INDUSTRIAL TRAINING REPORT UNDER THE STUDENT'S INDUSTRIAL WORK EXPERIENCE WORK SCHEME (SIWES)

UNDERTAKEN AT

UNITED BANK FOR AFRICA

BY

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20172435

DEPARTMENT OF COMPUTER SCIENCE

COLLEGE OF PHYSICAL SCIENCES

FEDERAL UNIVERSITY OF AGRICULTURE ABEOKUTA

JUNE, 2021.

CERTIFICATION

I hereby certify that the work recorded in this SIWES report was carried out by **AWE ALEXANDER OLUSILE with matriculation number 20172435** at UNITED BANK FOR AFRICA. Lagos Island.

In partial fulfillment of the requirements for the award of Bachelor degree in the **Department of COMPUTER SCIENCE** of Federal University of Agriculture Abeokuta, Ogun State, Nigeria.

AWE ALEXANDER OLUSILE	**MR. CHARLES UGWUNNA**
Student.	**Supervising Lecturer.**

PROFESSOR OLUSEGUN FOLORUNSHO

Head of Department.

DEDICATION

I dedicate this report first and foremost to Almighty God who has been there All through my SIWES Programme

I hereby dedicate this report to my ever supportive parents and my wonderful siblings Mr & Mrs AWE, for their relentless support during the course of my SIX Months training.

Also, to my Supervising Lecturer Mr. Charles Ugwunna

Furthermore, I dedicate this report to everyone who influenced my academic career positively.

ACKNOWLEDGEMENT

I give thanks to God almighty for the gift of life and the opportunity to carry-out this SIWES program successfully.

I thank my parents for everything they have done for me, for standing and being of huge support for me and also for giving me the opportunity to have access to tertiary education.

I also appreciate the Federal Government for giving student like me who are willing to learn, the opportunity to gain practical experience in the just concluded SIWES.

I give thanks to my supervisor in person, Prof Olusegun Folorunsho; he's indeed a father who wants to see his child soar high in whatever the child is doing.

I give thanks to United Bank for Africa plc for the opportunity given to me to carry-out my SIWES program with them.

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CHAPTER ONE

INTRODUCTION

- **Historical Background of SIWES**

SIWES was established by ITF (Industrial Training Funds) in the year 1973 to solve the problem of lack of adequate proper skills for employment of tertiary institution graduates by Nigerian Industries.

The Students' Industrial Work Experience Scheme (SIWES) was founded to be a skill training programme to help expose and prepare students of universities, polytechnics and colleges of education for the industrial work situation to be met after graduation.

This scheme serves as a smooth transition from the classroom to the world of work and further helps in the application of knowledge. The scheme provides students with the opportunity of acquainting and exposing themselves to the experience required in handling and managing of equipment and machinery that are usually not made available in their institutions.

Before this scheme was established, there was a growing concern and trend noticed by industrialists and employers of labour that graduates of higher institutions lacked sufficient practical background for employment. It used to be that students who got into Nigerian institutions to study science and technology were not trained in the practical know-how of their various fields of study. As a result, they could not easily find jobs due to the lack of working experience.

Therefore, the employers thought that theoretical education going on in higher institutions was not responsive to the needs of the employers of labour. This was a huge problem for thousands of Nigerians until 1973. It is against this background that the fundamental reason for initiating and designing the scheme by the fund in 1973/74 was introduced.

The ITF organization (Industrial Training Fund) made a decision to help all interested Nigerian students and established the SIWES program. It was officially approved and presented by the Federal Government in 1974.

The scheme was solely funded by the ITF during its formative years but as the financial involvement became unbearable to the fund, it withdrew from the scheme in 1978. In 1979, the federal government handed over the management of the scheme to both the National Universities Commission (NUC) and the National Board for Technical Education (NBTE).

Later, in November 1984, the federal government reverted the management and implementation of the scheme to ITF. In July 1985, it was taken over by the Industrial Training Fund (ITF) while the funding was solely borne by the federal government.

- **Aim and Objectives of SIWES**

SIWES – Students Industrial Work Experience Scheme

SIWES is strategized for skill acquisition. It is in fact designed to prepare and expose students of universities, polytechnics and colleges of education to the real-life work situation they would be engaged in after graduation. Therefore, SIWES is a key factor required to inject and help keep alive industrialization and economic development in the nation through the introduction and practical teaching of scientific and technological skills to students.

The Aim of the Students Industrial Work Experience Scheme:

The effort is aimed at helping/training students in the Nigerian tertiary institutions the practical aspect of their field of study by exposing students to machines and equipment, professional work methods and ways of safeguarding the work areas and workers in industries and other organizations.

Objectives of the Students Industrial Work Experience Scheme include:

- Provide an avenue for students to acquire industrial skills for experience during their course of study
- Expose students to work methods and techniques that may not be available during their course of study.
- Bridging the gap between theory and practice by providing a platform to apply knowledge learnt in school to real work situations
- Enabling the easier and smoother transition from school by equipping students' with better contact for future work placement
- Introduce students to real work atmosphere so that they know what they would most likely meet once they graduate

- **Importance and Benefits of SIWES to Computer Science**

Partaking in SIWES has become a prerequisite for the award of diploma and degree certificates in many Nigerian Institutions according to the Nigerian government Educational policy. Undergraduate students of the following disciplines are expected to be a part of the scheme: Natural sciences, Engineering and Technology, Education, Agriculture, Medical Sciences, Environmental, and pure and applied sciences.

Importance and Benefits of the Students Industrial Work Experience Scheme are:

- It exposes students to more practical work methods and techniques in Computer Science.

- It provides students in Computer Science with an opportunity to apply their theoretical knowledge to real life situations.

- It enables students in Computer Science to gain experience in handling, developing and maintaining hardware and software devices.

- It provides an environment whereby students in Computer Science can develop their creativity and interpersonal skills through software and hardware design techniques

- It is one of the requirements for the award of Bachelors of Science Degree (B.Sc.) in Computer Science


UBA
UBA

CHAPTER TWO

- **HISTORICAL BACKGROUND OF PLACE OF SIWES, UNITED BANK FOR AFRICA PLC**

United Bank for Africa Plc (UBA) is a Nigerian pan-African financial services group headquartered in Lagos. It has subsidiaries in 20 African countries and offices in London, Paris and New York.[3] It is listed as commercial bank by the Central Bank of Nigeria.[4] The shares of stock of the group are listed on the Nigerian Stock Exchange, where they trade under the symbol: UBA.[5] The Group Chairman of the bank is Tony Elumelu and the GMD/CEO is Kennedy Uzoka.

Overview

United Bank For Africa is a large financial services group in Nigeria and on the African continent. As of December 2020, the group's financial assets were valued at NGN:7.7 trillion (US$19.2 billion), with shareholders' equity of NGN:724.1 billion (US$1.8 billion). At that time the group employed 20,000+ people.[6] The group maintains subsidiaries in Nigeria, Ghana, Benin, Ivory Coast, Burkina Faso, Guinea, Chad, Cameroon, Kenya, Gabon, Tanzania, Zambia, Uganda, Liberia, Sierra-Leone, Mozambique, Senegal, DR Congo, Congo Brazzaville, Mali, the United States of America, the United Kingdom, and France.

History

The British and French Bank Limited (BFB) commenced business in Nigeria in 1948. BFB was a subsidiary of Banque Nationale de Credit (BNCI) Paris, which transformed its London branch into BFB as a separate subsidiary. Banque Nationale de Credit and two British investment firms, S.G. Warburg and Company and Robert Benson and Company, held shares in BFB.

Following Nigeria's independence from Britain, UBA was incorporated on 23rd, February 1961 to take over the business of BFB.

In 1970, UBA listed its shares on the Nigerian Stock Exchange and became the first Nigerian Bank to undertake an Initial Public Offering (IPO).

Today's UBA emerged from the merger of the dynamic and fast-growing Standard Trust Bank, incorporated in 1990, and UBA, one of the biggest and oldest banks in Nigeria. The merger was consummated on August 1, 2005, and was one of the largest mergers completed on the Nigerian Stock Exchange (NSE).

Following the merger, UBA further expanded its brand through acquiring Continental Trust Bank that same year. In 2006, UBA acquired Trade Bank, which was under liquidation by the Central Bank of Nigeria at the time.

