



KWARA STATE POLYTECHNIC, ILORIN
INSTITUTION OF INFORMATION COMMUNICATION TECHNOLOGY
A TECHNICAL REPORT ON STUDENT INDUSTRIAL WORK EXPERIENCE
SCHEME (SIWES)

Undertaken at

RICHVIEW TECHNOLOGY COMPUTER IT
ISOLO-OSHODI, LAGOS STATE

Submitted to

THE DEPARTMENT OF COMPUTER SCIENCE

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I thank Almighty ALLAH, the creator of Heaven and Earth for granting me the grace and privilege to be able to complete this SIWES program successfully and on schedule.

I also acknowledge the effort of my parent (Mr. and Mrs. MUHAMMED) for their moral and financial support during the industrial training. I also acknowledge the effort of my industrial based supervisor (Mr, Timileyin) for his full support and motivation in computer website design, Cyber security, Networking and development during the industrial training.

DEDICATION

The Student Industrial work experience scheme (SIWES) is dedicated to Almighty God who has being the alpha and omega starting from the beginning to the end of the training and also to my parent for their financial support during the course of the industrial training.

ABSTRACT

This report is a summary of all work experience I have been able to gather during my SIWES training programme at **RICHVIEW TECHNOLOGY COMPUTER IT**

The report contains my all my experience in front-end development in relation to HTML, CSS, Java Script and Networking.

The internship experience focused on acquiring practical skills by developing web applications while simultaneously addressing potential Networking. Various web development technologies, including HTML, CSS, JavaScript and Networking were utilized to create dynamic and responsive user interfaces. The Web Development SIWES program offers a comprehensive learning experience in building and maintaining websites, focusing on the essential skills needed to design, develop, and optimize dynamic web applications. Over the course of the program, participants gained hands-on experience with front-end and back-end technologies. Emphasis was placed on creating responsive, user-friendly designs and implementing efficient coding practices.

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CHAPTER ONE

INTRODUCTION

1.0 HISTORY OF SIWES

The Student Industrial Work Experience Scheme (SIWES) is a program which forms part of the academic standards in the degree program for Nigerian Universities. The Federal Government of Nigeria introduced the policy on Industrial training, called the Student Industrial Work Experience Scheme (SIWES) IN 1974. The Industrial Training Fund (ITF) is in charge of this program which is under the umbrella of the Ministry of Education. SIWES was designed to help students acquire the necessary practical education/experience in their fields of study and other related professions.

This is an effort which was created in order to compliment the theory taught in the classrooms of the Nigerian tertiary institutions. This objective of the program is exposing students to the use of various machines and equipment's, professional work methods and ways of safeguarding the work areas in industries as well as other organizations. SIWES was established to impart practical knowledge to students with respect to their various disciplines.

This training is funded by the Federal Government of Nigeria and coordinated by the Industrial Training Fund (ITF) and the National Universities Commission (NUC). The SIWES program involves the student, the Universities and the industries.

1.1. OBJECTIVES OF SIWES

The objective of SIWES among others include to:

- provide an avenue for students in institutions of higher learning to acquire industrial skills and experience in their approved course of study;
- Prepare students for the industrial work situation which they are likely to meet after graduation. Expose students to work methods and techniques in handling equipment and machinery in their institutions.
- Provide students with an opportunity to apply their knowledge in real work situation thereby bridging the gap between theory and practices.
- Enlist and strengthen employers' involvement in the entire education process and prepare students for employment in industry and commerce.

CHAPTER TWO

2.0 DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

RICEVIEW TECHNOLOGY COMPUTER IT is a fully indigenous and non-governmental company that provides clients with quality, cost effective and innovative IT and security solutions, Located at Isolo - Oshodi, Lagos State. **RICEVIEW TECHNOLOGY COMPUTER IT** focuses on total client satisfaction. The Company has built reputable standard over the years from her vast technical knowledge and competence, in project management and execution.

2.1 OBJECTIVES OF ESTABLISHMENT

To be a first choice Information and Communication Technology (ICT) company with the idea of rendering unmatched excellent professional solution to our clients in line with emerging technology.

