&gt;This is an example.&lt;/h3&gt; &lt;/ ARTICLE &gt;</pre>	<pre>&lt;Article&gt; &lt;h3&gt;This is an example.&lt;/h3&gt; &lt;/ ARTICLE &gt;</pre>	<pre>&lt;article&gt; &lt;h3&gt;This is an example.&lt;/h3&gt; &lt;/article&gt;</pre>

### Closing Tag

It may interest you to know that Another coding guide is to ensure all tags used are properly closed. In html5, there is no enforcement on web developers to close all elements used. It is recommended that all tag be closed.

Looking bad	Looking good
<pre>&lt;article&gt; &lt;p&gt;Sample paragraph. &lt;p&gt;Another sample paragraph. &lt;/article&gt;</pre>	<pre>&lt;article&gt; &lt;p&gt; Sample paragraph.&lt;/p&gt; &lt;p&gt; Another sample paragraph.&lt;/p&gt; &lt;/article&gt;</pre>

## Attribute Values

Have it at the back of your mind that although html5 allows attribute values without quotes, it is recommended that developers ensure attributes are quoted. This allows easier readability, cleaner codes and most importantly, attributes that have space in between must be quoted. For example,

<table class=table striped> will not work while the following will work perfectly.

```
<table class="table striped">
```

## Image Attributes

Another important point you need to note is for you to always use the alt attribute with images. It is important when the image cannot be viewed.

```

```

Image size should be defined. It enables the browser to reserve needed space for the image before it is loaded.

## Spaces and Equal Signs

Spaces are allowed to be put around the equal sign:

```
<link rel = "stylesheet" href = "styles.css">
```

But space-less is easier to read, and groups entities better together:

```
<link rel="stylesheet" href="styles.css">
```

### Activity 1

#### Elements of HTML5

##### Task

- Write a complete HTML5 code structure.



## Code Samples



2 mins



SAQ 3

### 1. Create a table with 2 columns and 3 rows.

In creating such table, `<table>`, `<tr>`, and `<th>` tags are used.

```
<table>
<tr>
  <th>Name</th>
  <th>Description</th>
</tr>
<tr>
  <td>A</td>
  <td>Description of A</td>
</tr>
<tr>
  <td>B</td>
  <td>Description of B</td>
</tr>
</table>
```

Name	Description
A	Description of A
B	Description of B

### 2. Create an ordered list

To create ordered list, `<ol>` and `<li>` tags are used.

```
List Example:
<ol>
  <li>London</li>
  <li>Paris</li>
  <li>Tokyo</li>
</ol>
```

- List Example
1. London
  2. Paris
  3. Tokyo

## <html> Element

Write a complete code to display information about famous cities in Nigeria using appropriate tags

```
1.  <!DOCTYPE html>
2.  <html lang="en">
3.    <head>
4.      <title>HTML5 Sample</title>
5.      <meta charset="utf-8">
```

```
6. <style>
7.   body {
8.     font-family: Verdana,
9.     sans-serif;
10.    font-size:0.8em;
11.   }
12.  header,nav, section,article,footer{
13.    border: 1px solid grey;
14.    margin: 5px;
15.    padding: 8px;
16.  }
17.  nav ul {
18.    margin: 0;
19.    padding:0;
20.  }
21.  nav ul li {
22.    display: inline;
23.    margin: 5px;
24.  }
25. </style>
26. </head>
27. <body>
28.   <header>
29.     <h1>HTML5 Sample</h1>
30.   </header>
31.   <nav>
32.     <ul>
33.       <li><a href="html5_semantic_elements.asp">HTML5 Sample</a></li>
34.       <li><a href="html5_geolocation.asp">HTML5 Sample Navigation</a></li>
35.     </ul>
36.   </nav>
37.   <section>
38.     <h1>Famous Cities</h1>
39.     <article>
40.       <h2>Abuja</h2>
41.       <p>Abuja is the capital city of Nigeria. It is located in the middle of the country. The skyline
42. of the city is dominated by the famous Aso Rock which houses the residence and offices of the Nigerian
43. president.
44.       </p>
45.     </article>
46.     <article>
47.       <h2>Lagos</h2>
48.       <p> This is Nigeria's largest economic city. It sprawls inland from the Gulf of Guinea across
49. Lagos Lagoon, Victoria Island. It is known for its popular beach and resorts.
50.       </p>
51.
52..
```

```
53 </article>
54 <article>
55     <h2>Portharcourt</h2>
56     <p>It is the capital and largest city in River State, Nigeria. It lies along The Bonny
57         Island River and is located in the Niger Delta.
58     </p>
59 </article>
60 </section>
61 <footer>
62     <p>&copy; CSC 224 Class. All rights reserved.</p>
63 </footer>
64 </body>
65 </html>
66
67
```



HTML5Sample.html

## HTML5 Sample

[HTML5 Sample](#) [HTML5 Sample Navigation](#)

### Famous Cities

#### Abuja

Abuja is the capital city of Nigeria. It is located in the middle of the country. The skyline of the city is dominated by the famous Aso Rock which houses the residence and offices of the Nigerian president.

#### Lagos

This is Nigeria's largest economic city. It sprawls inland from the Gulf of Guinea across Lagos Lagoon, Victoria Island. It is known for its popular beach and resorts.

#### Portharcourt

It is the capital and largest city in River State, Nigeria. It lies along The Bonny Island River and is located in the Niger Delta.

© CSC 224 Class. All rights reserved.



## - •Summary

Upon completing this unit, I am sure you have learnt some of the new elements in html5 like `<article>`, `<section>`, `<header>` and `<footer>`. These element makes coding simpler and cleaner. You have also learnt the structure of html5 from the document type declaration to the html declaration, character set, the head, title of the page and the body which contains the part of the code to be displayed by the web browser. Creation of table, ordered list are some of the examples highlighted.



## Self Assessment Questions



1. List five (5) elements of the new html5.
2. Describe the complete structure of html5 from document declaration to body.
3. Create a table using html5 with 3 rows and 2 columns.



## Tutor Marked Assessment

- Write short notes on bad and good coding styles.
- Write a complete html5 code to showcase 3 courses of your choice.



## Further Reading

- [www.oreilly.com/library](http://www.oreilly.com/library)
- <https://www.lifewire.com/why-use-semantic-html-3468271>
- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/aside>
- <https://www.w3schools.com/>



## References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.

# HTML 5

## Basic Elements

### UNIT 3

## HTML5 ELEMENTS



### Introduction

In this unit, you will learn HTML5 elements which include several new elements that differentiate it from html. I want you to know that the elements are listed and described. They are semantic tags, graphic tags to display images on the web, media tags for audio/video files, and input tags.



### Learning Outcomes

#### At the end of this unit, you should be able to:

- ① list 10 html5 new elements.
- ② describe the use of each element.
- ③ identify the importance of html5 semantic elements.



## Main Content

### New Elements



2 mins



SAQ 1

I want you to consider that the new elements in html5 are elements to handle today's web needs best, and they include elements for drawing illustrations, rendering media files, dynamic representation of page structure, more API's such as geolocation. I want you to critically examine this table below which shows some elements with their respective descriptions.

Tag	Description	Tag	Description
<article>	Defines an article in the document	<footer>	Defines a footer for the document or a section
<aside>	Defines content aside from the page content	<header>	Defines a header for the document or a section
<bdi>	Defines a part of the text that might be formatted in a different direction from other text	<main>	Defines the main content of a document
<details>	Defines additional details that the user can view or hide	<nav>	Defines navigation links in the document
<dialog>	Defines a dialogue box or window	<mark>	Defines marked or highlighted text
<figcaption>	Defines a caption for a <figure> element	<meter>	Defines a scalar measurement within a known range (a gauge)
<figure>	Defines self-contained content, like illustrations, diagrams, photos, code listings, etc.	<progress>	Defines the progress of a task

Tag	Description	Tag	Description
<menuitem>	Defines a command menu item that the user can invoke from a popup menu	<section>	Defines a section in the document
<rp>	Defines what to show in browsers that do not support ruby annotations	<summary>	Defines a visible heading for a <details> element
<rt>	Defines an explanation/pronunciation of characters (for East Asian typography)	<time>	Defines a date/time Defines a possible line-break
<ruby>	Defines a ruby annotation (for East Asian typography)	<wbr>	Defines a possible line-break

## New Form Elements



2 mins



SAQ 1



SAQ 2

Tag	Description
<datalist>	Defines pre-defined options for input controls
<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation

## Input Elements

It is important for you to note that the input elements are used to enter information on the web pages by the developers. The elements are:

New Input Types	New Input Attributes
colour	autocomplete
date	autofocus
datetime	form
datetime-local	formation
email	formenctype
month	formmethod
number	formnovalidate
range	formtarget
search	height and width
tel	list
time	min and max
url	multiple
week	pattern (regexp)
	placeholder
	required
	step

## HTML5 – New Attribute Syntax



| 1 min



SAQ 3

I want you to know that HTML5 allows 4 different syntaxes for attributes. All four can be used depending on what they are meant for. I want you to note that the value may not be quoted if it is a single value, but once space is involved, attribute values are quoted to ensure validity. The example below shows the different syntaxes used in an `<input>` tag:

Type	Example
Empty	<code>&lt;input type="text" value="Pam Dame" disabled&gt;</code>
Unquoted	<code>&lt;input type="text" value=Pam&gt;</code>
Double-quoted	<code>&lt;input type="text" value="Pam Dame"&gt;</code>
Single-quoted	<code>&lt;input type="text" value='Pam Dame'&gt;</code>

## HTML5 Graphics

Two graphics tags can be used by web developers, as shown below:

Tag	Description
<canvas>	Defines graphic drawing using JavaScript
<svg>	Defines graphic drawing using SVG

## Media Elements

The media elements are used by web developers for audio and video files, as shown below:

Tag	Description
<audio>	Defines sound or music content
<embed>	Defines containers for external applications (like plug-ins)
<source>	Defines sources for <video> and <audio>
<track>	Defines tracks for <video> and <audio>
<video>	Defines video or movie content

## HTML5 Semantic Elements



You should be aware that semantics refers to the meanings of words and phrases in any language. I want you to understand that this applies to semantic elements as they are elements used to define meanings to both

**Study Tips**

It is important for you to note that some web pages contain HTML code like:

```
<div id="nav">
<div class="header">
<div id="footer">
```

to specify navigation, header, and footer.

the browser and the developer. It implies that they are elements with meaning. Some of these elements have a predefined location on the web page once they are used.

Examples are header, footer, aside tags and many more. Contents within the header tag will be displayed, at the top to the web page and footer will be displayed at the bottom. Semantic elements are elements with meanings.

**Examples of non-semantic elements:**

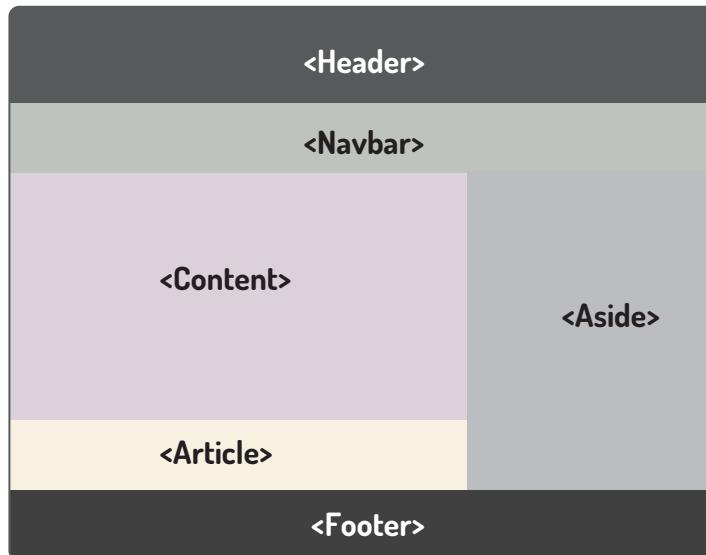
<div> and <span> - Does not describe the contents within it.

**Examples of semantic elements:**

<form>, <table>, and <img> - this describe the content within it.

HTML5 offers new semantic elements to define different parts of a web page:

<article>, <aside>, <details>, <figcaption>, <figure>, <footer>, <header>, <main>, <mark>, <nav>, <section>, <summary>, <time>, <time>



## HTML5 <section> Element

I want you to know that the <section> element defines a segment in a document. It can be grouped into several subsections. It is important for you to note that a web page can be divided into sections for introduction, main contents, advert, about information and many more.

Example

```
<section>
<h2>CSC224</h2>
<p>Welcome to CSC 224 class. It promises to be ....</p>
</section>
```

## HTML5 <article> Element

Try to understand that the <article> element defines independent, self-contained content. An article should have its independent meaning that can be read without distraction from the rest of the page. <article> can be found on a forum post, blogs, online news pages.

Example

```
<article>
<h1>CSC 224 Course Content?</h1>
<p>The internet is a worldwide interconnection of computer
systems and peripherals for resource sharing, messaging,
entertainment and so on..
</p>
</article>
```

## Nesting Semantic Elements

I want you to understand that the HTML5 standard, the <article> element defines a complete, self-contained block of related elements. The <section> element is defined as a block of related elements.

The section and article elements can be used interchangeably, on the Internet, you will find pages with <section> elements containing <article> elements, and <article> elements containing <sections> elements.

**Study Tips**

The `<header>` element should be used as a container for introductory content.

There can be several `<header>` elements in one document.

Also pages with `<section>` elements containing `<section>` elements, and `<article>` elements containing `<article>` elements can be found.

## HTML5 `<header>` Element

I want you to know that the `<header>` element defines a header for a document or section just the way you have a header in other document types. The following example defines a header for an article:

### Example

```
<article>
  <header>
    <h1> The land of twins </h1>
    <p>Igbo-Ora</p>
  </header>
  <p> West Africa has about four-time higher number of twins in the whole
      world. It is a known fact that a village in the southwest part of Nigeria
      called Igbo-Ora has more twins born than anywhere else in the whole
      world. Though, the reason is not known to anyone.
  </p>
</article>
```

## HTML5 `<footer>` Element

The `<footer>` element is another important thing I want you to bear in mind which is like a page footer of any document where you find information relating to the main document. A `<footer>` element is like a section at the bottom of a page. Footer usually contains the date, document author(s), copyright information, links to terms of use, contact information. There can be more than one footer element in a document.

