



CLARKE

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ICT DEPARTMENT

REBOOTING THE SYSTEM

Human Resources at the CIU ICT Department



About this Document

The ICT Department at Clarke International University creates exciting opportunities through an intensive internship program. Interns on the 2019 program participated under the functions of Graphics and Website Management, Systems Administration and Computer Networking; and they share their experiences in this document.

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The 2019 internship program at the ICT Department of Clarke International University was designed to be as intensive as it was thrilling. Four participants were selected from the long list of applicants. It was not a requirement to have high level skills or vast experience in information technology, but it was absolutely important that interested individuals demonstrated willingness to learn and to serve. They were embedded in the Department and expected to work with the existing team under the primary functions of systems and network administration, website management and graphics design as well as offer IT support.

A program structure was developed, categorized under the functions and shared with the participants at the beginning of the program. The goals were “to develop proficiency in applying knowledge and understanding to a real life organizational environment” and “to develop proficiency in report writing, communication

and presentation skills”. All participants were able, to a greater extent, to realise these two goals with good performance. They learned some additional things in the process including the act that during the installation process of Bacula on Ubuntu 14.04 LTS, MySQL is by default prompted to run as the dbms while in Ubuntu 18.04 LTS PostgreSQL is prompted as the default dbms; there are some error messages that have to be dealt with before one can receive the Create New Entryfield which allows for the creation of a client in LDAP; prioritizing tasks is critically important to reaching project milestones on time and within budget; and that confidence is a key attribute in the IT profession.

The program was challenging and there were limited tools to use at the start. The rainy season took it toll on the participants since early morning rains made arrival to work on time a lot harder. All in all, it was successful and it is hoped that this report will guide future programs and interns.

AP	Access Point
CMS	Content Management System
CSS	Cascading style sheet
DNS	Domain Name Services
GCDS	Google Cloud Directory Sync
HTML	Hypertext markup language
ICT	Information and Communications Technology
IP	Internet Protocol
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
LTS	Long Term Support
Mgt	Management
MySQL	Structured Query Language
NAT	Network Address Translation
PgSQL	Postgre Structured Query Language
RAM	Random Access Memory
SMT	Senior Management Team
UX	User Experience
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
alvs	Alumni Verification System



The ICT Department at CIU is committed to developing a team of high performers to add energy to the realization of the University's strategic growth objectives. Members of the team shall continue to work to realise periodic targets under the roles of Digital Communications, Systems Administration, Network Administration and User Support and Training. The Department enrolled onto an intensive internship program, young and ambitious persons with a strong passion for these functions.

While it was not a requirement to have high level skills or vast experience, it was absolutely important that interested individuals demonstrate willingness to learn and to serve. They should be self-driven, results-oriented and be ready and able to work on a team.

The participants completed a two months' program during which they worked very closely with current and former members of the CIU ICT team. Continuous 360° non-traditional assessment of their performance was done through out the program. At the end of the two months, three individuals with the best qualities and skill were retained for further development on the CIU ICT team as Graduate Trainees.

One Graduate Trainee is expected to work with the Systems Administrator to perform systems administration duties on databases and other servers including installing, debugging, maintaining, upgrading and general system and user support. The second will work with the Network Administrator to maintain a reliable, secure and efficient network. He/she shall participate in the deployment, configuration, maintenance and monitoring of all active network equipment in order to ensure smooth network operation. The third will participate in the creation of outstanding visual concepts using appropriate software, to communicate ideas that inspire, inform, or captivate the CIU community, prospective students, alumni and online and physical visitors. They shall develop the overall layout and production design for advertisements, brochures, magazines, and corporate reports. They shall also handle Website structural development tasks using a relevant CMS.

This report documents the goals of the internship program and how the participants performed. The participants share personal experiences and the challenges they faced during the two months' intensive period. Read the ICT Manager's human resource plan for the Department.



Passion: Graphics Design and Website Management

BSc. Computer Science (Nkumba University)

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Passion: Computer Science

Dip. Computer Science and IT (UMU)

Currently pursuing a Bachelor's Degree in Computer Science with Education at Ndejje University

**Bannex
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Passion: Computer Networking

BSc. Computer Science (Lira University)

National Diploma in Electrical Engineering (UTC Kyema)

Huawei Certified ICT Associate (HCIA) Routing and Switching

Competed in Huawei Seeds for the future programs of 2017, 2018 & Huawei's other ICT competitions of 2018/2019; 2019/2020 under Southern Africa.

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Passion: Systems and Networks

BSc. IT (IUIU)

Cisco Certified Network Associate (CCNA)

Asiimwe Rashied



@RKashagama

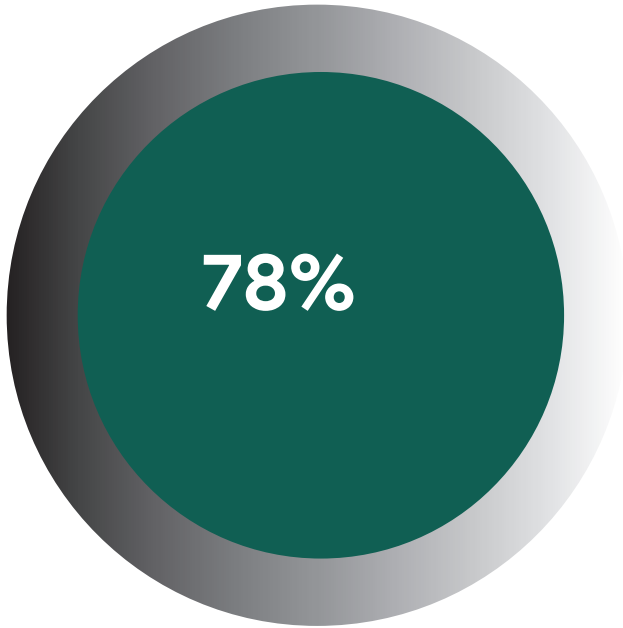


<https://www.linkedin.com/in/asiimwe-r/>

Goal	Milestone	Deliverable	Date
*To develop proficiency in applying knowledge and understanding to a real life organizational environment	Day 1 & 2: Harry Orientation on Drive, Calendar, Docs, Trello, Slack, LinkedIn, Slides	Get Connected: Setup accounts and populate CIU G-Suite accounts, Trello, Slack, LinkedIn, Twitter	Week I & II 10/10–25/10
	Conrad with Steve Review: fundamentals of graphics design + Adobetools Joomla CMS Start the Google Digital Garage Course	Complete Steve's crash course	
	Patrick with Justus Review: fundamentals of network cabling. Patrick with Mark General principles of networking Networking in general Pfsense Network design tools & techniques	Connect all IT Office intern PCs to the LAN & Internet. Complete Mark's crash course	
	Rashied & Bannex with Erias Understand CIU's servers, navigate their webmins, relationships, users, etc.	In-depth understanding of Fedena	
	Conrad Design & construct a website subdomain for the new PGD-ME course	Live PGD-ME subdomain on the main CIU website	Week III 28/10–01/11
	Patrick Understand CIU's servers, navigate their webmins, relationships, users, etc Investigate and study the structural designs for the new CIU campus in Bukasa	Design logical topology for CIU Bukasa campus linking all other campuses	
	Rashied & Bannex: Install Bacula server and create cron-jobs from the KOHA & Dspace servers	KOHA & Dspace servers fully backing up	Week iv & v 04/11–15/11
	Conrad study previous productions including magazines, graduation books, etc. Benchmark with worldclass magazine designs and design a graduation book for CIU's 2019 Graduation. Progress on the Google Digital Garage Course	Submit graduation book to Marketing and PR team	
	Patrick, Rashied & Bannex with Mark Study Active Directory & LDAP Understand the wireless network/devices Implement virtualization Study VoIP technologies	Install Bacula on one virtual machine Install LDAP server on another virtual machine and enable user self-registration onto the wireless network Install an open source VoIP management tool and provision 2 or more office extensions.	