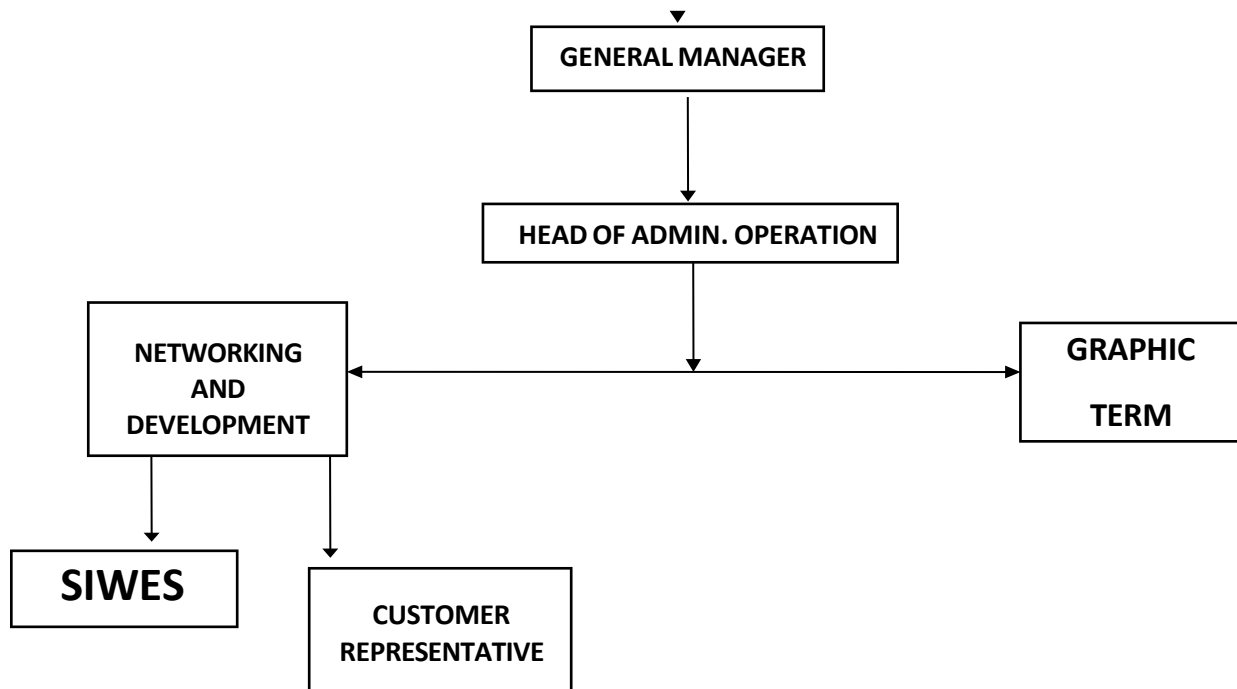
2.2 MISSION OF THE COMPANY

Our reason for existing as a company is to provide unbeatable first choice consistent professional service solution.

2.3 CORE VALUES

- Integrity
- Services
- Commitment
- Excellence
- Professionalism

2.4 ORGANIZATION STRUCTURE OF RICHVIW TECHNOLOGY COMPUTER IT



2.5 COMPANY AREA OF SPECIALIZATION

With a team of professional Computer programmers, web development, data science, Graphic designers, UI/UX, and Networking, the Company has a reputable recognition in the following areas:

● **Software Development**

Their customer-centered approach enables their developers to capture your business requirements and develop a fully customized software solution that solves your unique business needs.

If you are looking for a reliable software development company to enhance your business performance, that differentiates you from your competitors and helps you become more cost efficient, they are in a better position to do that. Their software services have helped their clients achieve the following:

- High quality solutions that tailor fit the business requirements
- Scalable solution that grows with client requirement
- Streamlining customer business work-flow
- Productivity Improvement
- Reduction in overheads and increase in return on investment (ROI)

- **Website Design**

They are set to work as a professional that helps both individuals and companies create and manage their online presence in a dynamic, efficient and unique way which makes you, your product or company stand tall in this virtual world. Your website is the vehicle that targets, attracts, and qualifies your visitors before turning those visitors into monetized customers. The pages and applications that make up your web presence are critical to your web strategy, and **RICHVIEW TECHNOLOGY COMPUTER IT** can help you create a solution that accomplishes your goals. From site redesigns to end to end custom applications, they can put together a solution that you can be confident in from all sides of your web marketing strategy.

- **Networking**

This department is saddled with the responsibility of designing the entire network; provide network service to clients of data, voice and video. Staff in this unit includes network engineers and system analysts.

- **Graphic Design**

Graphic Design is a field of computer science that involves the visual communication of ideas and messages through the use of typography, color, and images. It involves the creation of visual elements such as logos, graphics, icons, and graphics for websites, magazines, newspapers, and other media.

- **UI/UX DESIGN**

Our company specializes in creating intuitive and engaging User Interface (UI) and User Experience (UX) designs that enhance digital interactions. We focus on understanding user behavior, preferences, and needs to develop solutions that are not only aesthetically pleasing but also highly functional

CHAPTER THREE

3.0 WORK DONE

During my four-month SIWES training at [RICHVIEW TECHNOLOGY COMPUTER IT], I worked as a web development and Networking intern. My responsibilities are to assisting in the design and development of web application using [HTML, CSS and NETWORKING, JAVASCRIPT] in web development.

3.1 WEB DESIGN DEPARTMENT

This department was where my Industrial Training took place where i was grounded and expose to the website world especially the creation of websites taking me step by step with practical all through the process.

3.2 DEFINITION O F TERMS

The following are terms that were made use of, in this department

✓ WEBSITE:

A website is a set of related webpages containing content such as texts, images, videos, audios, etc. A website is hosted on at least one web server, accessible via a network such as the internet or a private LAN through an internet address known as a URL (Universal Resource Locator). A publicly accessible websites collectively constitutes the World Wide Web (WWW).

✓ WEBPAGE:

A webpage is a document, typically written in plain text interspersed with formatting instructions of hypertext nark up language (HTML, XHTML). A webpage may incorporate elements from other websites with suitable anchors. Webpages are accessed and transported with the hypertext transfer protocol (HTTP), which may occasionally employ encryption (HTTP secure, HTTPS) to provide security and privacy for the use of the webpage content. The user's application often a web browser renders the page content according to its HTML mark-up instructions into a display terminal.