### Example

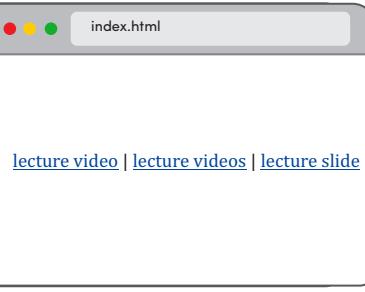
```
<footer>
  <p>&copy; CSC 224, University of Ilorin</p>
  <p>Contact information:
    <a href="mailto:csc224@unilorin.edu.ng"></a>
  </p>
</footer>
```

## HTML5 <nav> Element

The <nav> element is another thing I will want you to know which is used to define navigation links. The <nav> element is used when there is a large block of navigation links to be displayed. However, it is not a must to put all links of a document inside a <nav> element!

```
<nav>
<a href="/lecture notes/">lecture video</a>|
<a href="/lecture videos/"> lecture videos </a>|
<a href="/lecture Slides/"> lecture Slides </a>|
<a href="/help/">help</a>
</nav>
```

● ○ ● index.html



### Activity

#### Semantic Elements of HTML5

##### Tasks

- Your local government chairman has consulted you to design a webpage for your local government area.
- Using html5 semantics, design a web page describing the cultural heritage of your local government. Ensure to include sections, articles, asides, captions and footer appropriately?



## HTML5 <aside> Element

The <aside> element is a semantic element you need to understand that defines a portion of the document whose content is not directly related to the main document contents (like a sidebar). The aside content should be related to the surrounding content.

**Example**

```
<p>The class went on excursion to Igbo-Ora</p>
<aside>
  <h4>Igbo-Ora</h4>
  <p>Igbo-Ora is a town in southwest Nigeria known to have the highest
  number of twin births.
</p>
</aside>
```

**HTML5 <figure> and <figcaption> Elements**

You should be informed that captions and images are popular in web development as well as books and newspapers for descriptive representation of subjects. I want you to know that the major aim of the <figure> element is to add a pictorial explanation.

The <figcaption> is used to label the image. It is necessary to label each caption to have a meaning of the caption at a glance. With HTML5, images and captions can be grouped together in <figure> elements:

**Example**

```
<figure>
  
  <figcaption>
    Fig1. – Igbo-Ora
  </figcaption>
</figure>
```



Fig1. – Igbo-Ora

The <img> element defines the image, the <figcaption> element defines the caption

**Need for Semantic Elements**

With the earlier version of html, I want you to bear in mind that the contents cannot be easily searched on the web, because developers used their own

attributes. With the introduction of html5 semantic elements like `<header>` `<footer>` `<nav>` `<section>` `<article>` and others, it became easy for search engines to locate contents. It also encourages data sharing and reuseability across multiple applications, enterprises and communities.



## - • Summary

With what I have taught you so far in this unit, you have learnt that HTML5 elements include several new elements that differentiate it from html. The new element contains semantic element, form element, and the input element such as `<article>`, `<aside>`, `<details>`, `<figcaption>`, `<figure>`, `<footer>`, `<header>`, `<main>`, `<mark>`, `<nav>`, `<section>`, `<summary>`, `<time>`.



## Self Assessment Questions



1. List five html5 new elements.
2. state the use of each element listed in (i) above.
3. List 3 importance of html5 semantic elements.



## Tutor Marked Assessment

- I want you to use html5 semantic elements to create a web page describing your home town. Ensure to include sections, articles, asides, captions and footer appropriately.



## Further Reading

- [www.oreilly.com/library](http://www.oreilly.com/library)
- <https://www.lifewire.com/why-use-semantic-html-3468271>
- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/aside>
- <https://www.w3schools.com/>



## References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.



## UNIT 4

# HTML5 FORM ELEMENTS



### Introduction

Do you know that HTML5 form elements are elements used in developing forms in a web document? Forms are used to display information, get user input and to output result of a process. I want you to know that select element is an example of an input form element that is used to pick from an option.

Textarea and text element provide rows and columns of fields for the user to input text. The number element is used to input numbers, and the output element can display the result of a process. Video, audio, keygen are some of the other available form elements.



### Learning Outcomes

At the end of this unit, you should be able to:

- ① develop a form with dropdown list.
- ② develop a form with textarea for user comments.
- ③ develop a form using keygen.

## Main Content

# HTML5 Form Elements

2 mins



I want you to understand that several forms are available on the web for users to fill to fulfil a particular mission. It is of good note to you to know that different elements that can be used to create web forms are described in this section.

## The <input> Element

The <input> element is first of many important form elements I will want you to know. it is a popular form of element that can be found in almost all form documents. You should also know that different attributes can be attached to the <input> element depending on the purpose of creating it. The element's sole purpose is to serve as a way to input or key in user information or response to a question in a web document.

It will interest you to know that the input can be in the form of select (user pick from a drop-down list), text area (user type text), option (to pick from a variety), radio button, check button and others.

## The <select> Element (Drop-Down List)

2 mins

The <select> element is another element I will want you to note. It describes a drop-down list. It creates available options where the user can pick from

```
<select name="Football Clubs">
    <option value="MFM">MFM</option>
    <option value="Rangers">Rangers</option>
    <option value="Eyimba">Eyimba F C</option>
    <option value="Wikki FC">Wikki FC</option>
    <option value="ABS FC">ABS FC</option>
</select>
```

The screenshot shows a web browser window with the title 'index.html'. Inside, there is a dropdown menu. The visible part of the menu shows 'MFM' as the selected option, which is highlighted with a blue background. Below it, the other options are listed: 'Rangers', 'Enyimba FC', 'Wikki FC', and 'ABS FC'. The rest of the menu is cut off by a vertical ellipsis.

The `<option>` elements which define the options to select is another element I will like you to know. The first element is selected as default item in the group. A selected attribute can be defined to highlight the predefined option instead of using default.

I want us to take this as an example

```
<option value="Eyinmba" selected>Eyinmba</option>
```

### Input Type: text



`<input type="text">` as we are going further, I want you to also know input type which defines a one-line input field for text input in web documents. It allows the user to input text within the one line defined.

The screenshot shows a browser window titled "index.html". Inside the window, there are two text input fields. The first field is labeled "First name:" and the second is labeled "Street Address:". Both fields are empty.

```
<form>
  First name:
  <input type="text" name="firstname">
  <br><br>
  Street Address:
  <input type="text" name="Street Address">
</form>
```

### The `<textarea>` Element



SAQ 2

I want you to note the `<textarea>` element. it defines a multi-line input field (a text area) that the user can use to pass information such as comments, suggestions and others. The web developer can create the maximum number of columns and rows that the user cannot exceed.

The screenshot shows a browser window titled "index.html". Inside the window, there is a text area containing the text "There are many football clubs in Nigeria.".

```
<textarea name="information" rows="10" cols="30">
  There are many football clubs in Nigeria.
</textarea>
```

## Input Type: password



| 1 min

let me say that <input type="password"> defines a password field. You need to understand that the element provides a form of security where the input is masked to prevent intruders or spies from identifying the characters being typed. The characters are displayed on the document using the asterisks or the circles.

```
<form>
  Email Address:<br>
  <input type="text" email="email address">
  <br>
  password:<br>
  <input type="password" name="psw">
</form>
```

index.html

Email address:

Folake@wao.com

Password:

## The Button

**1 min** | 

The <button> element is another thing I will want you to bear in mind. it defines a clickable button that the user can click to indicate the desired choice or to perform an action.

```
<button type="button"
  onclick="alert ('How do you do?')"
>
  Click Me!
</button>
```

index.html

This site says...

how do you do

ok

Click me!

It is good you know that the single line code creates a button that is clickable, upon clicking the button; an alert box is displayed that shows a message. The button can be used for different purposes in web development like submit, login and so on.

## <datalist> Element

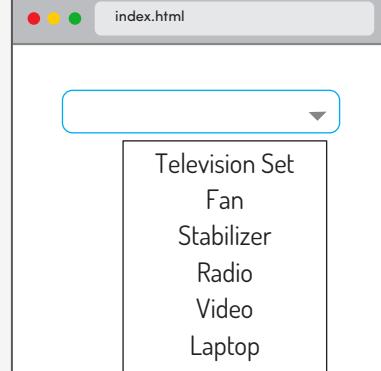


| 1 min

Try to understand that the <datalist> element defines a list of pre-defined options for an <input> element. I want you to also know that users will see a drop-down list of pre-defined options to use as input into the document.

Though the `<datalist>` element is similar to `<select>` element, they are different. The list attribute of the `<input>` element in `<datalist>`, must refer to the id attribute of the `<datalist>` element and the look on the browser is different. The `<datalist>` element does not select any of its dropdowns as default. The default is blank.

```
<form action="action_page.php">
    <input list="Appliances">
    <datalist id="Appliances">
        <option value="Television Set">
        <option value="Fan">
        <option value="Stabilizer">
        <option value="Radio">
        <option value="Video">
        <option value="Laptop">
    </datalist>
</form>
```



## **Input Type: submit**



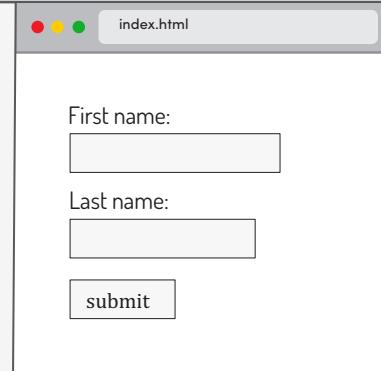
**1 min**

This is also an important aspect I will want you to know

`<input type="submit">`. it defines a button for submitting form input to a form-handler.

The form-handler is a server page with a script for processing input data. The form-handler is specified in the form's action attribute:

```
<form action="action_page.php">
    First name:<br>
    <input type="text" name="firstname">
    <br>
    Last name:<br>
    <input type="text" name="lastname">
    <br><br>
    <input type="submit" value="Submit">
</form>
```



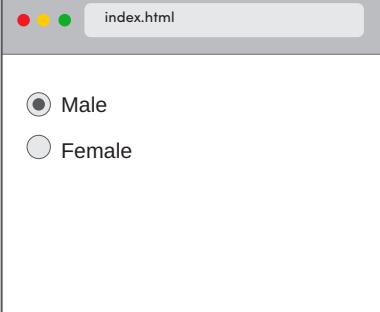
## **Input Type: radio**

**1 min** | 

I want you to know that the radio button allows a user to select just one from an available list of options. It is often used where the user is expected to pick

a choice from a list. A common example where the button is used is sex. The user is expected to have only a single sex.

### Example

<pre>&lt;form&gt;   &lt;input type="radio" name="sex"          value="male" checked&gt; Male   &lt;br&gt;   &lt;input type="radio" name="sex"          value="female"&gt; Female &lt;/form&gt;</pre>	 <input checked="" type="radio"/> Male <input type="radio"/> Female
--	---

Try to understand that the default is male in the above example. The male option is already checked as default because it is defined to be. The value "checked" can be removed and there won't be any default value.

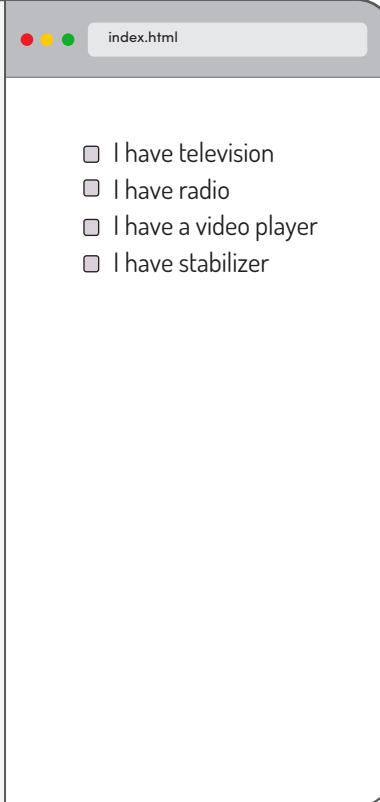
### Input Type: Checkbox

1 min



Let me say that the `<checkbox>` allow a user to select nothing or one or more choices from the available list of options. With this input type, the user can decide not to pick from the options or pick all by checking all boxes.

### Example

<pre>&lt;form&gt;   &lt;input type="checkbox"          name="Appliances"          value="Television"&gt;   I have television   &lt;br&gt;   &lt;input type="checkbox"          name="Appliances"          value="Radio"&gt;   I have radio   &lt;br&gt;   &lt;input type="checkbox"          name="Appliances"          value="Video"&gt;   I have a video player   &lt;br&gt;   &lt;input type="checkbox"          name="Appliances"          value="Stabilizer"&gt;   I have stabilizer &lt;/form&gt;</pre>	 <input checked="" type="checkbox"/> I have television <input type="checkbox"/> I have radio <input type="checkbox"/> I have a video player <input type="checkbox"/> I have stabilizer
---	--

## HTML5 <keygen> Element



The <keygen> is a very vital element that I will want you to know. Its essence is to authenticate users as a form of security. It defines a key-pair generation field in web forms. When the form is submitted, two keys are generated, one private and one public. The private key is stored locally, and the public key is sent to the server. The public key could be used to generate a client certificate to authenticate the user in future.

```
<form action="action_page.php">
    Username: <input type="text" name="user">
    Encryption: <keygen name="security">
    <input type="submit">
</form>
```

## HTML5 <output> Element



I want you to understand that the <output> element is used to display the result of a calculation performed on web documents.

