Adama Science and Technology University

School of Electrical Engineering and Computing

Department of Computer Science and Engineering

Xion Computing P.L.C

Internship Report

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Duration of Internship: 3 months

Executive summary

This paper is conducted to internship program works to know the objective of internship program, background of the organization, objectives, general description of the section, results and discussions, and conclusion and recommendation about the Xion Computing PLC. also we tried to express methodology we used in collecting information and problem analysis solution to problem, difficulties in internship program and we had discussed on the mission and vision of the of the organization.

Acknowledgement

First, we would like to thank Adama Science and Technology University for arranging this two-month internship period. Next, we would like to sincerely thank Xion Computing PLC for giving us this great opportunity to undergo internship training in their organization.

We would also like to send our gratitude to Mr. Ermias who allows us to perform this internship in the company and also for constantly watching our progress and for helping us by giving us such a kind and helpful advices throughout the whole time may our gratitude find him.

My appreciation and gratitude is extended to all staffs in Xion for their guidance, generosity to share their tremendous knowledge, for giving continuous and unlimited motivation from the starting of the internship until the end of the program.

Finally, I would like to express my gratitude for our advisor Mr. Bushira for his help, support and advices, and also for checking out on us any time and for giving us his valuable feedbacks without any hesitations.

Acronyms

- ✓ MOST: - Ministry of Science and Technology
- ✓ ASTU: - Adama Science and Technology University
- ✓ ICT: - Information Communication Technology
- ✓ CRM-Customer relationship management
- ✓ IT – information technology
- ✓ ROI – return on investment
- ✓ ERP – enterprise resource planning
- ✓ HRMS – human resource management system
- ✓ HR –Human resource
- ✓ RBAC – Role based access controller
- ✓ R & D – Research and Development
- ✓ JWT – JSON Web token

Contents

Chapter 1

Introduction

Internship is an opportunity for a student to gain practice in a real world of work under the guidance of an experienced supervisor. It is an integral part of the curriculum and learning activity. Every student of school of Electrical Engineering and computing at ASTU is required to complete a program of study that includes a compulsory internship to earn their academic degree in their field of specialization.

1.1 General overview of internship

1.1.1 Objective of internship

The objective of the internship is to produce qualified, motivated and practice oriented students. Internship should provide the students with valuable insights into the professional and industry oriented side of their field of study. It should enable students to put into practice the skills, techniques and knowledge acquired in university through lecture that are important for success in their future life.

The objective of the internship program is to enable the students to change their theoretical knowledge to practical and share their idea for the host organization and gain new information.

This has great advantage for both organization and the students. This has great advantage for both of us mean the Xion and us.

It helps us with our field of profession: -

- Internship helps me to develop our self-confidence.
- Training, learning and testing opportunity.
- To identify the potential customers when we will do in my entrepreneurship life for the future.
- To make us aware the kinds of problem, challenges that a certain job and what opportunity it has and the kind of the organization.

1.1.2   Scope of the work expected

An internship program adds a great value to your future, it shows a willingness to learn and work to a professional environment.

1.1   Background of an Organization

1.2.1 Description about an organization

Xion Computing is Addis Ababa based Custom Software development provider with profound technical expertise on Website design and development, Web and Intranet application, Internet Marketing and many other business consulting solutions like e-commerce, CRM, or full-scale portal, web-based and database driven systems development Mobile App development with Flutter Framework and Web development with PHP Frameworks such as Laravel, CodeIgniter and JavaScript Frameworks such as React JS and Vue JS. They have highly experienced experts in their development Teams.

They believe in delivering excellent service to keep the clients better than their competitors. They focus on continuous learning process and adapt to the advanced concepts of technology to support the growth of their clients. They know that for each software project to get completed a lot of disciplined process, standards and efforts are required. The Management team focuses on the Global standards to incorporate so as to move the job completion smoothly.

Equally, in today's competitive world, every organization needs a dynamic virtual presence to reach a wider consumer base and match up to its competitors. The agency aspect of Xion Computing PLC, assists in cost-effectively reaching out to millions nationwide through digital marketing, website development, design, and branding. They are constantly communicating with their clients to ensure they exercise the optimal strategy that gives them a competitive edge whilst attracting the right engagement from their target audience.

