



**UNIVERSITY OF
COMPUTER
STUDIES,
MANDALAY**

Internship Report

Galaxy Software Co., Ltd.

Submitted By

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Acknowledgement

Firstly, I would like to show my gratitude to the Ministry of Education, Myanmar that introduces the internship program of IT students. An internship was perhaps best defined as a “three-way partnership between the educational institution, the student intern, and the organization where the interns take on the challenges of a program of systematic experiential learning” (Inkster and Ross, 1998). I want to express my most sincere gratitude to Dr. Moe Pwint (Rector, University of Computer Studies, Mandalay) who creates and develops this partnership in order to provide experiential learning opportunity.

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Summary

With the aim of fulfilling the academic requirement of 2017-2018 academic year, I accomplished my three-month internship program at Galaxy Software Co., Ltd, Yangon, Myanmar. During internship period, I had gained valuable insight into the software industry and had the chance to observe numerous aspects of business ideas and management and learn new technologies and working environment. I had the great chance to touch and handle one of the main products of the company.

During the internship, I was assigned to work as a junior programmer at Research and Development Department. Some of my duties and responsibilities are to fix the errors reported by Customer Service Department and to develop new functions for upcoming released version of the product. And I initiated another module of android version of the product. I submitted this report not only for the academic requirement but also for distributing my knowledge and experience that I had gained during three months to the readers and juniors in order to be easy and understand for their internship preparation.

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1. A brief introduction of the organization's business sector

The modern economic development in Myanmar is starting in the digital age giving it the potential for digital leapfrogging for economic growth and there is a prominent increase in the development of ICT sector in Myanmar. The three most popular ICT businesses in the country are software development and training, hardware sales, and system integration. Among them, the software sector, which accounts for over 50% of total ICT businesses, would be the most immediate driver of ICT development in Myanmar (Orbicom and International Development Research Centre, 2009).

Software usage in Myanmar reached US\$19.59 millions in 2015 and forecasts to reach US\$30.15 millions by 2019, representing 11.54% CAGR. Spending in software has increased notably but is somewhat misleading as software piracy in Myanmar is highly prevalent. Applications represent 54.17% of total software spending in 2015, these are mostly antivirus and PC solutions spend. Telecom, manufacturing and trade businesses are among key spenders for software (IDC, 2016).

The software market in Myanmar is still largely underdeveloped, with relatively few companies operating in this space. At the moment, the finance sector seems to be an early adopter of technology, with banks installing increasingly secure and progressive systems. Within the trading and tourism sectors, IT usage is limited to the larger players – such as major airlines and foreign-owned hotels which offer online booking systems, and big supermarket chains using inventory management solutions. However, most of the largest sectors in the country- such as agriculture, manufacturing, education, and health- employ very little software solutions if at all. Nevertheless, the demand for sophisticated applications is expected to spike as the country's various industries grow and require more developed solutions, be it custom-made applications or licensed comprehensive systems.

2. Overview of the organization

Originally, the company was established with the name “Integra” in 1998. Galaxy Software, one of the leading software developers in Myanmar, was founded in 2011 with the objective of providing quality software products and excellent services to local business organizations in Myanmar. It was started with 25 employees, and now there are more than 140 employees and serving more than 3000 customers across the nation. Galaxy Software head office is in Yangon where I took my internship program and other branches are in Mandalay, Nay-Pyi-Taw, Patheingyi, Taung Gyi, Myeik and Monywa. The company sets its own mission of raising the competency and efficiency of local SMEs to compete effectively in global markets by providing state-of-the-art software solutions and targets to play a major role in achieving the empowerment of using software in every retail organization from street-vendors to supermarket chains in Myanmar.