	#SlackTime	#SlackTime	Week VI 18/11–22/11
*To develop proficiency in report writing, communication and presentation skills	With Harry Write Internship Report (include section report on each knowledge acquired, recommendations)	Submit report to CIU ICT Manager Submit Certificate of Completion [Google Digital Garage]	Week VII 25/11–29/11
	Prepare presentation of your report	Make presentation to panel of CIU senior managers, your mentors and instructors	Week VIII 02/12–06/12

By Conrad Leonard, Asiimwe Rashied, Bannex Twinomugisha & Patrick Bahitya

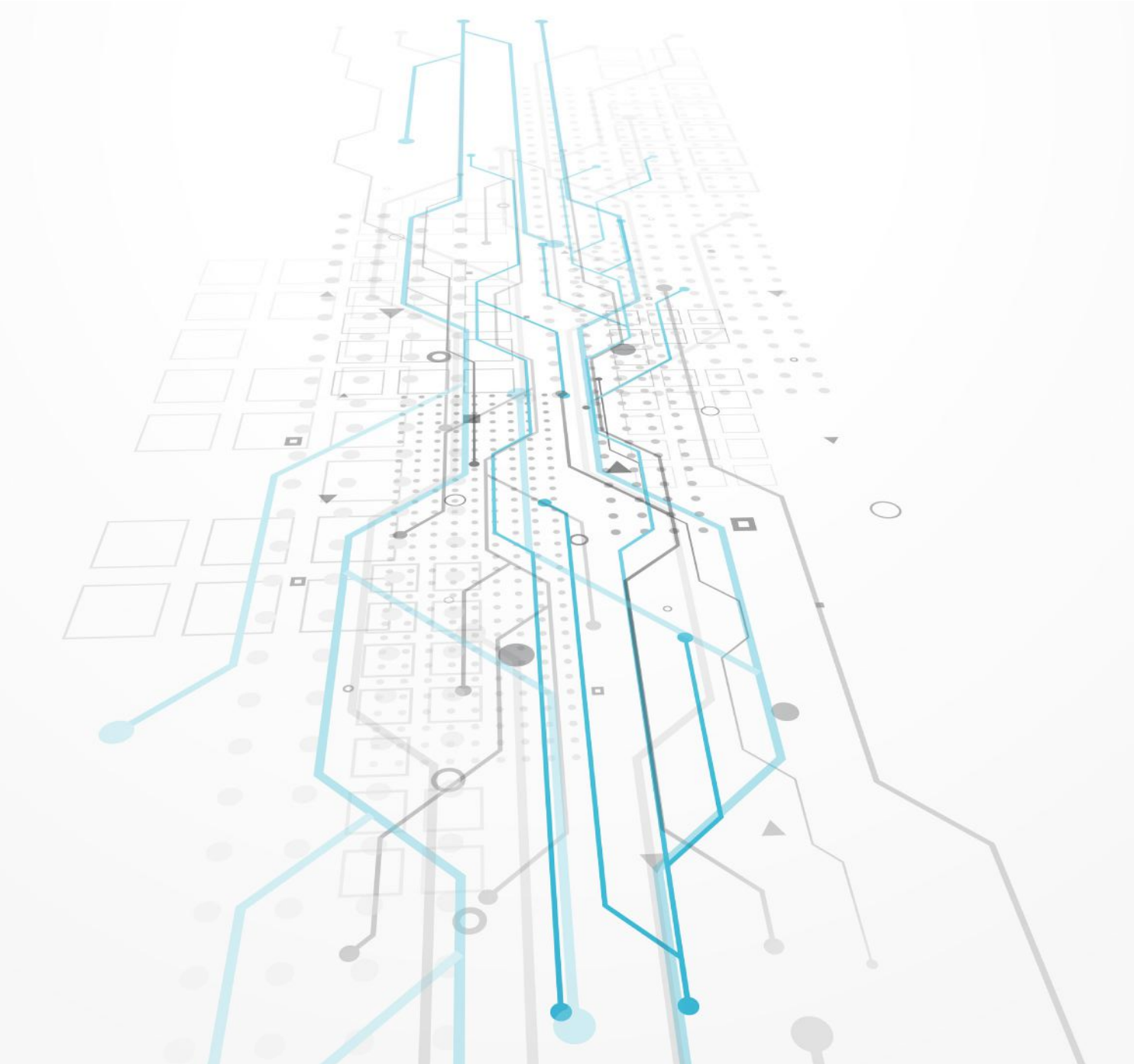


KEY

Done Done = 100% Complete
Done = 50% - 99% Complete
Not Done = Not done at all

Goal 1:
“To Develop Proficiency in applying Knowledge and Understanding to a real life organizational environment”

Millstone	Status	Evaluation
Orientation on Drive, Calendar, Docs, Trello, Slack, LinkedIn, Slides	Done Done	We successfully set up different collaborative tools to help ease communication and avoid data loss. These platforms have highly helped in communication, team material sharing with Slack, CIU G-Suite, Trello task tracking and also building personal professional profiles on LinkedIn, Twitter, etc. As interns, we communicated on Trello and Slack about our progress on the project tasks, answering questions that show up from the team, and sharing any pieces of works and links and any ideas to enhance collaborative learning. Backed our data on google drive, shared it with colleagues whocould download it from any location rather than worrying about the intricacies of maintaining flash drives and other external storage media. Explored google calendar by creating a meeting event and inviting members of the team and had a live face to face chat from different locations. Created and shared google docs files with colleagues.
Fundamentals of graphics design Start the Google	Done Done	This was a success.



Digital Garage Course	Done	The course was completed successfully and certificates shall be acquired as and when the required payments are made.
Adobe tools	Done	Studied Photoshop and Illustrator
Joomla CMS	Done	CMSDoneUsing Joomla CMS, I was able to duplicate the main CIU website and design the PGD-ME course. It still has a lot for me to learn such as management and security. The version used throughout the program was Joomla 3.9.
Design & construct a Website sub domain for the new PGD in ME course	Not Done	Limited information for the PGD-ME course meant that it could not be constructed as a subdomain but rather a web page.
Duplicate the main CIU Website	Done	This was required as one of the [learning assignments. I was able to duplicate the Website leaving out its sub domains. This was done on a personal laptop
Study previous productions including magazines, graduation Books, etc.	Done	Explored different magazines including those for our local universities in Uganda. There is still more material to explore
Design a graduation book for CIU's 10th Graduation	Not Done	Due to time, I was unable to participate in the design of a graduation book since I had a lot of work to duplicate and learn.

Milestone: Understand CIU's servers, navigate their webmins, relationships, users, etc

Activity	Status	Evaluation
In-depth understanding of Fedena	Not Done	This activity was not done due, in part, to lack of prioritization. We instead explored pFsense in order to understand all its mechanism in internet/user control, data analysis, security on the network and also understanding different servers and their relationships. This lack of prioritization affected our overall performance negatively. Prioritization is now a fundamental principal in our daily operations.