1.2.2 Mission

Their mission as an application development company has always been to be productive and creative on time. Thus, they can always say they guarantee quality for each application. their work is not done for just earning money, it is their passion and they invest 100% of their resources to complete it.

1.2.3 Vision

Their Vision is to be a leading Web Solution company in IT sector and progress in their current position in market. They know that Customer's growth is their growth, so they commit our customers to help in achieving their business goals. they believe in work with the accuracy and best quality. They want to be known as the reliable, innovative and user friendly software service provider in IT industry.

1.2.4 Products and Services of an organization

This organization gives different products and services for its clients on different categories

- ✓ **Website development:** they give clean professional and affordable website with over 7 years plus of experience
- ✓ **Mobile app development:** Their developers can help develop and maintain any custom made app for Android phones, their talented team of creative developers have been crafting and creating user-friendly return on investment (ROI) mobile apps for all type of businesses and industries.
- ✓ **Enterprise Solutions:** by working with business executives and industry professionals in different companies in creating custom software solutions that helps clients transform their ideas into actual solutions.

They are result driven software company engaged in providing solutions such as:-

– Enterprise Resource Planning (ERP)

– Manufacturing ERP Systems,

– Hospital Management System,

– Pharmaceutical Software,

– University, College & School Management Software,

– Hotel Management System,

– Property and Rental Management Software

– Distribution, Wholesale & Retail

– Human Capital Management (HR Outsourcing Consulting) Software

– Credit, Micro Finance & Sacco Software

Chapter 2

Management, Training and Employee information

2.1 Major duties

- At the beginning we were trained new platforms such as Postman, Anydesk, Git, and Slack
- Then by the supervisor we were asked to pole from different technology stacks to pursue development with. We were asked to perform development with the following technologies if we are comfortable with

  - ✓ PHP
  - ✓ JavaScript
  - ✓ CSS3
  - ✓ React.js
  - ✓ Vue.js
  - ✓ Laravel
  - ✓ MySQL
  - ✓ HTML5
  - ✓ Rest API
  - ✓ Express.js

  Then we selected

  - ✓ JavaScript
  - ✓ CSS3
  - ✓ Vue.js
  - ✓ MySQL
  - ✓ HTML5
  - ✓ Rest API
  - ✓ And Express.js

- Then after that we were asked to sharpen and take some hints on stacks we have selected, then we learnt some concepts.

- Then they provided 3 projects to participate on developing with the main teams in the organizations, from the given projects we selected human resource management system to participate on.

- Then we told to do R & D on Vue route, Vue state management, axios,JWT, Sequelize, Tailwind, and Dynamic Role-based Access control(RBAC) for node/Express.js

- Before that we have ordered to do simple page app using the frameworks such as Vue.js, Tailwind, axios and Vuex store.

- We were given different assignments by our supervisors to develop a web application using those stacks and develop HR system for the organization and we have completed our task as far as we can go in the given period of time and presented our task to our supervisor and got different remarks from them.

- Developing our skills, knowledge and confidence was a priority and our supervisors took us with them on their daily work tasks and showed us how they complete each and every task no matter how simple a task might be it is essential to have the knowledge and skill to do it so we can build our confidences for a larger and more complicated tasks.

- We were also assigned to do the UI for the system being developed so that it have user friendly attraction for the user of the system.

- For the backend role we were assigned to prepare API for the HR system so that it provides data consistently.

- We assigned also to implement a Role based access controller (RBAC) so that it gives permission and also denies it as wanted by administrator.

- Developing our skills, knowledge and confidence was a priority and our supervisors took us with them on their daily work tasks and showed us how they complete each and every task no matter how simple a task might be it is essential to have the knowledge and skill to do it so we can build our confidences for a larger and more complicated tasks.

2.2 Becoming oriented with the Job

- System development team of the organization helped us and gave us advices on how important it is to complete the task in the given time period and how to formally present our projects in front of the system development team.

- They also gave us an orientation on how they conduct their day to day works and how to maintain their friendly attitudes among employees in order to help them have a good working environment and have a formal relationship with their co-workers.

- They also gave us a lecture on how important it is to respect time and to attend every working hour, keep all equipment's safe, working, clean and in place at all times, show respect to everyone in order to maintain a comfortable work environment.