### Example

```
<form action="action_page.asp"
oninput="x.value=parseInt(a.value)+parseInt(b.value)">
0
<input type="range" id="a" name="a" value="50">
100 +
<input type="number" id="b" name="b" value="50">
=
<output name="x" for="a b"></output>
<br><br>
<input type="submit">
</form>
```

## HTML5 with Numeral Input



It is of great importance to note that several other input elements of html5 make use of numerals in one form or the other. These elements are date, datetime, datetime-local, number, range, time, week, month, colour.

## Input Type: number

The `<input type="number">` which allows only numerical value(s) as input into the specified field is also a vital thing I will want you to know. Characters in the alphabet cannot be entered into fields where the input type is specified as a number. I want you to bear in mind that restrictions can be set on the number values as desired by the developer. Input restriction can enable the developer to set the minimum or maximum value of a file. Size, step, pattern and required values of a field can also be defined.

### Example

```
<form>
Age: <input type="number">
<br>
Capacity (between 1 and 50):
<input type="number" name="quantity" min="1" max="50">
<br>
Capacity:
<input type="number" name="points" min="0" max="100" step="20"
value="0">
</form>
```

## Input Type: range

I want you to note that the `<input type="range">` is used for input fields that should contain a value within a range. The developer specifies the range.

### Example

```
<form>
200
<input type="range" name="values" min="200" max="300">
300
</form>
```

## Input Type: date

The `<input type="date">` is an important point to note in your mind which is used for input fields that should contain a date. In the example below, the drop down arrow provides a calendar using the system date and the present day is highlighted. The date can be changed to any day of the user's choice. Restrictions can be added to the date for minimum and maximum.

### Example

```
<form>
    Birthday:
    <input type="date" name="birthday">
</form>

<form>
    For a date before 1990-01-01:
    <input type="date" name="birthday" max="1989-12-31"><br>
    Enter a date after 2015-01-01:
    <input type="date" name="bday" min="2015-01-02"><br>
</form>
```

### Activity 1

#### Creating a form in a Web Document



#### Tasks

- You want to create a site with information on states in Nigeria

#### Questions

- Create a web document with a dropdown list of names of states in Nigeria?
- Create a form with textarea or keygen element for the user of your document to comment.
- Explain the reason for your choice of selection while creating the form.

## Input Type: month and week

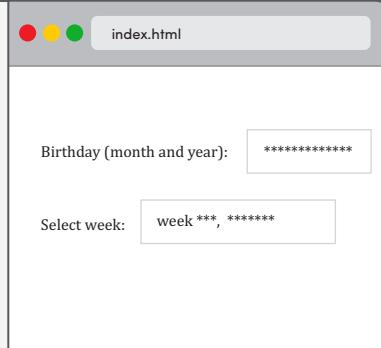
The `<input type="month">` allows the user to select a month and year. And the `<input type="week">` allows the user to select a week and year.

### Example

```

<form>
    Birthday (month and year):
    <input type="month" name="bdaymonth">
</form>
<form>
    Select a week:
    <input type="week" name="week_year">
</form>

```



## Input Type: colour



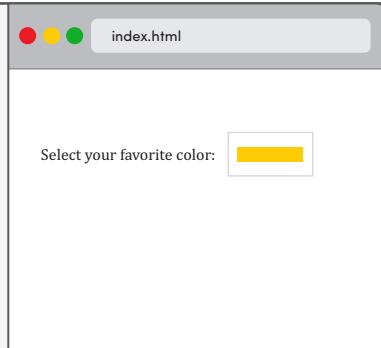
You should be aware that the `<input type="color">` is used for input fields that should contain a color. The fields in a document can have different colours as specified by the user.

### Example

```

<form>
    Select your favourite colour:
    <input type="color" name="favcolor">
</form>

```



## HTML Multimedia

I want you to know that multimedia on the internet can be in the form of images, music, videos and animations. You need to bear in mind that documents on the internet often contain multimedia elements of diverse types and formats. It may interest you to know that the media elements are stored in files using styles that are discoverable through extensions. The

extension (.html or .htm) allows the browser to treat the file using an appropriate application. Images are recognized on the web with the aid of extensions like .gif, .jpg, .png. Audio files are with extension .wav, .mp3, .mp4 and others.

## HTML5 Video

### Playing Videos in HTML

You should also know that Plug-in (flash) was used to play video on the web with no specific standard before the introduction of html5. The HTML5 `<video>` element defines a standard way to insert a video in a web page. Restriction in terms of the size and angle to play the video can be specified.

#### Example

```
<video width="330" height="250" controls>
  <source src="film.mp4" type="video/mp4">
  <source src="film.ogg" type="video/ogg">
</video>
```

## HTML5 Audio

Also, bear in mind that audio files on the web can be played using the html5 standard. Like the `<video>` element, there was no specified standard to play audio on the web before html5 except through plug-in.

#### Example

```
<audio controls>
  <source src="music.wav" type="audio/wav">
  <source src="music.mp3" type="audio/mpeg">
</audio>
```



## •Summary

I believe you have learnt different elements used in creating a form in a web document in this unit. You also learnt that the input elements are of different types and majorly used to pass information in a form. Select element allows users to pick from available options, Textarea element creates a field with a specified number of rows and columns for the user to pass comment or type information as desired in a form. You also learnt that text element is different

from the textarea because the text element provides a line field while the textarea can be many rows and columns, radio button allows the user to pick a single option from a list while the checkbox element allows users to pick none or multiple options from a list. I also explained to you that other elements used in creating a web form are output element, keygen element, datalist element, submit element and others.



## Self Assessment Questions



1. Create a web document with a dropdown list of students' names.
2. Create a form with textarea for the user of your document to comment.
3. Develop a form using keygen element.



## Tutor Marked Assessment

- I want you to write out in detail, the html5 code for the web document below

### Faculty of Communication and Information Sciences

Please take the time to fill out the following survey

Your Secret Code:	<input type="text" value="00XY998BB"/>
Password:	<input type="password"/>
First Name:	<input type="text"/>
Last Name:	<input type="text"/>
Your favorite website:	<input type="text"/>
Your age in years:	<input type="text"/>
Which department(s) do you like :	<input checked="" type="checkbox"/> CSC <input checked="" type="checkbox"/> MasComm <input checked="" type="checkbox"/> TCS <input checked="" type="checkbox"/> LIS <input checked="" type="checkbox"/> ICS <input checked="" type="checkbox"/> None
Rate Performance:	<input type="radio"/> 1 - Very Poor <input type="radio"/> 2 Poor <input type="radio"/> 3 Average <input type="radio"/> 4 Good <input type="radio"/> 5 - Very Good

How likely would you recommend the faculty:

Other Comments:	<input type="text"/>
Email address:	<input type="text" value="example@mydomain.com"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>	



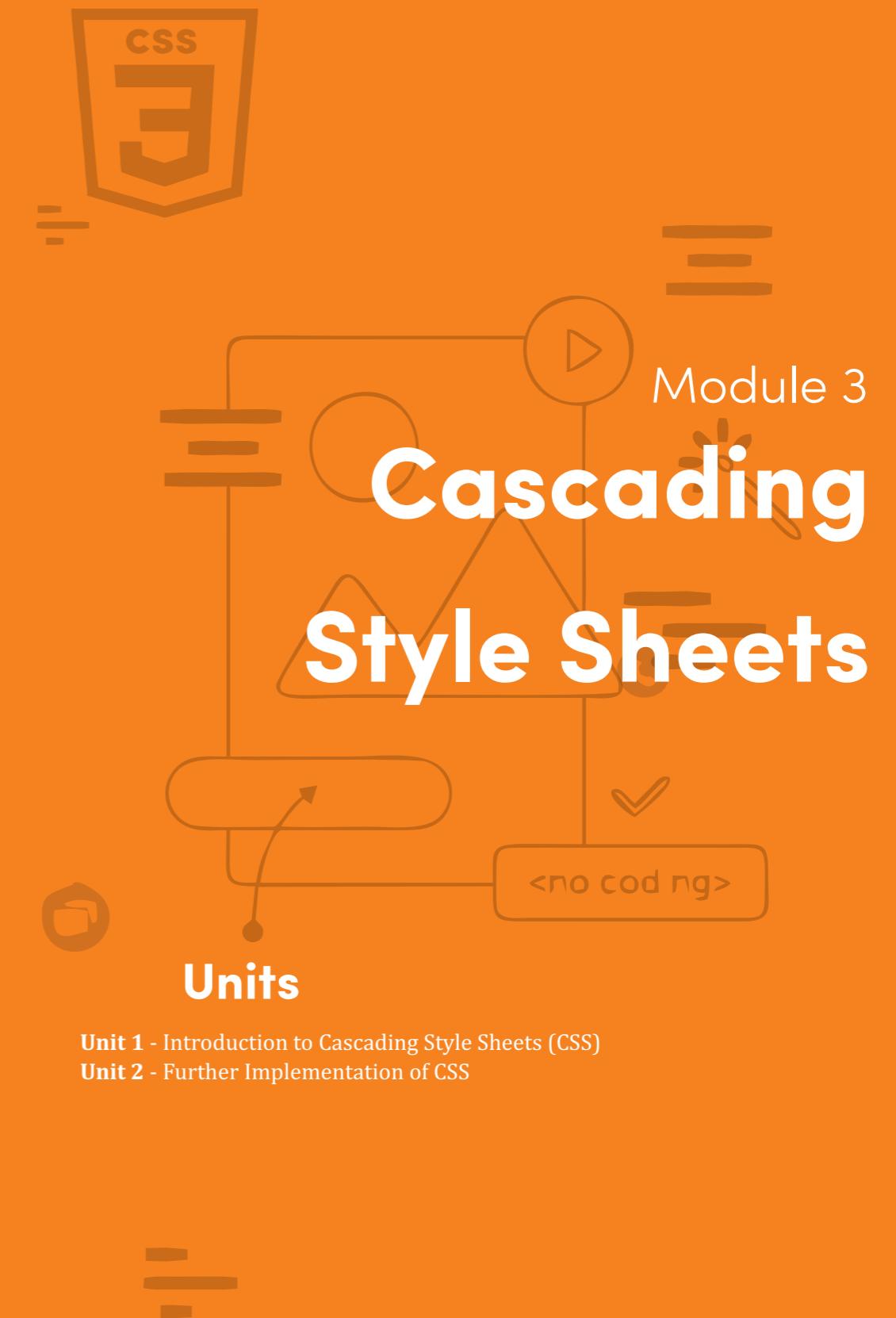
## Further Reading

- [https://www.w3schools.com/html/html\\_form\\_elements.asp](https://www.w3schools.com/html/html_form_elements.asp)
- [https://www.w3schools.com/html/html\\_form\\_input\\_types.asp](https://www.w3schools.com/html/html_form_input_types.asp)
- [https://www.w3schools.com/html/html\\_form\\_attributes.asp](https://www.w3schools.com/html/html_form_attributes.asp)



## References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.



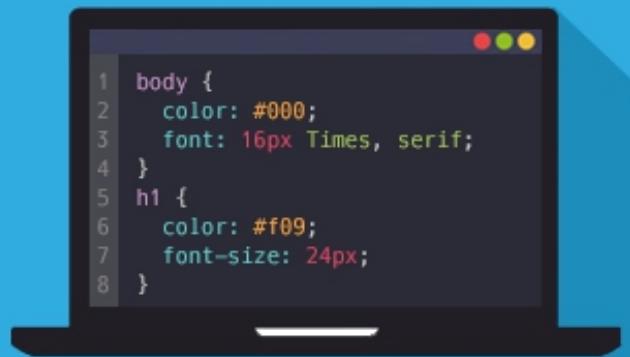
## Units

**Unit 1** - Introduction to Cascading Style Sheets (CSS)  
**Unit 2** - Further Implementation of CSS





# CSS3



## UNIT 1

# Introduction to Cascading Style Sheets (CSS)



## Introduction

In this unit, you will learn Cascading Style Sheets popularly called CSS which describes how html elements will be presented to the user. It will be good for you to know that it is used to enrich how web documents are displayed on paper, screen and other media. This unit gives an in-depth description of CSS, its importance and rule set with appropriate examples.



## Learning Outcomes

At the end of this unit, you should be able to:

- 1 describe CSS;
- 2 list the significance of CSS; and
- 3 describe with examples CSS Selectors



## Main Content

### What is CSS?



| 1 mins



SAQ 1

I want you to know that Cascading Style Sheet (CSS) is an essential part of contemporary web development process. It is used to style and arrange markup elements on web documents. A single CSS file can describe the look and format of multiple elements and web documents at once.

It will interest you to know that an HTML web document can describe its document style and formatting and looks by itself through elements like font, colour, h1-h6. I want you to understand that developers realised that it would be better to separate web content and web display (style and formatting) that is the presentation in place of making it a single document.

The content can be developed using a markup language, and CSS is responsible for the later part (presentation/layout). CSS permits developers to apply formatting rules to html element and re-use the rules. With CSS, style for formatting is removed from html page.

### Significance of CSS

1 min



It is very vital for you to note that CSS is important to web documents for the following reasons:



#### A. Display:

CSS instruction describes the layout of html elements. A line instruction of CSS can change the look on an entire web document. It defines styles for web pages, including the design, layout and variations in display for different devices and screen sizes.

#### B. Re-use:

Developers can re-use rules created for formatting and styling of a particular content severally within a document and outside the



SAQ 2

document. Once a formatting rule is created, it can be used across multiple documents. The re-use ability of CSS saves developers lots of work and time. The external style sheets are saved using .css extension.

### C. Compact:

The CSS document provides separate concise instructions for document layout that only describes how the web document is

## CSS Syntax

| 1 mins

### Study Tips

You should be aware that the declaration blocks are placed in curly brackets which consist of the property name and the corresponding value separated by a colon. The CSS declaration always ends with a semicolon.

Try to understand that the CSS instruction is made up of a selector and a declaration block. The selector points to the html element you want to style while you have one or more declarations separated by semicolons in the declaration block.