UBA had another successful combined public offering rights issue in 2007 and made further acquisitions of three liquidated banks: City Express Bank, Metropolitan Bank, and African Express Bank. UBA also acquired Afrinvest UK, rebranding it UBA Capital, UK. The quest to build a strong domestic and African brand intensified in 2008 when UBA made further acquisitions of two liquidated banks: Gulf Bank and Liberty Bank.

UBA has a broad footprint throughout Africa and the world. It maintains subsidiaries in the following countries, listed in the order of their commencement of banking operations:

Order of UBA's Commencement of Banking Operations by Country

Commencement of Banking Operations	**Countries**
1948	Nigeria
1984	United States
2005	Ghana
2007	Cameroon
2008	Burkina Faso, Chad, Côte d'Ivoire, Liberia, Senegal, Sierra Leone, Uganda
2009	Gabon, Kenya, Tanzania
2010	Guinea, Mozambique, Zambia
2011	Congo Brazzaville, Democratic Republic of the Congo
2012	Benin
2018	United Kingdom
2019	Mali

UBA maintains a representative office in Paris, France.

- **Mission and Vision of United Bank for Africa Plc**

Mission

To be a role model for African businesses by creating superior value for all our stakeholders, abiding by the utmost professional and ethical standards, and by building an enduring institution.

Vision

To be the undisputed leading and dominant financial services institution in Africa.

- **Activities of United Bank for Africa Plc**

- Information Technology / IT Care
- Corporate Services
- Avon Medicals.
- Tax Management
- Performance Management
- Financial Control
- Regulatory
- Credit Risk
- Compliance Management
- IT Risk.
- ...

- **Organogram of United Bank for Africa Plc**

UBA Plc consists of more than 4,000 skilled staffs who work effectively and efficiently towards the growth and advancement of the organization by delivering their best in their various departments and areas of specializations.

Below is the Organogram of United BAnk for Africa Plc.:

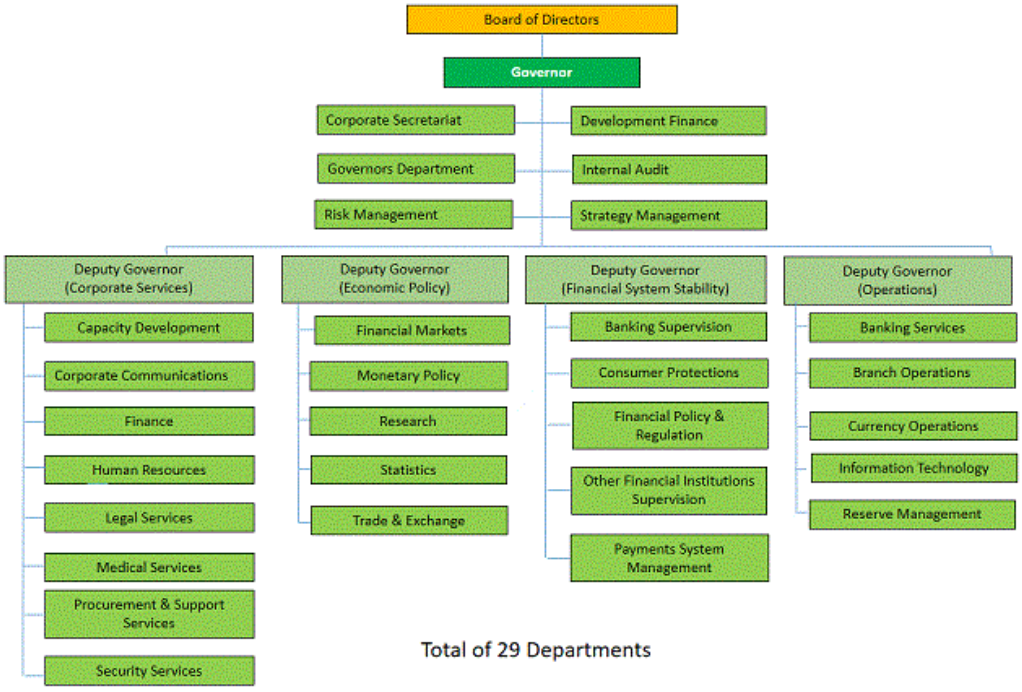


Fig 2.1

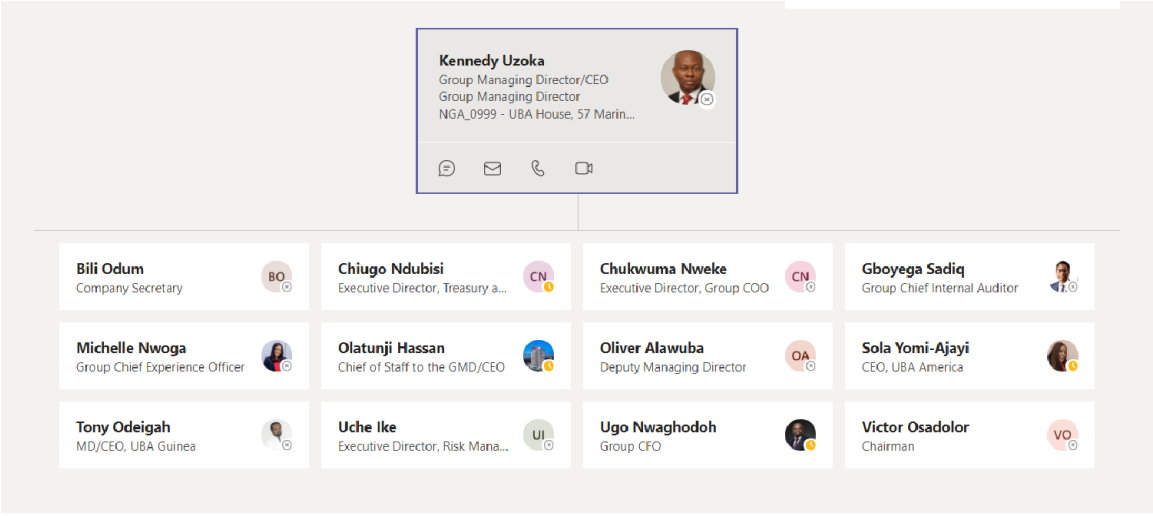


fig2.2

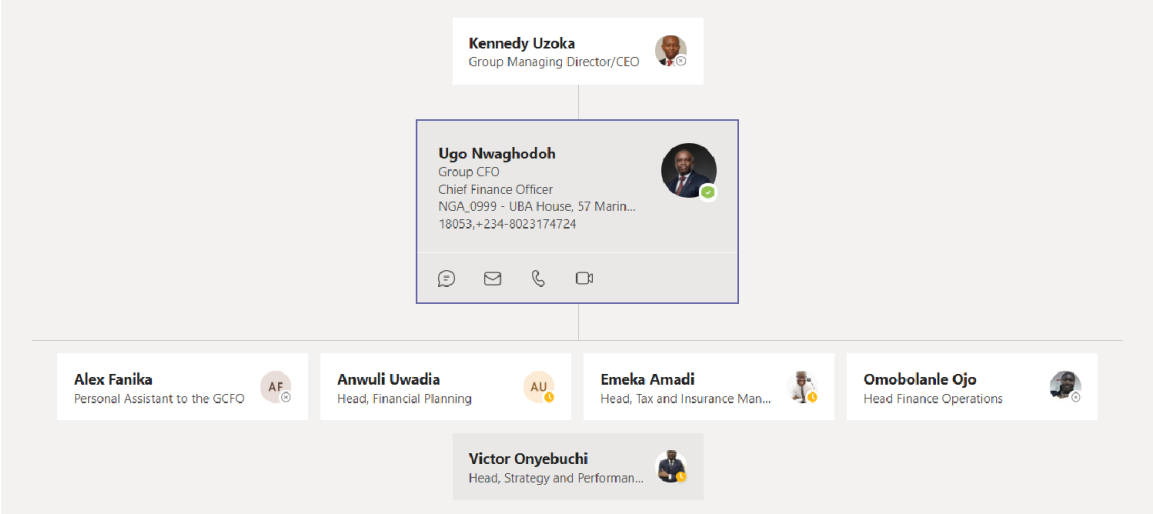

Kennedy Uzoka
Group Managing Director/CEO
Ugo Nwaghodoh
Group CFO
Chief Finance Officer
NGA_0999 - UBA House, 57 Marin...
18053,+234-8023174724
Alex Fanika
Personal Assistant to the GCFO
AF
Anwuli Uwadia
Head, Financial Planning
AU
Emeka Amadi
Head, Tax and Insurance Man...
Omobolanle Ojo
Head Finance Operations
Victor Onyebuchi
Head, Strategy and Performan...