2.1 Company Product lines

The company had been released four main types of quality software products in the market. They are iStock® (Inventory Control Software), CaféPOS® (Restaurant Management Software), HotelPro® (Hotel Management Software) and School Management Software, the new product to local business organizations. Brief descriptions of the products will be described as follow:

2.1.1 iStock

iStock occupies the largest number of customers among the products and is the most popular inventory control system in Myanmar with upgraded version over ten years. It is used to keep track of inventory. In addition, users can handle sales, purchasing, inventory management and control the business transactions including financial management functions with the use of iStock. It is simple and easy to use. It can produce over 180 reliable financial reports. Many retail shops including mobile phone and accessories shops, cosmetic shops, camera and computer selling shops, motorcycle distribution shops, plastic production and selling shops, stationary shops and mini marts are using iStock for inventory management.

2.1.2 CaféPOS

CaféPOS is also one of the most popular restaurant management software. It is a restaurant POS system which can be used together with tablets or android touch-

screens. It can process table reservation, sale entries, customer billing, and remote printing to kitchen or bar of the restaurants. The design and user-friendly interface keep the customers satisfy. It has good reputation and many café, bakery shops, fast food shops and restaurants are using it.

2.1.3 HotelPro

It is a kind of hotel management software and it is designed not only for hotels but also for motels, resorts, clubs and hostels which need room status information, reservation, check-in or checkout, guest information, housekeeping and credit ledger and other hotel operations. It is released in both windows and android versions.

2.1.4 School Management System

School Management System software is the new product of the company. It includes functions of managing student list, library management, staff management, income and expense management, school event management, ferry management and reporting of student data to parents. Under the function of student management, recording student registration, termination, leave, attendance, scholarship and exam results are included. Currently, some private schools and international schools in Yangon are started using this product and it has a good reputation.

2.2 Competitors

iStock is the most successful product of Galaxy Software Co., Ltd and it is one of the best seller software products in Myanmar because of its advanced features and timely upgraded versions and fulfillment of customer requirements. Café POS follows as the second popular product of the company. These two products existed over a decade and competing with many products in the market. For inventory management software, Lucky Bird Group, Frontier, Myanmar technology gateway co., ltd, ACE and MIT are the market competitors. Nowadays, the franchise business such as KFC, Lotteria, Marry Brown and others already contained the restaurant POS and this lead to decrease the demand for CaféPOS software.

2.3 Brief summary of Company Head Office, Branches and Departments

The head office of Galaxy Software Co., Ltd is located in Yangon and has five branches across Myanmar. In 2012, Mandalay branch and Nay-Pyi-Taw branch were opened. Pathein and Taunggyi branches were opened in 2016 and 2017, respectively. Based on the number of customers and product demand, Myeik and Monywa branches were also opened and many branches in other regions are going to be opened. Maw-La-Myaing branch is going to be opened in October, 2018. The company is running with Board of Directors (BOD) at strategic level and comprises with Human Resource and Administration Department, Marketing Department, Research and Development Departments and Sale and Service Department at tactical level.

2.3.1 Human Resource and Administration Department

Human Resource and Administration department performs all of the strategic decisions, planning and describing business strategies, defining rules and regulations for staff and all the confirmations. The salary management, developing new employees' skills and advancing the skills of the existing staff are done by this department.

2.3.2 Marketing Department

The responsibility of the marketing department is to promote the information of the new products and to retain the reputation of the existing products to public and potential customers through various marketing channels. The major duty is to find out the markets for new products as well as to extend the markets area for the existing ones. Public relation and customer relationship management processes are being operated by this department.

2.3.3 Research and Development Departments (R&D)

Research and Development department only exists in Yangon Head Office. All the implementation and development of software products are done by this department. The quality of the products is retained and it works for error handling and fixing, software version upgrading and developing new software products. The department is divided into product design team and product management team. Café

POS team, iStock team, HotelPro team and School Management System team are included in product management team. New iStock team which is doing research on cloud technology was also called product design team. There are total of 17 developers including junior developers, senior developers, team leaders, assistant managers and a manager in this department.

2.3.4 Sale and Service Department

There are four teams in Yangon's Sale and service department. One of their tasks is to submit customers errors and complaints to research and development department. Under the instructions of marketing department, they sell the products to new customers. Each service team has their own team managers, assistant managers. The teams are competing each other to strike their target sale units for getting bonuses, higher ranking or abroad trips in a month.