✓ **HTTP:**

This stands for Hyper Text Transfer Protocol which is the set of rules for transferring files (text, graphic, images, sound, video, and other multimedia files) on the World Wide Web.

✓ **URL:**

This stands for Uniform Resource Locator and as the name suggests, it provides a way to locate a resource on the web, the hypertext system that operates over the internet.

3.3 INTRODUCTION TO WEB DEVELOPMENT

Web Development is the process of building and maintaining website, web application and mobile application using various programming language, framework and tools. It is divided into (3) which involve:

- Frontend development
- Backend development
- Full – stack development

✓ **Frontend development:** creating user interface user experience and client side logic using html, CSS, and JavaScript. And framework likes react angular, or value

✓ **Back-end development:** building server-side logic database integration and API connectivity using language like java, python, ruby, and framework like node.js.

✓ **Full- stack development:** combining frontend and backend development to create a complete web application

Web development involves various aspects such as:

1. Web design
2. User experience (ux) design
3. Web security
4. Mobile application development
5. Web assembly

Web developer uses various tools such as:

1. Text editor (e.g. visual studio code)
2. Integrated development environment (IDE)
3. Database management system
4. Testing framework

3.4 FRONTEND DEVELOPMENT

HTML (HYPERTEXT MARKUP LANGUAGE)

Html (Hypertext Markup Language): is the standard markup language used to create web page it's the backbone of a website, providing the structure and content that the web browser render the user. It defines the structure and layout of a web page, html consists of series of element, represented tags (<>), these elements include:

1. Heading (h1 – h6)
2. Image (img)
3. Span (span)
4. Title (title)
5. Paragraph (p)
6. Form (form input, select) etc

HTML AND ITS PROPERTIES

HTML stands for **H**ypertext **M**ark-up **L**anguage, and it is the most widely used language to write Web Pages.

- ✧ **Hypertext** refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext.
- ✧ As its name suggests, HTML is a **Markup Language** which means you use HTML to simply "mark-up" a text document with tags that tell a Web browser how to structure it to display.

Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers.

Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.

HTML TAGS:

As told earlier, HTML is a markup language and makes use of various tags to format the content.

These tags are enclosed within angle braces **<Tag Name>**. Except few tags, most of the tags have their corresponding closing tags. For example, **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag etc

Tag	Description
<html>	This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.
<head>	This tag represents the document's header which can keep other HTML tags like <title>, <link>, <script language="javascript"> etc.
<title>	The <title> tag is used inside the <head> tag to mention the document title.
<body>	This tag represents the document's body which keeps other HTML tags like <h1>, <div>, <p>, <table> etc.
<h1>	This tag represents a heading
<p>	This tag represents a paragraph.
, <i>, , 	Bold, italic, list, unordered list

The following are the names of tags and their description

HTML DOM [DOCUMENT OBJECT MODEL]



```

Welcome  gem.html  code.html  # gem.css  JS gem.js
main ▾  code.html ▾  html
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <meta http-equiv="X-UA-Compatible" content="ie=edge">
7      <title>industrial training</title>
8  </head>
9  <body>
10
11 </body>
12 </html>

```

3.5 CSS (CASCADING STYLE SHEETS)

CSS (Cascading Style Sheets): is a styling language used to control the layout and visual appearance of web page written in html. It also, used in target specific html element to apply style and consist of properties and value example (color: red; padding: 10px;,) etc

HOW TO CONNECT YOUR CSS TO YOUR HTML

We can connect CSS to html in 3 ways:

1. Inline CSS
2. Internal CSS
3. External CSS

1. Inline CSS: written directly within an html element using the style attribute.

Example; `<p style = "color: blue ;"> this is inline CSS </p>`

2. Internal CSS: written within an html file using the `<style>` tag in the `<head>` section.

Example: `<style> /* style here */ </style>`

3. External CSS: is separate from html while internal and inline CSS are embedded within html. It generally preferred for maintainability and scalability.

table's border, and the padding around images or other objects. CSS gives

CSS AND ITS PROPERTIES

CSS stands for Cascading Style Sheet used for formatting html document. It is a style sheet language used for describing the presentation of a document written in a mark-up language.

Note: CSS code is not written the same way as HTML code is. This makes sense because css is not HTML, but rather a way of manipulating existing HTML.

REASONS FOR CSS

The following are reasons why CSS is better

1. It saves time
2. It eradicate the idea of using repeating codes
3. It provides efficiency in design and updates: with css, we are able to create rules, and apply those rules to many elements within the website.
4. It creates external file (server side) for managing html content

CSS RULES OVERRIDING

1. Any inline style sheet takes the highest priority, so it will override any rule defined in `<style>.....</style>` tags.
2. Any rule defined in `<style>.....</style>` tags will override the rules defined in any external style sheet file.

