YOBE STATE UNIVERSITY, YSU

TECHNICAL REPORT ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

AT

FEDERAL COLLEGE OF EDUCATION TECHNICAL (POTISKUM)

BY

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U/CS/20/123

SUBMITTED TO

DEPARTMENT OF COMPUTER SCIENCE

DECLARATION

This is to declare that the work presented here under was carried out by myself under the supervision of (Habibu), as a report presented to the department of computer science, Yobe State University during the (2024/2025) Student industrial work experience scheme (SIWES).

Student's Name _____ Sign & Date _____

Siwes Coordinator _____ Sign & Date _____

Head of Department (HOD) _____ Sign & Date _____

DEDICATION

I proudly dedicate this thesis to my father, whose unwavering love, unconditional support, and enduring encouragement have been the driving force behind my academic journey. May this accomplishment bring to fruition to the vision he held for me.

ACKNOWLEDGEMENT

I am thrilled to have successfully completed my SIWES program, and I am deeply indebted to several individuals who contribute significantly to my journey.

Firstly, I extend heartfelt gratitude to my industry-based Supervisor, Mr. Habibu, for invaluable mentorship, guidance and unwavering support. His passion for research and science is aspiring, and his exceptional leadership style has had a lasting impact on me. His ability to present complex concepts in a clear and concise manner is a skill I aspire to emulate throughout my career.

I also wish to express profound appreciation to my family members, whose unconditional love, encouragement and support were instrumental in my success. My parents, in particular, deserve special recognition for their unwavering belief in me and their tireless encouragement, which fueled my determination to reach to this milestone.

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CHAPTER ONE

INTRODUCTION

1.0 Student Work Experience Scheme (SIWES)

Student Work Experience Scheme also known as Industrial Training (IT) is a scheme Introduced in 1973 by the Education Trust Fund (ETF) into the Nigerian system of higher education in order to prepare students of Nigerian universities, polytechnics and colleges of Education to acquire adequate practical skills and expertise to fit in the country's labor force effectively after graduation.

The scheme exposes students to industry-based skills necessary for a smooth transition from the classroom to the world of work. It affords students of tertiary institutions the opportunity of being familiarized and exposed to the needed experience in handling machinery and equipment which are usually not available in the educational institutions. Hence the student is given an opportunity to relate academic program and career goals to pre-professional work experience thus giving him/her an insight in into his chosen career.

Participation in SIWES has become a necessary pre-condition for the award of Diploma and Degree certificates in specific disciplines especially engineering. Sciences and other technology related disciplines in most institutions of higher learning in the country, in accordance with the education policy of government.

1.1 Aims and Objectives of SIWES

- Bridge the gap between academia and industry by immersing students in real-world environments.
- Enhance student's technical expertise and apply theoretical knowledge in practical settings.
- Foster trust in graduate's capabilities, demonstrating their value to potential employers.

- Provide students with job opportunities upon completion of studies.
- Cultivate essential work habits, skills, and attitudes for success.
- Increase prospects for full-time employment upon graduation.

CHAPTER TWO

2.0 History of Federal College of Education (TECH) Potiskum

The Federal College of Education (Technical) Potiskum (FCET Potiskum) was established with the aim of providing quality technical and vocational education to students, preparing them for the demands of the rapidly evolving technological world. Located in Potiskum, Yobe State, Nigeria, FCET Potiskum was founded to offer technical education at both the undergraduate and diploma levels.

The college is part of Nigeria's effort to strengthen the education sector, focusing on the development of skilled manpower capable of contributing meaningfully to national development, especially in sectors such as engineering, technology, and vocational skills. This aligns with the Nigerian government's long-term strategy for improving the country's education system by promoting technical and vocational education and training (TVET) as critical components for national growth.

The institution offers various programs, primarily aimed at providing students with the practical skills and theoretical knowledge required for careers in technical and vocational fields. It also supports the growth of educators capable of teaching technical subjects at various educational levels.

Over the years, FCET Potiskum has developed its infrastructure, expanded its programs, and contributed to the professional development of numerous individuals who go on to make significant impacts in their respective fields. The institution continues to be a cornerstone of technical education in the region, fostering innovation, creativity, and hands-on learning.