3. Plan of my internship program

I served as an intern in Research and Development (R&D) Department of Yangon branch which is the head office of Galaxy Software Co., Ltd. R&D department only exists in Yangon Head Office. All the implementation and development of software products are done by this department. The quality of the products is retained and it works for error handling and fixing, software version upgrading and developing new software products. The department is divided into product design team and product management team. Café POS team, iStock team, HotelPro team and School Management System team are included in product management team. New iStock team which is doing research on cloud technology was also called product design team. There are total of 17 developers including junior developers, senior developers, team leaders, assistant managers and a manager in this department. Among the total of five teams, I was assigned to the HotelPro team as the role of junior programmer.

This three-month internship program started in May 2, 2018 and accomplished in July 31, 2018 after submitting the assigned duties. During three months, R&D department provided the technical and product training programs with kind enthusiasm. C# programming training was provided 2 times per week and last 3 weeks. Microsoft SQL Server training was a 5-day training course by senior manager of the department. Besides, Café POS product training was held for 2 days in R&D.

4. Training program

During the internship period, the company held an IQ test for interns in order to assign each student in each team of the department respectively based on their personal interest and skills. After the test, I was assigned in Hotel Management Team as the role of junior programmer.

Firstly, I needed to learn the product thoroughly so that the detail functions and facilities of the HotelPro software was clearly understood and known. So, I tried to review and learn the HotelPro product for about three days with the aid of user manual book and installing the software. Seniors in my team also helped me to understand the working process and business background of the software and explained intensively in somewhere I couldn't understand well. This product had been developed by using visual C# programming languages for the system implementation and using Microsoft SQL Server 2014 for database management and administration. Since both of these two technologies are those that I had never learnt before, I needed to learn them firstly. So, I tried to learn C# firstly in the first week and I believed that it made me improve my self-study skills. And I installed the required software and packages such as Microsoft SQL Server 2014, Microsoft .Net package 3.5 and Visual Studio 2012 in order to run and test C# tutorials and exercises.

In the first week, I learnt about the history and organizing structure of the company and the technologies used to develop the products through the orientation round by Daw Khaing Khaing Oo (Manager of Service Department) and U Zaw Min Tun (senior manager of R&D department). And I got the first experience of team meeting. I also learnt SQL server with the aid of e-books, blogs and websites.

Most of my duties and responsibilities in the first two months are to find the errors, fix and handle the errors reported by customer service team and add new features for the next releasing version. Although I had no chance to take part in the whole lifecycle of software development, my assigned works were not always easy and clear. My first assigned job was able to purse me to be active and interested in the software development and even make sure to keep on working with that career. It was about that if the credit-allowed guest is wanted not to allow credit anymore, it is allowed to do this only when no transactions are made by this guest. In present state, it allowed the user to check or uncheck button for allowing credit to the guest without

checking check in, check out or reservation transactions. In solving this problem, I implemented a stored procedure in SQL server and fixed it.

There was a milestone plan in my team for each month and needed to reach the monthly target in the plan. I found that my team was facing some problems and delays for reaching the target. This target is to implement a check-in feature into the mobile version of the software. So, I learnt android development in parallel with my assigned jobs in order to help my team in partial. I also learnt MVC models that was used throughout the whole project by myself. Moreover, every Wednesday is the day to test the whole project and report the finding errors and misleading behaviors of the software to the project leader. Before this day, all repaired works and codes from each team member are integrated into the server machine and share the updated version of the software. And the next day, the project leader assigns work for each team members and discuss about the enhancement of the project.

There are some points that controls the user interface (UI) with the codes and I found the error of dimming the Room filter in the reservation form and showing not only reserved guest from today date in Check In/Out form. In such case, I solved it by handling the listener events. Moreover, the HotelPro software provides the facilities of generating many reports such as Daily balance, Daily revenue and Arrival List reports, etc. I also fixed some error of not generating these reports well and in the designated pattern by handling the C# codes and redesigning .rdlc files.

