**DECLARATION**

I………………. declare that this is my original work and has not been presented anywhere else to best of my knowledge.

Signature ……………………… Date ……………………...

Linet Atieno

EB3/32964/17

I………………. confirm this report has not been presented anywhere to the best of my knowledge.

Signature ……………………… Date ……………………...

Dr David Mwathi

# **DEDICATION**

My sincere dedication goes to my family and friends who offered me words of encouragement as well as physical and financial support during the attachment period.

# **ACKNOWLEDGEMENT**

I wish to extend my sincere and heartfelt gratitude by acknowledging the support, training and support of Deveint Limited without whom this wouldn’t be possible. I appreciate the company for creating a learning platform for students, on industrial training programs, by providing them access to important ICT resources meant develop their technical skills.

To my colleagues for their contribution in terms of advice, peer review, expert review, and general support which came in handy during the attachment period.

To my family and friends for the love and support they gave me to ensure my smooth training.

Above all I thank the Almighty God for his divine support, protection, guidance and the opportunity for the memorable and fruitful experience.

# **ABSTRACT**

The goal of this report is to offer information about the attachment institution, a summary of all activities completed during the attachment time, skills learned, and problems encountered. The report was written as part of my bachelor's degree requirements in Applied Computer Science, and it serves as a summary of what I learned throughout the attachment.

Being able to work with a company on important projects and being part of a team is a unique experience including the exposure on the best and latest IDEs of software development. The report also looks at agile methodologies’ software teams use, hiring practices and remote work. It also presents the programming languages and software development tools commonly used by the company’s software developers which includes Java, python, (PHP), C++.

The practicum experience is an opportunity to acquire new technological skills and focus on different sections in computer science. It provides a chance to integrate and apply classroom learning in a working environment enabling students to observe and learn from professionals.

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# **CHAPTER ONE**

## **INTRODUCTION**

Any student in Chuka University is required to undergo an industrial attachment for a period of at least 3 months in a platform relevant to their field of study. This program is essential for award of any undergraduate degree. It is under supervision and intensive report compilation required to be submitted to the University on completion.

It gives the student the practical skills and the work environment philosophy, to us their skills and principles learned in class to serve the institutions and society in general. For these reasons, Chuka University organizes three months of training for its students to apply the knowledge achieved during their study hence acquire new skills in managing relationship and carrying out the job assigned. Those three months are also meant to help students explore different departments of Computer Science and decide where they fit in.

## **PURPOSE**

The report is meant to summarize the activities and experience with Deveint company limited for the past 12 weeks. The following are the purpose of the program:

1. To expose students to real work experience.
2. Provide opportunity for students to gain knowledge through hands on observation and job execution.
3. To cultivate students’ leadership ability and responsibility to execute a given task.
4. To expose students with the industrial norms before stepping into the corporate world.
5. To enhance the ability to improve student’s creativity skills and sharing ideas.
6. To translate theories and assignments learnt in class to an actual working environment.
7. Increase learner’s technical, interpersonal and communication skills, both oral and written.

## **SCOPE AND LIMITATIONS**

During the attachment period, I was involved in hardware, software and networking activities. This report covers the projects and activities that I was able to participate in. The experience during the three-month period has enabled me achieve the objective of this program.

# **CHAPTER TWO**

## **BRIEF HISTORY**

Deveint limited is a leading software Development house located in 23Olenguruone Avenue, Lavington, Nairobi. It was founded by Martin Muraya and Antony Nandaa with the main objective of developing solutions for mobile web and IOT. These two friends saw an opportunity to create a platform that offers technological solutions meant to boost businesses and increase efficiency. Deveint have grown to hire 25 employees

## **2.1 DEVEINT FUNCTION**

Deveint services are delivered by qualified teams with years of experience and passion about developing solutions. As a trusted leading software and interactive agency, Deveint ensures the technological prerequisites for a timely and effective implementation of clients’ custom software development needs. The result-oriented approach coupled with attention to detail, warrants a streamlined client experience and high-quality durables. Deveint Limited has extensive experience in developing highly complex solutions for end users. Consultants have been working extensively in contributing to the way users can conveniently transact, play and find useful services and products on their mobile devices.