You can elaborate on this history based on your experience during your SIWES program at FCET Potiskum, if applicable.

Various departments and functions

1. School of Science Education

Department of Biology Education

Functions: Trains students to teach biology at secondary and technical schools. Conducts research in biological sciences and education.

Department of Chemistry Education

Functions: Prepares students to teach chemistry. Focuses on chemical principles, laboratory techniques, and teaching methodologies.

Department of Physics Education

Functions: Trains students to teach physics. Emphasizes practical applications of physics in education and technology.

Department of Mathematics Education

Functions: Equips students with skills to teach mathematics. Focuses on mathematical theories, problem-solving, and instructional techniques.

2. School of Vocational and Technical Education

Department of Agricultural Education

Functions: Trains students to teach agricultural science. Focuses on crop production, animal husbandry, and agricultural extension services.

Department of Business Education

Functions: Prepares students to teach business-related subjects like accounting, commerce, and office management.

Department of Home Economics Education

Functions: Trains students to teach home economics, including food and nutrition, clothing and textiles, and family resource management.

Department of Technical Education

Functions: Focuses on technical skills in areas like electrical/electronics, mechanical engineering, and building technology. Prepares students to teach technical subjects.

3. School of Arts and Social Sciences Education

Department of English Education

Functions: Trains students to teach English language and literature. Focuses on language skills, communication, and literary analysis.

Department of Social Studies Education

Functions: Prepares students to teach social studies, including history, geography, and civic education.

Department of Primary Education Studies

Functions: Focuses on training teachers for primary education. Covers child development, curriculum design, and teaching methods for young learners.

Department of Early Childhood Education

Functions: Specializes in training teachers for early childhood education. Emphasizes child psychology, play-based learning, and foundational literacy/numeracy.

CHAPTER TWO

Blockchain Technology and its Component

Blockchain is a decentralized, distributed ledger technology that enables secure, transparent, and tamper-proof transactions without the need for intermediaries such as banks. It is primarily known for its association with cryptocurrencies like Bitcoin but has broader applications in various industries, including finance, healthcare, supply chain management, and more.

Blockchain functions as a chain of blocks, with each block containing a list of transactions. These blocks are linked together in a chronological order, forming an immutable record that is maintained across multiple nodes (computers) in the network. The decentralized nature of blockchain ensures that no single entity controls the entire system, which enhances security and trust.

Components of Blockchain

1. **Blocks**: Each block in a blockchain contains a set of transactions. A block typically consists of three main elements:

    - **Data**: This is the transaction information contained within the block, such as details of transfers, amounts, and participants.
    - **Hash**: A hash is a unique identifier generated for each block. It is a cryptographic value that helps secure the data in the block. The hash of a block also contains the hash of the previous block, linking them together in the chain.
    - **Timestamp**: The timestamp records the exact time when the block was added to the blockchain.

2. **Chain**: The blocks are linked together in a chronological order to form a "chain" of blocks. Each block contains the hash of the previous block, ensuring that the data within the blockchain cannot be altered without changing the entire chain, making the system tamper-resistant.
3. **Decentralized Network**: Blockchain operates on a peer-to-peer network where every participant (node) has access to the complete copy of the blockchain. This

decentralization ensures that no central authority is required to validate or manage transactions, thereby increasing security and reducing the potential for fraud.

4. **Consensus Mechanism**: The consensus mechanism is the method by which nodes in the network agree on the validity of transactions and the order in which blocks are added to the blockchain. The most common consensus mechanisms include:

    - **Proof of Work (PoW)**: Used in Bitcoin and other cryptocurrencies, PoW requires nodes (miners) to solve complex mathematical puzzles to add a new block.
    - **Proof of Stake (PoS)**: PoS is an alternative to PoW, where participants validate new blocks based on the amount of cryptocurrency they hold and are willing to "stake" as collateral.