CSS COMMENTS

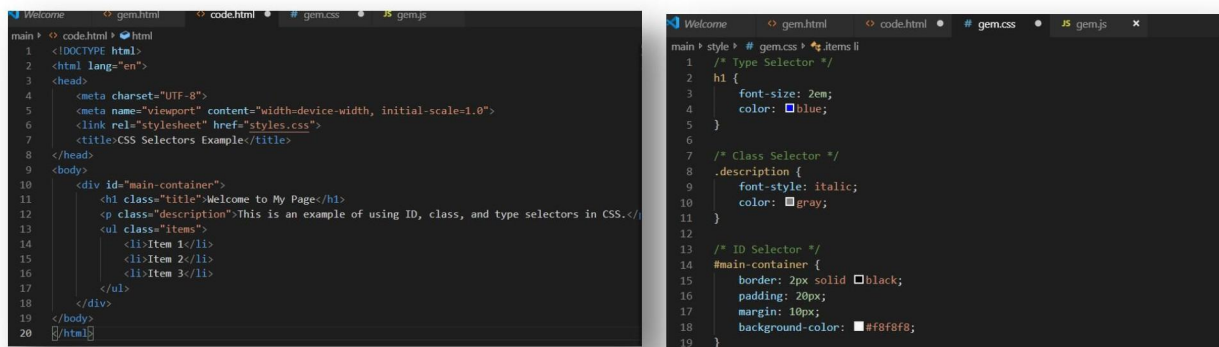
To simply put comment inside a style sheet you use `/*.....*/`, you can use it to comment multi-line blocks in similar way as you do in c and c++ programming language.

CSS SELECTOR

CSS (Cascading Style Sheets) selectors are patterns used to select elements in an HTML document that you want to style.

TYPE OF CSS SELECTOR

1. Type Selector: Targets all elements with a specific tag name (e.g., `h1`, `p`).
2. Class Selector: Targets all elements with a specific class (e.g., `.nav`, `.header`).
3. ID Selector: Targets a single element with a specific ID (e.g., `#header`, `#footer`).



3.6 JAVASCRIPT

JavaScript: is a high-level dynamic and interpreted programming language used for client-side scripting on the web. It allows developer to create interactive web page, web application and mobile application. It is used for:

1. Client – side scripting
2. Server – side programming
3. Game development
4. Mobile development

WAY TO DECLARE A VARIABLE IN JAVASCRIPT

1. Var.
2. Let.
3. Const.

1. Var.: is a global object that can be access anywhere. It didn't have a scope.

Example: var name: "mercy";

Console.log (name)

2. Let : is a block scope ,

Anything inside curly bracket define scope

Example: {

Let name = "john";

}

Console.log (name);

CONCATENATION

Concatenation: mean joining two things together to become one. Using template string to concatenate:

1. Back tick
2. Dollar sign
3. Curly bracket

Example:

Let first name = "jerry"

Let second name = "Akanke"

let full name = `\${first name}\${second name}`

Console.log (full name);

- **Console:** this is a feature in almost all browser it work with java Script to output a value to the console.
- **Alert [] method:** is a built in function that display a message box with a specified message and an ok button. it is often used to alert or notify the user of something important

DATA TYPE IN JAVASCRIPT PROGRAMMING

Data type is a classification of data based on its format, size, and set of values, it can hold. JavaScript Is a dynamically-typed language, which means that you don't need to declare the data type of a variable before using it?

TYPE DATA TYPE IN JAVASCRIPT

1. **Number:** represents a numeric value e.g., 42,3.14
2. **String:** represent a sequence of character e.g., "hello"
3. **Boolean:** represent a true or false value.
4. **Null:** represent the absence of any value.
5. **Variable:** Are containers that hold a value think of it like a labeled box where you can store value. E.g.,

Age =20,

console.log (age)

6. **Array:** represent a collection of value, e.g., [1,2,3,4,5,6]

Method of array

1. **Push:** it is use to push information into array

Example:

Let user =

["Samuel",

"Jade",

]

ser. Push ("favor")

Console.log (user)

2. **Pop :** is used for delete item from the back

Example:

Let user = []

User. push ("Tom")

User. push ("Sunday")

User.pop ("favor")

Console.log (user)

3. **Shift () method:** is used to remove the first element from an array and return that element. It change the length of the array and shift all the element down by one position

/*

Let color = ["red", "green", "blue", "yellow",]

Console.log (color. shift ()); // output: "red",

Output ["green", "blue", "yellow",] */

4. Un-shift () method: is a built-in JavaScript array method that adds one or more elements to the beginning of an array. It modifies the original array and returns the new length of the array after the elements have been added.

Example:

```
Let fruits = ['banana', 'orange', 'apple'];  
fruits.unshift('mango'); // Adding a single element  
console.log (fruits); // Output: ['mango', 'banana', 'orange', 'apple'].
```

7. Object: is a complex data type that allows you to store collections of data and more complex entities. Objects can hold multiple values in the form of key-value pairs, where each key (also known as a property) is a string (or a Symbol) that map to a value, which can be of any data type, including another object or even a function.

Example;

```
Const person =  
  
{ Name: "Alice",  
  
Age: 25,  
  
Is Student: false  
  
};  
  
console.log (person)
```

8. Function: is a reusable block of code that performs a specific task. Functions allow you to encapsulate logic, making it easier to write, manage, and reuse code. Functions can take inputs (called parameters), perform operations, and return outputs (values).

2 Common Way To Declare A Function

1. Function Declaration: is a way to define a named function using the function keyword. This is one of the most common ways to create functions in JavaScript. Function declarations are hoisted, meaning they can be called before they are defined in the code, making them flexible for organizing code.