fig2.3

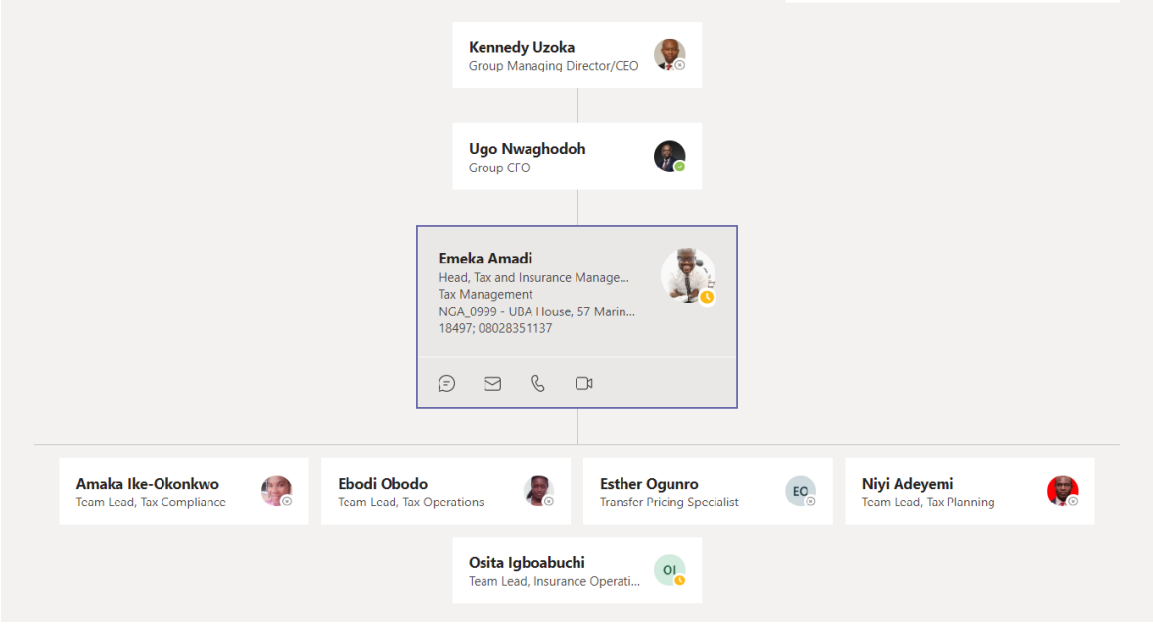

Kennedy Uzoka
Group Managing Director/CEO
Ugo Nwaghodoh
Group CFO
Emeka Amadi
Head, Tax and Insurance Manage...
Tax Management
NGA_0999 - UBA House, 57 Marin...
18497; 08028351137
Amaka Ike-Okonkwo
Team Lead, Tax Compliance
Ebodi Obodo
Team Lead, Tax Operations
Esther Ogunro
Transfer Pricing Specialist
EO
Niyi Adeyemi
Team Lead, Tax Planning
Osita Igboabuchi
Team Lead, Insurance Operati...
OI

fig2.4

CHAPTER THREE

3.1 WEEK ONE

Introduction and Authentication;

Resuming office was a great thing for me, But firstly I was introduced to my team TAX MANAGEMENT and everyone on my floor which included Performance Management, Financial Control, Regulatory, Strategy.

Getting Set Up was a swift thing for me, i got set up on Microsoft Teams, where everyone in the organization can get to communicate without interruption.
I got included into the Tax Management Team Official Mails. That is, I can get to Receive mail directed to Tax Management and I can also direct mail on behalf of the team to internal and external customers.

Got an overview of the company's Rules and Regulations on Dress codes and some other things. Which is; Black or Blue Pant trousers on White or SkyBlue Shirt with or without Tiny stripes. Black or Brown Belt. Black or Brown shoes.

Business casuals on a Friday are allowed.

An Organization Chart of My Team is displayed below;

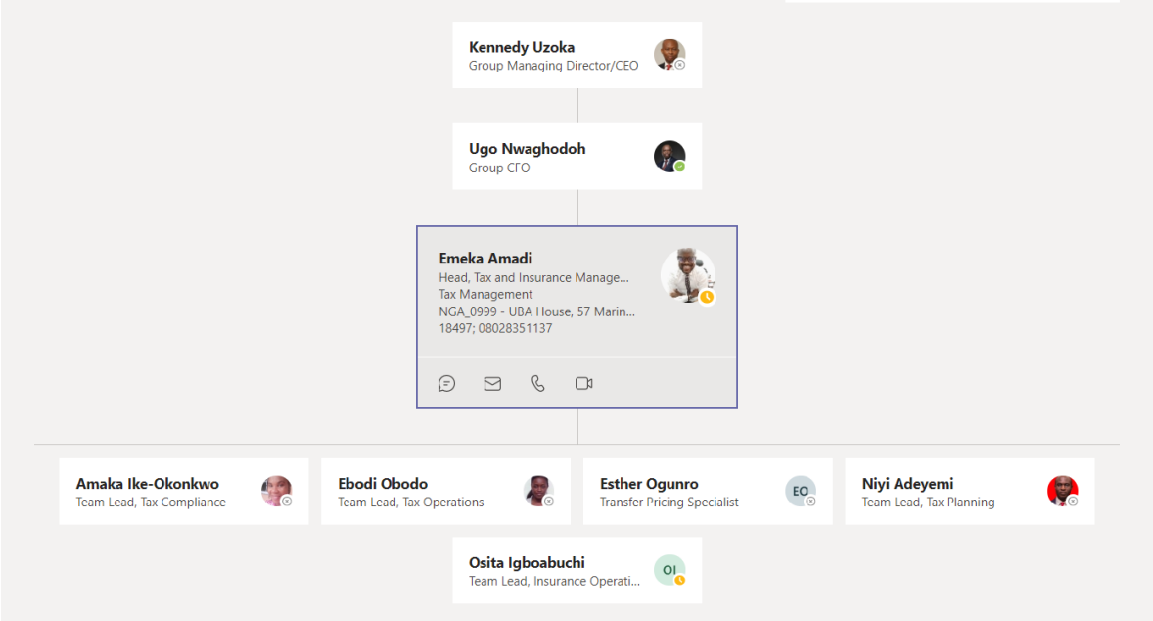
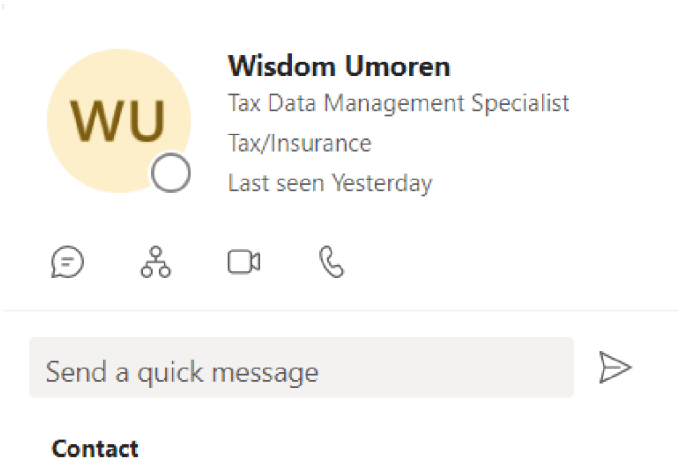


fig3.1

I report to these five names below directly, Especially Amaka Ike-Okonkwo and Ebodi Obodo. They are my main Supervisors.



I also Report to Wisdom Umoren who happens not to be in the chart above.