5. **Cryptography**: Cryptographic techniques are used to secure transactions and ensure the integrity of data within the blockchain. Public-key cryptography ensures that only authorized parties can access or modify transaction data. Hashing algorithms are used to create secure, unique identifiers for blocks and transactions.
6. **Smart Contracts**: Smart contracts are self-executing contracts with the terms and conditions written directly into the code. They automatically execute and enforce the contract's terms when predefined conditions are met. Smart contracts help eliminate intermediaries and reduce the risk of human error or manipulation.
7. **Ledger**: The blockchain itself serves as a digital ledger, maintaining a record of all transactions in a secure and transparent way. Since it is distributed across a network of nodes, the ledger is tamper-resistant and provides an immutable history of all transactions.

Blockchain technology has the potential to revolutionize many industries by increasing transparency, security, and efficiency. Its decentralized nature removes the need for trust in a central authority, as the network's participants collectively validate and maintain the integrity of the data.

Crypto and Forex Trading

During my six-month SIWES program, I had the opportunity to delve into the world of financial trading, with a focus on two major markets: cryptocurrency trading and forex (foreign exchange) trading. Both of these markets offer opportunities for profit through the buying and selling of assets, but they operate under different mechanisms and principles. Below is a detailed overview of my learning experience in these two fields.

Cryptocurrency Trading

Cryptocurrency trading involves the buying and selling of digital currencies, such as Bitcoin, Ethereum, and many others. These currencies use blockchain technology for secure and transparent transactions. The market is known for its volatility, with prices fluctuating significantly over short periods of time.

Key Concepts Learned:

1. **Blockchain Technology**: Understanding the underlying technology behind cryptocurrencies was crucial. Blockchain is a decentralized, distributed ledger that records all transactions across a network of computers. This ensures security, transparency, and immutability of transaction data.
2. **Cryptocurrencies**: There are thousands of cryptocurrencies, with Bitcoin being the most prominent. Each cryptocurrency operates on a unique blockchain, and their values fluctuate based on market demand, adoption, and other external factors such as government regulations.
3. **Trading Platforms**: To trade cryptocurrencies, I became familiar with platforms like Binance, Coinbase, and Kraken. These platforms allow users to buy, sell, and store cryptocurrencies securely. I also learned about different types of wallets (hot wallets and cold wallets) used to store cryptocurrencies.
4. **Market Analysis**:
    - **Technical Analysis**: This involves using historical price data, charts, and indicators (like Moving Averages, RSI, MACD, etc.) to predict future price movements. Technical analysis is crucial for determining entry and exit points in crypto trading.

- **Fundamental Analysis**: This involves evaluating the intrinsic value of a cryptocurrency by considering factors such as its technology, team, adoption rate, and the overall market sentiment.

5. **Risk Management**: Cryptocurrency trading can be highly volatile. I learned to implement strategies such as setting stop-loss orders, diversifying investments, and managing trade sizes to minimize risks and protect capital.
6. **Market Sentiment**: Understanding the psychological aspects of trading is important. News events, social media, and influential figures (e.g., Elon Musk) can significantly impact the price of cryptocurrencies. Staying informed and analyzing sentiment can provide insights into price movements.

Forex Trading

Forex trading refers to the exchange of one currency for another on the foreign exchange market. It is the largest and most liquid financial market in the world, with trillions of dollars traded daily. Forex trading involves currency pairs, such as EUR/USD (Euro/US Dollar), GBP/JPY (British Pound/Japanese Yen), etc.

Key Concepts Learned:

1. **Currency Pairs**: In forex trading, currencies are quoted in pairs, where the first currency is the base currency, and the second is the quote currency. For example, in the EUR/USD pair, the euro is the base currency, and the U.S. dollar is the quote currency.
2. **Market Participants**: The forex market is composed of various participants, including central banks, governments, corporations, institutional investors, and individual traders. Each participant influences currency prices through their buying and selling activities.
3. **Trading Platforms**: Platforms like MetaTrader 4 (MT4) and MetaTrader 5 (MT5) are commonly used for forex trading. These platforms provide tools for chart analysis, executing trades, and managing accounts.
4. **Types of Forex Orders**: I became familiar with different order types used in forex trading, including:
    - **Market Orders**: An order to buy or sell at the current market price.
    - **Limit Orders**: An order to buy or sell at a specific price or better.