Example:

```
Function functionName (parameter1, parameter2) {  
// Code to be executed  
Return result; // Optional  
}
```

Example:

Functions add (a, b)

```
{ Return a + b;  
}
```

```
console.log (add (3, 5)); // Output: 8
```

2. An arrow function: is a feature in JavaScript introduced with ECMAScript 6 (ES6) that provides a more concise syntax for writing function expressions.

```
Const function Name = (parameter1, parameter2) => {
```

```
// Code to be executed
```

```
Return result; // Optional
```

```
}
```

Example:

```
Const subtract = (a, b) => a - b; // Single expression, implicit return
```

```
console.log (subtract (10, 4)); // Output: 6
```

CONDITIONALS/DECISION MAKING IN JAVASCRIPT

Condition or decision-making in JavaScript allows you to execute different blocks of code based on certain conditions. This is a fundamental aspect of programming that enables dynamic and flexible application behavior. JavaScript provides several statements for decision-making, including if, else, switch, and the ternary operator.

1. if Statement

If statement: evaluates a condition and executes a block of code if the condition is true.

Example:

```
Let temperature = 30;
```

```
If (temperature > 25) {
```

```
console.log ("It's a hot day.");
```

```
}
```

2. if...else Statement

You can provide an alternative block of code to execute if the condition is false using else.

Example:

```
Let temperature = 20;

If (temperature > 25) {

console.log ("It's a hot day.");

} else {

console.log ("It's not a hot day.");

}
```

3. else if Statement

For multiple conditions, you can use else if to test additional conditions.

Example:

```
Let temperature = 10;

If (temperature > 25) {

console.log ("It's a hot day.");

} else if (temperature < 15)

{ console.log ("It's a cold day.");

} else {

console.log ("It's a mild day.");

}
```

RULES AND CONVENTION OF JAVASCRIPT

- Semi-Column (;): Java is not compulsory at the end of every JavaScript statement, however it is a good practice to insert a semi-column after scripting statements, because it enhance the readability of the code.
- Comment: The comment in JavaScript is very similar to that of java.
- Quote (""): Double or Single quote is allowed to en-string characters.

JavaScript allow us to use double and single quote when using quote within another pair of quotes.

- Case Sensitivity: JavaScript is case sensitive scripting lang. e.g in JavaScript variable (a) is different from variable (A).

Rules guiding and variable name in JavaScript are the same with the one in Java.

Data that can be store by variable;

1. Numeric
2. String
3. Boolean (True/False)

Variable Declaration

Var X;

X = 12;

X =] "Ade"

The data type depends on the current value the variable holds.

OPERATORS IN JAVASCRIPT

1. Arithmetic Operator +, -, *, /, %
2. Relational Operator <, >, ==, !=
3. Bitwise Operator &, |, ^, <<, >>
4. Logical Operator AND, OR
5. Assignment Operator *=, +=, -=, /=, %=
6. Conditional Operator?

CHAPTER FOUR

4.0 INTRODUCTION TO NETWORKING

Network are component involve in connecting computer and application across small and large distance. Each computer on the network has access to the files and peripheral device (such as printers or modems) on all the other computers on the network.

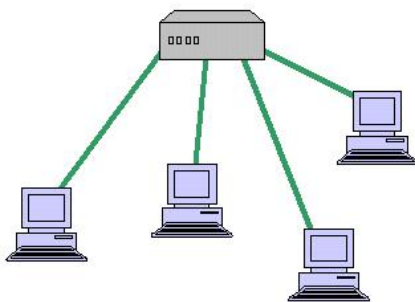
4.1 NETWORK TOPOLOGY

Common topology found in networking includes mesh topology star topology, bus topology, ring topology, and others. Network topology refers to the layout of the transmission medium and devices on a network. Topologies use either a point to point or multipoint connection scheme.

A connection scheme indicates how many devices are connected to a transmission media segment or an individual cable. An example of point-to-point connection scheme is a modem/ printer connected to computer, direct cable connection between two computers. An example of a multi point connection scheme is a star or bus topology network.

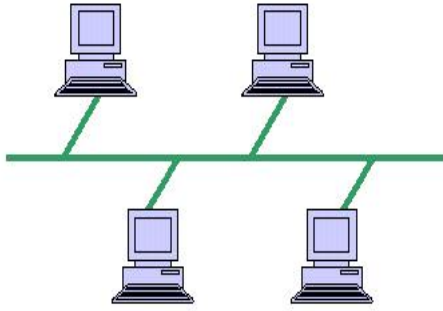
Star Topology

This is a local area network topology where all the nodes are connected individually to a central connecting device called a hub or switch. Signals travel from the nodes to the hub which then sends signals to other nodes on the network. A star topology network is scale able –i.e. it can be design and redesign easily.



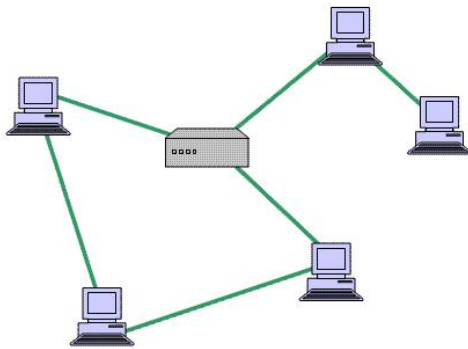
Bus Topology

A LAN topology where each node is connected to a single main bus cable, is transmits data to all the nodes on the network. The bus is actually a series of cable segments running from one node to the other. Break or faulty piece of cable anywhere on the segment prevents all the computers on the segment from being able to communicate.