He is incharge of Data analysis and Data management of the team, whom I worked with and learned alot from.

fig3.2

3.2 WEEK 2

Introduction of Job Routine Of IT Department and Tax Management Department

- The IT Department is in charge of ensuring that the network/internet is working perfectly well for all the staff.
- The IT Dept is in charge of backing up all company applications.
- The IT Dept is in charge of CCTV.
- The IT Dept is in charge of giving the staff ID card to access and to open the door.
- The IT Dept (IT Care) are responsible for attending to =complaints from staff regarding network or IT issues, application installations and so on.
- The Tax Management Department is responsible for remitting Taxes to the federal and state government.
- The Tax management Department is responsible for issuing Tax Clearance Certificates to its internal customers.
- The Tax Management Department is also responsible for investigating accounts if Value added Tax are being Charged
- Tax Management Department owe it to every state to remit their corresponding New account Dues and Withholding Tax

RUNNING Microsoft Teams and Outlook

Microsoft Teams is where most of the company communications happen, as a staff member you automatically have a profile on there which allows you to access all other staff and also message them concerning work duties.

Outlook is our mailing service which allows us to get mail as a team (Taxmanagement@ubagroup.com). As a workspace we all have the suffix @ubagroup.com attached to our official mail.

The IT Department also gives access to respective databases in which respective Teams use. In Tax Management Case it is hofs

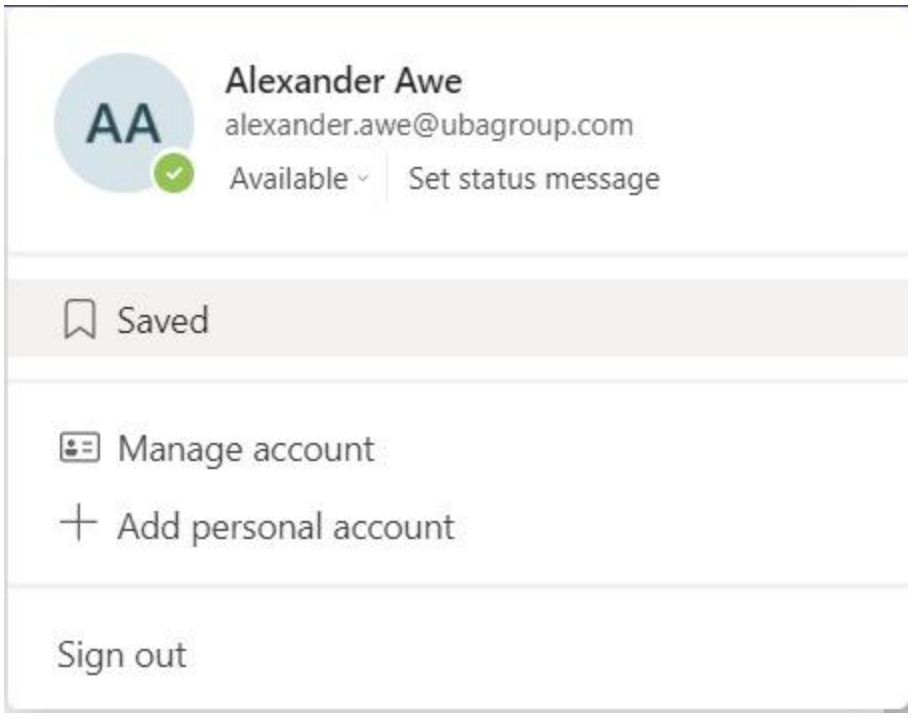


fig3.3

HOW TO ACCESS HOFS

HOFS is an online database in which all Tax Management work takes place.

Step 1; use **Windows R** key

Step 2; input **hofs**\ then enter

It will take you straight to the company's database.

There are others like **ntops, kpmg**, but those are not our space of work

3.3 WEEK THREE –SIX

SPOOLING INFORMATIONS FROM THE DATA WAREHOUSE

A Database is defined as a structured set of data held in a computer, especially one that is accessible in various ways.

An online database is **a database that is accessible from the internet or a local network**, rather than stored on a server or computer. Online databases are hosted on websites or via software-as-a-service (SaaS) products on a web browser.

A data warehouse is a type of data management system that is designed to enable and support business intelligence (BI) activities, especially analytics. Data warehouses are solely **intended to perform queries and analysis** and often contain large amounts of historical data.

SQL (Structured Query Language) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS). SQL consists of a data definition language and a data manipulation language. We used SQL to create and maintain databases in the SQL Server Management Studio.

Applications used to carry out queries

- Toad
- Microsoft SQL Server 2017

Microsoft SQL Server

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications which may run either on the same computer or on another computer across a network (including the Internet). All databases we created and worked with were created using SQL Server. The tool includes both script editors and graphical tools which work with objects and features of the server. The following picture shows a screenshot of the software taken from my laptop.

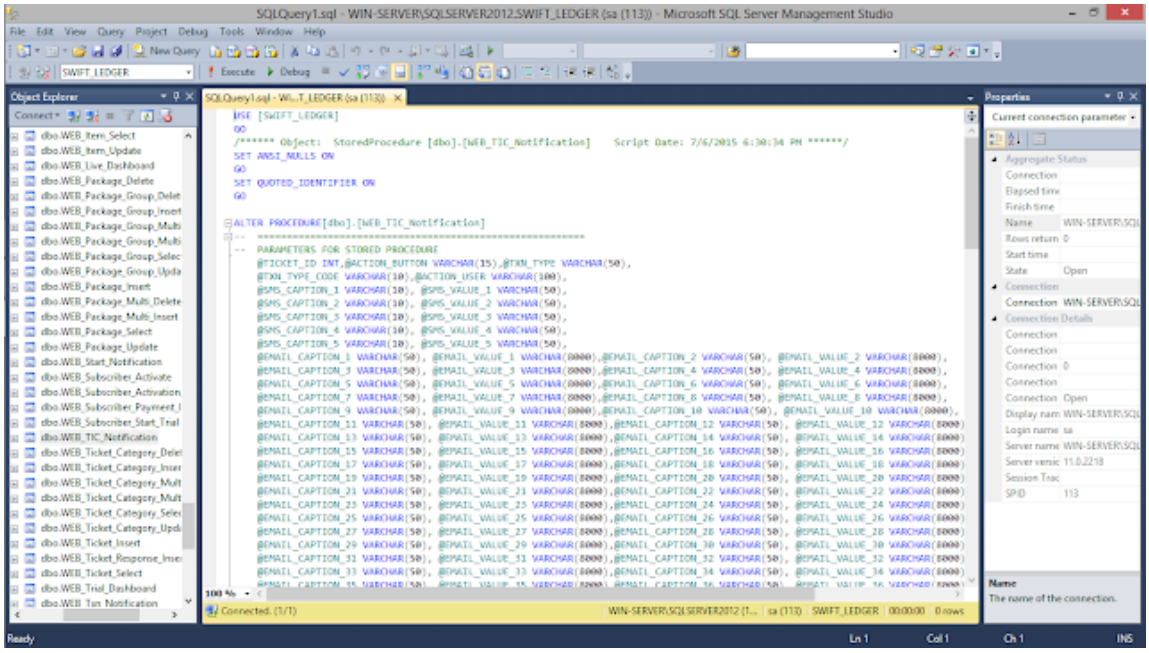


fig3.4

INTRODUCTION TO COMPUTER DATABASE NETWORK

Features of a computer database network

- Software and hardware compatibility
- Performance
- Data sharing
- Back up
- Reliability
- Security
- Scalability

SOFTWARE AND HARDWARE COMPATIBILITY

A computer database network must not limit all computers in a computer network to use some software and hardware; instead it should allow better compatibility between the different software and hardware configuration.

PERFORMANCE

Performance of a computer database network is measured in terms of response time. The response time of sending and receiving data from one node i.e. computer in a computer network are often referred as nodes; to another should be minimal.

DATA SHARING

One of the reasons why we use a computer database network is to share the data between different systems connected with each other through a transmission media.

BACKUP

A computer network must have a central server that keeps the backup of all data that is to be shared over a network so that in case of a failure, it should be able to recover the data fast.

RELIABILITY

There should not be any failure in the network or if it occurs the recovery from a failure should be fast.

SECURITY

A computer network should be secure so that the data transmitting over a network should be safe from unauthorized access at the receiving node, which means there should not be any loss of data during transmission.

SCALABILITY

A computer database network should be scalable which means it should allow adding new computers or nodes to the already existing computer network. For example
E 100 computers to the already existing LAN then in that case the local area a computer network should allow this.

BENEFITS OF DATAWAREHOUSE

fig3.5

1. Enables Historical Insight

No business can survive without a large and accurate storehouse of historical data, from sales and inventory data to personnel and intellectual property records. If a business executive suddenly needs to know the sales of a key product 24 months ago, the rich historical data provided by a data warehouse makes this possible.