    - **Stop-Loss Orders**: An order placed to limit potential losses by automatically closing a position if the price reaches a certain level.
5. **Leverage and Margin**: Leverage allows traders to control a larger position with a smaller amount of capital. However, while leverage can amplify profits, it also increases the potential for significant losses. Understanding margin and the risks associated with leverage was critical to my trading strategy.
6. **Technical and Fundamental Analysis**:
    - **Technical Analysis**: Like cryptocurrency trading, technical analysis plays a significant role in forex. I learned to use various indicators, such as Fibonacci retracements, Moving Averages, and Bollinger Bands, to assess market trends and predict price movements.
    - **Fundamental Analysis**: This involves analyzing macroeconomic factors such as interest rates, inflation, GDP, and geopolitical events that influence currency values. Central bank policies and economic reports are also key drivers in the forex market.
7. **Risk Management**: Forex trading involves managing risk carefully due to its highly liquid and volatile nature. I learned to use risk-reward ratios, set stop-loss orders, and adjust trade sizes to protect my capital. Diversification was also important to spread risk across different currency pairs.

Differences between Crypto and Forex Trading

- **Market Hours**: Forex operates 24 hours a day during weekdays, with market hours segmented into different sessions (Asian, European, and American). In contrast, cryptocurrency markets are open 24/7, providing constant trading opportunities.
- **Volatility**: The cryptocurrency market is generally more volatile than forex, making it riskier but potentially more profitable. Forex is relatively more stable, influenced by economic indicators and central bank policies.
- **Regulation**: Forex markets are more regulated by governments and financial institutions worldwide, whereas the cryptocurrency market is less regulated, which introduces higher risks but also greater potential for innovation.

Some of My Trades Executed In Crypto Trading

HTML AND CASCADING STYLE SHEET

During my IT placement, I gained valuable, hands-on experience in web page design using Hypertext Markup Language (HTML), which is the cornerstone of web development. HTML is a standardized language used to create and structure content on the web, allowing developers to craft web pages that are both functional and visually appealing. As the foundational markup language for web development, HTML provides a set of rules and predefined tags that guide web browsers in rendering and displaying content correctly.

HTML is based on the Standard Generalized Markup Language (SGML) and consists of a series of tags that are enclosed in angle brackets (<>) to define various elements of a web page. These tags, often paired with closing tags (</>), are used to create structure and meaning within the document. For example, the <html> tag marks the beginning of an HTML document, while the <body> tag encapsulates the main content of the page, and the <head> tag contains metadata, such as the page title and links to external resources like stylesheets or scripts.

The significance of HTML cannot be overstated in the realm of web development. It serves as the framework that binds together various web elements, including text, images, videos, multimedia files, and interactive forms, into a single cohesive webpage. HTML also plays a crucial role in embedding links that connect different pages, enabling seamless navigation across the internet. Web browsers are specifically built to interpret HTML code and display the content in a user-friendly and organized manner, making it the essential building block of any website.

In addition to providing structure, HTML allows for customization and interaction through the integration of other technologies, such as Cascading Style Sheets (CSS) for styling and JavaScript for dynamic functionality. HTML forms the basis for creating accessible, responsive, and user-centered websites, ensuring that users can interact with content across different devices and platforms. Its role in web development continues to evolve, as modern web design often involves combining HTML with other advanced programming languages to enhance the overall user experience.

The knowledge I gained in HTML has provided me with the skills to develop and design basic web pages, ensuring that content is presented effectively and interactively, which is an essential skill in the digital age.

STANDARD STRUCTURE OF AN HTML DOCUMENT

Explanation of Fundamental HTML Tags

In HTML, various tags define the structure and content of a web page, ensuring that browsers can accurately interpret and display the document. Below is an enhanced explanation of key HTML tags, their roles, and how they contribute to web development.

1. <HTML> ... </HTML> Tag

The <html> tag serves as the root element of an HTML document, encapsulating all other elements within the file. Positioned at both the beginning and the end of the document, it acts as a declarative statement that informs the web browser that the enclosed content follows HTML syntax.