Mesh Topology

This is a network topology where every node on the network has a separate wire connecting it to every other node on the network. It provides each device with a point-to-point connection to every other device in the network. This type of network has a high fault tolerance because failure of one node does not affect data transmission between other nodes.



At NOC the topology adopted is the mesh topology.

4.2 TRANSMISSION MEDIA

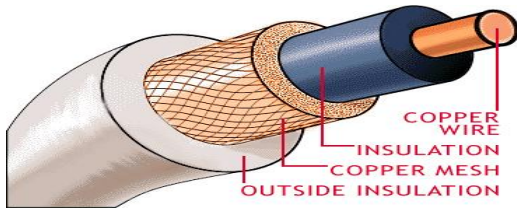
- Wired media
- Wireless media

Wired Media

These are media which require the use of wires, lines and cables to transmit communication signals. During my industrial training at NOC, I encountered majorly three different types of wired network media namely:

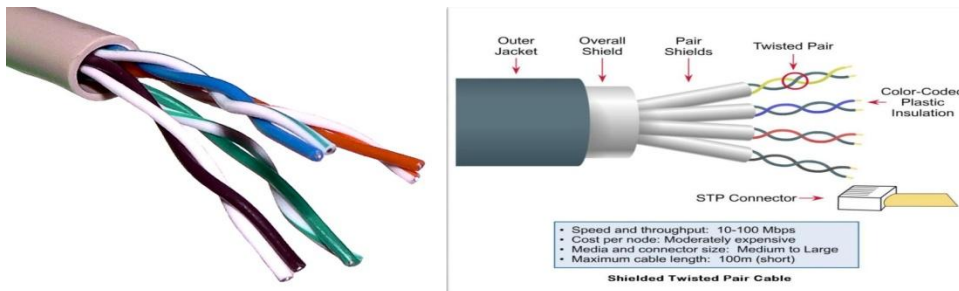
Coaxial cable

A coaxial cable is an alternative for protecting data from noise. Coaxial cables do not produce external electric and magnetic fields and are not affected by them. This makes them ideally suited, although more expensive, for transmitting signals.



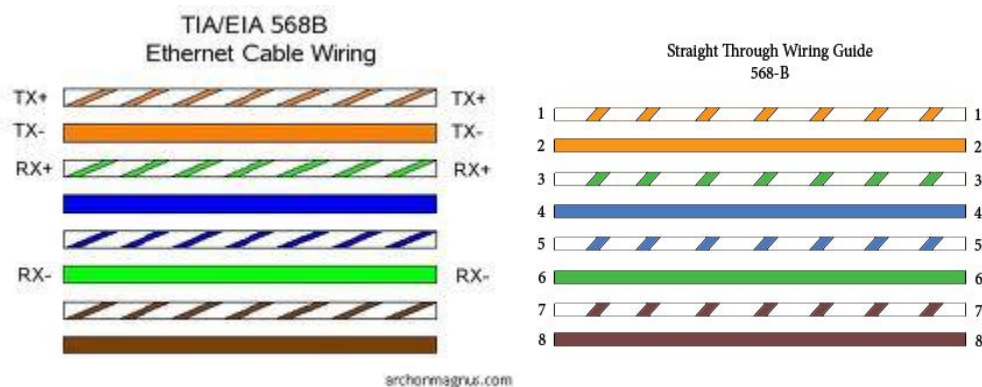
Twisted pair cable

In a twisted pair there are eight copper wire that are coated with different colours; the colours are mix/orange, orange, mix/blue, blue, mix/green, green, mix/brown and brown.

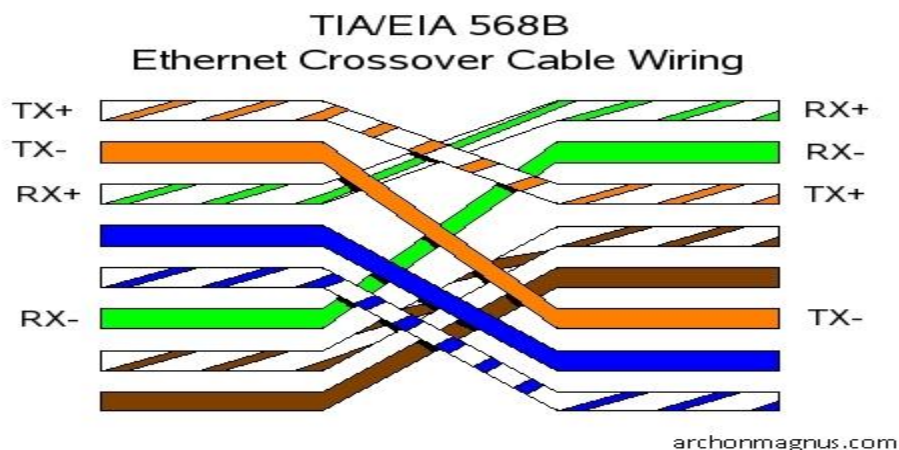


These colours are very important when terminating cables. The two most common ways of terminating Ethernet cables are:

(i) Straight-through method



(ii) cross-over method



In straight-through method, in any way you put in your cable, the colour adopted at both ends must be the same.

