**DEPARTMENT OF SOFTWARE ENGINEERING**

**SCHOOL OF NATURAL AND APPLIED SCIENCE**

**VERITAS UNIVERSITY, ABUJA.**

**REPORT ON PRACTICUM**

**BY**

**NAME:**

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**UNDER THE SUPERVISION OF :**

**(PRACTICUM COORDINATORS NAMES)**

**SUBMITTED TO :**

**DEPARTMENT OF SOFTWARE ENGINEERING**

**FACULTY OF NATURAL AND APPLIED SCIENCE**

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**DEDICATION**

This report is dedicated to my parents Mr. Samin and Mrs. Betty, for their unconditional and undying love and support in my life. I say, may you remain blessed. With all sense of humility, I dedicate this PRACTICUM report to myself for the “die-hard spirit” that is in me.

**ACKNOWLEDGEMENTS**

Firstly i wish to show my gratitude to god for his protection guidance and grace throughout my life. I am grateful to the entire staff of the department of software engineering for this industrial work experience is educative and worthwhile.

My special thanks go to my H.O.D Dr. Emmanuel, for his effort in making sure that this industrial training was a success. I also want to thank all my amazing lecturers in the department, my wonderful supervisor Eng. Attah Peter, for his wonderful lectures, to him I want to say bless you.

My regards to my amazing parents Mr. Samin and Mrs. Betty who financially supported my education and ensured that my dreams came true. May you guys remain blessed in Jesus’ name.

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**ABSTRACT**

The Student Industrial Work Experience Scheme established by the federal government of Nigeria main goal was for Nigeria’s students of higher institutions to acquire practical experience and industrial skills in their various courses of study. It also was established to equip students for the industrial work situation which they are like face after graduation. Welcome to an Industrial Training Report (ITR) that ushers you into an exciting world of Software Engineering. This report provides some of thee features that are important to students and anyone that has interest in database development and Object Oriented Programming in java. This report is based on my experiences gained during my two months of industrial training at Veritas University Bwari, Abuja. This report looks into the process involved in solving the task at hand, whether as a front-end developer or as a back-end developer. I was opportune to, work in both the front-end and back-end sections of software development. These two sections exposed me to what it is to be a front-end programmer and a back-end programmer. We also considered the user experience, without the user’s experience in mind, it will be quite difficult to produce good software. I was shown what can be done when a problem is encountered and how to get out of it. Most importantly. Chapter 1 presents an overview of PRACTICUM, a brief history of PRACTICUM, it’s objectives, and roles played by the Federal government, the employers and the student. Thus chapter two, we will be looking into what a Software Engineer is, their Roles and Responsibilities as well as an Introduction To Database And Its Concept provides technical report on the various methods to design and create a database which allows the Software Engineers to build a robust database that will suit the need of the application. Briefly discuss some popular Programming Languages used by programmers. Chapter three looked into the Ideas I have towards the training which could help better the students experience. I also talked about the Challenges Encountered

**CHAPTER ONE**

1. **ABOUT PRACTICUM**

The five capitalized letters ‘PRACTICUM’ means the “Student Industrial Work Experience Scheme. The Students Industrial Work Experience Scheme (PRACTICUM) is a skills training program designed to expose and prepare students of universities and other tertiary institutions for the Industrial Work situation they are likely to meet after graduation.  It is also a planned and structured program based on stated and specific career objectives which are geared towards developing the occupational competencies of participants (Mafe, 2009).  Consequently, the PRACTICUM program is a compulsory graduation requirement for all Nigerian university students offering certain courses.

**1.1 HISTORY OF PRACTICUM**

PRACTICUM 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 institutions graduates by Nigerian Industries. The Students’ Indusial Work Experience Scheme (PRACTICUM) was founded to be a skill training program 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 to acquainting and expose themselves to the experience required in handling and managing equipment and machinery that are usually not made available in their institutions.

**1.2 OBJECTIVES OF PRACTICUM**

The Students Industrial Work Experience Scheme (PRACTICUM), is the accepted the training program, which is part of the approved Minimum Academic Standard in the various degree programs for all Nigerian Universities.  The scheme is aimed at bridging the existing gap between theory and practice of Sciences, Agriculture, Medical Sciences (including Nursing), Engineering and Technology, Management, Information and Communication Technology, and other professional educational programs in Nigerian tertiary institutions.  It is aimed at exposing students to machines and equipment, professional work methods, and ways of safeguarding the work areas and workers in industries, offices, laboratories, hospitals, and other organizations.