Everything contained within the <html> tag is part of the HTML document, including both structural (<head>) and visible (<body>) components. Without this tag, the browser would not be able to recognize the document as an HTML file.

Example:

```
<Html>
<!DOCTYPE html>
<html>
  <head>
    <title>My Web Page</title>
  </head>
```

```
  <body>
    <p>Welcome to my website!</p>
  </body>
</html>
```

2. <HEAD> ... </HEAD> Tag

The <head> section of an HTML document contains metadata, which provides critical information about the page but is not directly visible to users. Metadata helps search engines, browsers, and external resources understand and process the document efficiently.

Key elements inside the <head> tag include:

- **<title>**: Defines the document's title, displayed in the browser tab and search engine results.
- **<meta>**: Provides metadata such as character encoding, viewport settings, and SEO-related descriptions.
- **<link>**: Establishes connections to external resources, such as stylesheets (CSS).
- **<style>**: Embeds internal CSS styles for defining visual presentation.
- **<script>**: Incorporates JavaScript to enable dynamic functionality.

Example:

```
html
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta name="description" content="A sample HTML document demonstrating key tags.">
  <title>Understanding HTML Structure</title>
  <link rel="stylesheet" href="styles.css">
  <script src="script.js"></script>
</head>
```

---

3. <TITLE> … </TITLE> Tag

The <title> tag is a critical element within the <head> section that defines the document's title. This title appears:

- In the browser's title bar or tab.
- In bookmark listings when users save the webpage.
- In search engine results (SERPs), influencing how a page appears in searches.

An effective <title> should be concise yet descriptive to help users and search engines understand the content of the page.

Example:

<Html>
<title>Introduction to Web Development</title>

4. <BODY> … </BODY> Tag

The <body> tag encompasses the entire visible content of a webpage. Everything placed within this tag is rendered by the browser and displayed to the user. The body can contain various HTML elements, including:

- **Headings (<h1> to <h6>)**: Define titles and subtitles.
- **Paragraphs (<p>)**: Structure textual content.
- **Lists (<ul>, <ol>, <li>)**: Present ordered or unordered items.
- **Links (<a>)**: Enable navigation to other pages.
- **Images (<img>)**: Display pictures and graphics.
- **Forms (<form>, <input>, <button>)**: Allow user interaction.

Additionally, the <body> tag supports attributes that control the page's appearance and behavior:

- **background**: Specifies a background image.
- **bgcolor**: Sets a background color.

- **text**: Defines the default text color.
- **link, vlink, alink**: Customize hyperlink colors.

Example:

```
<body bgcolor="#f0f0f0" text="#333333">
   <h1>Welcome to My Website</h1>
   <p>This is an example of a well-structured HTML document.</p>
   <img src="example.jpg" alt="Sample Image">
   <a href="https://www.example.com">Visit Example Website</a>
</body>
```

ATTRIBUTES

HTML attributes provide additional information about elements, controlling their behavior, appearance, and functionality. They are included within the opening tag of an element as **name-value pairs** (e.g., attribute="value").

Types of HTML Attributes

1. **Global Attributes** – Can be applied to most HTML elements.

    - Id: Assigns a unique identifier.
    - Class: Groups elements for styling.
    - Style: Adds inline CSS styles.
    - Title: Provides tooltip text on hover.
    - Lang: Specifies the document's language.

2. **Hyperlink Attributes** – Used in <a> (anchor) tags.

    - Href: Defines the link destination.
    - Target: Opens a link in a new tab (_blank).
    - Download: Allows file downloads.

3. **Image Attributes** – Used in <img> tags.

    - Src: Specifies the image source.
    - Alt: Provides alternative text for accessibility.
    - Width and height: Define image dimensions.

4. **Form Attributes** – Used in <form> and <input> elements.

    - Type: Specifies input type (text, email, password, etc.).
    - Placeholder: Displays a hint inside input fields.
    - Required: Makes a field mandatory.
    - Disabled: Disables user input.

5. **Table Attributes** – Used in <table> elements.

- Colspan: Merges multiple columns in a table.
- Rowspan: Merges multiple rows.
- Border: Sets table border thickness (deprecated).