Milestone: Install Bacula server and create cron-jobs from the KOHA & Dspace servers

KOHA & Dspace servers fully backing up	Not Done	Successfully installed bacula backup server on UBUNTU versions 14.04, 15.04 and 18.04. However, we didn't create cron-jobs for KOHA due to time constraints.
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Milestone: Hardware and software maintenance on CIU servers

Clean server hardware; update webmins, etc	Not Done	This was not attempted due to absence of the Department staff scheduled to work with on the activity.
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Milestone: Study VoIP technologies

Install an open source VoIP management tool and provision 2 or more office extensions	Not Done	We did not do VoIP because of the time constraints
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Milestone: Review the fundamentals of network cabling

Connect all IT Office intern PCs to the LAN & Internet	Done	This activity was done between 14/10/19- 18/10/19 Terminated cables Connected all Intern PCs to the Network and the Internet. Organized the cables and troubleshoot network failures on those PCs. It may be a good idea to avail more tools to interns to make the cabling process more efficient and error-free.
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Milestone: General principles of networking, Networking in general, Pfsense, Network design tools and techniques.

Complete a crash course facilitated by Mr. Mark Akampereza, a senior networks engineer.	Done	-This activity was done between 21/10/19-25/10/19 -Trained in using pfsense network management tool. -Explored OpenDNS, Nagios Network monitoring tool, VLANs, VPN, IP Subnetting, NAT and other networking technologies. -Trained in wireless networking and devices -Had a site visit to Watoto care and explored their Enterprise Network infrastructure and trained in using Sophos firewall system, using Unifi AP Control panel, logical and physical topologies among others.
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Milestone: Understand CIU's servers, navigate their webmins, relationships, users, etc. Investigate and study the structural designs for the new CIU Campus in Bukasa.

Design logical topology for CIU Bukasa campus linking all other campuses	Done	-This activity was done between 28/10/19-01/11/19 -Designed logical topology for CIU Bukasa campus linking all other campuses.
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Milestone: Study Active Directory and LDAP. Understand the Wireless Network/devices. Implement virtualization.

1.1 Install Bacula on one virtual machine Install the LDAP server on another virtual machine and enable user self-registration on to the wireless network.	Done	-This activity was done between 04/11/19-08/11/19 -Successfully installed LDAP server and GCDS on Ubuntu 18.04 LTS. Refer to Appendix B. -More work needs to be done on setting up an LDAP client and connect it to the server. -More work needs to be done on configuring the LDAP server and sync its data in GCDS
1.1 Manage all wireless user connections.	Done	-This activity was done between 21/10/19-25/10/19 -successfully connected wireless users using Pfsense. -monitored and controlled network bandwidth usage using pfsense and OpenDNS.
1.2 Offer any other network support	Done	-This activity was done between 21/10/19-25/10/19 -successfully troubleshoot end-user issues and fixed them.

Goal 2:

“To Develop Proficiency in Report Writing, Communication and Presentation skills”

Milestone: Document and present internship experience

Activity	Status	Evaluation
Submit report to CIU ICT Manager	Done	Successfully produced a report on all activities and this was shared with the ICT manager

Milestone: Prepare presentation of your report

Make presentation to the panel of CIU senior managers, your mentors and instructors	Done	Successfully prepared presentation slides on all activities
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CIU is a non-residential university offering health sciences and business courses and grooms students to become tomorrow's leaders nationally and internationally.

MISSION

To prepare students for global leadership and to be catalysts for transformation. We achieve this mission through a Values-Based Education; Instilling in students a zeal for Lifelong Learning; Outstanding Interprofessional Academic Training , Research and Community Outreach; Innovative Action; and Exceptional Faculty.

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A values-based university that inspires leadership, critical thinking, innovation, and outstanding academic training that transforms communities.

MANDATE-MAKE A DIFFERENCE

Our students and graduates are challenged and trusted with an important agenda: to strive for academic excellence; to lead change through innovative action and transformational practices that impact communities and improve lives. Their journey to making a difference starts here.

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Our community programs are a gateway to a larger service area where meaningful partnerships are formed with educational, business & industry, and community organizations to foster expanded educational and service opportunities.



We are a values-based university that inspires leadership, critical thinking, innovation, and outstanding academic training that transforms communities



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3. Cisco Networking Academy (Cybersecurity)

<http://ict.ciu.ac.ug/academy/>



The Department’s application to establish a Cisco networking Academy at CIU was approved by officials at Cisco HQ. Students will continue to join a privileged group of specialists in any of the following cybersecurity courses:

3.2 Learners

• **Internship Program Candidates:** University students who are going on holiday for the period of June, July and August are prospective learners at the Academy. The other group that falls into this category is the vacationists especially S.4 & S.6 leavers

• **Mainstream Candidate:** These would include new graduates, corporate employees like CIOs, CTOs, IT managers, systems administrators, government employees, foreign students, etc

3.2 Courses

- Introduction to Cybersecurity
- Cybersecurity Essentials
- CCNA Cybersecurity Operations
- CCNA Security

They can also choose to pursue these additional courses:

- IT Essentials
- Programming Essentials in Python

3.3 Fees

Each module attracts a fee of UGX 300,000 per student.



At the Department we believe that it is critically important to maintain excellence in communication by matching the right message with the right audience using the right tools. Sometimes this message may be intended to be saved for future use by those who will come after us. Relevant and timely communication also contribute tremendously to the realization of current and future goals.

The 2019 program interns were required to use Slack, an online collaboration tool that facilitates instant messaging and could work as an alternative to email as a primary method of communication and sharing. Its workspaces allow a team to organize communications by channels for group discussions and allows for private messages to share information, files, and more all in one place. Further, all participants were required to actively engage with the program's Trello board. Trello's boards, lists, and cards enable a team [or individual] to organize and prioritize projects in a fun, flexible, and rewarding way. They were also required to draft and submit weekly reports detailing progress on the planned activities, challenges and opportunities identified.

Training for the interns was conducted in a series of workshop-style sessions with an aim of achieving the planned deliverables.

I facilitated a weekly meeting every Monday at 0900 Hrs during which we reviewed the past week and planned for the new week. We also used this as an opportunity to learn one or two things like the Priority Matrix or the importance / Urgency Matrix. At the end of the month we held a meeting to review performance throughout the month and plan for the next month. These meetings provided the opportunity for the team to make agreed adjustments to originally set goals whenever this was required.

The other tools used included Email, Google Docs and Google Drive especially the component of team drives.

One of the fundamental principles of our operations is: scheduled activities must start and end on time. Time management has been a major contributing factor towards the realization of the Department's goals and so it was one of the items I assessed as I supervised the internship program.

All in all, the selected elements of our communication strategy aimed at achieving knowledge transfer or giving the participants new abilities and insights, ensuring the overall participant satisfaction with the internship program and preparing them for a brilliant professional career.

By Conrad Leonard, Asiimwe Rashied, Bannex, Twinomugisha, Patrick Bahitya

MySQL Vs PostgreSQL during Bacula installation on Ubuntu

During the installation process of Bacula on Ubuntu 14.04 LTS, MySQL is by default prompted to run as the dbms while in Ubuntu 18.04 LTS PostgreSQL is prompted as the default dbms. PostgreSQL in 18.04 gives greater control while starting and stopping services compared to Ubuntu 14 and 15 which provide for limited service management.