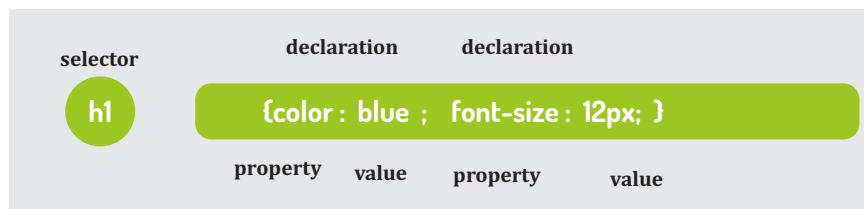


Figure 1: CSS Syntax

### I want you to note this example:

- Create a paragraph with <p> element to be right-aligned and text colour green.

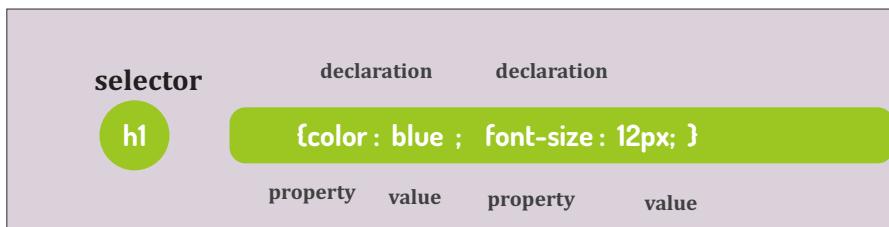
The CSS will be:

```

1  <!DOCTYPE html>
2  <html>
3    <head>
4      <style>
5        p{
6          color: blue;
7          text-align: right;
8          font-family: Calibri;
9          background: yellow;
10         }
11       </style>
12   </head>
13   <body>
14     <p>This is my first CSS file</p>
15     <p>
16       Welcome to CSC 2244 CSS class
17     </p>
18   </body>
19 </html>

```

# CSS Selectors

 | 3 mins


I want you to know that the CSS selector is the first part of rule-set that defines the CSS, and it is used to locate the html elements. I want you to bear in mind that the basic selectors available are element, id, and class selectors

## The Element Selector

It will interest you to know that in the element selector, CSS makes use of the element name to identify the section to be styled. The rule-set can be defined in such a way that the rule is applied to every occurrence of the element within the document or applied to just an instance.

### Example

```
p {
    colour: blue;
    text-align: right;
    font-family: Calibri;
    background: yellow;
}
```

```

1  <!DOCTYPE html>
2  <html>
3      <head>
4          <style>
5              p {
6                  color: blue;
7                  text-align: right;
8                  font-family: Calibri;
9                  background: yellow;
10             }
11         </style>
12     </head>
13     <body>
14         <p>This is my first CSS file</p>
15         <p>
16             Welcome to CSC 2244 CSS class
17         </p>
18         <p>
19             The style rule is applied to all
20             paragraphs</p>
21         <p>it is applied here too</p>
22     </body>
23 </html>

```

This is my first CSS file  
Welcome to CSC 2244 CSS class  
The style rule is applied to all paragraphs  
it is applied here too

## The ID Selector

Another important aspect I will want you to understand is the attribute id of the html element which is used by the CSS selector to select precise element. The id selector uniquely identifies a single element within a page and has the highest priority when there are multiple CSS selectors to interact with. The hash (#) character followed by the id of the element is used to specify the content to be styled.

I will want you to look into this example:

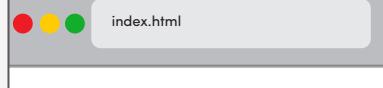
### Study Tips

The html element with id "passage1" is styled. The rule is applied to where the id is called, other elements that are of the same type in the document are not affected.

### Passage1 {

```
colour: blue;  
text-align: right;  
font-family: Calibri;  
background: yellow;  
}
```

```
1. <!DOCTYPE html>  
2. <html>  
3.   <head>  
4.     <style>  
5.       #passage1 {  
6.         color: blue;  
7.         text-align: right;  
8.         font-family: Calibri;  
9.         background: yellow;  
10.       }  
11.     </style>  
12.   </head>  
13.   <body>  
14.     <p id="passage1">  
15.       Internet Technology Class  
16.     </p>  
17.     <p>  
18.       This line is not affected by the style  
19.     </p>  
20.   </body>  
21. </html>
```



This line is not affected by the style

**Activity  
1****Creating a CSS set****Tasks**

- Browse sites that use class selector and another site that employs id selector

**Questions**

- Explain the uses of the class selector and id selector.
- Create a form with textarea or keygen element for the user of your document to comment.
- Write a CSS rule-set to group three(3) html elements together in a single document.

**Class Selector**

Let me say that elements with specific class attributes can be selected when using the class selector. I want you to bear in mind that the period . , character followed by the name of the class is used to specify the content to be styled. The class selector can be used to style different types of elements <p>, <h1>, and others in the same document. It can also be used to style every occurrence of a particular element.

**Example:**

The class name font is styled with font type Britannic bold

```
.font {  
    colour: blue;  
    text-align: right;  
    font-family: Britannic bold;  
    background: yellow;  
}
```

```

1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <style>
5.       .font {
6.         color: blue;
7.         text-align: right;
8.         font-family: calibri;
9.         background: yellow;
10.      }
11.    </style>
12.  </head>
13.  <body>
14.    <h1 class="font">
15.      This heading is right aligned, text color
16.      blue and background yellow
17.    </h1>
18.    <p class="font">
19.      This paragraph is right aligned, text
20.      color blue and background yellow
21.    </p>
22.  </body>
23. </html>

```

This heading is right aligned, text color blue and background yellow

This paragraph is right aligned, text color blue and background yellow

**Example:**

Example targeted at a single element

```

p.font {
  color: blue;
  text-align: right;
  font-family: calibri;
  background: yellow;
}

```

```

1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <style>
5.       p.font {
6.         color: blue;
7.         text-align: right;
8.         font-family: calibri;
9.         background: yellow;
10.      }
11.    </style>
12.  </head>
13.  <body>
14.    <h1 class="font">
15.      This section will not be styled
16.    </h1>
17.    <p class="font">
18.      This paragraph will be styled.
19.    </p>
20.  </body>
21. </html>
22.
23.

```

This is my first CSS file

Welcome to CSC 2244 CSS class

The style rule is applied to all paragraphs

it is applied here too



I want you to bear in mind that HTML elements can refer to more than one class. The example below shows `<article>` element styled with more than one class.

```
<article class="center large">This article refers to two classes.</article>
```

<pre> 1  &lt;!DOCTYPE html&gt; 2  &lt;html&gt; 3    &lt;head&gt; 4      &lt;style&gt; 5        article.font { 6          color: blue; 7          text-align: right; 8          font-family: calibri; 9          background: yellow; 10         } 11        article.large { 12          font-size: 250%; 13        } 14      &lt;/style&gt; 15    &lt;/head&gt; 16  &lt;body&gt; 17    &lt;h1 class="font"&gt; 18      This heading will not be affected 19    &lt;/h1&gt; 20    &lt;article class="font"&gt; 21      This article will be right-aligned, 22      yellow background. 23    &lt;/article&gt; 24    &lt;article class="center large"&gt; 25      This article will be in large 26      font-size. 27    &lt;/article&gt; 28  &lt;/body&gt; 29 &lt;/html&gt; 30 </pre>	
--	--

## Grouping Selectors

It will interest you to know that elements with the same style can be grouped together to save space and time. Grouping selectors together help to provide a concise document.

**I want you to do this for an example:**

<pre> 1  h1{ 2    colour: blue; 3    text-align: right; 4    font-family: calibri; 5    background: yellow; 6  } </pre>	<pre> 7  h2{ 8    colour: blue; 9    text-align: right; 10   font-family: calibri; 11   background: yellow; 12 } </pre>	<pre> 13 p{ 14   colour: blue; 15   text-align: right; 16   font-family: calibri; 17   background: yellow; 18 } </pre>
---	---	--

Grouped selectors also help to minimize code. The same example can be written as



```
1. h1, h2, p {  
2.   colour: blue;  
3.   text-align: right;  
4.   font-family: calibri;  
5.   background: yellow;  
6. }
```

```
1. <!DOCTYPE html>  
2. <html>  
3.   <head>  
4.     <style>  
5.       h1, h2, p {  
6.         color: blue;  
7.         text-align: right;  
8.         font-family: Calibri;  
9.         background: yellow;  
10.      }  
11.    </style>  
12.  </head>  
13.  <body>  
14.    <h1>Hello World!</h1>  
15.    <h2>Smaller heading!</h2>  
16.    <p>This is a paragraph.</p>  
17.  </body>  
18. </html>  
19.
```

The screenshot shows a web browser window titled "index.html". The content of the page is as follows:  
Hello World!  
Smaller heading!  
This is a paragraph.



## • Summary

In this unit, we have discussed Cascading Style Sheet (CSS) used to style and arrange markup elements on web documents. I also learnt that a single rule-set can describe the look and format of multiple elements and web documents at once. I further explained to you that CSS allows you to easily apply rules about formatting and layout to your HTML elements and then re-use those rules across multiple elements and pages. In this unit, we have defined CSS, looked at the significance of CSS, and also described the CSS selectors.



## Self Assessment Questions

1. Define CSS.
2. List the significance of CSS.
3. Describe any two (2) CSS selectors/





## Tutor Marked Assessment

- Differentiate with appropriate examples, class selector and id selector.
- Write a CSS rule-set to group four(4) html elements together in a single document.



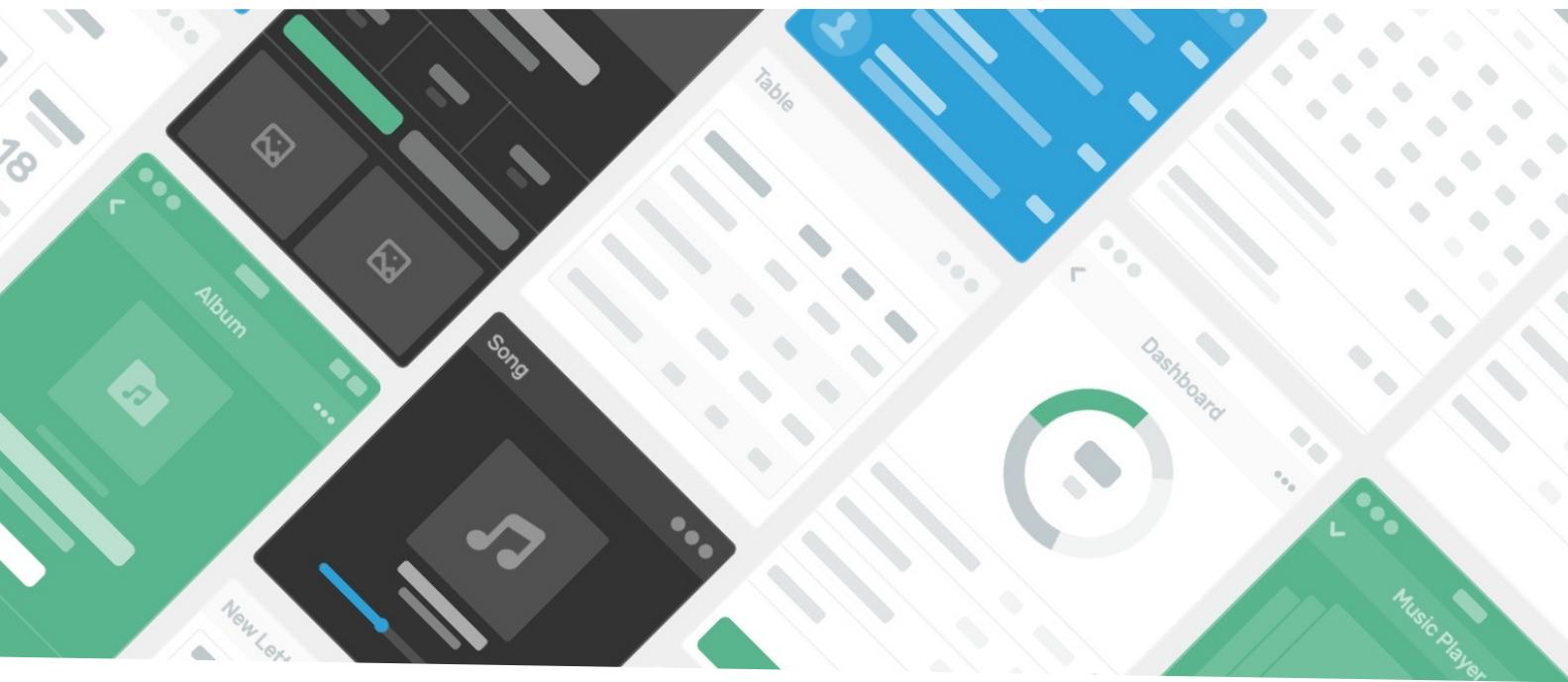
## Further Reading

- <https://css3-tutorial.net/introduction/what-is-css/>
- <https://web.stanford.edu/class/cs142/lectures/CSS.pdf>
- [https://buildmedia.readthedocs.org/media/pdf/htmlguide/latest/htmlguide.pdf/](https://buildmedia.readthedocs.org/media/pdf/htmlguide/latest/htmlguide.pdf)
- [https://www.w3schools.com/css/css\\_intro.asp/](https://www.w3schools.com/css/css_intro.asp)



## References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.



## UNIT 2

# Further Implementation of CSS



### Introduction

In this unit, you will learn Cascading Style Sheet (CSS) which describes how html document will be displayed on the browser. You will learn that CSS describes how to comment in a CSS document, which is a part of the document that is not displayed by the browser. The methods used to insert CSS into html documents are three (3) namely; inline, internal and external CSS. Multiple CSS can exist within a document, and priority is set to know the order which the system will use in taking the multiple CSS.



#### At the end of this unit, you should be able to:

- 1 write comments in CSS rule-set
- 2 describe how to insert a style sheet
- 3 describe the priority given to methods of CSS insertion



## Main Content

### CSS Comments



| 1 min



SAQ 1

#### Study Tips

A CSS comment starts with /\* and ends with \*/.