CASCADING STYLE SHEETS (CSS)

Cascading Style Sheets (CSS) have become the modern standard for managing the visual presentation of websites. When used alongside structural markup languages such as HTML, XHTML, or XML, CSS enables web browsers to render the diverse visual aspects of web documents effectively.

By utilizing CSS, developers can precisely control various presentational elements, including:

- Border styles and dimensions
- Spacing and alignment of paragraphs, headings, images, and other elements
- Font styles, colors, and typefaces
- Background colors, images, and textures
- Text decorations, such as underlining, strikethroughs, and other effects
- Layering, positioning, and spatial organization of elements

While CSS governs the design and visual aesthetics of a webpage, markup languages like HTML, XHTML, and XML define the structural foundation. This structure includes elements such as headings, paragraphs, lists, and hyperlinks. The synergy between CSS and markup languages allows developers to create visually appealing, well-structured, and semantically rich web documents.

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.

BACKGROUND AND FONT OF VARIOUS HTML ELEMENTS

You can set the following background properties of an element.

1. **The background-color:** Is a property used to set the color background of an element.
2. **The background-image property:** is used to set the background image of an element.
3. **The background repeat:** Is used to control the repetition of an image in the background.
4. **The background position:** Is used to control the position of an image in the background.
5. **The background attachment:** Is used to control the scrolling of an image in the background.
6. **The background property:** Is used as a short hand to specify a number of other background properties.

FONT WHICH ARE;

1. **The Font-family property:** This is used to change the face of a font
2. **The Font-style property:** This is used to make a font italic or oblique.
3. **The Font-weight property:** This is used to increase or decrease how bold or light a font appears.
4. **The Font-size property:** This is used to increase or decrease the size of a font.

TEXT DECORATION:

This demonstrate how to decorate a text in css, the values are none, underline, over line, line through and blink.

PROPERTIES OF HYPERLINK USING CSS

1. The link signifies unvisited hyperlinks
2. The link visited signifies visited hyperlinks
3. The link hovered signifies an element that currently has the user's mouse pointer hovering over it.
4. The link active signifies an element on which the user is currently clicking.

CSS SYNTAX

A CSS rule consists of two primary components: a **selector** and one or more **declarations**.

Selector

The selector specifies the HTML element(s) to be styled, determining which elements the rule will apply to.

Declarations

A declaration is composed of two key parts:

1. **Property** – The style attribute to be modified, such as color, font-size, or background-color.
2. **Value** – The specific setting assigned to the property, defining the desired style or behavior.

CSS Syntax Rules

- A declaration must always end with a semicolon (;).
- Multiple declarations are enclosed within curly brackets ({}).

Example of a CSS Rule:

```
css
selector {
   property1: value1;
   property2: value2;
}
```

In this example, the **selector** targets specific HTML elements, while the **declarations** within the curly brackets define the styles applied to those elements.

Hands-on Experience with HTML and CSS

Through browser developer tools, I gained practical experience with **HTML and CSS** by inspecting and analyzing the source code of web pages. This hands-on approach allowed me to master fundamental HTML tags and their attributes, which serve as the building blocks of web page structure.

Key HTML Elements I Learned:

Basic Document Structure:

- <html>, <head>, <title>, <body>

Text Formatting:

- <p>, <h1> – <h6>,
, <hr>, <font>, <b>, <u>, <i>,

Lists:

- (unordered list), <ol> (ordered list), <li> (list item)
- <dl> (definition list), <dd> (definition description), <dt> (definition term)

Links and Images:

- <a> (anchor for hyperlinks)
- <img> (image embedding)

Layout and Organization:

- (division for layout structuring)
- <table> (tabular data) with <tr> (table row) and <td> (table data/cell)

Forms and Input Elements:

- <form>, <input>, <textarea>, <select>, <option>

Additionally, I learned about **HTML comments (<!-- comment -->)**, which allow developers to add hidden notes and explanations within the code for better readability and collaboration.

CSS Integration Methods

CSS offers three primary methods for integrating styles into a web document:

1. Embedded Style Sheets

This approach involves defining CSS rules within an HTML or XHTML file using the <style> tag, which is placed inside the <head> section.