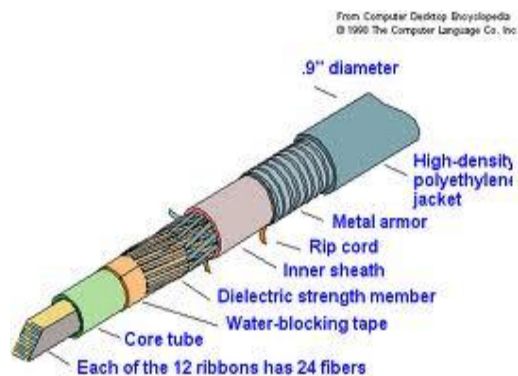
In a cross-over method all you need to do is to terminate one end with a straight rule method and the other end would be that pin '1' goes to pin '3' and vice-versa, the pin '2' then goes to pin '6' and also vice-versa.

I got to know that a cross-over cable is used to connect two similar devices like a PC to a PC while a straight through cable is used to connect different devices e.g. a PC to a router.

Fibre optic cable

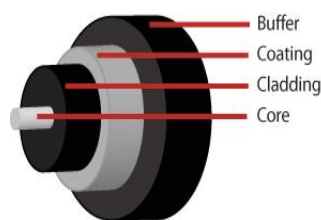
At NOC the backbone upon which the network is built is fibre optic.

It is made of glass fibres instead of wire; it consists of a centre glass core surrounded by several layers of protective material. The outer insulating jacket is made of Teflon or PVC. The fibre optic cables transmit light rather than electronic signals, thereby eliminating the problem of electrical interference.

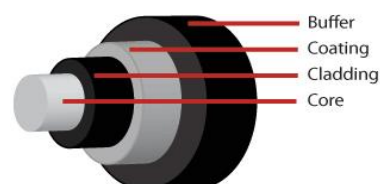


Optical fibres come in two types:

- Single-mode fibres



- Multi-mode fibres



Single-mode fibres have small cores while

Multi-mode fibres have larger cores. Used for short-distance communication links.

Wireless Media

To fully explore the wireless added dimension, Communication system designers have sought to use wireless media to reduce infrastructure cost and complexity, when compared to wired communication systems. There is no need to construct miles of telephone line poles or cable trenches. During my stay at NOC I was able to interact with the following devices:

4.3 NETWORK EQUIPMENT

Some network equipment:

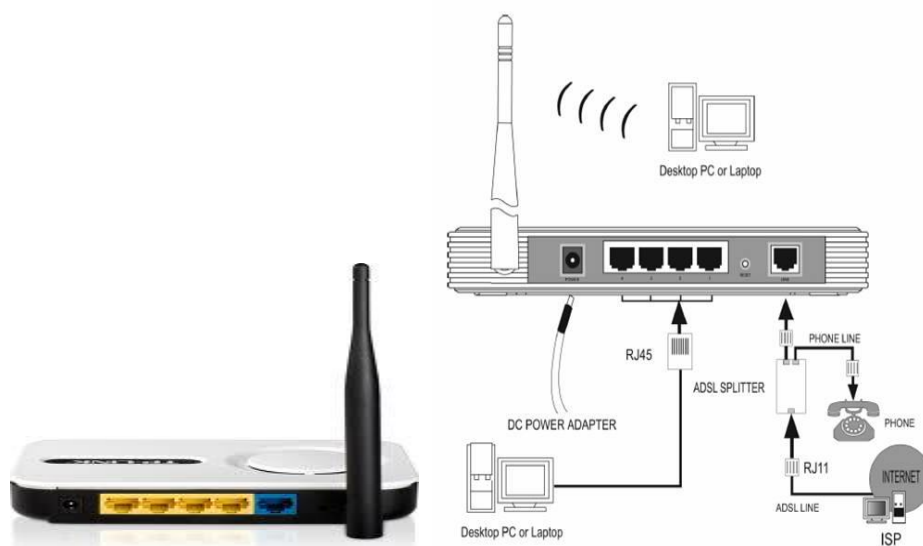
Ethernet Radio

Is a device that sends and receive packets from one network to the other.



Router

A router is a device that forwards data packets between computer networks, creating an overlay internetwork. A router is connected to two or more data lines from different networks. When a data packet comes in one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey.



Switch

A network switch is a computer networking device that connects network segments or network devices. It serves mainly for extension.

Antenna

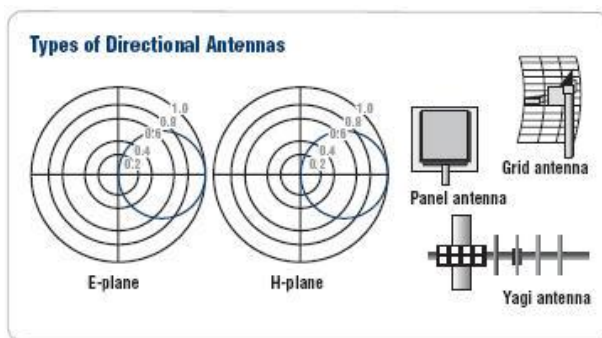
It's a device that aid and enhances the signal strength and quality. Antennas are not used alone; it is always attached to something mostly to an antennas. An antenna is of two types in terms of direction Directional and Omni-directional. Directional beams signal in one direction while Omni- directional beams signals in all direction. Antennas are better propagated horizontally.