Error Messages during LDAP installation

Once we installed LDAP on Ubuntu, we received several error messages which had to be resolved through the terminal. Only then could we receive the Create New Entry field which allows for the creation of a client. There probably is a better method of installing LDAP on Ubuntu.

Prioritizing tasks is critically important

Prioritizing is core to achieving the goals set. If there are multiple projects ongoing, it is recommended to focus on one project until it's done rather than chasing all projects; because attention won't be focused on finishing what's on the table which leads to ending up not having a complete project and causing partial progresses. One needs to identify the level of urgency and importance of their tasks and organize their time meticulously to get the most out of every day.

Confidence is a key attribute in IT

Network Administration has a lot of pressure and in most cases involves working with impatient users and putting out multiple fires within a limited period of time. Confidence and level-headedness are attributes that enable a good network administrator to find solutions and make implementations in hostile environments. As an intern I was called in to solve different network issues from different users including students and staff and because it was my first Network Administration experience in a real life organizational environment, it was quite unnerving. Knowing that I had knowledge that they (users) could benefit from, gave me the confidence to approach the issues and troubleshoot them systematically.

An intern should remain open minded

When I started the internship lots of things were new to me. I am passionate about computer networks and enthusiastic about ICT. I had acquired previous training in both Network Administration and System Administration but I didn't have a clue about Linux operating system. Keeping an open mind helped me get significant knowledge in Linux OS systems administration as well as many other IT processes and practices.

By Conrad Leonard, Asiimwe Rashied, Bannex, Twinomugisha, Patrick Bahitya

“
CIU has added a big step in our lives as interns under the ICT Department and we whole heartedly appreciate.”

says Conrad Leonard

“
This is by far the most exciting internship program I’ve ever taken. Activities were real world and the infrastructure we dealt with was “live”.

says Patrick Bahitya

The internship period spent at IHSU [now CIU] has, without a doubt, been very fruitful and one of the best internships of my life.

The program was intensive. The intensity at the beginning was increased by the absence of information and tools that would help us learn more about the different activities that we were supposed to complete. Training sessions were intense too and hands-on with incredibly experienced instructors.

This is by far the most exciting internship program I’ve ever taken. Activities were real world and the infrastructure we dealt with was “live”. We worked with a team of highly skilled IT professionals within the Department and beyond; this helped us “shortcut our skills to the top”.

Good quality internship programs are essential to developing key skills that one cannot acquire in a typical classroom setting. The CIU ICT Intensive Internship Program focuses on the individual rather than the group, while at the same time promoting team work. This ensures a faster acquisition of skills since the intern does what they are passionate about. CIU has done a tremendous job in implementing the Intensive Internship Program.

This experience opened our eyes to the real world. We experienced first hand the pressure of report deadlines, Monday morning meetings, skills required to succeed in computer networks and ICT. It also gave us significant

insights into real-life work ethics.

We made friends, we got valuable contacts, we networked.

We were occasionally late for work due to challenges faced with public transport in Kampala City. This affected our ability to realise some deliverables on time. Further, the weather was so harsh; heavy rains in the mornings hindered our movements which was later managed by better planning.

We found some of the tasks very challenging since we did not have extensive training and experience in them. In the end, though, every challenge was an opportunity to learn. Additionally, the tools, hardware and software available to the interns was quite limited at the beginning. Setting up the production environment took away valuable time since we had only two months to complete the program.

Since we were operating on a limited budget, we could not pay the fees required to download the certificates for which we did training

Gloria BALUKA's Experience (2016)

Not only did I gain skills and knowledge from IHSU [now CIU], but also got an opportunity to meet many fantastic people. The working environment at IHSU [now CIU] has been so welcoming which always made me feel at home.

I am honored to have contributed to the growth of the university through assisting with and working on various projects such as the designing of the Alumnus's verification system whose working prototype will eventually be developed and rolled out, developing a social media marketing strategy that will be submitted to the marketing team for consideration, entering of student information into the FEDENA system among other activities.

While I was able to learn a lot from the routine office work, my most exciting activities included:- "participation in an exhibition facilitated by the marketing team, the IT department meeting that I attended and the database design classes." It was such a good feeling. This was under the supervision of Harry. I greatly appreciate the teamwork we had with my fellow intern Zaam Ndagire; we learnt and did a lot together.

All in all, my internship experience at IHSU [now CIU] has been a success. I was able to gain a lot of practical skills, gain more knowledge, develop professional confidence and also build and maintain positive professional relationships in such a short time. I would like to also appreciate everyone that made my internship a superb experience especially Harry Barry. I couldn't be more thankful.

Emmanuel OBUYA Experience (2016)

I would recommend this institution to any one and everyone I know.

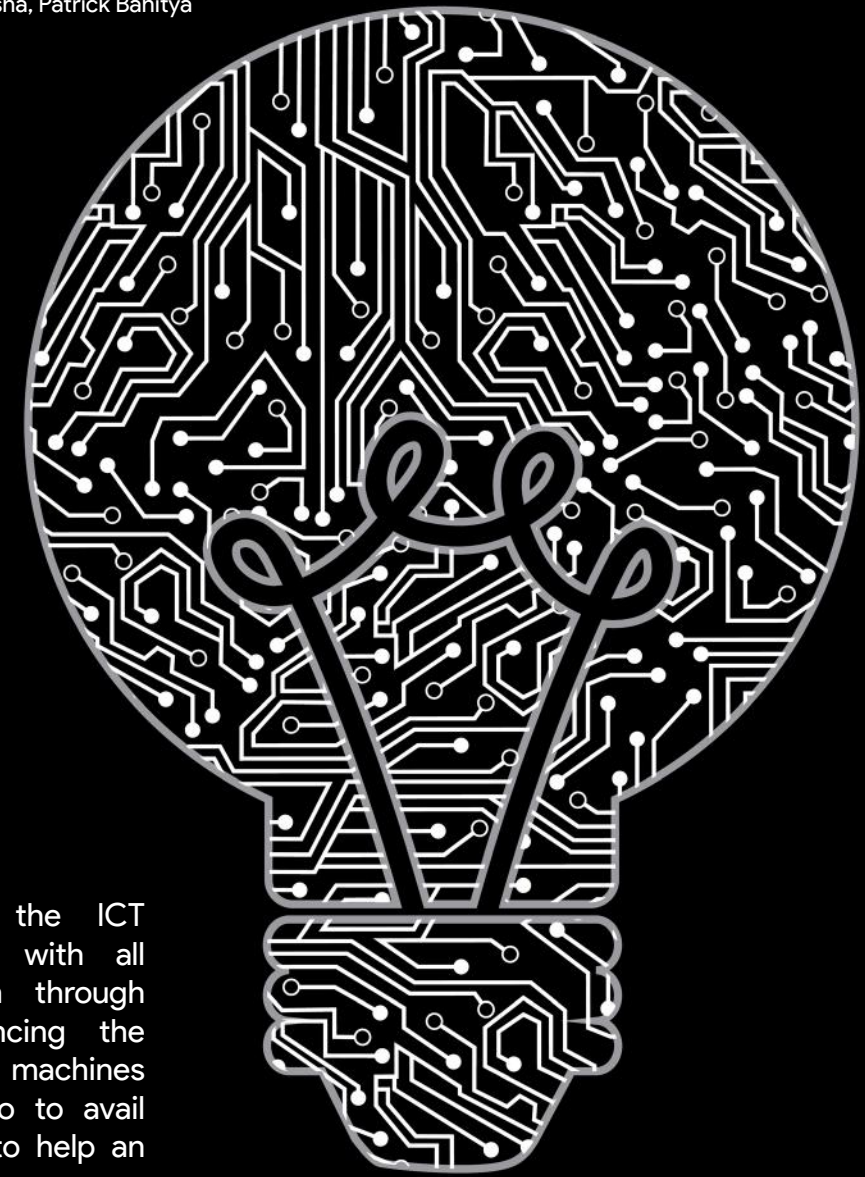
My experience was one of the best I have ever had. I was learning new things from day one; I was introduced to the systems immediately and I was given responsibilities, shown protocols to follow and that gave me the opportunity to participate directly in department operations.