Sometimes, the software produces some unhandled exceptions when entering data through the forms in unexcepted and upset order. At that time, I debugged the software more precisely and tried to find the main sources of causing the errors and fixed it in relevant ways. I also fixed some unpleasant UI errors, for example errors that caused unable to select any rooms after doing check in or reservation with multiselect and back to main screen.

My project team has a unique behavior that release the latest version of the software in every week. At that time, we need to acquire the latest source files including database and log backup files form the server. Each team member needs to restore the database backup and all necessary configurations (Changing the server name, user name and password in App.config) for running the latest version. After that, the upcoming works are done on this project code. This way makes helpful to developers in the way of recovering some codes and logics in the past, discovering the misconceptions and producing more efficient codes.

In the new office location, there is a plan to order food for the lunch of staffs in the department. I was assigned to collect the food order of individual employee and order to the restaurant. It was originally done by manual record collecting and keeping method for the monthly report and folios. I tried to observe the most effective way for this system. For solving this problem, I created a customized form in Google form system and installed an add-on called AppSheet. Then, the app is launched with AppSheet and designed UI/UX as desired. Finally, it produces a mobile application but it has a limitation that it needs to install AppSheet app at first and then login with google or g-mail account. For monthly report, it needs to insert data to the HotelPro software. The check-in guest's service feature makes it easier to calculate monthly revenue and monthly report since it maintains the payment as cash or credit. I got the experience of new approach to develop mobile applications of high reliability and security without coding and database management.

The team is trying to release the next PC version of the HotelPro software with additional features and functionalities. I also worked for this process. In the current version, when the guest check-ins the rooms and orders his desired services, the system shows these services with respective rooms but, he needs to scroll horizontally to view these services. It makes the user to be bored and destructive. So, I added the shortcut key, F6 for this. In the coming version, the user can easily view the ordered services without scrolling by selecting the room and entering F6. For implementing this feature, I wrote a key down manager and performed the necessary operations.

Another new feature I implemented is keeping the preference of individual guest. Almost all hotels want to track the personal preference of the guests, what they like to get from the hotel services and what they don't like to have such services in order to maintain the customer relationship. The new version adds this feature by adding a field called "preference". When the new guest is setup in the system, the user can insert the like or dislike things into this field and when the guest is checked in or reserved, the system alerts a dialog box that shows the guest's preference inserted in the setup function. By this way, the receptionist can know the preference of guests and can better service for cultivating customer relationship.

The last month duty of my work is to develop the new feature of android version of the HotelPro software. For android development, I installed android studio and its necessary packages and downloaded the required gradle files. Then, I run the tutorials, projects and codes that are necessary for the check-in function. In order to

add feature of selecting multiple rooms of the guest's desire, I run and test multi-select android tutorial that is needed to integrate into the project. And then, I tried recycler view of android to be applied in the project. I also learnt about auto-complete testview, dialog fragment, date picker and spinner tutorials. After researching and testing the necessary android tutorials, I started to design the project. In design stage, I created the layouts and forms with the advice of my seniors.

The nature of HotelPro mobile application is that the reserved, check-in and housekeeping data is processed, displayed, retrieved and inserted to and from the SQL server of the PC version through the use of Application Programming Interfaces (APIs) generated from the Web service. So, I did some configurations to create a Web service from C# program. I also wrote APIs for getting the necessary data such as rooms, guests, currency, payment type, taxes, card type and etc. that are required throughout the check-in process. Moreover, I made some validations and bindings to control the increase and decrease of person count and number of nights. I also wrote some calculations depending on the selected rooms, number of nights, discount and taxes. Then, the system shows the successful or unsuccessful messages of check-in process with the use of dialog box.