Comments can also span multiple lines.

**I**want you to know that a comment in CSS usually describes the contents of a CSS document. It can also explain the function or need of a particular instruction. It will interest you to know that the comments can help developers at a later day to understand the reason(s) for using a certain method in the source code. Bear in mind that developers can also make instruction(s) serve as a comment if it is not yielding desired results.

It will be very good for you to note that the browser overlooks the comments within source code. This means that comments are not displayed on the browser.



```
p {
    colour: blue;
    text-align: right;
    font-family: Calibri;
    background: yellow;
    /*This is a single line comment*/
}
/* This is
   a multiple line
comment */
```

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <style>
5              .font {
6                  color: blue;
7                  text-align: right;
8                  font-family: calibri;
9                  background: yellow;
10                 /*This is a single line comment*/
11             }
12         </style>
13     </head>
14     <body>
15         <h1 class="font">
16             This heading is right aligned, text color
17             blue and background yellow
18         </h1>
19         <p class="font">
20             This paragraph is right aligned, text
21             color blue and background yellow
22         </p>
23     </body>
</html>
```

The screenshot shows a browser window titled "index.html". The page content is as follows:

- Heading:** This heading is right aligned, text color blue and background yellow
- Paragraph:** This paragraph is right aligned, text color blue and background yellow

The explanatory comments from the code (the ones starting with /\*) are visible in the browser's code view, indicating they are being overlooked by the browser.

## HTML Tags



4 mins

I want you to understand that there are three (3) ways to insert a style sheet. These are:



- External Style Sheet;
- Internal Style Sheet; and
- Inline Style Sheet

### a) External Style Sheet

I want you to know that CSS code can be written in a separate file outside the html document using any text editor, for example, notepad. I will like you to bear in mind that the file can be imported into any html file and thereby promoting code reuse.

It will also interest you to know that the CSS file that is outside the html document is called External Style Sheet. The external style sheet allows developers to manage the style and formatting of document easily. Try to understand that the code is created first and saved with a .css extension.

When you are ready to use the saved file, the name used in saving it is referenced in the html document that needs it. The look of a whole website can be changed using just one file. The html reference the external style sheet within the `<link>` element and the `<link>` element is in the `<head>` section.



#### Example

```
<head>
  <link rel="stylesheet" type="text/css" href="firststyle.css">
</head>
```

Let me tell you that the external style sheet is created without any html tags and must be saved with .css extension. The example below is saved as firststyle.css

```
firststyle.css
12 body {
13   background-color: green;
14 }
15
16 h1 {
17   colour: red;
18   margin-left: 30px;
19 }
```

**firststyle.css is referenced as follows**

The screenshot shows a browser window titled "index.html". On the left, the HTML code is displayed:

```
Index.html
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <link rel="stylesheet" type="text/css"
5       href="firststyle.css">
6   </head>
7   <body>
8     <h1>Heading appears here</h1>
9     <article> Igbo-Ora is a town in southwest
10        Nigeria known to have highest number
11        of twin birth.
12      </article >
13    </body>
14  </html>
```

On the right, the rendered output is shown in a green background. The heading "Heading appears here" is displayed in red, and the article content "Igbo-Ora is a town in southwest Nigeria known to have highest number of twin birth." is displayed below it.

## b) Internal Style Sheet

I want you to understand that the internal styles are defined within the `<style>` element, inside the `<head>` section of an html document. It is used when a lone document has a unique style. Whatever style described with the internal style sheet method affects only that document.

**Example:**

```
firststyle.css
12 body {
13   background-color:red
14 }
15 article {
16   color: yellow;
17   margin-left: 20px;
18 }
19
```

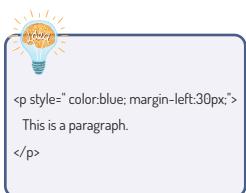
```

1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <style>
5.       body {
6.         background-color:red
7.       }
8.       article {
9.         color: yellow;
10.        margin-left: 20px;
11.      }
12.    </style>
13.  </head>
14.  <body>
15.    <h1>Heading appears here</h1>
16.    <article> Igbo-Ora is a town in southwest
17.      Nigeria known to have highest number
18.      of twin birth.
19.    </article >
20.  </body>
21. </html>

```

### c) Inline Style Sheet

You should also bear in mind that the inline style sheet uniquely styles and formats a distinct element. The style attributes are simply added to the element to be styled. The style in this method does not apply to any other content of the document except the element attached to.



#### Example that you need to note:

Using <p> element:

```

1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1> Igbo-Ora Town </h1>
5.     <p style="color:blue; margin-left:30px;">
6.       This is a paragraph.
7.     </p>
8.   </body>
9. </html>
10.

```

## Multiple Style Sheets



| 2 mins



SAQ 3

Try to understand that in the web page style and formatting, whenever different properties are defined for the same elements, the value from the most recent read style sheet is used. This means that if an element has more than one CSS style, the value of the last read will be used.

### I want you to try to note this example:



An external style sheet has `<p>` element styled with color: green.

This means -

```
p {  
    colour: green;  
}
```

Also, an internal style sheet with the same `<p>` element is used in a document that referenced the external style sheet with `<p>` elements.

```
p {  
    colour: yellow;  
}
```

If the internal style is defined after the link to the external style sheet, the `<p>` elements will be "yellow":

```
<head>  
    <link rel="stylesheet" type="text/css" href="firststyle.css">  
    <style>  
        p {  
            colour: green;  
        }  
    </style>  
</head>
```

<pre>1  &lt;!DOCTYPE html&gt; 2  &lt;html&gt; 3      &lt;head&gt; 4          &lt;link rel="stylesheet" 5              type="text/css" 6              href="firststyle.css"&gt; 7          &lt;style&gt; 8              p { 9                  color: red; 10             } 11         &lt;/style&gt; 12     &lt;/head&gt; 13     &lt;body&gt;</pre>	<pre>12      &lt;h1&gt;This is a heading&lt;/h1&gt; 13      &lt;p&gt;The style of this document is a 14          combination of an external stylesheet, 15          and internal style 16      &lt;/p&gt; 17  &lt;/body&gt; 18 &lt;/html&gt;</pre>	<p>The screenshot shows a browser window titled "index.html". Inside, there is a large red heading "This is a heading" and a smaller black paragraph below it that reads "The style of this document is a combination of an external stylesheet, and internal style".</p>
---	--	---

However, I want you to bear in mind that if the internal style is defined before the link to the external style sheet, the `<h1>` elements will be "green":

#### Example

```
<head>
  <style>
    p {
      colour: green;
    }
  </style>
  <link rel="stylesheet" type="text/css" href="firststyle.css">
</head>
```

## Cascading Order

1 min | 

I want you to understand that the cascading order is used when there are more than one style and format design for an html element. It is important to know that the order is applied to know which rule-set to execute and which one overrides the other.

Generally speaking, we can say that all the styles will "cascade" into a new "virtual" style sheet by the following rules, where number one has the highest priority:



- Inline style (inside an HTML element)
- External and internal style sheets (in the head section)
- Browser default

I want you to know that this indicates that the inline style sheet has the highest priority. Its style and format will overrule any style defined inside the `<head>` tag or in an external style sheet, or a browser default value

```

1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <link rel="stylesheet" type="text/css"
5.       href="firststyle.css">
6.     <style>
7.       body {background-color: green;}
8.     </style>
9.   </head>
10.  <body style="background-color:red">
11.    <h1> More than one style sheet within a document</h1>
12.    <p style="color:blue;margin-left:30px;">
13.      In this example, the background color is set in inline style sheet,
14.      an internal style sheet, and in an external style sheet.
15.    </p>
16.    <p> you can practice how this works by removing the inline, the
17.      internal before trying the external.
18.    </p>
19.  </body>
20. </html>

```

**index.html**

**More than one style sheet within a document**

In this example, the background color is set in inline style sheet , an internal style sheet, and in an external style sheet.

you can practice how this works by removing the inline, the internal before trying the external.

## Activity 1

### Designing CSS Code

#### Tasks

- You have been given a task to design a CSS code.

#### Questions

- Which of the sheet styles will you employ?
  - a)External Style Sheet;
  - b)Internal Style Sheet; and
  - c)Inline Style Sheet.
- Explain the different types of style sheet.



### - •Summary

In this unit, you have learnt how to comment in CSS. You also learnt that a comment can be in a single line or span across multiple lines. I also told you that the comment allows the developer to insert a brief description of the contents of a document that will not be displayed by the browser.

You were also made to know that there are three ways to insert CSS rule-sets into an html document, which are inline style sheet, internal style sheet and the external style sheet.

The inline style sheet uniquely styles single element while the internal style sheet is used when a single page has a unique style, and the external style sheet is written in a different document, saved with .css extension before it is referenced in any html document that needs the style.



### Self Assessment Questions



1. Insert comments into a CSS document to describe the content of the document.
2. List three (3) ways to insert a style sheet.
3. Given a CSS document that includes inline, internal and external style sheets, describe the priority that will decide how elements are displayed.



### Tutor Marked Assessment

- I want you to design three application forms for a secondary school of your choice and use inline, internal and external style sheets for the styling and formatting of the documents.



### Further Reading

- <https://css3-tutorial.net/introduction/what-is-css/>
- <https://web.stanford.edu/class/cs142/lectures/CSS.pdf>
- [https://buildmedia.readthedocs.org/media/pdf/htmlguide/latest/html\\_guide.pdf](https://buildmedia.readthedocs.org/media/pdf/htmlguide/latest/html_guide.pdf)
- [https://www.w3schools.com/css/css\\_intro.asp](https://www.w3schools.com/css/css_intro.asp)



### References

- Duckett, J. (2011). HTML & CSS. Indianapolis, IN: John Wiley & Son, Inc
- Stack overflow contributors (2019). Learning HTML
- Stratton, J. (2010) Carnival of html
- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.

```
components > TireList.vue > {} "TireList.vue" > script > methods > getCarImages > key
  await this.$axios
  .post(
    process.env.ELASTIC_URL,
    {
      size: 25,
      from: this.$route.query.search ? 0 : 25 * this.page,
      query: {
        bool: {
          must: this.getFilter()
        },
        sort: this.getSort()
      }
    }
  )
  .then(({ data, headers }) => {
    this.cars = this.cars.concat(data.hits.hits)
    $state.loaded()

    this.$store.commit('cars/totals', data.hits.total.value)
  })

  this.cars_loading = false
},
getCarImages (car) {
  let keys = Object.keys(car._source.meta)
  keys = keys.filter(item => item.includes('tire_images_'))

  if (keys.length === 0) {
    return false
  }

  const array = []
  keys.map((item) => {
    array.push(car._source.meta[item][0].value)
  })

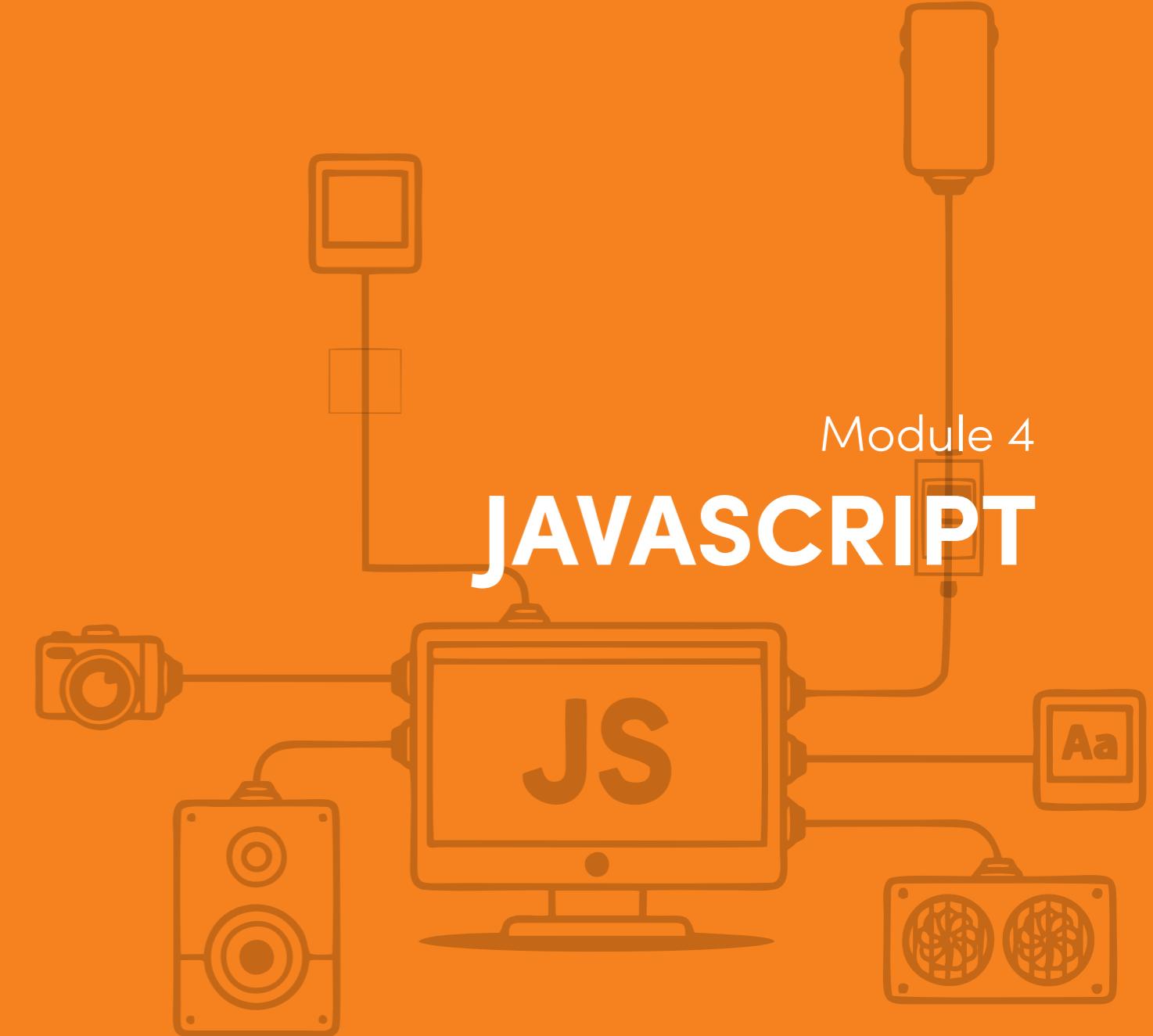
  return array
},
getKeyByValueImage (value) {
  if (value) {
    const object = this.manufactures.filter((obj) => {
      return obj.id === value.parent !== 0 ? value.parent : value.term_id
    })