**1.3 ROLES PLAYED BY THE FEDERAL GOVERNMENT IN PRACTICUM**

* To provide adequate funds to the ITF through the Federal Ministry of  Industry for the scheme.
* To make it mandatory for all ministries and companies to offer places to students by the provisions of Decree No. 47 of 1971 as amended in 1990.
* Formulate policies to guide the running of the scheme nationally.

**1.4 ROLES OF THE INDUSTRIAL TRAINING FUND (ITF)**

* Formulate policies and guidelines on PRACTICUM for distribution to all the PRACTICUM participating bodies.
* Provide logistic material needed to administer the scheme.
* Organize orientation programs for students before attachment.
* Provide information on companies for attachment and assist in the Industrials placement of students.
* Supervise students on Industrial attachment.
* Accept and process Master and Placement lists from institutions and supervising agencies.
* Vet and process students’ logbooks and ITF Form 8.

**1.5 ROLES OF EMPLOYERS**

* Accept students and assign them to relevant on-the-job training.
* Provide tailor-made training programs for the students.
* Attach experienced staff to students for effective training and supervision on a ratio of 1:10 (staff-students).
* Control and discipline student’s like a permanent staff.
* Provide medical care for students within the limit of employers’ conditions of service.
* Permit representatives of ITF and Institution based supervisors to visit the students on attachment.
* Grade students in the assessment Form and the ITF Form.

**1.6 ROLES OF STUDENTS**

* To attend the institution’s PRACTICUM orientation program before going on industrial attachment.
* Comply with the employer’s rules and regulations.
* Keep proper records of training activities and other assignments in the logbook.
* Arrange their accommodation during the period of attachment.
* Submit Log Books, Reports, and other documents related to PRACTICUM as required by their institution at the end of the training period.
* Submit to ITF through their institution, Evaluation Form (ITF Form 8) completed by the students the employer, and the institution.
* Avoid changing the place of attachment except in special circumstances and with the permission of your Centre Director and the PRACTICUM Directorate.

**CHAPTER TWO**

**2.0 WHAT IS A SOFTWARE ENGINEER AND WHAT ARE THE ROLES AND RESPONSIBILITIES OF A SOFTWARE ENGINEER.**

**The first thing we were learned was what is a software engineer..** A software engineer is someone who designs, develops, tests, and maintains software applications. Software engineers develop software solutions for end users based on engineering principles and programming languages. **Then the roles and responsibilities a software engineer plays, include;** collaborating with systems analysts, engineers, programmers, and others to design systems and gather information on project limitations, capabilities, performance requirements, and interfaces. Alter existing software to resolve mistakes and errors, promote its adaptation to new hardware, and improve its overall performance. Analyze user needs and software requirements to determine design feasibility within time and cost limitations. Meet with customers to discuss software system design and maintenance. Coordinate the installation of software systems and monitor related equipment to meet specifications. Design, develop, and modify software systems — incorporating scientific analysis and mathematical models to predict and measure the outcome and consequences of those designs. And so on. I discovered that there are certain skills which you must have to be a good software engineer. As a software engineer you must have the following skills; Skill to analyze complex technical information. The ability to analyze business requirements and assess impact within the existing database architecture. Good research skills. Be an excellent problem solver. Have experience building software applications. An understanding of software engineering best practices. Working well either independently or with a team, including Agile Scrum teams. Working knowledge of C, C++, and C#.. The ability to write precise, detailed technical specs and documentation. Once the following skills have been acquired, then we can say you are a proficient software engineer.

**2.1 DATABASE AND ITS CONCEPTS**

What is a Database?

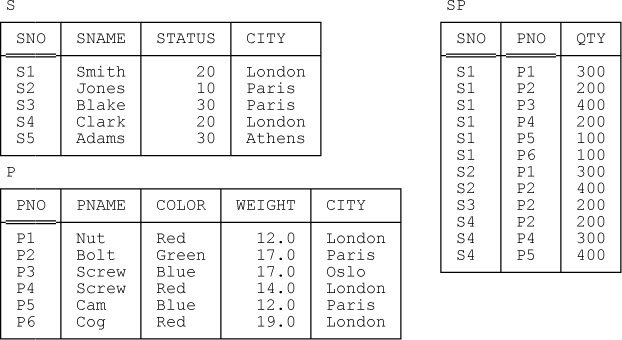
A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). A collection of related pieces of data, whose purpose is to solve the data management needs of an institution is called a Database. Database Management Systems (DBMS), on the other hand, is very complex software that saves the data on the secondary storage devices and which are used to manipulate databases.