Also important, a data warehouse can add context to this historical data by listing all the key performance trends that surround this retrospective research. This kind of efficiency cannot be matched by a legacy database.

2. Enhances Conformity And Quality Of Data

Your business generates data in myriad different forms, including structured and unstructured data, data from social media, and data from sales campaigns. A data warehouse converts this data into the consistent formats required by your analytics platforms. Moreover, by ensuring this conformity, a data warehouse ensures that the data produced by different business divisions is at the same quality and standard – allowing a more efficient feed for analytics.

3. Boosts Efficiency

It's very time consuming for a business user or a data scientist to have to gather data from multiple sources. It's far more advantageous for this data to be gathered in one place, hence the benefit of a data warehouse.

Additionally, if for instance your data scientist needs data to run a fast report, they don't need to get the assistance from tech support to perform this task. A data warehouse makes this data readily available – in the correct format – improving efficiency of the entire process.

4. Increase The Power And Speed Of Data Analytics

Business intelligence and data analytics are the opposite of instinct and intuition. BI and analytics require high quality, standardized data – on time and available for rapid data mining. A data warehouse enables this power and speed, allowing competitive advantage in key business sectors, ranging from CRM to HR to sales success to quarterly reporting.

5. Drives Revenue

A tech pundit opined that "data is the new oil," referring to the high dollar value of data in today's world. Creating more standardized and better quality data is the key strength of a data warehouse, and this key strength translates clearly to significant revenue gains. The data warehouse formula works like this: Better business intelligence helps with better decisions, and in turn better decisions create a higher return on investment across any sector of your business.

Most importantly, these revenue gains build on themselves over time, as better decisions strengthen the business.

In short, a high quality, fully scalable data warehouse can be seen as less of a cost and more of an investment – one that adds exponential value like few other investments that businesses make.

6. Scalability

The top key word in the cloud era is "scalable" and a data warehouse is a critical component in driving this scale. A topflight data warehouse is itself scalable, and also enables greater scalability in the business overall.

That is, today's sophisticated data warehouses are built to scale, handling ever more queries as the business grows (though this will require more supporting hardware). Additionally, the efficiency in data flow enabled by a data warehouse greatly boosts a business's growth – this growth is the core of business scalability.

7. Interoperates With On-Premise And Cloud

Unlike the legacy databases of yesteryear, today's data warehouses are built with multi cloud and hybrid cloud in mind. Many data warehouses are now fully cloud-based, and even those that are built for on-premise typically will interoperate well with the cloud-based portion of a company's infrastructure. As an additional important side point: this cloud-based focus also means that mobile users are better able to access the data warehouse – this is beneficial for sales reps in particular.

8. Data Security

A number of key advances in data warehouses have enhanced their security, which enhances the overall security of company data. Among these advances are techniques like a "slave read only" set up, which blocks malicious SQL code, and encrypted columns, which protects confidential data.

Some businesses set up custom user groups on their data warehouses, which can include or exclude various data pools, and even give permission on a row by row basis.

9. Much Higher Query Performance And Insight

The constant business intelligence queries that are part of today's business can put a major strain on an analytics infrastructure, from the legacy databases to the data marts. Having a data warehouse to more effectively handle queries removes some of the pressure on the system.

Furthermore, since a data warehouse is specifically geared to handle massive levels of date and myriad complex queries, it's the high functioning core of any business's data analytics practice.

10. Provides Major Competitive Advantage

This is absolutely the bottom line benefit of a data warehouse: it allows a business to more effectively strategize and execute against other vendors in its sector.

With the quality, speed and historical context provided by a data warehouse, the greater insight in data mining can drive decisions that create more sales, more targeted products, and faster response times.

In short, a data warehouse improves business decision making, which in turn gives any business a key competitive advantage.

Disadvantages

- Database systems are complex, difficult, and time-consuming to design
- Substantial hardware and software start-up costs
- Damage to database affects virtually all applications programs
- Extensive conversion costs in moving form a file-based system to a database system
- Initial training required for all programmers and users

How A Data Warehouse Benefits A Business

Effectively and efficiently mining data is the very center of any modern business's competitive strategy, and a data warehouse is a core component of this data mining.

The ability to quickly look back at early trends and have the accurate data – properly formatted – is essential to good decision making. By enabling this historical overview, a data warehouse allows decision makers to learn from past trends and challenges. In essence, the benefit of a data warehouse is continuous improvement.

Also important, a data warehouse can scale with a business; a growing business needs more and better data, and data warehouses can (with proper hardware support) grow ever more robust in their ability to handle queries.

This scalability is driven by data warehouses deployments that are on-premise or in the cloud. And in either scenario, a data warehouse can ensure data security by using encryption and specific protection setups that are intended to guard confidential data.

The true business advantage of having a data warehouse is that it offers a significant increase in competitive strategy by enabling smarter, metric-based decisions on everything from product releases to inventory levels to key sales levels. It's unlikely that any business can compete in today's market without an advanced data warehouse.

WORKING WITH SQL

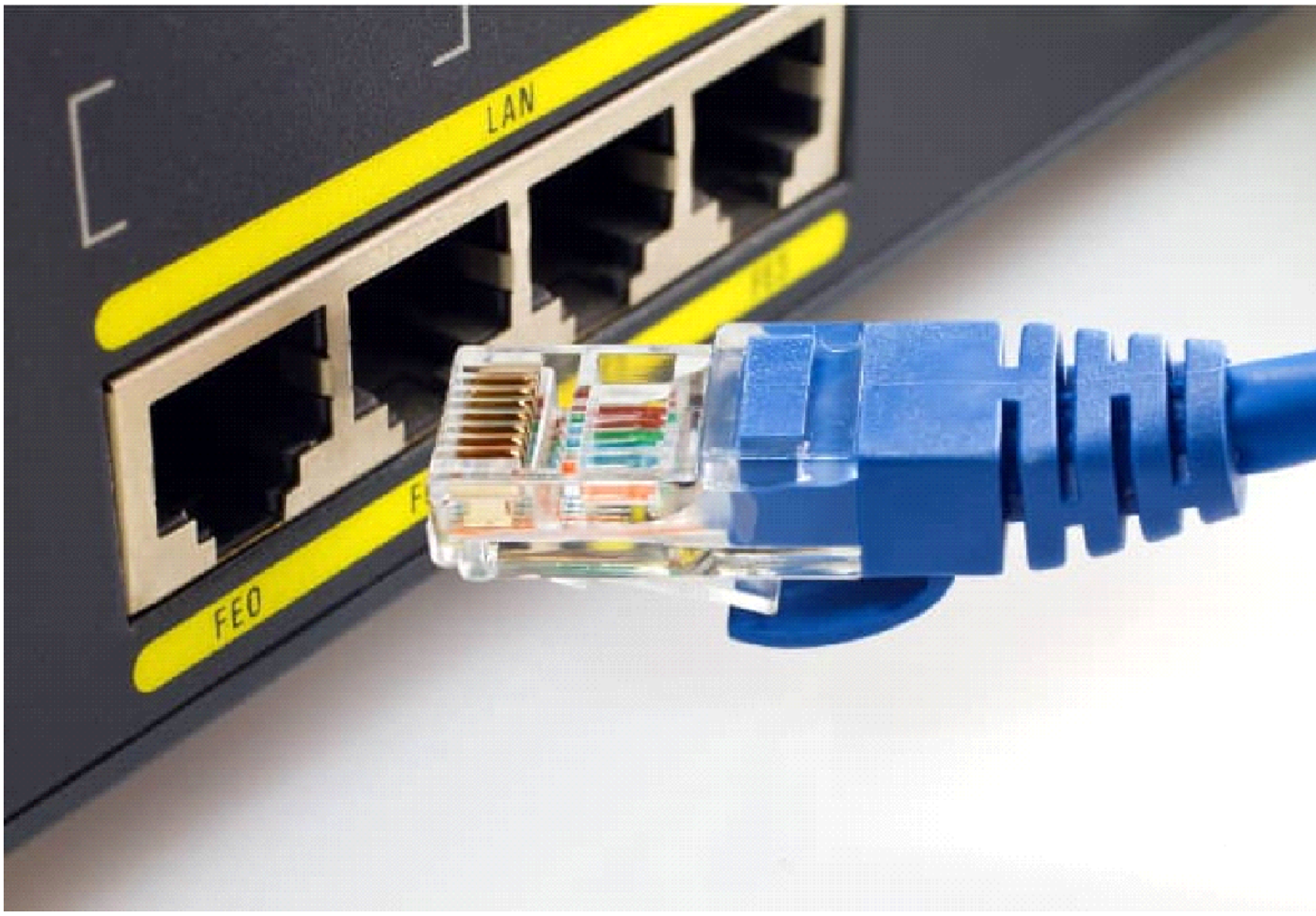
```
CREATE TABLE emp (

empno INT PRIMARY KEY,

ename VARCHAR(10),

job VARCHAR(9),
```

```
mgr INT NULL,
hiredate DATETIME,
sal NUMERIC(7,2),
comm NUMERIC(7,2) NULL,
dept INT)
begin
insert into emp values
  (1,'JOHNSON','ADMIN',6,'12-17-1990',18000,NULL,4)
insert into emp values
  (2,'HARDING','MANAGER',9,'02-02-1998',52000,300,3)
insert into emp values
  (3,'TAFT','SALES I',2,'01-02-1996',25000,500,3)
insert into emp values
  (4,'HOOVER','SALES I',2,'04-02-1990',27000,NULL,3)
insert into emp values
  (5,'LINCOLN','TECH',6,'06-23-1994',22500,1400,4)
insert into emp values
  (6,'GARFIELD','MANAGER',9,'05-01-1993',54000,NULL,4)
```

```
insert into emp values
  (7,'POLK','TECH',6,'09-22-1997',25000,NULL,4)
insert into emp values
  (8,'GRANT','ENGINEER',10,'03-30-1997',32000,NULL,2)
insert into emp values
  (9,'JACKSON','CEO',NULL,'01-01-1990',75000,NULL,4)
insert into emp values
  (10,'FILLMORE','MANAGER',9,'08-09-1994',56000,NULL,2)
insert into emp values
  (11,'ADAMS','ENGINEER',10,'03-15-1996',34000,NULL,2)
insert into emp values
  (12,'WASHINGTON','ADMIN',6,'04-16-1998',18000,NULL,4)
insert into emp values
  (13,'MONROE','ENGINEER',10,'12-03-2000',30000,NULL,2)
insert into emp values
  (14,'ROOSEVELT','CPA',9,'10-12-1995',35000,NULL,1)
end
CREATE TABLE dept (
```

```
deptno INT NOT NULL,
dname VARCHAR(14),
loc VARCHAR(13))
begin
insert into dept values (1,'ACCOUNTING','ST LOUIS')
insert into dept values (2,'RESEARCH','NEW YORK')
insert into dept values (3,'SALES','ATLANTA')
insert into dept values (4, 'OPERATIONS','SEATTLE')
end
```