I have never met more welcoming people in my life, ready to help and assist in any way they can like the ICT team at the CIU. I especially felt this when I was admitted in the hospital with a critical illness, and learning was beyond just books there are plenty of life lessons I picked up from the team I was working with Mr. Erias Seruwagi who taught me a lot about hardware as well as soft skills like how to conduct myself around superiors and fellow staff. Mr. Mark Akampereza showed me the basics of Ubuntu and Mr. Steve Twinomugisha who taught me a new design that totally changed the way I build websites and other designs like logos and animation.

Last but not least is Mr. Harry Barry who was my direct supervisor in the organization. I see him as more than a boss but also like a mentor, something I have been looking for a long time. Apart from teaching me MySQL and PHP programming, he gave me some life skills and leadership skills that have changed my life, I am more than grateful for the experiences I got there and

Recommendations

By Conrad Leonard, Asiimwe Rashied, Bannex, Twinomugisha, Patrick Bahitya



I would recommend that CIU and the ICT manager avails powerful computers with all accessories like headsets to watch through different tutorials without inconveniencing the people around, enough RAM to avoid the machines being slow during virtualization and also to avail different versions of operating systems to help an intern do the development and testing.

A real-life environment is a first and unique professional experience for an intern and I think subjecting the intern to solve a real-life problem whose performance awaits an evaluation without prior training on the subject may put pressure, scare or possibly overwhelm the intern. Although I recommend this approach because it opens up the intern's mind to move out of the comfort zone and pushes the intern to be creative and thoughtful, I think it would create more significant results if this is coupled with a prior training on the subject.

The Manager's Plan



HARRY Barry

Time-consuming, taxing, demanding, costly – words used by many to describe the recruitment process. These become more apparent when you are attempting to attract and retain talent for multiple contractual periods. It takes tremendous effort to identify candidates who have a reasonable chance of success. The politicians will craft manifestos and strategic plans based on an assumed universal unemployment crisis; an assumed flood of skilled labour that's scrambling for a limited number of jobs. The keyword here is skilled. I'll tell you that there is an unbelievable increase in competition for skilled employees. Three reasons for this:

- 1) The skilled worker is no longer limited by national borders. Labour is now traded on the global market.
- 2) Businesses are making huge profits from a growing middle class which means they are able to offer their skilled employees comparatively higher salaries, bonuses and bigger benefits and,
- 3) A huge chunk of the population that's recorded as "unemployed" is actually managing "unregistered" (often profitable) businesses/projects – this chunk inflates the unemployment numbers causing unnecessary apprehension.

And so a relatively small Department like mine with a modest budget has to employ smarter strategies of achieving its staffing objectives. I have always maintained that quick fixes won't cut it for us.

The ICT Department's structure at CIU has four levels. Level I has the Manager, Level II has the Network and Systems Administrators and the Web & Content Master followed by their assistants, and IT Support at Level III. Level IV has Graduate Trainees and Interns. Growth from the fourth to the first level is based on an individual's performance, experience, qualification and opportunity. That last item, right there, is what I am most interested in: "opportunity." Highly talented employees will always risk quickly getting bored with limited work, challenges or routines in small and medium sized enterprises/organisations (SMEs). Plus, SMEs seldom have enough legroom when it comes to salary adjustments and so, the easiest way to mitigate these risks [usually] is for the employee to climb the ladder. The problem is: with a fixed structure, one can only climb a step higher if there is room – or in HR terms, a vacancy. That is where my Modus Operandi comes in – I create opportunities!

Our Department has four primary functions,

namely network and systems administration, digital communications (videography, photography, website management, graphics design, social media, supporting university collaborations through provision of conferencing facilities), user training and support. As part of our mandate to contribute directly to the University's strategic growth objectives, I spearheaded the establishment of the Cisco Networking Academy, accreditation of CIU as an ICDL Test Center, promoted research and publication by Department staff, as well as community and interdepartmental engagement. This has created opportunities for growth for individual team members.

I am now aware, from personal experience and widely available literature, that high performance teams typically evolve over a four-year period. Members will resign and seek bigger opportunities/challenges; new ones will join. We have been fortunate, however, to have staff who have served at the Department for nine years and above. I want to believe that the way in which they joined the team, coupled with maintaining a steady stream of opportunities, has contributed to their long tenure with the University. That is why this internship program is of strategic importance.

Three of the successful participants have been retained by the Department as Graduate Trainees and could potentially be contracted as full time staff. They all have recently graduated with Bachelor's Degrees and so this program gives them the opportunity to establish a stable career in IT. Further, the program is a good opportunity for the Department to maintain a pool of candidates for future vacancies. It also gives us, the senior staff the opportunity to share our knowledge and experience – to give back to the community that groomed us.

The future holds limitless possibilities for the labour market. Leveraging technology to allow for remote work and/or telecommuting is one of them. The Department shall continue to adopt best practice in human resource administration and as always, we shall share our experiences with you at every opportunity.



Back Then

Mark & Steve: Tribute to their Tremendous Service



Mark was recruited on September 1st 2009 as ICT Technician. At the time the ICT Department had two members of staff, Renaut Deblue, and Yusuf Matovu. At the time, Steven had just enrolled for Bachelor's degree in India and I was still a post graduate student at Uganda Martyrs University. He worked along side IHSU historicals like Ms. Phiona Bitariho, Ms. Evelyn Ayot, Ms. Sarah Omwene and Ms. Alice Akiteng. Over the years he saw the Department grow from 3 to 6 staff.

Mark installed and configured computer labs, deployed uninterruptible power supply units, installed motion sensor security cameras, set up the first daisy-chained wireless network here on campus, deployed the first ICT Inventory system based on OCS, and expanded internal analog telephone extensions to all staff offices. In fact, he was part of the team that transitioned IHSU from Windows operating system to Ubuntu operating system. He later transformed IHSU's telephone system from the old analog to VoIP using the 3CX system.

He stuck with the Department through its troublesome days of shortage of projectors, low bandwidth, very old staff computers and unstable

power supply. He was instrumental in the installation of a heavy duty power backup, air conditioners, and power extension cables. On several occasions staff mistook his role for that of an electrician. But it was Mark's commitment and dedication to his work that ensured years of unsurpassed efficiency and excellence.

For many of us present here, "Lubowa" was a rather memorable experience. And specifically for the staff in the ICT Department, it was an absolute success. Lubowa 1.0 (as we called it) is a project we look at with great pride and recall with fond memories. The enthusiasm with which we set up all IT infrastructure was over whelming; the quality of every output was unquestionable. And at the core of all this was "Uncle Mark".

Mark resigned from his position on December 01, 2016. His departure marked the end of an era in the ICT Department. We all came to appreciate him, even more, when we tried to fill the void that he left.

We hold the deepest respect for Mark and owe our achievements to his dedicated support and professionalism.