- Our supervisor helped us to accomplish our task by giving us different opinions, ideas, lecture videos and other reading assignments that can help us in completing our task and also for future tasks.

- We were also able to use our Internet programming knowledge to develop websites and used other programming language knowledge's to develop application.

2.3 Qualities Developed

- We were able to develop some qualities provided with help by our System development team on how their daily office tasks were and they have also given us their knowledge and skills which they have developed through their careers.

- They took us on their jobs around the offices and showed us how they conducted their work and we were able to help and gain knowledge from the real life tasks they encounter on their job.

- We were able to develop an entrepreneurial skill by discussing issue of some recent technology availability and resources provided for computer science student.

- Our Supervisor gave us a glimpse of how he started the journey of Web development and told us what mistake many developers make at the beginning of their journey, and we also got hardcore experience on that.
- As Xion is a startup company we were able to get some qualities, skills and resources needed for starting startup company

Chapter 3

Specific Job Information

3.1 Technical duties

- We help other system development team in their work like we develop a website along with them.
- Mostly it was important for us to perform each tasks that were given to us with in the given period of time and according to our instructions.
- Sometimes we participate on the development during night and on weekends.

3.2 Other responsibilities

- ❖ We were responsible for the computers that were given to us and also for materials located inside our offices and working on our assignments.

- ❖ We were expected to work from 2:00 AM to 11:30 AM local time from Monday through Friday and worked along our supervisors.

3.3 Technical knowledge

- We were able to use our programming language and knowledge's to our assignments and tasks.
- We also combined the new knowledge we gained about Vue.js, axios and Tailwind CSS and our previous knowledge to design interactive web page that can be helpful for the company.
- We also built a role based access controller for the website being developed so that it gives flexibility for the administrator to control the users of the system.
- We applied knowledge's we got from the supervisor through recommendations and resources to the system.

3.4 Relevant projects

Finally we made a human resource management system for the organization, this project have been done by the Xion itself before but due to its time and technology, they wanted to upgrade and change the technology stacks they used before so that it gives them better flexibility with many functionalities.

An HRMS, or human resources management system, is a suite of software applications used to manage human resources and related processes throughout the employee lifecycle. An HRMS enables a company to fully understand its workforce while staying compliant with changing tax laws and labor regulations.

HR leaders and staff are the primary users, given that they run day-to-day workforce operations and are responsible for compliance and performance reporting. However, HR isn't the only department that benefits. Companies can empower managers and employees with self-service for common tasks—an important selling point for younger hires. Executives can use an HRMS to generate data on workforce trends and their business implications.

And given that HR-related costs are some of the largest expenses incurred by a company, HRMS integration with the accounting system is invaluable for finance teams. Leading providers will go beyond basic accounting to help a company wring more financial insights out of HR data.

This project is created for Xion company itself in order to manage its employees properly. The project was created using

Frontend Technologies:
- Vue.js
- Tailwind CSS
- VUEX Store

Backend Technology:
- Node Js/Express.js
- MySQL/ Sequelize ORM

Here are the main functions listed:

1. Register Employee
2. View Employee
3. Manage Employee
4. Add New Role
5. Assign Role
6. Delete Role
7. Edit Roles
8. Give Permission

Use Case Description

Case 1

Goal: Register Employee

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Register Employee and fill the necessary data for the form.

Failure condition: HR manager failed to fill all the necessary fields.

Case 2

Goal: View Employee

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click View Employee.

Failure condition: The system fail to load Employee data due to internet connection.

Case 3

Goal: Manage Employee

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click manage Employee and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.

Case 4

Goal: Add Role

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Manage Role and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.

Case 5

Goal: Assign Role

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Manage Role and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.

Case 6

Goal: Delete Role

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Manage Role and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.

Case 7

Goal: Edit Roles

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Manage Role and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.

Case 8

Goal: Give Permission

Primary Actor: HR Manager

Level: User

Preconditions: The HR manager signed in into the system

Success end: HR manager Click Manage Role and do the necessary operation.