ETHERNET



Ethernet is the technology that is mostly common used in wire local network i.e. LANs. A LAN is a network of computer and other electronic devices that covers a small area such as a room, office or building. It is used in contrast to a wide area network i.e. WAN which spans a much larger geographical area.

Ethernet is a network protocol that controls how data is transmitted over a LAN. technically it is referred to as IEFE 802.3 protocol. The protocol has evolved and improved over time to transfer data at the speed of a giga byte per second.

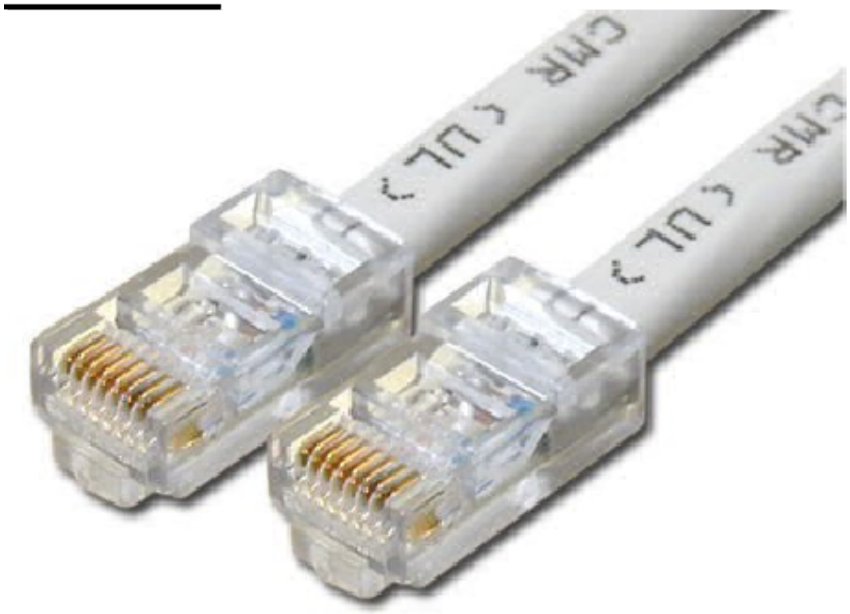


fig3.7

To set up a wired Ethernet LAN, we need the following.

COMPUTERS AND DEVICES TO CONNECT

Ethernet connects any computer or other electronic devices to its network as long as the device has an Ethernet adapter or network card.

NETWORK INTERFACE CARDS IN THE DEVICES

A network interface card is either integrated into the motherboard of the computer or installed separately in the devices. You also have USB versions of Ethernet cards, such as a network dangles. An Ethernet card is known as a network card. It has parts where you connect to cables.

There may be two parts, one for an RJ-45 jack that connects unshielded twisted pair [UTP] cables and one for a coaxial jack on the network card.

A ROUTER, HUB, OR GATEWAY TO CONNECT YOUR DEVICES

A hub is a device that acts as a connecting point between devices on a network. It consists of several RJ-45 parts to which you plug the cables.

CABLE

UTP cable is commonly used in Ethernet LANS. This is the same type of cable used for landline telephone sets, but with eight twisted pairs of wires of different colors inside. The end is camped with an RJ-45 jack, which is a larger version of the RJ-11 Jacks that plug into the landline phone.

When the Ethernet spans beyond a way to a greater distance, coaxial cable is used. This is the same cable with a wind single-core jack used for a TV.

SOFTWARE TO MANAGE THE NETWORK

Modern operating systems like recent versions of windows, Linux and macros are more than sufficient to manage Ethernet LANS. Third party software that gives more features and better control is available.

HOW ETHERNET WORKS

Ethernet requires technical knowledge in computer science to understand the mechanism behind the Ethernet protocol fully. When a machine on the network wants to send data to another, it senses the carrier, which is the main wire connecting all the devices if it is free, meaning no one is sending anything , it sends the data packet to see whether they are the recipient. The recipient consumes the packet, if there is already a packet on the highway, the device that wants to send holds back for some thousandths of a second to try again until it can send.

TERMINATING AN ETHERNET OR CAT 5e/CAT 6

Terminating Ethernet is a useful skill particularly for networking materials.

- Wire strippers
- Wire cutters
- RJ45 crimping tools
- 2-RJ45 modular data plug
- Bulk CAT6 network cable
- Ruler

MEASURE THE CABLE

Using the coil of wire, pull the necessary amount of wire for the connections you need to make. Be sure to include an extra 2 inches on either end of the wire for the data plug.

STRIP THE CABLE

- Measure out 1.5 inches from one end of the wire and place the wire in the wire stripper at that location. The cable should be snug in the stripper, but not tight. For the recommended strippers, the second inward is appropriate.
- Ensure the blade of the wire stripper is perpendicular to the wire and turn the stripper around the cable once which will score the skating of the wire.
- Remove the wire stripper and gently bend the cable along the second line. This should break the sheathing which can be pulled off the wire and thrown away. After the sheathing is removed the bundle of 8 wires will be exposed.

PREPARE WIRE

- Separate the twisted pairs into an ‘X’ pattern when you look at the cable from the end, you should not see any of the twisted pairs crossing over each other. Also the wires do not have to be in the same configuration as long as the wires are not crossing over each other.
- Separate the wires of twisted pairs, when the wires are separated, they should not cross over each other.
- Assemble the wires into a fan shape and organize the wires for plug. There are two common ways to organize the wires for a data plug. Regardless of which one you use, both ends of the cable must use the same configuration, otherwise the cable will not work. The most common configuration are as follows;
    - Orange-white
    - Orange
    - Green-white
    - Blue
    - Blue-white

- Green
- Brown-white
- Brown

- Firmly grasp all the wires near the sheathing and slide your fingers up, collecting all the wires into a flat line. Make sure none of the wires jump positions, when looking at the wire colors from left to right, the wires should be in the same configuration.
- Straighten the wires; these wires do not have to be even, just straighten them as best as you can.
- Using the wire cutters, item the tips of the wires, so all of the wires are even. Make sure the cut is perpendicular to the wires.