Steven was recruited on September 01, 2012, as an ICT Intern and served for 3 months before he got appointed as Web and Content Master on the 1st of March 2013.

During his internship between September 2012 and March 2013, Steven was able to show case a number of skills and expertise especially in the area of media and graphics and this prompted Mr. Brian Sennoga, the then ICT Manager, to consider hiring him full time to compliment the ICT department in the area of growth representing graphical and on-line content as well as the increasing relevance [at the time] of Social Media for the University. Social media and online presence are now an absolute necessity for IHSU and recruiting Steven demonstrated Mr. Sennoga's extra ordinary foresight and ability to strategically position the department to better serve the University as it grows.

When he joined IHSU in the fall of 2012, the IHSU website was running a Drupal Content Management System (CMS) backend with all the complexities that came with it. Steven's first initiative was to re-engineer the content management business process and install Joomla as the CMS of choice. Many years later, the ease of use has meant that almost every newly recruited IT guy can manage it with minimum training. He modernized and reinvigorated the University Intranet.

Steven's ability to comprehend IHSU's story and brand, coupled with his love for art have enabled him to go the extra mile to make sure his products exhibit the University's mission, vision and values. While most of us follow the latest trends and find inspiration in other people's work, Steven finds inspiration in everyday things and in himself. He has a curiosity for the world around him; he looks beyond the surface of things to explore both the minute detail and the big picture.

Steven built an internal web server that hosts all CIU web services including the Quality Assurance Lime Survey system, Digital Displays Management System, File Hosting Server, a documentation site, a demo site for development purposes and the Intranet itself. This and several other projects demonstrate Steven's qualities as an outstanding team player who is genuinely committed to the Department's success and doesn't sit on the bench and watch the rest of the crew perform but gets out there and sees the magic happen through his efforts as well.

Beyond his passion for developing new ideas and concepts Steven is heavily involved in community activities. He was the programs coordinator of the local web developers' community, a role that saw him organize training and mentorship for students and Ugandan youth interested in web development. He sits on the governing team of the local Joomla User Group which promotes usage of the CMS in the East African region by organizing training events at universities and other training centers.

Steven is a strong advocate for girls and women's rights. It will be remembered that he was co-director of the "The Twist" a play which was written and co-directed by Ms. Nargis Shirazi and showed at the National Theatre. This play challenged the audience to question men's attitude towards certain issues like family planning and other gender norms. He is also part of SEMA, a team which acts as a platform to promote girls' and women's health and rights through the use of film. He has attended training and participated in programs of Women deliver a leading global advocate organization for girls' and women's health, rights, and well-being. Steven also volunteers with Public Health Association of Uganda (PHAU), a local youth-based organization that aims at fighting to stop HIV/AIDS stigma, providing sexual reproductive health and rights education to youth.

Steven is an accomplished trainer. In 2013/2014 he was appointed as visiting lecturer for computer skills at IHSU. He was the ICT Department's chief trainer for Google Apps for Education (now G Suite).

In 2015, Steven spearheaded the implementation of the current student information system (FEDENA).

Steven resigned his position at the Department on August 01, 2019. He began an exemplary career and the CIU ICT Department is very privileged to have been part of it. I have the deepest personal and professional respect for Steven, and sincerely believe that he will export his unique energy, self-drive, optimism, passion, and tireless creativity to all organisations that he will work with.



Pioneer Participants on the Intensive Internship Program

Compiled By HARRY Harry

Zaam NDAGIRE

Dip.IT (UICT)
Supervisor: HARRY Barry, M.S.I.S (UMU)
Location: ICT Department at International Health Sciences University [currently Clarke International University]
Period: May - July, 2016

I participated in the 3 months’ intensive internship program at the ICT Department at International Health Science University (IHSU) which later rebranded to Clarke International University. It was a great experience working with the IHSU staff, ICT team most especially Harry and he was so helpful and a great tutor. I have learnt a lot of things from them. There are no words that I can use to show how am grateful I am but all I can say is thank you so much to the IHSU.

I have gotten a chance to do things practically and got more ideas on how to develop my career since I have been surrounded with people with a similar career path as mine (ICT). The weekly reports we have been doing have made me realize the importance of documentation. It was a wonderful experience and it will always be a pleasure working with CIU again and again.

Below are the program’s planned activities and the

deliverables. It’s a compilation of the plans and reviews that were conducted every Monday morning.

- The key deliverables that were realised during the internship program were;
- 1.System Design document of the Alumnus Verification System
 - 2.Prototype of the Alumnus Verification System
 - 3.A comprehensive Internship Report

Date	Planned	Completed
02 May - 05 May	Mentorship by Erias Seruwag	-Completed all the paper work that was required with the Human resource manager and the ICT manager. -Did some laptop repairs and cabling tasks with Erias. -Managed to connect computers to the server with less help and Ilearnt new things by doing the user support.The most significant setback in week one was Internet down time experienced on Tuesday.
	Databases with Harry Barry -Download and install xampp on windows (on mylaptop), run some basic commands e.g. show databases,create database, use database, create a table, select * etc.and acquire a MySQL manual and relevant links -Creating a database named alvs and add two tables. Field/column, row,primary key, foreign key Normalization and etc. -Learning about php MyAdmin like creating databases, tables, creating users and permissions, importing andexporting Dbs. -Creating a physical database of the alumni verification system. -Creating an ER diagram for the alumni verification system. -Inserting data into a MySQL database using the command prompt, displaying data from multiple tables, deleting, updating and etc.	-Installed xampp on my laptop(windows) -Got started with MySQL and ran some basic commands. -Created a physical database for the alumni verification system. -Developed an Entity Relationship Diagram for the alvs. -Learnt about php MyAdmin and used it to create a database.However, we were supposed to look at SAD (system analysis anddesign) that week but it was changed and we looked at databases instead. -Learning definitions of terms
16 May - 19 May	-Installing MS VISIO and install it my laptop. -Documenting the business processes and transactions involved in verifying the authenticity of an IHSU alumnus -Documenting the challenges faced by the current method. -Documenting the opportunities that exist at IHSU which can be exploited to implement a new system -To Document use case scenarios for the alvs -Design Use Case diagrams (general and individual), an activity diagram and a conceptual data model for the alvs.	-Installed MS VISIO and also learnt how to use -Documented the business processes and transaction involved in verifying the authenticity of an IHSU alumnus -Documented the challenges faced by the current method and opportunities that exist at IHSU which can be exploited to implement a new system -Designed a Use Case diagram, Activity diagram and Conceptual data model. -Developed functional and non-functional requirements for alvs. -Developed a functional design for the alvs. -Developed a system design document for the alvs.