5. Learning Experiences

5.1. Knowledge acquired:

Throughout my internship, I was able to be fully immersed in what it means to be a software developer, and was given a realistic picture of everything that it takes to develop a qualified software product. Since my internship site was not a very large company, I was able to see and know the whole working states of the company and was also got involved in those process. So, I acquired the knowledge of managing a software company in harmony with effective workforce of the employees. Especially, I gained the knowledge of how to develop and maintain a qualified software effectively in practice but, it just has a gap in comparison with what I have learnt in Software Engineering book. I was curious to know the reason why the company stands well in the software industry although it doesn't follow the SE rules and principles. Besides, I also knew about how to maintain and improve customer satisfaction and customer relationship. In the aspect of High Performance Computing, I cannot apply my academic knowledge at all because the company only develop serialized project codes and doesn't use any profiling and performance upgrading techniques.

5.2. Skills learned:

During my internship, I gained time management, adaptability, initiative and receptiveness skills from my workplace. I used to organize my time and produce results by prioritizing my responsibilities and recognizing when it's appropriate to multitask or focus on one particular project at a time. I was also able to adapt with the living style of an employee in Yangon and got the sense of adapting from the student life to a worker life. I also improved my behavior that does not have to wait to receive direction for every task and will to assist others with their work. Most importantly, I could change my mindset to will and able to address my weaknesses.

Communication, interpersonal, collaboration, critical thinking, research and analysis skills that I have learned as part of courses at the University of Computer Studies, Mandalay were helpful during the training. I was able to take oral presentation, translate ideas and convey information whether it's with my supervisor, coworkers, seniors or manager. It also improved my ability to identify the wants and needs of others and recognize and acknowledge the value of differing perspectives.

As an intern, I tried to collaborate well with other interns and company employees and to communicate and relate well to others to build the capacity to work with others toward a common goal. I could also raise my awareness and understanding of my own strengths and weakness so that I know how I can best contribute, as well as be aware of how I can bring out the best with others. Moreover, I improved my ability to analyze and evaluate a situation or issue and form a judgment by asking questions in order to understand an issue from all possible angles and posing creative solutions to challenges.

5.3. Observed attitudes and gained values:

In my training program, I found that most of the employees in the company were hard working and they came the office early and returned home lately. They work independently without relying on each other and I perceived that it is the ideal attitude to be a good developer. The employees are mostly optimistic and it is the key to communicate with others and release the tension and pressure. Most of them do self-motivation by discovering what motivates them and what incites them to take actions to change the unpleasant situation. Besides, they have enthusiasm over the work in that willing to receive jobs, learn new things and observe the results and it is important for a successful career. Respect, confidentiality and loyalty are also needed for building a good career path.

5.4. The most challenging task performed:

The whole internship program is challenging for me because of working environment, and being assigned to work with unfamiliar programming languages and techniques. All the required technologies that is used in the project are new to me and all are challenging. Among them, developing the new feature (check-in) of mobile application is the best and the most challenging mission to me because it is the responsibility to collect requirement, design, implement and operate only by me, not collaborating with my coworkers. I tried to learn android development first by running and testing various tutorials that are necessary to include in the project. Then, I tried to create a Web service in order to retrieve data from the server and wrote application programming interfaces (APIs) for this. And I designed many layouts and forms and developed many activities, fragments and functions in database handler. And then, I did some calculations for the check-in process of the HotelPro software.

6. Strength, Weakness, Opportunities, Threats (SWOT) Analysis

6.1. Strengths

- Good with database management and analysis
- Experience with multiple customers across the nation (more than 3000 customers)
- Interested and passionate about data analysis and trending
- Good maintenance in customer relationship
- Reselling a product is quick _ no product development is required.
- Emphasize in employee skill development
- Open many branches across the nation
- Low cost product makes more demands
- Strong quality assurance

6.2. Weaknesses

- No other vertical market _ would need to find one.
- Lots of potential competition from established products
- Vulnerable to staff being sick or leaving
- Low employee retention
- Outdated or ineffective design of some products
- Lack of following software development models and techniques
- Lack of hiring respective workers or experts
- Low support in powerful machines
- Weak network infrastructures and supports
- No functional and technical documentations
- No research on analytical performance results
- Weak in project management
- Less security consideration