### **2.1.1 Services**

**Mobile apps:** With programmatic approach to adopting market trends and the ingenuity to set them, Deveint strives a balance between solid product foundations and new impactful technologies. It takes part in developing SMS, USSD, Android and IOS Apps.

**Web Development:** With an expansive knowledge of data confluence and web service integration, Deveint gets project off to the right start creating a flexible launchpad to start businesses. It has developers skilled in JavaScript, python, CSS working with designers to determine the site’s layout to bring out unique website display.

**Ecommerce platform:** Deveint ecommerce solutions help businesses sell their goods and services online in Kenya and beyond. It provides usable secure and robust solutions to enable businesses reach their online customers effectively.

**Payment Solutions:** Deveint develops secure payment solutions for C2B, B2C segments.

**IT Security:** The organization strives to design and develop tight IT Security solutions and the ingenuity to implement them.

#### **IT Consulting:** Deveint helps businesses unlock their potential by innovating and employing IT solutions making their operations efficient. They provide usable, secure and robust solutions.

### **2.1.2 Solutions**

**Revenue Collection Solutions**

Deveint has developed a robust ready to use software called CountyRev for centralized/decentralized county government processes at the Sub County and Ward levels using global e-Governance standards. The solution is an integrated web-based software for all departments of the county governments. This enables information sharing across all departments and divisions of county provided management decision making analysis on revenue collection matters.

**Land Information Management**

Deveint platform provides automation of the provision of land services by assisting the county in planning land use activities (zoning, commercial and other land use activities) hence enhancing ease of land workflow automation. This technological solution provides analysis and statistics on all aspects of land use in counties.

**Mobile Lending Solutions**

Deveint provides a platform for serving micro to small traders and businesses within the formal and informal sectors. The organization leverage their proprietary technology to provide branchless financial services to these clients with a priority focus on making their products easily accessible.

**Gaming Solutions**

The Let’s Bet platform is one Deveint’s solution that offers options that will fulfill a wide range of requirements. This system is robust and ensures that all its clients’ needs are met. Getting up and running on the Let’s Bet platform is easy meaning you will be up and running in no time. It is deployed on Web, Mobile, SMS and USSD.

**Visitor Management Solutions**

This organization has been able to design a visitor management platform that makes visitors and residents check in a fast, simple, efficient and memorable experience. It cuts down and eliminates queues and delays at the reception desk. Unlike the traditional paper-based visitor books and identity management tools, the data is uploaded in real time to specified secure server as soon as a visitor is checked in. The platform is integrated with automatic document scanning technology that leverages the phone camera to automatic scan extracting personal details from National ID Cards, Passports, Driving licenses and visas.

**Mobility Solutions**

Deveint taxi platform is a revolutionary innovation. Users can hail taxis from their android or iPhone devices. Our taxi platform includes powerful administration tools that will help control the content, analyze usage statistics for customers and Drivers making workflow improvements based on actionable analytics.

Video on Demand Solutions

VOD facilitates clients to get started with their own video on demand platform which is highly scalable and can be customized to suit one’s requirement. One can be able to modify the front-end UI, adding features

### **2.1.3 Mission**

The Deveint mission is to work in close partnership with their customers and develop custom software to their exacting standards.

### **2.1.4 Vision**

To be the leading Software House in Africa.

### **2.1.5 Core**

Deveint won’t quit until they make it perfect. They always deliver on their promises.

## **2.2** **COMPANY STRUCTURE AND DESIGN**

The Board of Directors

Managing Director

CTO

Project Management

Finance

Senior Developer

Senior Developer

Graphic Designers

Back-end developers

Front end Developrs

Front end Developers

Back end Developers

Graphic Designers

***Structure of Deveint Limited***

**Board**: Ensure the company’s prosperity by collectively directing the company’s affairs, while meeting the appropriate interests of its shareholders.

**Managing Director**: Oversees the infrastructure of technical operation, managing a team of IT employers and tracking technology. His main objectives are;

* Achieving business goals.
* Minimizing security risks.
* Increase user satisfaction.
* Maintain operations and systems.

**CTO**: Leads all technical related issues and controls all related processes aimed to solve the company’s software product challenges.