23 May - 26 May	-The week of 23 rd May to 26 th May I was scheduled to do tasks assigned by Erias.	In-office rounds were done, and by doing this we wanted to query users for issues related to ICT resources and equipment and get user views on how best they need to be served. This is a particularly busy period for the University as students do their end of semester exams. It is a somewhat quiet time for the ICT Department. And so we did some documentation. We drafted a report about the problems the users frequently have, issues that are related to ICT resources and equipment.
30 May - 02 June	The week of 30 th - 2 nd June our main focus was on networking and we were working with Mr. Mark Akampereza. -Networking -Cabling -IP Addressing -Subnetting -Telephone systems (analog and VOIP) -Network management software tools and servers -Wireless hardware and management -We planned to be doing programming every day from 10-11am with Harry Barry. -Assisting the ICT TEAM in filling in the missing students into the FEDENA system	-We explored the common tools that are used in networking -Terminated cables. -We looked IP addressing, sub netting and different classes. -We managed to configure a router. Unfortunately we didn't manage to complete most of the planned items due to time factor. -We managed to create some forms using notepad++ and also connected a MySQL database to the forms using php. -We managed to add some data into the database from the forms we created. -I also helped in adding students' information into the FEDENA system
13 June - 16 June	-Programming -Adding the finance data for students into the fedena system.	-Coded the Alumnus Verification System -Added finance data into the FEDENA system.
20 June - 23 June	-Programming	-Coded the Alumnus Verification System
27 June - 30 June	-Programming	-Coded the Alumnus Verification System
04 July - 07 July	-Designing forms for the Alumnus Verification System	-Designed forms for the Alumnus Verification System
11 July - 14 July	-Finalizing with the Alumnus Verification System and produce the prototype	-Produced a prototype for the Alumnus Verification System
18 July - 21 July	-Finalizing with the system design document	-Completed the system design document.
25 July - 28 July	-Finalizing with the internship report	-Completed the internship report

Gloria BALUKA

Supervisor: HARRY Barry, M.S.I.S (UMU)

Location: ICT Department at International Health Sciences University [currently Clarke International University]

Period: May - July, 2016

The intensive postgraduate internship program in the IT Department at International Health Sciences University [now Clarke International University] is a trained and supervised experience in a professional “setting in which the intern learns and gains essential experience and expertise.

The goal of the 2016 program was to make sure that by the end of the internship period, the intern has the ability to creatively integrate and optimise the use of new and emerging technologies in an organisation's business processes. Below are the detailed activities and actual deliverables that were realised during the three (3) months internship at IHSU.

At the beginning of my internship, I came up with several (personal) objectives, which I wanted to realise at the end of the program:

- To understand what it's like to work in a professional environment
- To enhance my communication skills
- To find out what skills and knowledge I still need in order to be able to work in a professional environment.
- To determine the relevance of IT work to my career ambitions
- To link my academic theory to practice
- To build and maintain positive professional relationships
- To develop professional confidence

During my internship I got to interact with a lot of people in the IHSU community including the IT staff, the staff in the registry department, marketing and sales, the front desk officers, the support staff and students. I attended and participated actively in IT department meetings. This gave me insight into how team meetings, planning sessions and work reviews are held. I also attended an exhibition with the marketing team of IHSU. I got experience and knowledge about what takes place in exhibitions, what questions the clients ask and how the marketing team goes around to

answer the questions.

I also gained some knowledge from Ivan Nsubuga who took me through all the various steps that students take in order to be admitted into the university. He also briefed me about various modes of fees students pay and why, as well as an overview of the various departments and courses that IHSU has. This was a great experience as I got important and helpful knowledge about the university and the registry department in particular.

Ivan Nsubuga also took us through the current process of verifying the authenticity of an IHSU alumnus' documents which information helped us in the designing of the proposed alumnus verification system.

I also got Chance to interact with Mark who took me through the basics of Networking such as cabling, subnet-ting, IP addressing and also showed us the various tools used in networking. I also interacted with Nancy and Steve who took me through the functionality of the FEDENA system.

My weekly meetings with Harry plus the frequent supervisions on various topics were also of so much help as I got to learn a lot through his mentorship.

On the other hand, not all experiences were good as I encountered a couple of challenges during my internship.

In the first days of my internship, there were (understandably) tough encounters with the university security and welfare administrators. This was probably because there was no formal introduction of my participation on the internship program. It is hoped that future participants will be formally introduced to the university community to ease the process of their integration.

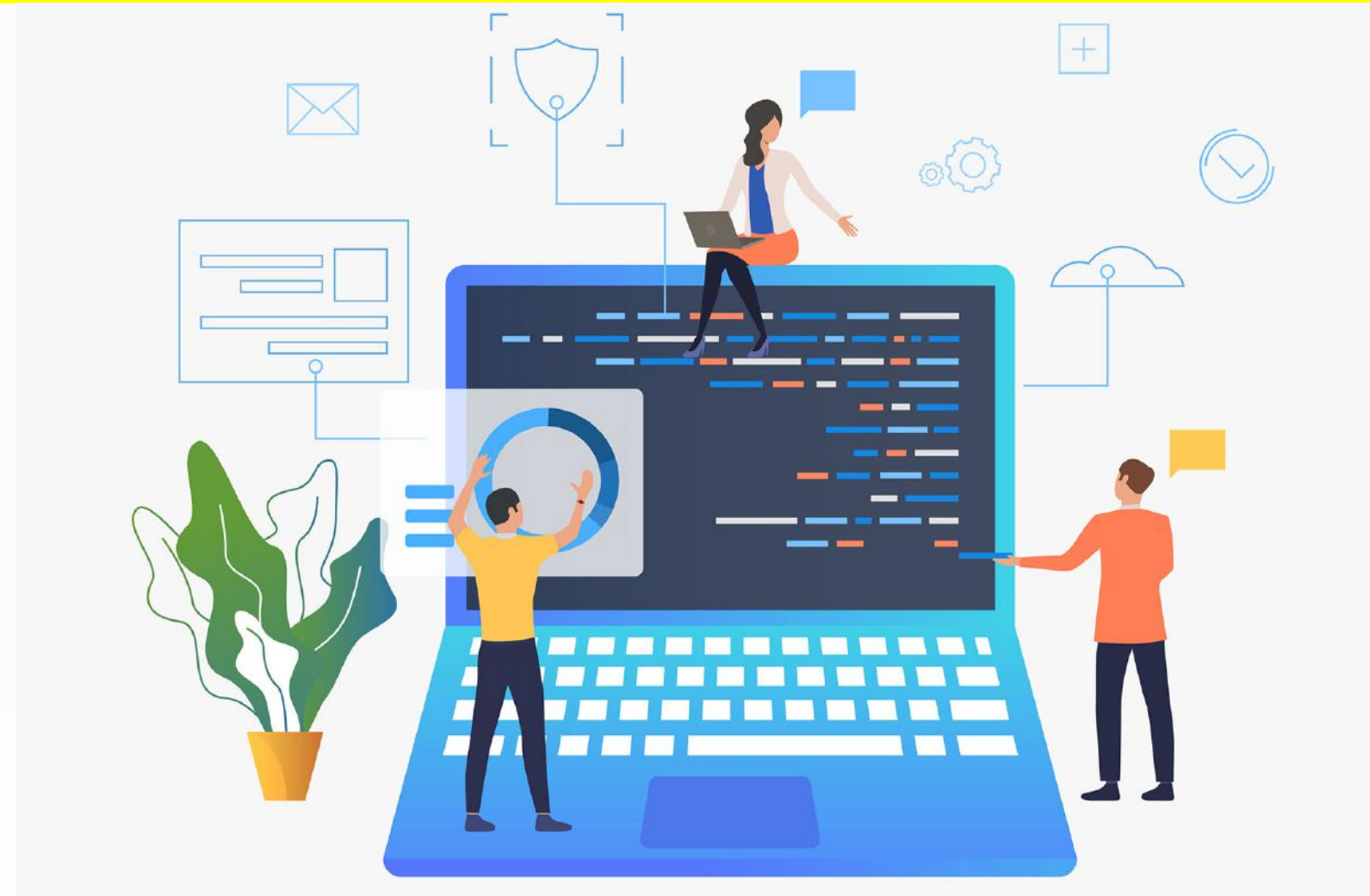
Also access to the computer lab where I was meant to sit was difficult some times. This was especially in the morning when acquiring the keys from the security personnel was extremely difficult since they were not aware that I was an intern and not a student.