Failure condition: The system fail to load Employee data due to internet connection.
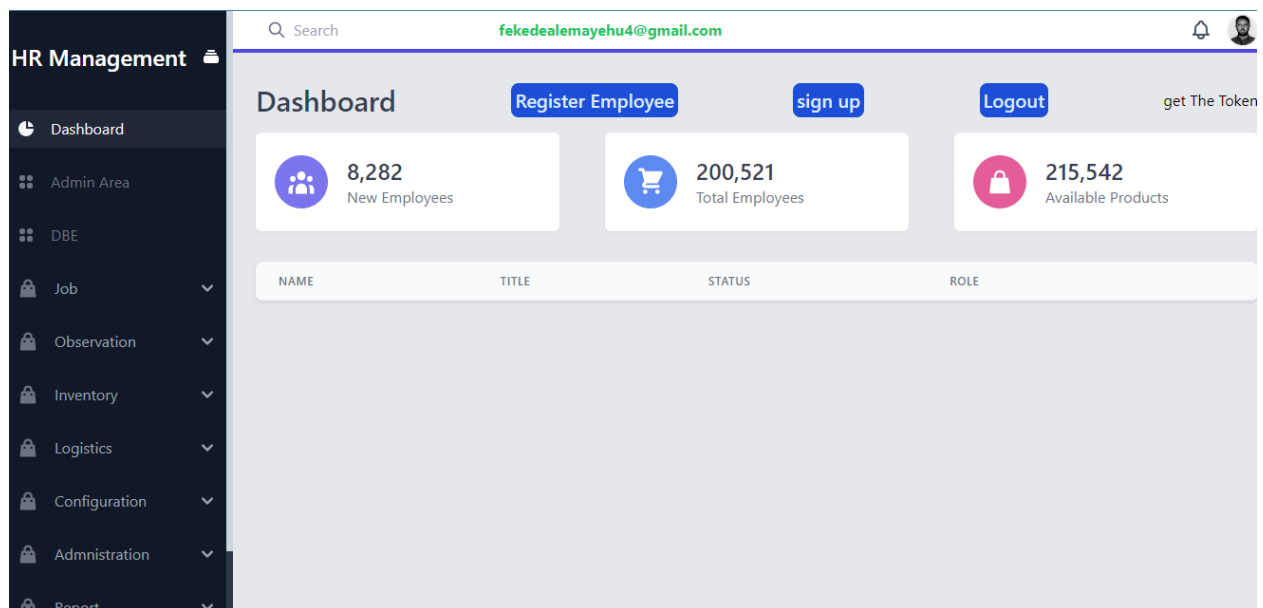

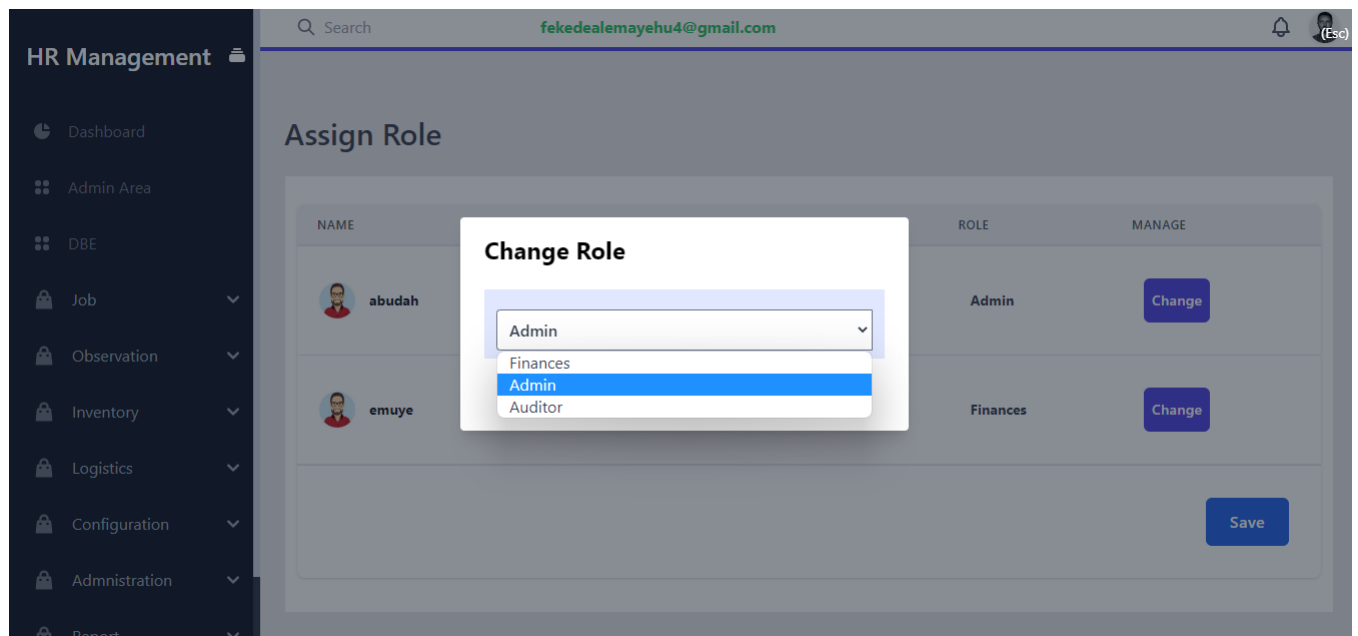Figure 3.1 highlight of HR Dashboard page while displaying the home page.