Example:

```
html
CopyEdit
<head>
  <style type="text/css">
    p {
      color: red;
      font-size: 1.5em;
    }
  </style>
</head>
```

2. Linked (External) Style Sheets

This method involves linking an external CSS file to an HTML or XHTML document using the <link> tag. It is widely preferred for maintaining **separation of content and presentation**, improving code organization and reusability.

Syntax:

```
html
CopyEdit
<link rel="stylesheet" href="cssfilename.css" type="text/css">
```

Example:

```
html
```

CopyEdit

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

3. Inline Style Sheets

This approach applies styles directly to individual HTML elements using the style attribute. While effective for quick modifications, it is generally discouraged in large-scale projects due to reduced maintainability.

Example:

html

CopyEdit

```
<p style="color: red; margin-left: 20px;">This is a paragraph.</p>
```

Advanced CSS Concepts and Practical Application

While exploring CSS, I developed a strong understanding of various **CSS selectors**, including:

- **User-defined selectors** – Classes (.) and IDs (#)
- **Universal selector (*)** – Targets all elements
- **Contextual (descendant) selectors** – Selects elements inside a specific parent
- **Direct child selectors (>)** – Targets only direct children
- **Attribute selectors** – Selects elements based on attribute values

Additionally, I mastered numerous **CSS properties** that enhance typography, layout, and styling, including:

Typography & Text Styling:

- letter-spacing, word-spacing, text-indent
- text-decoration (none, underline, overline, blink, inherit)
- font-family, font-size, color, font-weight

Box Model & Layout Properties:

- border-width (border-left-width, border-right-width, border-bottom-width, border-top-width)
- border-color, list-style, background
- float, clear, padding, margin, vertical-align

NETWORKING

Networking enables the seamless transportation and exchange of data between nodes over a shared medium within an information system. It allows interconnected devices to communicate and share resources efficiently, forming the backbone of modern digital communication.

Types of Networks Based on Scale

Networks vary in size and complexity, ranging from small personal setups to expansive global infrastructures. The primary classifications include:

1. Small Home Network

- Connects a few devices, such as computers, smartphones, and printers, primarily for internet access and resource sharing.

2. Small Office/Home Office (SOHO) Network

- Links home-based or remote office devices to a corporate network, facilitating telecommuting and remote work environments.

3. Medium to Large Networks

- Spans multiple locations, interconnecting hundreds to thousands of devices within organizations, universities, or large enterprises.

4. Wide Area Network (WAN)

- Covers extensive geographical regions, interlinking multiple networks across cities, countries, or continents.

5. Global Network

- The largest scale of networking, connecting hundreds of millions of computers worldwide—exemplified by the **Internet**, the most prominent global network.

Clients and Servers: Core Components of Networking

Networking infrastructure is built upon two key entities: **clients** and **servers**, which facilitate data exchange and service provision across connected devices.

1. Hosts/End Devices

A **host** or **end device** refers to any computer or device connected to a network. These devices serve various purposes, including communication, data processing, and resource access.

Examples of End Devices:

- **Computers:** Desktops, laptops
- **Mobile Devices:** Smartphones, tablets
- **Peripherals:** Printers, scanners
- **IoT Devices:** Smart home systems, security cameras

These devices enable users to browse the internet, send emails, print documents, and interact with network resources.

2. Servers: The Backbone of Network Services

A **server** is a high-performance computer that provides **data, resources, and services** to other devices within a network. Servers enhance efficiency, security, and scalability by centralizing resource management.

Functions of Servers:

- Store, manage, and distribute data efficiently
- Provide essential services such as web hosting, file sharing, and email communication
- Handle **security**, authentication, and access control

Types of Servers:

- **Web Servers** – Host websites and web applications (e.g., Apache, Nginx, IIS)

- **Email Servers** – Manage email communication (e.g., Microsoft Exchange, Gmail)
- **File Servers** – Store and distribute files across a network (e.g., NAS, SAN)
- **Database Servers** – Manage structured data for applications (e.g., MySQL, Oracle)
- **Game Servers** – Host multiplayer online games and sessions

3. Clients: Requesting Services from Servers

A **client** is a device or application that sends requests to a server to access services, resources, or information. Clients rely on servers to retrieve web pages, emails, files, and other network-based functionalities.