INSERTS WIRES AND CRIMP

- Ensure the wires are still in the same configuration as the last step; insert the wires in the data plug. The tab on the data plug should be on the bottom of the plug and the orange-white should be the leftmost wire in the plug. When inserted, the sheathing should be just inside the end of the data plug, if the wires are too long, remove the data plug, cut a very small length of the wire from the end, and reinsert the cable into the data plug.
- With the sheathing just inside the plug, pinch the wire about 2 inches below the plug using your other hand, pinch the wire just above where you have pinched and slowly slide your second hand up towards the plug like you are stretching further into the plug. Repeat this step until the sheathing is near the center of the plug.
- Insert the prepared plug in the crimping tool and squeeze the handler crimping the wires.

- **WEEK SEVEN – FOURTEEN**

SOFTWARE INSTALLATION AND INTERNAL CONFIGURATION

Installation of a computer program is the act of making the program ready for execution. Installation refers to the particular configuration of a software or hardware with a view to making it usable with the computer. A soft or digital copy of the piece of software is needed to install it.

Common operations performed during software installations include;

- Making sure that necessary system requirements are met
- Checking for existing versions of the software
- Creating or updating program files and folders
- Making the software accessible to the user, for instance by creating lines, shortcuts or bookmarks
- Configuration compounds that run automatically, such as windows services
- Performing product activation
- Updating the software versions.

These operations may require some changes or be free of charge. In case of payment, installation costs mean the cost connected and relevant to or incurred as a result of installing the equipment in the customer's premises. Some installers may attempt to take users into installing junk ware such as various forms of hardware or software of partnering companies. To prevent this, extra caution on what exactly is being asked to be installed is needed. The installation of additional software then can simply be skipped or inclined.

TYPES OF INSTALLATION

- Attended installation
- Silent installation
- Unattended installation
- Headless installation
- Scheduled or automated installation
- Clean installation

- Network installation

ATTENDED INSTALLATION

On Windows Operating Systems, this is the most common form of installation. The installation process usually needs a user who attends to it to make choices, such as accepting or declining an end-user license agreement EULA, specifying preferences such as the installation location, supplying passwords or assisting in product activation.

SILENT INSTALLATION

Installation that doesn't display messages or windows during its progress. Silent installation is not the same as unattended installation. All silent installations are unattended but not all unattended installations are silent. The reason behind a silent installation may be convenience or subterfuge.

UNATTENDED INSTALLATION

Installation that is performed without user interaction during its progress or with no user present at all. One of the reasons to use this approach is to automate the installation of a large number of systems. An unattended installation either does not require the user to supply anything or has recovered all necessary input prior to the start of installation.

HEADLESS INSTALLATION

Installation performed without using a computer monitor connected. In attended forms of headless installation, another machine connects to the target machine for instance, via a local area network and takes over the display output. Since the headless installation does not need a user at the location of the target computer, unattended installation may be used to install a program on multiple machines at the same time.

SCHEDULED OR AUTOMATED INSTALLATION

An installation process that runs on a present time or when predefined condition transpires, as opposed to an installation process that stands explicitly on a user's command. For instance, a system administrator willing to install a later version of a computer program that is being used can schedule that installation to occur when that program is not running.

An operating system may automatically install a device for a device that the user connects to malware may also be installed automatically.

CLEAN INSTALLATION

A clean installation is one that is done in the absence of any interfiling elements such as old versions of the computer program being installed from a previous installation. In particular, the clean installation of an operating system is an installation in which the target disk partition is erased before installation.

NETWORK INSTALLATION

Network installation, shortened net install, is an installation of a program from shared network resources that may be done by installing a minimal system before proceeding to download further packages over the network.

- **DATABASE WEEK FIFTEEN**

A database is an organized collection of string data stored electronically in a computer system. Data is organized in entities and attributes.

The Following are examples of SQL `SELECT` statements:

To select all columns from a table (`Customers`) for rows where the `Last_Name` column has `Smith` for its value, you would send this `SELECT` statement to the server back end.

```
SELECT * FROM Customers WHERE Last_Name='Smith';
```

The server back end would reply with a result set similar to this:

```
  +---------+-----------+------------+
  | Cust_No | Last_Name | First_Name |
  +---------+-----------+------------+
  | 1001    | Smith     | John       |
  | 2039    | Smith     | David      |
  | 2098    | Smith     | Matthew    |
  +---------+-----------+------------+

  3 rows in set (0.05 sec)
```

To return only the `Cust_No` and `First_Name` columns, based on the same criteria as above, use this statement:

```
SELECT Cust_No, First_Name FROM Customers WHERE Last_Name='Smith';
```

```
  +---------+------------+
  | Cust_No | First_Name |
  +---------+------------+
  | 1001    | John       |
  | 2039    | David      |
  | 2098    | Matthew    |
  +---------+------------+

  3 rows in set (0.05 sec)
```

Sample table: employees

emp_id	emp_name	job_name	manager_id	hire_date	salary	commission	dep_id
68319	KAYLING	PRESIDENT		1991-11-18	6000.00		1001
66928	BLAZE	MANAGER	68319	1991-05-01	2750.00		3001
67832	CLARE	MANAGER	68319	1991-06-09	2550.00		1001
65646	JONAS	MANAGER	68319	1991-04-02	2957.00		2001
67858	SCARLET	ANALYST	65646	1997-04-19	3100.00		2001
69062	FRANK	ANALYST	65646	1991-12-03	3100.00		2001
63679	SANDRINE	CLERK	69062	1990-12-18	900.00		2001
64989	ADELYN	SALESMAN	66928	1991-02-20	1700.00	400.00	3001
65271	WADE	SALESMAN	66928	1991-02-22	1350.00	600.00	3001

Sample table: department

dep_id	dep_name	dep_location
1001	FINANCE	SYDNEY
2001	AUDIT	MELBOURNE
3001	MARKETING	PERTH
4001	PRODUCTION	BRISBANE

Sample Solution:

```
SELECT *
FROM employees e,
    department d
WHERE (dep_name = 'FINANCE'
      OR dep_name ='AUDIT')
  AND e.dep_id = d.dep_id
ORDER BY e.dep_id ASC;
```

Sample Output:

```
 emp_id | emp_name | job_name  | manager_id | hire_date  | salary  | commission | dep_id | dep_id | dep_na
--------+----------+-----------+------------+------------+---------+------------+--------+--------+-------
  68319 | KAYLING  | PRESIDENT |            | 1991-11-18 | 6000.00 |            |   1001 |   1001 | FINANC
  67832 | CLARE    | MANAGER   |      68319 | 1991-06-09 | 2550.00 |            |   1001 |   1001 | FINANC
  69324 | MARKER   | CLERK     |      67832 | 1992-01-23 | 1400.00 |            |   1001 |   1001 | FINANC
  67858 | SCARLET  | ANALYST   |      65646 | 1997-04-19 | 3100.00 |            |   2001 |   2001 | AUDIT
  69062 | FRANK    | ANALYST   |      65646 | 1991-12-03 | 3100.00 |            |   2001 |   2001 | AUDIT
  63679 | SANDRINE | CLERK     |      69062 | 1990-12-18 |  900.00 |            |   2001 |   2001 | AUDIT
  68736 | ADNRES   | CLERK     |      67858 | 1997-05-23 | 1200.00 |            |   2001 |   2001 | AUDIT
  65646 | JONAS    | MANAGER   |      68319 | 1991-04-02 | 2957.00 |            |   2001 |   2001 | AUDIT
(8 rows)
```

The relational database management system [RDMS] relational data, oracle database is an RDMS with largest market share. Beside the oracle database, there are other RDMS products available, here are some notable one

- Db2 from IBM
- SOL server from Microsoft
- MYSQL; The most popular open-source database
- Post SQL; The most advanced open source data.