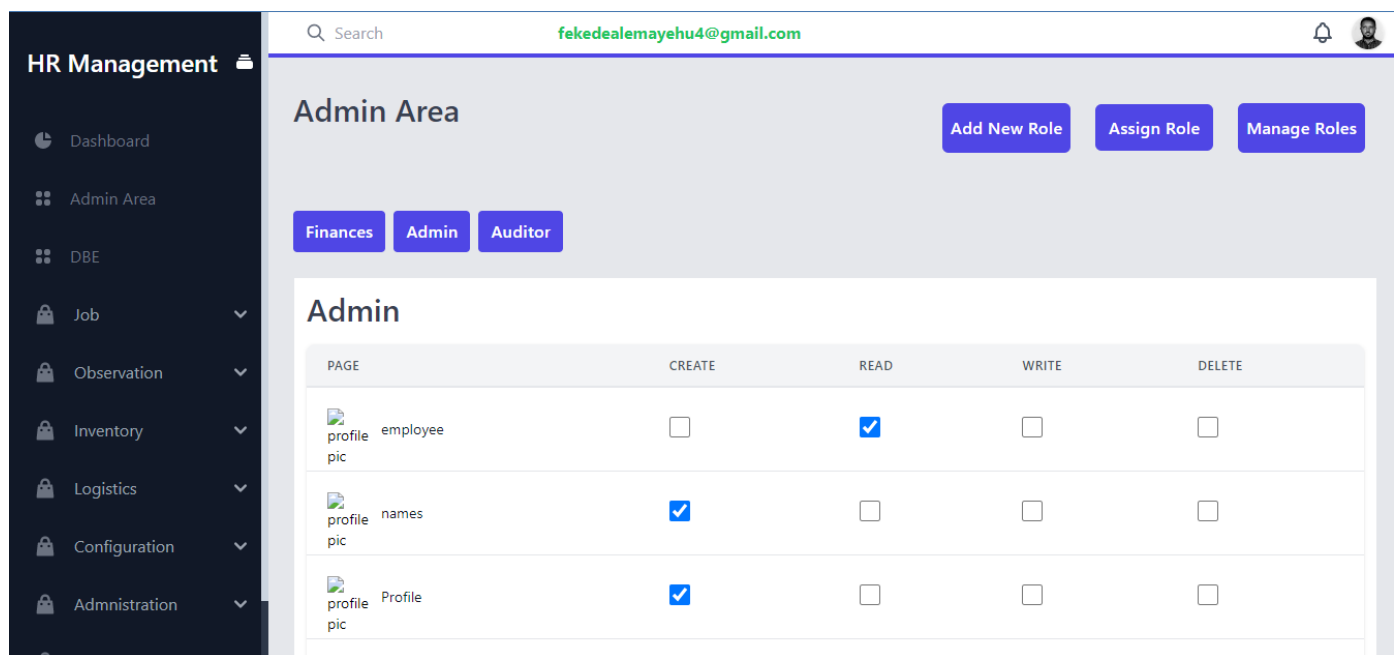Figure 3.2 Highlight of Change role for the HR users

Figure 3.3 highlight of HR Role based permissions page.