**Project Management**: This department is in charge of planning, scheduling, budgeting, execution and delivery of software and web projects. Their work is to ensure the successful completion of all software projects and also oversee the people performing work on the projects.

**Finance Department**: responsible for acquiring funds for the organization, managing the specific funds within the organization and planning for expenditure of funds on various assets

**Developers**: The team in charge of designing and creating software

* Back End developer; Build the infrastructure that powers the websites., app or program, focusing on functionality, integration of systems and core logic.
* Front End developers; Primarily concerned with the user interface. They also fix bugs and make sure that the UI can run on different browsers.
* Full-Stack developers; Works on all aspects of the software product (front and back end)
* Mobile Developer; build mobile apps with specialized skills in Android.
* Network Developer; build, develop and scale data networks. Ensure flow of data across different data centers

**Office automation;** Presence of a customer support system that automatically helps with any inquiries subjected on the company website. This speeds up customer service processes and minimizes human error.

**Resources Management;** Managing of material resources, obtaining and seeing to the appropriate use of equipment, facilities and materials needed to do certain work. These tasks are executed in the project management department.

**System software;** Some commonly used system software in the organization is Windows operating system and Linux.

**Application Software**; some of the observable application software used in Deveint Limited are the designing software, computing software and an editing software. They help to customize the system for the specific requirements and situations of the user. They include;

* WordPress, Adobe photoshop, Sublime text, Visual studio cord for web development.
* Adobe illustrator, Swing2App for Mobile App Design.

**Database Management software;** the organization uses two types of database management system which included oracle and MySQL. Oracle is secure and offers less space, reduces CPU time to process data. MySQL is limited to Linux and windows.

**Information system.** It’s made up of hardware, software, database network and users.

**Deveint Computer Networks;** The organization uses Wi-Fi technology (Wireless LAN) to connect different computers with no cable connection.

**Hardware;** Deveint limited provided access to Computers meant for design and software development.

**Data Communication networks**. The organizations used the email platform to communicate to the employees and staff on important notifications. The Deveint website (deveint.com) Is meant to project the company details and objectives to their clients and potential customers. Jira service Desk system also enabled the managing director access and track the workflow of the developers.

## **2.3 SWOT ANALYSIS**

### **2.3.1 Strengths**

The departments are filled with highly skilled employees determined to do their work diligently to improve the performance of the entire organization.

The organization has access to enough funds to enable IT upgrades for example servers, PCs, applications and network connection.

The organization offers a variety of different services and solutions across different categories of business. This not only gives them a higher control in the market but also more diversified expertise with less overall competition.

Strong employee attitude that creates an interactive platform among developers.

High level of customer satisfaction among present customers and good brand equity among potential ones.

To compete in today’s global economy, Deveint limited has adapted quickly in leveraging new technologies to ensure that their workforces remain competitive. The organization is extremely fast when it comes to spotting and replicating new trends for its products. It possesses up to date software tools needed by the developers and graphic designers.

### **2.3.2 Weaknesses**

The organization is vulnerable to vital staff falling sick or leaving.

Zero policy advertising. The heavy digital advertising done by competitors can completely overshadow Deveint ltd in the long run.

### **2.3.3 Opportunities**

Deveint competitors may be slow to adopt to new technologies giving Deveint a competitive advantage.

Deveint business sector is expanding beyond national boundaries. This creates many future opportunities for success and networking.

### **2.3.4 Threat**

A small change in the focus of a large competitor might wipe out any market position achieved.

External obstacles like Corvid 19 pandemic reduces the efficiency of staff since they are left to work from home and communicate via calls.

The increasing demand for software solutions in businesses means that the competition is growing as well.

Legal and political regulation.

# **CHAPTER THREE**

## **SIGNIFICANCE OF INDUSTRIAL PROGRAM**

This opportunity has given me a platform to assess the occupation of the career that I plan to specialize in future.

The program has exposed me to theoretical and practical bit of different fields of computer science by offering me a chance to be part of a team.

It has enhanced good rapport and network with the company giving me a good opportunity for job entry.

It has exposed me to develop on my cross-cultural communication skills.

It has given me the opportunity to meet different people in my future career path.