EMPLOYEE CODE UPLOAD

- Login to T24
- Enter 90 and click ok
- Choose IT menu
- Click on create and amend employer/employee code
- Choose create employer code
- Enter the code
- Add the name and necessary information
- Verified it and save

Connecting the staff to a share folder

- Go to this pc on the system and click on computer on the top side of the system
- Click on map network drive
- And provide the IP address of the share folder
- Then click finish.

3.7 WEEK SIXTEEN-TWENTY-FOUR

COMPUTER HARDWARE AND SOFTWARE

HARDWARE

Hardware represents the physical and tangible components of a computer i.e. the components that can be seen and touched. Examples of hardware as follows;

- Input device; keyboard, mouse etc.
- Output device; printer, monitor, speaker etc.
- Secondary storage devices; hard disk, CD, DVD etc.
- Internal components; CPU, motherboard, RAM etc.

COMPUTER HARDWARE COMPONENTS

- Case/system unit; the computer case also called a tower is the box that encloses many of the parts or components of the computer.
- Power supply or switched mode power supply; converts AC voltage from the wall outlet to DC voltage the computer can use. It supplies DC voltage for internal computer components and has a fan to keep the computer cool.
- Processor and fan; the processor is the main brain of a computer system while the fan helps to prevents over heating of the various electronic components.

- Motherboard; the motherboard is a large electronic board that is used to connect the power supply to various other electronic parts, and to hold these parts in place on the computer.
- RAM [Random Access Memory]; short term memory that is used to store documents while they are being processed. The amount of RAM in a computer determines the speed of a computer. RAM attaches to the motherboard via some specific slot.
- NIC [Network Interface Card]; used to describe tools that allow your computer to connect and communicate with various inputs and output devices. This is a computer hardware component that allows a computer to connect to a network. NIC may be used for both wired and wireless connection. A NIC is also known as a Network Interface Controller [NIC] or network card, LAN-CORD, network-adapter on network adapter card [NAC].
- Drives; a computer device are the device used for long term storage of information e.g. hard disk, flash disk etc.
- Hard drive or hard disk is a common storage device for maintaining files inside the computer, usually mounted below or beside the floppy drive.
- Cd drives; holds disks [CDs] that have data, music, or software applications.
- DVD [Digital Versatile Disk] drive; popular alternative to a CD drive that supports CD, as well as music and video DVDS.
- Peripheral hardware; are the computer components that are not found within the computer case. It is defined as any auxiliary device that connects to and works with the computer in some way e.g. mouse, microphone and keyboard, monitor, printer, and speakers.

COMPUTER SOFTWARE

Software is a set of programs , which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

TYPES OF SOFTWARE

- **SYSTEM SOFTWARE**

- The system software is a collection of programs designed to operate, control, and extend the processing capabilities of the computer factories.

- System software is generally prepared by computer manufacturers.

- System software serves as the interface between hardware and the end-users e.g. operating systems, compilers, interpreter, assemble language etc.

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- **APPLICATION SOFTWARE**
- Application software products are designed to satisfy a particular need of a particular environment.
- Application software may consist of a single program, such as a Microsoft's notepad for writing and editing simple text.
- It may also consist of a collection of programs often called a software package, which work together to accomplish a test such as a spreadsheet package e.g. payroll software, student record software.

- **UTILITY SOFTWARE**

  Allow a computer to perform tasks that are not part of the operating system but are still practical and useful. For example utility software might instruct a computer on how to copy [burn] information to a CD-ROM disk, or it might be an antivirus program.

PROPRIETARY SOFTWARE VS OPEN SOURCE SOFTWARE

PROPRIETARY

- They are proprietary, which means that their use and modification and restricted.
- They could be quite costly to buy licenses for.
- They are not adaptable to meet local needs.
- Some users, particularly in developing countries, illegally use unlicensed [also known as pirate] copies of this software.
- This is legally unwise and can also keep the user from accessing important software updates.

OPEN SOURCE

- Users, who cannot afford proprietary software or prefer software that can be locally modified, can choose to use open source [often called free and open source or Foss] software.
- For most of the standard computer uses an open source software option is available e.g. Linux family of operating systems [which includes Ubuntu, and the open office organization productivity programs.

RELATIONSHIP BETWEEN HARDWARE/SOFTWARE

- Hardware and software are mutually dependent on each other, both of them must work together to make a computer produce a useful output.
- Software cannot be utilized without supporting hardware
- Hardware without a set of programs to operate upon cannot be utilized and is useless.
- To get a particular job done on the computer, relevant software should be loaded into the hardware i.e. a device driver is needed

A device driver is a program that controls a particular type of device that is attached to your computer. There are device drivers for printers, displays, CD ROM readers, diskette drives etc. when you buy an operating system, and many device drives are built into the product.

- Hardware is a one-time expense
- Software development is very expensive and is a containing expense.
- Different software applications can be loaded on hardware to run different jobs.
- Software acts as an interface between the user and the hardware.
- If hardware is the ‘heat’ of a computer system, then software is it ‘soul’. Both are complementary to each other.

COMPUTER MAINTENANCE

Prevention [maintenance] is better than cure [repair].

- Check harmful materials e.g. dust, virus, outdated software, faulty electrical power/gadgets e.g. cables, sockets, extensions etc.
- Check any malfunctions of peripherals.
- Proper maintenance helps to keep the computer running smoothly for years.

IMPROVING SLOW PERFORMANCE

DUST CONTROL

- Dust is very harmful for computer parts.
- Excess of dust can cause mechanical failures, particularly on computer components with moving parts.
- Computers should be dusted regularly by using compressed air machines.

DISK DEFRAGMENT

Used to organize files on the hard drive and optimize free space, improving the speed and performance of the computer. Some applications may fail outright if the disk becomes too fragmented.

- **SCAN DISK/CHECK NOW**

  For hard disk faults, use scan disk/check now to scan the hard disk for faults and even repair them if possible. This option will check the hard disk for errors.

- **EXCESS AND UNUSED FILES**

  - As a hard disk becomes full, the computer's performance is needed.
  - It takes more time to find and access needed files.
  - Defragment action is not as successful due to a lack of free space to temporarily move files to while they are being rearranged.
  - Therefore, it is wise for a computer user not to keep files that are no longer needed.

Files that have been stored in a user's documents folder that are no longer needed [such as extra photos or older versions of documents] should be deleted.

CHAPTER FOUR

4.0 KNOWLEDGE AND SKILL ACQUIRED

During the period of my training at United Bank for Africa plc. the following are the list of skills I acquired

- Database
- Hardware and Software Installation
- Customer Relations
- Store keeping

4.1 PROJECTS UNDERTAKEN

During the period of my SIWES program at United Bank for Africa plc. .

The following are the list of projects I undertook personally and as a team member.

- I helped in spooling for **Tax Clearance Certificates (TCCs)** for Internal customers (employees).
- I helped in collating **New Accounts Acknowledgement** for various states.
- I also helped in reviewing documents provided by employees to process **Tax Rebates**.
- I helped in preparing **Withholding Tax** on **Interest** (Credit Notes) for various companies, the likes of **Afriland Towers**, **Airtel Ng**

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

PROBLEMS ENCOUNTERED

During the program, the following are some of the problems I encountered as a student.

- At first, I had problems securing a computer science firm to enable me to carry the exercise.
- At first I had a problem when I was placed in TAX Management departments.
- When I had the opportunity to work with Data Management Specialist I was overwhelmed
- The issue of COVID -19 contributes negatively to my program because staff go on a one-week on one-week off routine, which gives me limited time to spend with my supervisors.

5.1 CONCLUSION

At the end of the program, I am able to know more about the field of computer science that interacts mostly with the world and can make me a better person and serve my community at large. All what I learnt at ***United Bank for Africa plc.*** such as installations, databases, how they remit their Taxes, ways of interacting with customers, has transformed me and made me see the coming future as a brighter student.

I also conclude that SIWES is the best program that makes me learn more of what I have been taught in class in a practical way and how it is utilized to serve the community and nation at large.

5.2 RECOMMENDATION

In the order to make the SIWES program a best on for upcoming student and future generation, the following are my recommendation:

- I strongly recommend that the University should be involved in securing students' attachment to various industries related to their field of study by forming a synergy with the Industries or companies.
- The department should also endeavor to liaise with the alumni and experienced individuals of the department who could be of help in recommending a suitable placement to students going for industrial training.
- It would be of great benefit if an avenue is created that can allow the student to have access to computer science and technology firms that actually fits in their future area of specialization as a computer science graduate.