Figure 3.4 highlight of HR Assign Role Page

Chapter 4

Reflection and Conclusion

4.1 Evaluation and Critique

Our internship was able to change our way of thinking. First all of us were afraid that we could do real work. At the time we start the internship program our knowledge about the real work is improved.

Thanks to Xion employees were so helpful and willing to help us in every moment so that, our way of thinking was changed and we establish more self-confidence.

4.2 Career Goal during internship

Our career goal before this internship experience was the not much but this internship helps me to change our career goal and helps to be more confidence about our career goal. All of us were understand the goals of taking this internship.

As a result, most of the students were able to change or improve their ideas on future career goal. Some others including, we were able to have a career according to our interest and we never give up our hope.

4.3 Value of the internship

Most of the students that we know are very happy to have an experience like this. It makes us very confidential and has full awareness on the working environments.

We believe that this internship program is changed our way of thinking by making us more confidence about our abilities.

We would like to thanks ASTU for permitting this apparent and Xion which demonstrate and initiate us for this job. Everyone who was around us and support also should have to be appreciated.

4.4 Challenges we faced during Internship

Of Course some challenges are faced during my practice time from those we were faced like: -

- ❖ Transport problems in the morning while getting in so as to be on time,
- ❖ Lack of self-confidence at the first time.
- ❖ We afraid to communicate and work along with the employees at the beginning of the internship program.
- ❖ Lack of knowledge especially in new programming language such as Vue.js

4.5 Strengths and Area of Improvement

4.5.1 Strengths

We were able to respect the rule and regulations of the organization such as: -

- ❖ Be punctual

- ❖ Work for many hours

- ❖ Respect work

- ❖ Developing good working habit

- ❖ Respect our career

- ❖ Respect other employees

- ❖ Be more active

4.5.2 Areas of Improvements

We figure out there are some problems to be corrected according to us and the campus and organization.

When we start the problems made out by students some of them are got involved at working time, got no interest to work. This problem should have to be improved, students should have able to know the purpose of the internship.

On the other hand, ministry of education or any officials who are responsible for this should able to have a new and trustful curriculum on internship cases. Because most students were very tired of finding organizations to start their internship program. Even if they got an organization the organization is not helpful to show them. Organizations are not readiness to help students to show real life works.

There are so many companies too who are accepting students and make them fit. This companies needs appreciation from the government and from us too. We would like to thanks and give appreciation for all who support us and make us to prepare for the next.

4.6 Conclusion

The aim of internship program is about awarding students about practical work to support what he/she had learned theoretical before graduation. So, we conclude that the practical attachment continued by improving some of its weakness such as in full field training materials, continuous evaluation should be made, evaluating the students their general knowledge about the subject matter.

We concluded that this internship program has three general purposes.

1) To improve our knowledge of communication skills and techniques with the organization workers.

2) To develop our own ability to analyze interpersonal communication in the future.

3) To increase our own ability to communicate in ways those achieves result and maintains good interpersonal relationships.

Chapter 5

Recommendations

5.1 Recommendation about the Organization

- ❖ The co-ordination between high level to low level should be stronger than before.

- ❖ Needed to add many number of employers.

- ❖ Needed to have better and comfortable place to work.

5.2 Recommendation about internship

Internship curriculum must be continued by improving some of its weakness.

- ❖ The policy should have reform on the internship and consider it as the biggest issue because it's a great source of knowledge.

- ❖ Internship students must understand and weighed the value of the apparent ship.

- ❖ The government especially the ministry of education should facilitate places for students to work to decrease the stress among students.

- ❖ Universities should follow the same policy in every curriculum and internship cases.

- ❖ The supervisor from the campus must have to see the student at their practical work place at least 2 times.

- ❖ Amount of money paid for students to do practical attachment is not sufficient. Therefore, it must be improved for the future.

- ❖ Some evaluation guideline should be given for the advisor.

With these ideas we think every intern agreed we want to thanks the department and the campus for letting us and get trust upon us. If every official agreed and make we can see the next internship students will have a better place and opportunity.

At last we would to give our thanks to Xion and we make suggestion to our campus consider Xion for future student internship program placement.

Reference

- ❖ Internship Guidelines for interns
- ❖ Old practical attachments
- ❖ our supervisor
- ❖ https://xioncomputingplc.com