Unidirectional antenna



parabolic grid antenna



Twisted pair Cable

Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each connection on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

Connectors

Rj-45 plug is the common name for an 8P8C modular connector using 8 conductors which pin down wires in a twisted pair cable.



Crimping tool

Is a tool used to terminate category cables such as CAT1-CAT6 using an RJ-45 connector; it can also be used to cut cable to a desired length.



LAN cable tester

This is used to test if a category cable has been well terminated, or develop a fault.



4.4 IP ADDRESSING

An IP address is a unique identifier that is assigned to a host on a network. It is also a unique identifier for a host or a node on a network. We have IPv4 and IPv6. The most used being IPv4 (with 32bits).

Functions of IP Addressing

- For location of a device on the network
- It is assigned to allow hosts on one network to communicate to hosts on another network
- IPv4 address is 32 bits divided in to four octets or bytes using dot '.'.

Classes of IPv4 Addresses

IPv4 which is 32bits has class ranges from class A-E

Class A

This Class address can only be between 0 and 127. All 0's reserved for default route and '127' is reserved for trouble shooting –loop back, therefore in reality Class A valid address range that can be assigned to host on a network is 10-126

Class B

Class B address can only be between 172 – 191

Class C

Class address can only be between 192 – 223

Class A-C is used for unicast.

Class D and E

Class D (224-239) used for multicasting

- Class E (240-255) for research purposes

Broadcast Address

This is the address used to send data to all hosts on a broadcast domain.

When all the host bits are on ('1') this is a broadcast address for all hosts

255 are reserved for sending broadcast message.

Subnet ting

The basic function of sub-netting is to define the class boundary.

To create subnets you take bits from the host portion of the IP address and reserve them to define the subnet address.

Subnet Mask

The subnet mask for class A ranges from 255.0.0.0

The subnet mask for class B ranges from 255.255.0.0

The subnet mask for class C ranges from 255.255.255.0

The first octet determines the class.

The '255' above represent the network portion and the zeros represent the host portion.

Private IP address ranges

The ranges and the amount of usable IP's are as follows:

10.0.0.0 - 10.255.255.255

Addresses: 16,777,216

172.16.0.0 - 172.31.255.255

Addresses: 1, 048, 5

4.5 TROUBLESHOOTING SKILLS

Troubleshooting is the process of finding problems and solving them.

Should a client unable to browse or unable to make calls via the IP phone, the check begins with the cable being used if client is connected via LAN cable, this is done using the LAN-cable tester, check the face plates to know if it is working, check the patched panel and switches on the distribution rack where they are kept. Ping the systems Ethernet port, ping the server etc.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 SUMMARY

The 4 months student industrial work experience scheme undergone at **RICHVIEW TECHNOLOGY COMPUTER IT** is world class which is web development and training, to mention a few exposed me to know gain more practical knowledge of programming. I was opportune to have learnt and experience lot in this field in so little time. It has also improved my curiosity to the field of computer science and ICT generally. This has gone a long way in equipping me in merging what was actually learnt on the field. The programme has been highly enlightening, beneficial, interesting and successful

5.1 CONCLUSION

My SIWES was a very successful one, I had an insight of the Information Technology world. I have now known the power of programming and graphics designing. With this, I will be able set a goal for myself to build a complete website and write codes for different programs. SIWES as a course has truly exposed me to the challenges faced in a growing I.T world that is dependent on computers.

5.2 RECOMMENDATION

- i. The school management should consider the fact that students find it difficult to be admitted to a particular organization for attachment and urge these organizations to accept students.
- ii. The SIWES body should try as much as they can to assist students financially when carrying out this very industrial attachment.
- iii. Place of attachment should try as much as possible to employ educated workers to avoid code-switching while lecturing.
- iv. A mass enlightenment campaign should be carried out, to enable industries and establishments to know the importance of SIWES to the future of students and the society at large.

CHALLENGES AND SOLUTIONS PROFFERED

5.3 CHALLENGES

There are challenges that were encountered during the industrial training. These challenges are time demanding and thereby consume a lot of time and effort but to my optimum satisfaction I was able to overcome those challenges which really exposed me to some technical problems that can occur and how to tackle or solve these problems.

- The first challenge I encountered during the industrial training was the use of new programming languages and concepts in the course of completing the web project and other activities that required programming ideas.
- The problem of time management was inevitable, a lot of activities needed to be completed in a limited time.

5.4 IMPROVEMENT OF THE SCHEME

Here are some solutions I employed in the approach of solving each of the difficulties faced;

- For the first problem I encountered, I used the internet by checking for help on how to go about new programming language concepts in useful websites such as Git-Hub and YouTube tutorials.
- In solving the Time Management problem, I had to schedule all my activities in such a way that I can perform more than one activity that are not conflicting simultaneously.