The silver lining to this whole tough experience was that I learnt how to navigate my way around through 'diplomatic interaction' and professional conduct.

Planned	Completed	Date
<p>-IT Department</p> <p>-Installation and configuration of PC (with Erias) (Websites, Social media marketing and online presence, Database development and manipulation, LAN infrastructure)</p> <p>-Meet Phiona Bitariho (Marketing and Public Relations) and participate in her marketing drives</p> <p>Goal: Comprehend how different business processes can be optimised by the use of new and emerging information technologies</p>	<p>-Monday morning meeting with Harry</p> <p>-Initiated documentation on various ways through which IHSU can improve its social media marketing</p> <p>-Met Ms. Phiona Bitariho and we had a chat about what marketing and public relations is all about.</p> <p>-Attended a marketing exhibition</p> <p>-Had a chat with the receptionist about university programs, student application and admission processes, etc.</p> <p>Actual Deliverable: Attended and exhibition with the marketing team</p>	<p>Week 1 25th April-29 th April</p>
<p>Registry Department (records management, client relations management: apply strategic management principles, FEDENA)</p> <p>Goal: Comprehend how different business processes can be optimised by the use of new and emerging information technologies</p>	<p>-Monday morning meeting with Harry.</p> <p>-Drafted previous weeks report.</p> <p>-Did assignments from Richard Ivan Nsubuga in the Registry department to get acquainted with records and client relations management.</p> <p>-Intensive reading of online material about how to come up with a good social media plan.</p> <p>Actual deliverable -Understood the business processes and respective transactions handled by the Registry.</p>	<p>Week 2 2nd May-5th May</p>
<p>IT: Database design and management</p> <p>Goal: Comprehend how different business processes can be optimized by the use of new and emerging information technologies</p>	<p>-Monday meeting with Harry.</p> <p>-Drafted previous weeks report.</p> <p>-Introduced myself to the University Academic Registrar and talked about what we have so far done on the internship program and what we are yet to do.</p> <p>-MySQL database development session by Harry Barry.</p> <p>-Made progress on the social media plan.</p> <p>Actual Deliverable -Developed a MySQL physical database -Designed an E-R diagram</p>	<p>Week 3 9 th May-12 th May</p>
<p>IT: System modeling with UML</p> <p>Goal: Comprehend how different business processes can be optimized by the use of new and emerging information technologies</p>	<p>-Monday meeting with Harry.</p> <p>-Drafted a report for the past week.</p> <p>-Learnt the fundamentals of analyzing existing systems and designing better ones using unified modeling language.</p> <p>Met Ivan for a discussion about the current procedure for student transcript verification and challenges encountered by employers in verifying job applicants' academic papers.</p> <p>-Documented business processes, transactions challenges involved in verifying the authenticity of</p>	<p>Week 4 16 th May-20 th May</p>

	<p>an IHSU alumnus' academic papers.</p> <p>-Documented the opportunities that exist at IHSU which can be exploited to implement a new automated system that could be called the Alumni Verification System (alvs).</p> <p>-Documented use-case scenarios for the proposed alvs.</p> <p>-Did online reading about use case, activity diagrams and conceptual data model diagram.</p> <p>-Designed use case diagram for alvs.</p> <p>-Designed activity diagram and conceptual data model for alvs.</p> <p>-Developed functional and non-functional requirements for alvs.</p> <p>- Developed functional design for alvs.</p> <p>-Refined our ER diagram to meet the requirements.</p> <p>Actual deliverable -A System Design Document for the Alumni Verification System</p>	
<p>Finance Department (Learn the business processes in that department: chat with Ms. Iksha Aggarwal, how to install, configure and use Tally: input from Richard Bwire and Raymond, Installing and configuring webERP: input from Steve)</p> <p>Goal: Comprehend how different business processes can be optimized by the use of new and emerging information technologies</p>	<p>-Monday meeting with Harry.</p> <p>-Drafted previous week's report.</p> <p>-Continued to work on the social media strategy for IHSU with the supervision of Harry by:</p> <ol style="list-style-type: none"> 1. Exploring all official and unofficial online pages representing IHSU. 2. Looking at IHSU's competitors' online presence and then compared my findings with IHSU's social foot print and content. 3. Noting down recommendations from my observations. <p>Actual deliverable -Draft I of the social media marketing plan.</p>	<p>Week 5 23rd May-27th May</p>
<p>Strategic business session/discussion with Michael Niyitegeka, John Alege, the VC and Dr. John Charles Okiria (on a given topic around strategic planning, efficiency and IT)</p> <p>Goal: Acquire an abstract understanding of strategic management in a real life organizational setting.</p>	<p>-Monday meeting with Harry.</p> <p>-Drafted previous week's report.</p> <p>-Networking session with Mark (various tools used, cabling, IP addressing, sub netting, and also how to install a router.)</p> <p>Actual deliverable -I gained knowledge on the basics of networking and also learnt how to configure a router</p>	<p>Week 6 30th May-2nd June</p>
	<p>-Monday meeting with Harry.</p> <p>-Drafted previous weeks report.</p> <p>-Introduction to programming with PHP by Harry.</p> <p>-Installed a code editor (KATE)and a Database Management</p>	<p>Week 7 6th June - 9th June</p>

<p>System (DBMS) on UBUNTU OS.</p> <p>-Participated in entering student data into the FEDENA system.</p> <p>Actual deliverable</p> <p>-Acquired the basics of application installation through the UBUNTU command terminal.</p> <p>-Acquired an overview on PHP programming</p> <p>-I also learnt how to use the FEDENA system</p>	
<p>-Monday meeting with Harry.</p> <p>-Drafted previous week's report.</p> <p>-Attended a meeting for the IT Department staff (June 16, 2016).</p> <p>-Filling student data into the FEDENA system.</p> <p>-Continued with the social media strategy plan for IHSU.</p> <p>-Started drafting my final internship report.</p> <p>Actual deliverable</p> <p>-I was able to experience what takes place in meetings.</p>	<p>Week 8</p> <p>13 th June - 17 th June</p>
<p>-Monday meeting with Harry.</p> <p>-Drafted my previous week's report.</p>	<p>Week 9</p> <p>20 th June - 23 rd June</p>
<p>-Finalized with the social media marketing plan for IHSU.</p> <p>-Drafted my internship report.</p> <p>Actual deliverable</p> <p>-I gained skills in report writing</p> <p>-I was able to finalize the social media marketing plan</p>	<p>Week 9</p> <p>20 th June - 23rd June</p>
<p>-Harry helped make some corrections with my internship report and I spent the whole week making the final draft of the internship report.</p> <p>Actual deliverable</p> <p>-Final draft of the Internship Report</p>	<p>Week 10</p> <p>27 th June - 30 th June</p>



Conclusion

The 2019 program benefitted a great deal from previous internship programs at the ICT Department of Clarke International University. The goals and activities were more refined and crafted around the individual passions of the four participants.

The program was squeezed into a very short two-month period which made it intense but at the same time thrilling. All participants were able, to a greater extent, realise the two goals of developing proficiency in applying knowledge and understanding to a real life organizational environment and developing proficiency in report writing, communication and presentation skills. This report will be a valuable reference tool for future programs and participants.



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