Common Client Functions:

- Request and load **web pages** from web servers
- Retrieve **emails** from email servers
- Access **shared files** from file servers
- Utilize **network services** such as printing, scanning, and cloud computing

Examples of Clients:

- **Web Browsers:** Google Chrome, Mozilla Firefox, Safari
- **Email Clients:** Microsoft Outlook, Apple Mail, Thunderbird
- **File Transfer Clients:** FTP clients for data exchange
- **Network-Enabled Applications:** Social media platforms, online gaming services

CHAPTER FOUR

SUMMARY, CONCLUSION AND RECOMMENDATION

4.1 Summary

- During my IT placement at fce (T) potiskum, I played a pivotal role in enhancing the Centre's educational programs. As an instructor for diploma and certificate courses, I developed and implemented engaging lesson plans, fostering a supportive learning environment. Furthermore, I showcased my adaptability and leaderships skills by stepping in as acting lead instructor, ensuring the continuity of classes and maintaining academic excellence.
- The organization provided us with comprehensive training, equipping us with the necessary skills and resources to excel. The training program was exceptionally well-structured and executed, yielding outstanding results.
- I am delighted to acknowledge that the federal college of education (Technical), potiskum, stands out as the premier ICT institute in Yobe state. The exceptional quality of education and outstanding hospitality extended by the staff have made our experience truly enriching.

4.2 Problems Encountered

The following were the problems I encountered during the period of my attachment.

- The absence of specialized tools and equipment necessary for specific tasks significantly impeded our performance and productivity during the training period.
- Another significant challenge encountered during the attachment was the limited access and restricted privileges granted to students, which hindered our ability to fully engage with the organization's systems and processes.
- The absence of essential infrastructure, particularly reliable electricity, significantly impeded our performance during the attachment period. Frequent power outages resulted in numerous work stoppages, hindering our productivity and overall learning experience.

The following provide solution to the problems above.

- The absence of essential infrastructure, particularly reliable electricity, significantly impeded our performance during the attachment period. Frequent power outages resulted in numerous work stoppages, hindering our productivity and overall learning experience.
- Another significant challenge encountered during the attachment was imposition of restrictive access privileges on student, which limited our ability to fully participate in organizational activities and engage with critical systems.
- The Industrial Training Scheme (ITF) should establish a policy prohibiting discrimination against students during training and placement, ensuring equal opportunities for all. Furthermore, students should be granted access to relevant areas of the organization to gain practical experience and enhance their skills in their respective fields.

4.3 **Conclusion and Recommendations**

I would like to express my sincere appreciation to the Student Industrial Work Scheme (SIWES) for initiating this invaluable program, which has greatly benefited students and the nation at large. My six-month attachment at the community resource center (CRC) profoundly broadened my understanding and appreciation of computer science as a dynamic and diverse field of study.

Building on the enriching experiences gained during this attachment, I am pleased to submit the following recommendations aimed at enhancing the IT program, as well as the overall structure and conditions of our academic pursuit:

- I strongly recommend that the Student Industrial Work Scheme (SIWES) consider providing students with a monthly allowance during their training period. This would enable students to focus on their professional development without financial burdens, ultimately achieving the scheme's objectives. Alternatively, the SIWES should explicitly

inform participating industries that the allowance indicated in the completion of their training. This transparency would encourage industries to provide support to students, if desired.

- It is imperative that students acquire practical knowledge of computer systems and their applications prior to embarking on SIWES. This foundational knowledge will enable them to maximize their learning experience during the IT program.
- The Industrial Training Fund (ITF) is urged to substantially increase the IT allowance by at least 100%, to a more reasonable and sustainable amount, thereby enabling students to effectively cover their expenses and fully benefit from this vital program.
- Students are encouraged to establish a network of peers by sharing information about their respective IT placement locations. This exchange will facilitate collaboration, foster the sharing of best practices, and enable students to learn from one another's experiences.