    if (object.length >= 1) {
      return object[0].acf.car_manufacture_logo.sizes.thumbnail
    }
  }

  return false
},
getKeyByValueImageLocation (value) {
  if (value) {
    const object = this.locations.filter((obj) => {
      return obj.id === value[0]
    })

    if (object.length >= 1) {
      return object[0].name
    }
  }

  return false
},
calculateLoadMoreSkeleton () {
  const left = this.cars.length - 3 * 6 * this.page
  if (typeof window === 'undefined') {
```



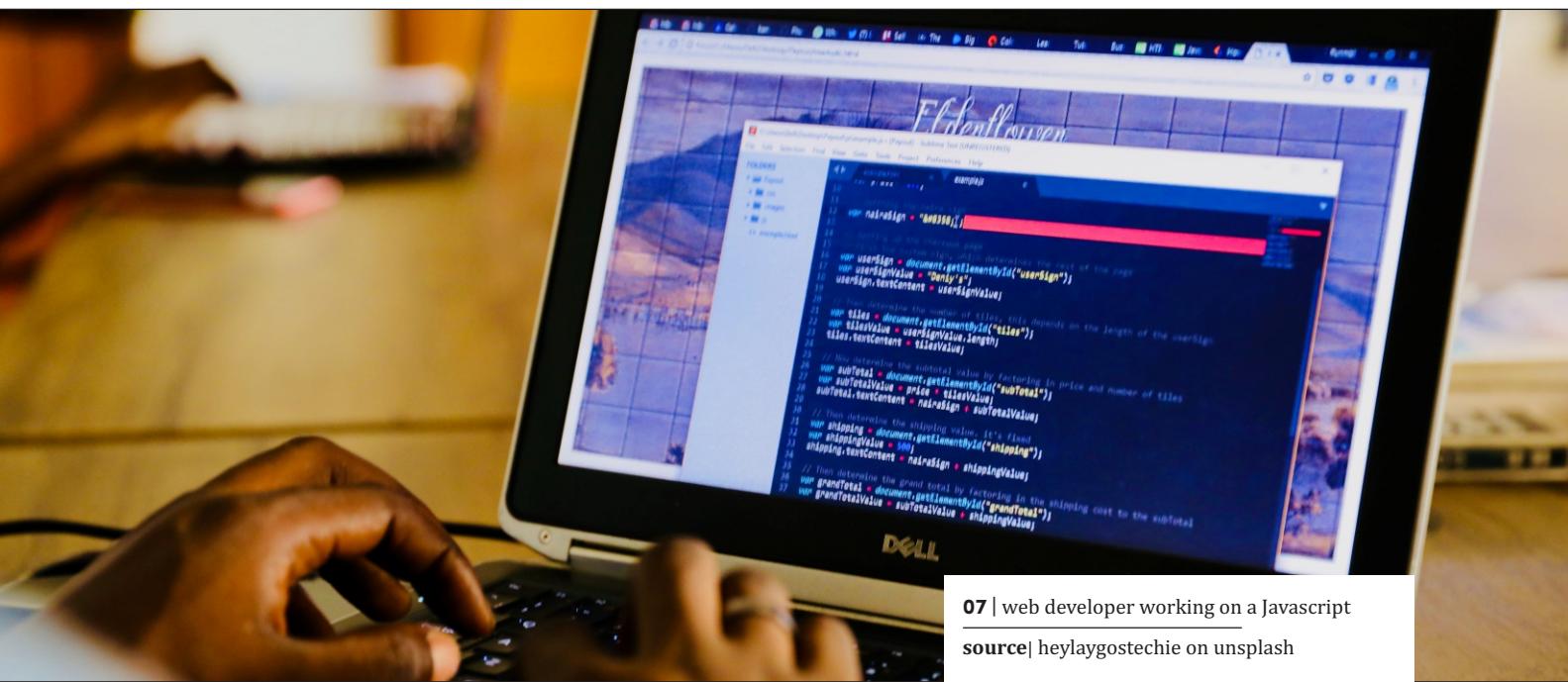
## Module 4

# JAVASCRIPT

## Units

Unit 1 - Introduction to JavaScript (JS)  
Unit 2 - WYSIWYG and Test Editors





07 | web developer working on a Javascript source| [heylaygostechie](#) on unsplash

## UNIT 1

# Introduction to JavaScript (JS)



## Introduction

In this unit, you will understand that one of the three (3) languages a web developer should learn is JavaScript. I want you to know that the first is HTML which used is to define the content of the web and the second is CSS which is used to describe the layout or style of the page while the third language is JavaScript, which is also usually used to outline the behaviour of the page. JavaScript instructions control the behaviour of the web pages by modifying an html document.



At the end of this unit, you should be able to:

- 1 define JavaScript
- 2 list the advantages of JavaScript
- 3 describe JavaScript function



## Main Content

### What is JavaScript?



| 1 mins



SAQ 1

**I**t will interest you to know that JavaScript is a dynamic and present-day web page programming language that is implemented by interpreter within the user's web browser. It can be created with a text editor like notepad. I want you to know that other applications also have JavaScript editing tools such as Macromedia Dreamweaver, Macromedia HomeSite 5, Microsoft FrontPage and so on.

I want you to bear in mind that JavaScript allows various forms of interaction without having to reload the page for every action. It is lightweight, and its application allows the client-side script to interact with the user. It was developed by Netscape Corporation in 1995 and initially called LiveScript but was later changed to JavaScript.

You should also note that when JavaScript was adopted outside of its developer-Netscape, different software that supports it needed a standardized document that describes the way the language should work in order to have a uniform claim was written. Interestingly, its of great importance to note that the the document called ECMAScript described JavaScript to be:



- lightweight
- interpreted programming language
- designed to balance html pages.

### Advantages of JavaScript

1 min |



- 1) **Less server interaction:** It allows user's input to be validated before sending to the server. For example, if the user supplied a wrong email format, the JavaScript can detect this and therefore save some server traffic and a load of

reading a wrong email.

2) **Interactivity:** JavaScript provides user interactivity with the application. The interfaces are also richer.

3) It can be used across several web browsers and databases such as MongoDB and CouchDB for scripting and query.

## JavaScript Syntax

 2 mins

You should understand that JavaScript is implemented by placing JavaScript instructions into html elements in a web document. You should be aware that the script can be placed, the <head> or <body> element. It can be used to change the content of the html page.

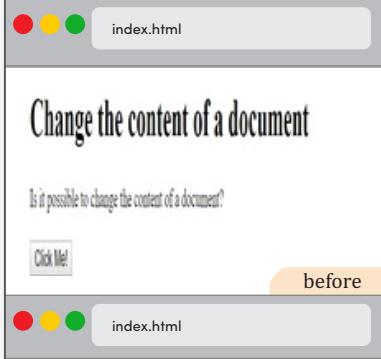
Example of note that I will like you to know:

**Study Tips**

Try to understand that this example found an html element with **id = sample** and replaced the content of the sample, which is '**Is it possible to change the content of a document?**' to **Welcome to JavaScript class!**

```

1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1>Change the content of a document</h1>
5.     <p id="sample">Is it possible to change the
6.       content of a document?
7.     </p>
8.     <button type="button"
9.       onclick="document.getElementById('sample'
10.        ).innerHTML = 'Welcome to JavaScript class!
11.      ''>
12.       Click Me!
13.     </button>
14.   </body>
15. </html>
```



**Index.html**

index.html

**Change the content of a document**

Is it possible to change the content of a document?

**Click Me!**

before

**Index.html**

index.html

**Change the content of a document**

Welcome to JavaScript class!

**Click Me!**

after

I want you to know that JavaScript can also be embedded into html codes using the <script> element. <script>....</script> can be placed anywhere in the html document but preferably within the <head> element. The use of <script> element tells the browser to interpret the content within the element as JavaScript instructions.

```
<script>
  JavaScript Codes
</script>
```

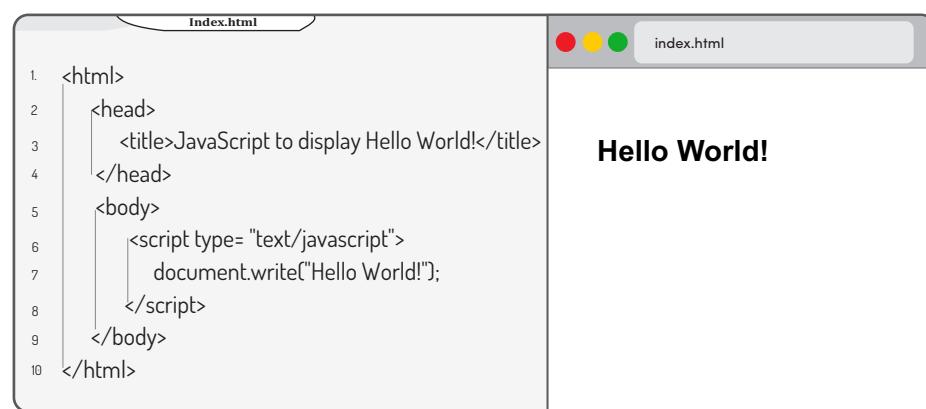
The <script> can take two (2) important attributes, namely;

the language attribute that specifies the scripting language to be used and

the type attribute that is set to text/"javascript".

**Example**

The example is to display "Hello World!" using the function document.write



The screenshot shows a browser window titled "index.html". On the left, the source code for "index.html" is displayed in a code editor:

```

1. <html>
2.   <head>
3.     <title>JavaScript to display Hello World!</title>
4.   </head>
5.   <body>
6.     <script type= "text/javascript">
7.       document.write("Hello World!");
8.     </script>
9.   </body>
10.  </html>

```

On the right, the browser window displays the output: "Hello World!".

## JavaScript Comments and Case Sensitivity

JavaScript supports using `//` and `/*` for comment. You should also be aware that comments can be on a line or span across multiple lines. I want you to know that any text written after `//` will be ignored by the browser. As well as text written between `/*---*/`. The html comment style `<!--` is also recognised by the JavaScript. The comment line(s) can explain the function or need of a particular instruction to users of the code. The comments can also help developers at a later day to understand the reason(s) for using certain methods in the source code. It will interest you to know that developers can also make instruction(s) serve as a comment if it is not yielding desired results.

**Example: In this example, you will understand that comment lines are ignored by the browser.**

The screenshot shows a code editor on the left and a browser window on the right. The code editor contains the following HTML and JavaScript code:

```
1 <html>
2   <head>
3     <title> JavaScript to display Hello World </title>
4   </head>
5   <body>
6     <script type= "text/javascript">
7       document.write("Hello World!");
8       //this is a single comment line
9
10    /*this comment
11      span across
12      multple lines*/
13
14  </script>
15  <!--Another comment style>
16  </body>
17 </html>
```

The browser window titled "index.html" displays the text "Hello World!".

Bear in mind that JavaScript is case sensitive. This means that variables, keywords and other identifiers must be written with case consistency. A variable name SHOLA is not the same as Shola, nor the same as shola and will express diverse meanings.

## JavaScript Function

2 mins



SAQ 3

It is important for you to note that the JavaScript functions are easy ways to wrap collections of rule-set defined to perform specific tasks together. A function can be defined in JavaScript using the keyword Function. The function can also return value using the return keyword.

The need for function in JavaScript is to pass arguments, process the arguments and return value. It can also be seen as blocks of code that are executed when an event occurs. A popular example is when a user clicks a submit button.

This normally triggers the execution of associated code to generate a request-response or validate input.

Example: In this example, JavaScript was used to change the styles of an html document. The function “firstfunction” is created to change the style. Variables in JavaScript are defined with a keyword var preceding the user defined name.

```

1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1>JavaScript to change the look of a page</h1>
5.     <article id="sample">
6.       We will change the style of this document
7.     </article>
8.     <button type="button" onclick="firstfunction()">
9.       Click Me!
10.      </button>
11.      <script>
12.        function firstfunction() {
13.          var z = document.getElementById("sample");
14.          z.style.fontSize = "40px";
15.          z.style.color = "green";
16.        }
17.      </script>
18.    </body>
19.  </html>

```

I want you to know that after the button is clicked, the function changed the look of the page

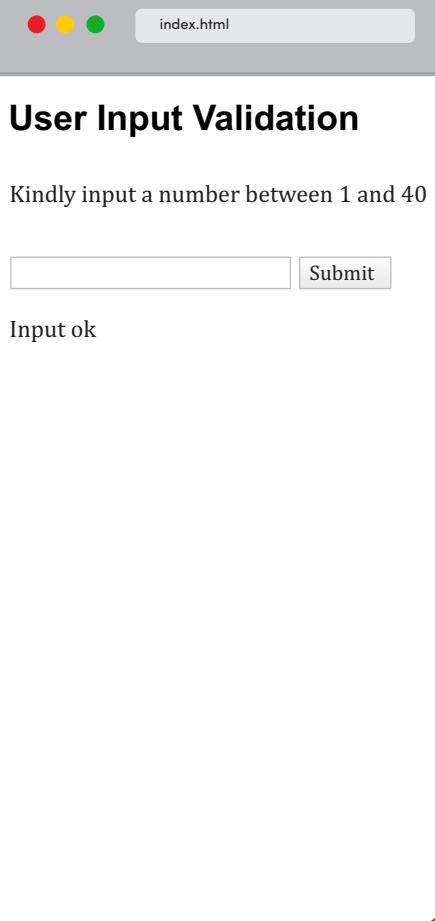
```

1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1>JavaScript to change the look of a page</h1>
5.     <article id="sample">
6.       We will change the style of this document
7.     </article>
8.     <button type="button" onclick="firstfunction()">
9.       Click Me!
10.      </button>
11.      <script>
12.        function firstfunction() {
13.          var z = document.getElementById("sample");
14.          z.style.fontSize = "40px";
15.          z.style.color = "green";
16.        }
17.      </script>
18.    </body>
19.  </html>

```

I want you to know that since one of the advantages of JavaScript is Validation, the next example use function to validate the input data.