Figure 1-1 above shows sample values for a typical database, having to do with suppliers, parts, and shipments (of parts by suppliers).

As you can see, this database contains three files, or tables. The tables are named S, P, and SP, respectively, and since they’re tables they’re made up of rows and columns (in conventional file terms, the rows correspond to records of the file in question and the columns to fields).

**2.1.1 CREATING AND DESIGNING A DATABASE**

Here I came across the basic steps to designing a Database, which includes; determining the purpose of the database. Find and organize the information. Create tables for the information. Establish relationships between the tables. Redefine your design.

**2.2 PROGRAMMING LANGUAGES**

A programming language is any set of rules that convert strings, or graphical program elements in the case of visual programming languages, to various kinds of machine code output. Programming languages are one kind of computer language and are used in computer programming to implement algorithms. They are rules that a programmer writes in other for a computer to carry out specific tasks. Programming languages allow developers to communicate with computers. Software development professionals need to know at least one programming language to build and modify products like software systems, scripts, and mobile applications.

| **Characteristic** | **Share of respondents** |
| --- | --- |
| JavaScript | 65.36% |
| HTML/CSS | 55.08% |
| SQL | 49.43% |
| Python | 48.07% |
| TypeScript | 34.83% |
| Java | 33.27% |
| Bash/Shell | 29.07% |
| C# | 27.98% |
| C++ | 22.55% |
| PHP | 20.87% |
| C | 19.24% |
| PowerShell | 12.07% |
| Go | 11.15% |
| Rust | 9.32% |
| Kotlin | 9.16% |
| Dart | 6.54% |
| Ruby | 6.05% |
| Assembly | 5.47% |
| Swift | 4.91% |
| R | 4.66% |
| VBA | 4.48% |
| Matlab | 4.1% |
| Lua | 4.03% |
| Groovy | 3.32% |
| Delphi | 3.25% |
|  |  |

**Fig 1.0**

The figure above shows the most used programming languages among developers worldwide as of 2022.

**2.3 What is Structured Query Language (SQL)?**

SQL is a programming language used by nearly all relational databases to query, manipulate, and define data, and to provide access control. SQL was first developed at IBM in the 1970s with Oracle as a major contributor, which led to implementation of the SQL ANSI standard, SQL has spurred many extensions from companies such as IBM, Oracle, and Microsoft. Although SQL is still widely used today, new programming languages are beginning to appear. SQL is a domain-specific language used in programming and designed for managing data held in a relational database management system, or for stream processing in a relational data stream management system. SQL is essentially a language that communicates through databases. If you want to pull, add, delete or edit information on a database, the easiest way to do it is through SQL.

**CHAPTER THREE**

**3.0 RECOMMENDATION AND CHALLENGES ENCOUNTERED**

**Recommendation**

•Students could begin practicing their Skills right from their day 1 in school. This will make Employers to see much value in them even as an IT Student.

•The School authorities could set-up Social meetings that serves to help students in respect to their Career.

• Top Experts from various Industries should try to volunteer to come and Students on the current trends in their various Industries. This will help the Students to get prepared for the challenges they will face after graduation.

**Challenges Encountered**

The Challenges that I encountered helped me and developed me though in a very hard way.

* Firstly there was a limited time which put a lot of pressure on me.
* Completing the PRACTICUM training online due to the sudden vacation we had to go on all on me. Working from home wasn’t the best for me. There were various distractions ranging from mom’s summons to Dad’s errands.

**3.1 CONCLUSIONS**

Doing my six (3) months of PRACTICUM at ( The organization you undertook your practicum)was a great privilege and opportunity to learn the top skills that are currently in high demand in the Software Development industry. The training exposes me to the fact that Certificates and Skills are both the required keys that can open the door to great opportunities in the world of Careers and Professions.

**3.2 REFERENCE**

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