## **3.1 DESCRIPTION OF DUTIES**

I was involved in several activities during my practicum period. My supervisor ms. Valentine Chugi assigned me with the following responsibilities;

* Coordination and completion of projects on time with relevant documentation.
* Monitor and summarise progress of project development
* Preparation of reports for upper management regarding project status.
* Coordination with different departments to ensure all aspects of each project are compatible.
* Worked directly with clients to ensure deliverables fall within applicable scope and budget.
* Report to management weekly
* Attended meetings with clients to get clarification on functional requirements of each project.

## **3.2 SKILLS ATTAINED**

During the few weeks of attachment period I managed to acquire several skills pertinent to a computer scientist’s survival in the competitive industry of software development.

1. Excellent computer and technology knowledge and skills.
2. A stickler for accuracy.
3. Ability to organize and classify large amount of information.
4. A strong ability to anticipate and diagnose problems.
5. A systematic approach to work.
6. An ability to analyze problems and trace them to their core causes.
7. Improved software development coding skills on newly updated IDEs (PHPStorm, Visual Studio Code)
8. Increased attention to detail
9. Improved creativity when it comes to solving problems and creating functional good-looking websites.
10. Effective time management skills especially when faced with deadlines.

During my training program I was curious to understand the different programming languages and IDEs used by our back-end developers. Some of the new insight I gained and observed are as follows

**C#** is a general multi-purpose language designed for Microsoft platforms and does not require .NET framework on Windows to work. It can be used to build almost anything but is great for windows desktop. Its also very good in building web and mobile development.

**Python** was used to develop desktop apps, websites and web applications. Common programming tasks are taken care of, allowing developers to focus on core functionalities.

**Microsoft Visual Studio** Is an IDE from Microsoft that was used to develop computer programs, websites and web apps.

**Visual studio Code** is a source code editor made for windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring and embedded Git.

## **3.3 CHALLENGES ENCOUNTERED**

Limited attachment opportunities being offered especially with the ongoing covid-19 pandemic. Most institutions turned down my application for attachment opportunities insisting that the staff was working from home hence no training platform.

In a workplace, being late is not acceptable hence managing time can be really difficult. A balance between work, academic sand personal life was quite hectic.

It goes without saying that one does well in any field because they expect recognition. As an attaché, you find yourself often in a position where your work is not appreciated. This can clearly be somewhat discouraging.

Learning new languages and how to use the latest IDEs like Visual code and php storm was quite challenging at first before I got familiar with the tools.

# **CHAPTER FOUR**

## **CONCLUSIONS**

Working with Deveint limited was a unique experience; the exposure priceless. This opportunity exposed me to many different new technical tools like WordPress with its different categories of plugins. Working in the project management department gave me access to documentation of every project that is under progress. Oftentimes when we envision Project management in software development, we fall down the rabbit hole of imagining a simple one size fits all project management model, that mutually streamlines both the business and coded software and release of a company’s product. Many Software companies are continually faced with development of complex products, services and processes with very short time to market combined with the need for cross functional expertise. During my training program, I came to terms with the fact that Project management is a very important and powerful tool in the hands of organizations that understand its use, and have the competencies to apply it. It allows enterprise teams to work in partnership, when it comes to defining plans and managing take-to-market projects, by synchronizing team-oriented tasks, schedules and resource allocations.

I was also able to work with front end developers on projects like Pasanda food delivery app, Moran service delivery mobile app, NSE app as well as Equatorial admin dashboard user interface.

Every student deserves a chance to incorporate their theoretical skills in a real working environment since it offers an opportunity of being exposed to a wider scope of the working industry. It also provides an individual with an opportunity to network within and outside their area of study.

## **4.1 RECOMMENDATIONS**

With the following few recommendations, I believe Deveint Limited as a whole can become a better place than it is currently.

The company should put effort in compensating students who take part in important company projects to appreciate their efforts.

The company should keep time when it comes to renewing their software licenses to ensure smooth flow of work.

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# **LIST OF ABBREVIATIONS**

DBMS Database Management System.

CTO Chief Technical Officer

WLAN Wireless Local Area Network

AI Artificial Intelligence

UI User Interface