```
1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1>User Input Validation</h1>
5.     <p>Kindly input a number between 10 - 40:</p>
6.     <input id="digit">
7.     <button type="button" onclick="secfunction()>
8.       Submit
9.     </button>
10.    <p id="sample"></p>
11.    <script>
12.      function secfunction() {
13.        var num, text;
14.        // Get the value of the input field with id="numb"
15.        num = document.getElementById("digit").value;
16.        /* If num is Not a Number or less than ten or
17.           greater than fourty */
18.        if (isNaN(num) || num < 10 || num > 40) {
19.          text = "Input not valid";
} else {
text = "Input OK";
}
document.getElementById("sample").innerHTML
}
</script>
</body>
</html>
```



## The <script> Element Position



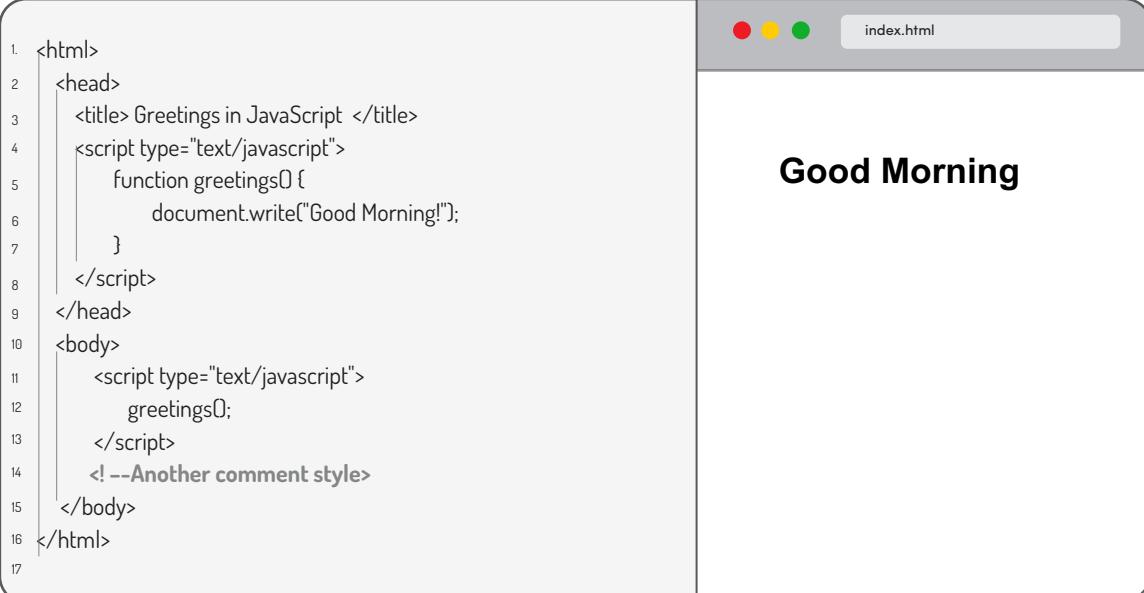
2 mins

It will interest you to know that JavaScript instructions are inserted within the <script> and </script> tags. The <script> can be in the <head> tag, <body> tag, or both. The number of scripts within a web document is not limited.

## JavaScript in <head> tag

1 min |

Try to understand that JavaScript in the <head> tag can be used to define variables and functions that are used by the scripts in the <body> tag.



```

1. <html>
2.   <head>
3.     <title> Greetings in JavaScript </title>
4.     <script type="text/javascript">
5.       function greetings() {
6.         document.write("Good Morning!");
7.       }
8.     </script>
9.   </head>
10.  <body>
11.    <script type="text/javascript">
12.      greetings();
13.    </script>
14.    <!--Another comment style-->
15.  </body>
16. </html>
17.

```

The browser window shows the title "index.html" at the top. The main content area displays the text "Good Morning" in a large, bold, black font.

I want you to know that another example with `<script>` tag within the `<head>` is given below, where the function is executed when the button is clicked



```

1. <!DOCTYPE html>
2. <html>
3.   <head>
4.     <script>
5.       function myFunction() {
6.         document.getElementById("demo").innerHTML =
7.           "Paragraph changed.";
8.       }
9.     </script>
10.    </head>
11.
12.    <body>
13.      <h1>JavaScript in Head</h1>
14.      <p id="demo">A Paragraph.</p>
15.      <button type="button" onclick="myFunction()">Try it</button>
16.    </body>
17. </html>

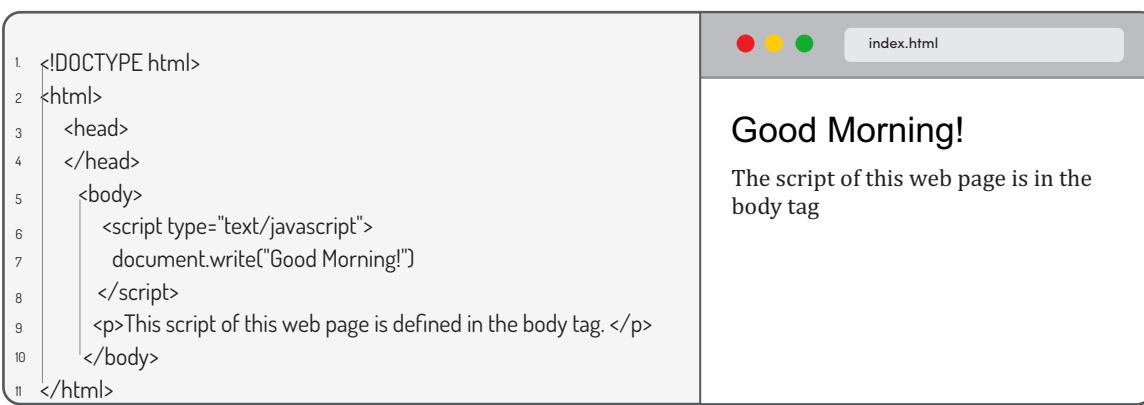
```

The browser window shows the title "index.html" at the top. The main content area displays the text "result:" followed by "JavasCript in Head" in a large, bold, black font. Below that, it says "A paragraph". A button labeled "Try it" is present. When the button is clicked, the paragraph content changes to "Paragraph changed.".

## JavaScript in `<body>` tag



Try to understand that JavaScript is placed within the `<body>...</body>` tag. This is used when a script is needed to execute as the page loads. It ensures the script is used to define contents in the page.



The screenshot shows a code editor with the following HTML code:

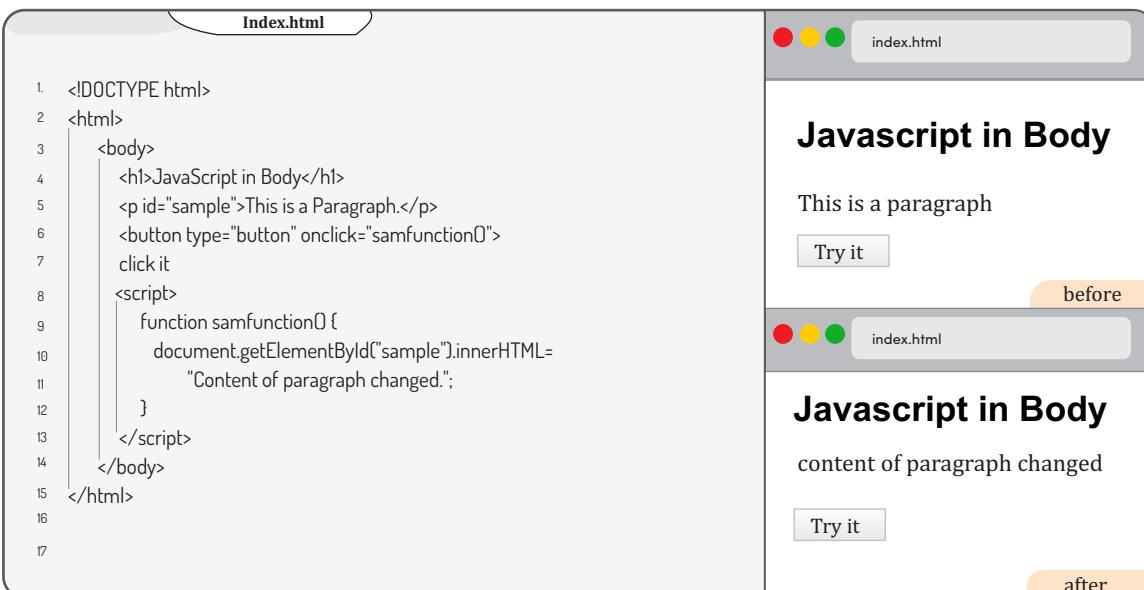
```

1 <!DOCTYPE html>
2 <html>
3   <head>
4   </head>
5   <body>
6     <script type="text/javascript">
7       document.write("Good Morning!")
8     </script>
9     <p>This script of this web page is defined in the body tag. </p>
10    </body>
11 </html>

```

To the right, there is a preview window titled "index.html" showing the output: "Good Morning!". Below the preview, a note says "The script of this web page is in the body tag".

Another example of JavaScript placed in the <body> tag is defined with a function called sampfunction, which is to be executed when the button is clicked.



The screenshot shows a code editor with the following HTML code:

```

1 <!DOCTYPE html>
2 <html>
3   <body>
4     <h1>JavaScript in Body</h1>
5     <p id="sample">This is a Paragraph.</p>
6     <button type="button" onclick="samfunction0">
7       click it
8     </button>
9     <script>
10    function samfunction0 {
11      document.getElementById("sample").innerHTML=
12        "Content of paragraph changed.";
13    }
14  </script>
15 </body>
16 </html>
17

```

To the right, there are two preview windows. The top one is titled "index.html" and shows the text "This is a paragraph" with a "Try it" button below it. The bottom one is also titled "index.html" and shows the text "content of paragraph changed" with a "Try it" button below it. A label "before" is positioned between the two previews.

## External JavaScript



Like CSS, it will interest you to know that JavaScript can also be placed outside of an html document. This type of JavaScript is regarded as external JavaScript and must be saved with a .js extension. The external .js file is first created and can be referenced by the html document that needs the script. External .js file promote code re-use since a file name can be inserted into multiple source code that needs it.

**Example:**

```

file.js
12 function samfunction() {
13   document.getElementById("sample").innerHTML = " Content of paragraph changed.";
14 }
15

```

you need to understand that to use an external script, put the name of the script file in the src (source) attribute of a <script> tag:

The screenshot shows a browser window with two tabs: 'Index.html' and 'index.html'. The 'Index.html' tab contains the source code for an HTML page. The 'index.html' tab shows the rendered content of the page.

**Index.html (Source Code):**

```

1  <!DOCTYPE html>
2  <html>
3    <body>
4      <h1>External JavaScript</h1>
5      <p id="sample">This is a Paragraph.</p>
6      <button type="button" onclick="samfunction()">Click it</button>
7      <p>
8        <strong>Note:</strong> samfunction is stored in an external file called "file.js".
9      </p>
10
11     <script src="file.js"></script>
12
13   </body>
14 </html>
15
16
17

```

**index.html (Content):**

The page displays the following content:

# External JavaScript

This is a paragraph

**Note:** samFunctions are stored in an external file called file.js before

**Click it**

The note above the 'Click it' button says 'before'.

**index.html (Content after click):**

This is a paragraph

**Note:** samFunctions are stored in an external file called file.js after

**Click it**

The note above the 'Click it' button says 'after'.

**External JavaScript Advantages**

Placing JavaScripts in external files has some advantages:

1. It splits HTML and JavaScript code.
2. It makes for easier maintenance of both the html and JavaScript code.
3. Cached JavaScript files can speed up page loads

**JavaScript Statements**

| 2 mins

I want you to know that JavaScript statements are composed of Values, Operators, Expressions, Keywords, and Comments.

**JavaScript Values**

Bear in mind that the JavaScript syntax defines two types of values: Fixed values and variable values. Fixed values are called literals. Variable values are called variables.

## A. JavaScript Literals

I want you to understand that the most important rules for writing fixed values are:

- Numbers are written with or without decimals:

10.50

1001

- Strings are text, written within double or single quotes:

"John Doe"

'John Doe'

## B. JavaScript Variables

I want you to have it at the back of your mind that Variables are used to store data values in a programming language. JavaScript uses the var keyword to declare variables. An equal sign is used to assign values to variables.

### Example:

```
var y;
```

```
y = 2;
```

### Activity 1

### JavaScript Function

#### Tasks

- In order to implement web pages to facilitate interaction without page reloading

#### Questions

- Which of the programming language will you embrace?

Write a JavaScript Function to reveal the Nigerian independence day of the year.  
Explain the JavaScript Statements?



## JavaScript Operators

It is of important for you to know that there are different operators in JavaScript. Assignment and Arithmetic operators are discussed here. JavaScript uses an assignment operator (`=`) to assign values to variables:

### Study Tips

JavaScript also uses arithmetic operators (`+ - * /`) to compute values:

```
var x = 5;
var y = 6;
(7*8) / 2
```

```
1. <!DOCTYPE html>
2. <html>
3.   <body>
4.     <h1>JavaScript Arithmetic Operators</h1>
5.     <p>JavaScript uses arithmetic operators to compute values</p>
6.     <p id="sample"></p>
7.     <script>
8.       document.getElementById("sample").innerHTML = (7*8)/2;
9.     </script>
10.    </body>
11.  </html>
```



index.html

### JavaScript uses arithmetic operators to compute values

JavaScript uses arithmetic operators to compute values

28

## JavaScript Expressions

Try to understand that an expression is a combination of values, variables, and operators, which computes to a value.

I want you to bear in mind that the computation is called an evaluation.

For example, `7 * 2` evaluates to `14`:



Expressions can also contain variable values:

```
x * 10
```

The values can be of various types, such as numbers and strings. For example,

`"John" + " " + "Doe"`, evaluates to `"John Doe"`

`"John" + " " + "Doe."`

```
1 <!DOCTYPE html>
2 <html>
3   <body>
4     <h1>JavaScript Expressions</h1>
5     <p>Expressions compute to values.</p>
6     <p id="sample"></p>
7     <script>
8       document.getElementById("sample").innerHTML
9         = "John" + " " + "Doe";
10    </script>
11  </body>
12 </html>
```

index.html

result:

**Javascript Expression**

Expressions to compute value

John Doe



## - •Summary

In this unit, you have learnt that JavaScript is programming language implemented in day to day web pages to facilitate various forms of interactions without reloading the page. In this unit, you also learnt:

- The meaning of JavaScript and its syntax
- The advantages of JavaScript
- JavaScript Comments and Case Sensitivity
- JavaScript Function and where to place the script in the html document
- JavaScript Statements



### Self Assessment Questions



1. What is JavaScript
2. list the advantages of JavaScript
3. Describe the meaning of JavaScript function



## Tutor Marked Assessment

- I want you to write a JavaScript Function to display the present time of the day. Place the script in the head and body tags as well as external.



## Further Reading

- [https://www.w3schools.com/css/css\\_intro.asp/](https://www.w3schools.com/css/css_intro.asp/)
- [https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First\\_steps](https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps)
- <http://cglab.ca/~morin/teaching/2405/notes/javascript1.pdf>
- [https://eloquentjavascript.net/Eloquent\\_JavaScript.pdf](https://eloquentjavascript.net/Eloquent_JavaScript.pdf)
- [https://www.tutorialspoint.com/javascript/javascript\\_tutorial.pdf](https://www.tutorialspoint.com/javascript/javascript_tutorial.pdf)



## References

- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc



## Notepad++

```
jquery.github.js - Notepad++
88  };
89
90 // Request repositories from Github
91 Github.prototype.requestData = function( repo ) {
92     var that = this;
93
94     $.ajax({
95         url: "https://api.github.com/repos/" + repo,
96         dataType: "jsonp",
97         success: function( results ) {
98             var result_data = results.data,
99                 isFailling = results.meta.status >= 400 && result_data.message;
100
101             if ( isFailling ) {
102                 that.handleErrorRequest( result_data );
103                 return;
104             }
105
106             that.handleSuccessfulRequest( result_data );
107     });
108 }
```

## UNIT 2

# WYSIWYG and Text Editors



### Introduction

In this unit, I want you to know that WYSIWYG means what you see is what you get.

Text Editors are application programs used by programmers to develop software products like web pages, problem-solving tools and many more. You will also learn the description of Test Editors along with characteristics and some examples.

### Learning Outcomes

At the end of this unit, you should be able to:

- 1 describe wysiwyg
- 2 define text editor
- 3 identify a good text editor through its characteristics
- 4 list examples of text editors

 **Main Content**

## WYSIWYG



| 1 mins



SAQ 1

**D**o you know WYSIWYG which is often pronounced wiz-ee-wig is an acronym for “what you see is what you get”. I want you to know It is an editor that permits developers to see what the end result will look like while the document is being created. Web pages, Slide presentations, printed documents are examples of WYSIWYG files. It will interest you that the contents of these files can be edited in a form closely resembling their appearance when they are displayed.

I want you to try to note that In web pages, WYSIWYG means the display specifically depicts the look of the page displayed to the user but not necessarily reflect how the page will be printed. Bear in mind that sometimes the variances between what the user sees and what the user gets can be ignored. I want you to know that many applications offer diverse WYSIWYG view to users with several levels of practicality such as:

-  Composition mode: In this mode, what the user sees is alike to the end result, though the user's view may have more information necessary to help document composition, such as, section breaks and non-printing characters.
- Layout mode: what the user sees is alike to the end result but with more information on document layout such as, properly aligned elements, space and margins.
- Preview mode: here, the application tries to present a representation close to the final result

## Text Editors

1 mins



SAQ 2

Try to understand that Text Editors are computer programs designed to edit plain-text files. With a single editor, the developer can create and edit a variety of programming language documents. It will interest you to know that it is also described as an environment where programming codes can be written. Many programming languages make use of text editors. For example, Python, HTML, CSS, JavaScript, PHP and so on.

## Characteristics of a good Text Editor

1 min |



SAQ 3

You should be aware that there are some common characteristics expected of a good Text Editor. The characteristics enable the developers to decide from a variety of existing Text Editors which one to choose. Some of these characteristics are:

- a) It must have easy navigation properties to enable ease of use.
- b) Easy finding and replacement of every occurrence of a word within a file.
- c) Ability to cut, copy, and paste word(s).
- d) Capable to handle UTF8\* encoded text.
- e) It should be able to highlight program Syntax to facilitate code read up and easy error detection.
- f) It should have a good interactive user interface.
- g) Ability to store and retrieve files on secondary storage with consistency.

## Examples of Text Editors

2 mins

I want you to note that Programming structure can be from simple to very complicated structures for a large software project. To achieve the project aim, the developer can choose to use a preferred, trustworthy text editor. The following are some examples:

### 1. Microsoft Notepad

This is a very important example I want you to note. It is simple and easy to use editor. It is free and available by default on all Microsoft Windows computers.

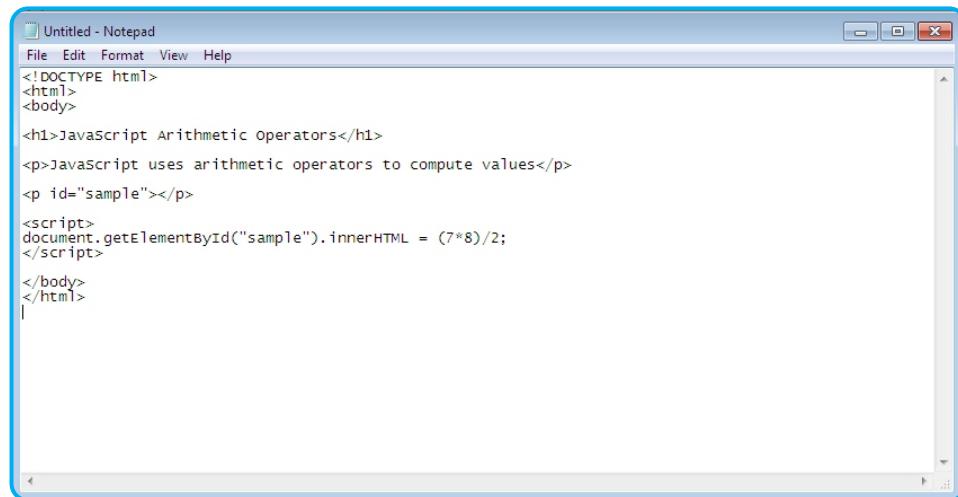


Figure 1: Notepad interface

## 2. Notepad++

I want you to bear in mind that this is an advanced version of Notepad, and it is available for Microsoft Windows computers. It supports many languages and has the auto-complete feature that enables the user guess what is to be typed. Features like syntax highlighting/colouring, find and replace, cold folding are also present.

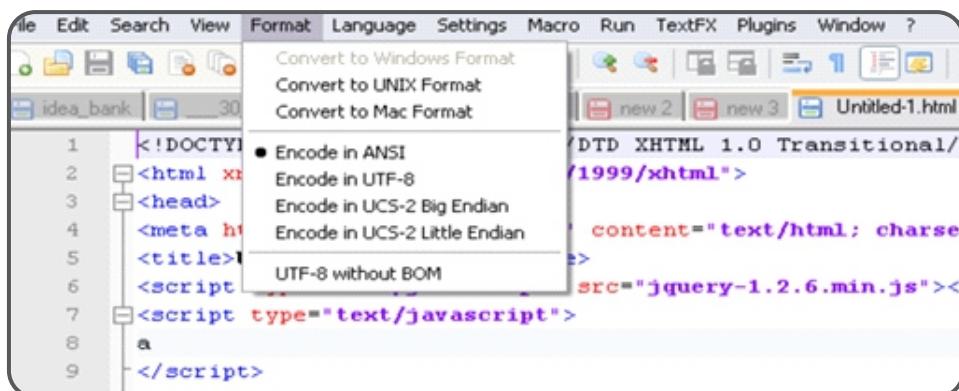


Figure 2: Notepad++ Interface

## 3. Gedit

Another important point I want you to know is gedit which is the official text editor of the GNOME desktop for Linux operating system. It also has more features than the built-in Notepad on windows. It is mainly used for programming and mark-up. It has a plugin for additional features.

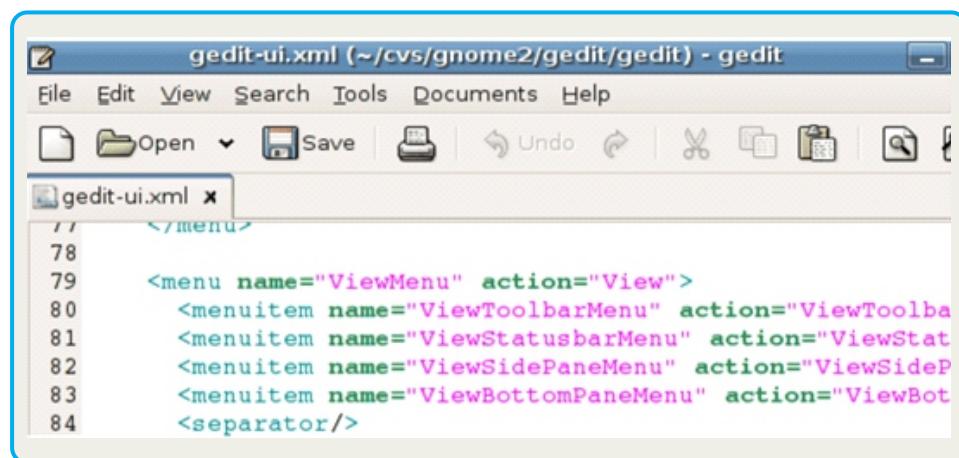


Figure 3: Gedit Interface

#### 4. GNU Emacs

I want you to understand that this is available on Window, Mac, and Linux Operating systems. It is an extendable text editor for programmers. The extendable features enable developers to use project planner and debugger along with other things. It can also be used to compare files and highlight the differences between them.

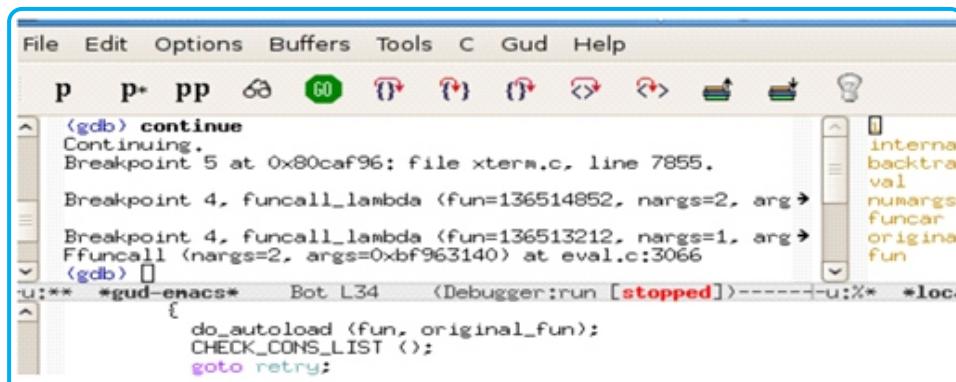


Figure 4: Emac Interface

#### 5. Macromedia Dreamweaver

I want you to know that this is a program development tool that can design, develop and maintain standard based websites and its applications. You should be aware that It provides a combination of visual layout tools, development tools and code editing support. It also provides a good user interface.



Figure 5: Macromedia Dreamweaver

## Activity 1

### Services Provided by the Internet

#### Tasks

- Your boss gave you an urgent task to develop an application programs to develop software products

#### Questions

- To achieve this aim, which text editor will you prefer to use?
- Explain the characteristics of a good text editor.



**Notepad++**

```
jquery.github.js - Notepad++
=====
// Request repositories from Github
Github.prototype.requestData = function( repo ) {
    var that = this;
    $ajax({
        url: "https://api.github.com/repos/" + repo,
        dataType: "json",
        success: function( results ) {
            var result_data = results.data;
            if( isFailing() ) {
                that.handleErrorRequest( result_data );
                return;
            }
        }
    });
}
=====
```



## •Summary

In this unit, you have learnt that WYSISYG means what you see is what you get, which simply describes user experience while developing versus final result. Different Text Editors that are used by website and program developers are available for diverse operating systems and software product.



## Self Assessment Questions



1. What is WYSIWYG?
2. Define text editor.
3. List five (5) characteristics of a good Text Editor.



## Tutor Marked Assessment

- Differentiate between any three (3) examples of Text Editors.
- List and explain three (3) practical views of WYSIWYG levels that can be offered to developers.
- List seven (7) characteristics of a good Text Editor.



## Further Reading

- <https://learntocodewith.me/programming/basics/text-editors/>
- [http://www.tezu.ernet.in/~utpal/course\\_mat/ss\\_editor.html](http://www.tezu.ernet.in/~utpal/course_mat/ss_editor.html)
- [https://en.wikipedia.org/wiki/Text\\_editor](https://en.wikipedia.org/wiki/Text_editor)
- <https://www.webfx.com/blog/web-design/12-excellent-free-text-editors-for-coders/>



## References

- Patel, M. (2017). HTML, CSS, Bootstrap, Javascript and Jquery
- Wempen, F.(2011). Step by step HTML5. Sebastopol, Ca: O'Reilly Media, Inc.