6.3. Opportunities

- BI software is a growing market
- Use product to find new application areas for the company area
- Use product to find new vertical market for a new base product
- Offer consultancy and training

- Initial cost of sale recovered over time by further sales of the product to the same account.
- Current trends in industry and commerce to reduce costs - great need for data analysis
- New technologies to improve customer experience
- Able to upgrade the products based on the feedback of various customers

6.4. Threats

- Bad product release spoils product image and affects the ability to sell
- Company resource is drawn away from current high value added (high profitability) activities to this lower value added (low profitability) activities.
- Appearance of new competitors
- Competitors imitating features or ideas
- Negotiating with customer needs
- Employee retiring or leaving
- Emerging of new technologies

7. Problem Identification and Solution

Software development style and procedure in Galaxy Software Co., Ltd does not follow any Software Development Life Cycle (SDLC) models proposed by the software engineering principles and techniques during development of the software product, and has weaknesses in software engineering, documentation and reports, quality assurance and project management.

The consequences if the organization does not follow any specified software development life cycle model during development of the software product are that the project to be developed may not be done in time, it may not meet certain user requirements and it may be buggy. Besides, the data and control flow of the system may become upset and reengineering and code maintenance may also become more difficult.

Therefore, the company should use the specified SDLC model such as waterfall model, spiral model, agile model, V model and etc. because SDLC shows the software developers what exactly they want from software development program or say SDLC breaks down the entire life cycle of software development. By doing so, each part of software development is evaluated properly and also helps programmers to work concurrently on each phase of software development program. SDLC can also provide a rough time when software will be available for use. The each and every stage of SDLC is also very important because if even one stage of the project is ignored the overall outcome will turn out inadequate and bad.

Another problem that is critical to be solved is documentation throughout the whole development of the software products. Currently, the company does not emphasize on either functional or technical documentation, but only the error reports submitted by the customer service department and found by the project team are recorded to view the repaired history and there also has a user manual book related with the documentation.

As the consequences of lack of useful documentation, it is hard to maintain any project and the developers have to re-invent the wheel. Without specified documentations, there may have any problems and difficulties for transferring knowledge, development flow and usage behaviors for developers who need to learn how and why the application works the way it does, and that may lead to degrade the project performance and have some delays and frauds when setting up new

environments for an application and/or maintaining existing ones for development, testing and production. As a developer, it is always important to have reliable documentation to guide his work and it is even more crucial to have documentation in place to help track all of the aspects of each application. It is also helpful for development, maintenance and knowledge transfer to other developers.

The company should have some documentations that focus into the various components that make up an application. It is always beneficial to have detailed documentation about an application and its environments that should state all the information desired for each environment to include the application name/version, server name, IP, actual server location if necessary, directory path for the code, URL to access the application, operating system, user account information and a point of contact. The company should also have a business rules document that will definitely speed up the developer's learning curve by reducing the time spent understanding the project. In addition to business rules, a Help document, FAQs, or User Guide can help highlight the main points of the project for a developer who needs context for the project they are supporting.

Moreover, if the project has a database, it is helpful to know the type of database, server information, version and data model diagram. Applications can also have jobs that run nightly or import/export data from other sources that may not be easily identified. If it has file transfer functionality, it is good to document what server the application sends or grabs files from, user account information, and whether any SSL certificates are needed. All these types of processes can be documented to help during development and maintenance.

In order to speed up the troubleshooting process, it should have an FAQ document that can speed resolution for data issues that come up over and over with previously identified solutions or workarounds. Most technical issues have error codes that can help with troubleshooting but data errors sometimes need additional clues as to why something may not be working properly. Installation and configuration documents, in which the steps should be detailed and easy to follow by including screenshots and details such as necessary software, libraries, and application server versions should be included to ensure the environment will be compatible and setup as intended, should also be created when developers need to set up new or additional application environments so that anyone can be able to follow the steps and

successfully install an application and it will help the installer prevent problems because of missing parts of an application.

Most companies have their own deployment processes when doing releases and code updates and so it should always have the deployment instructions documented. There should be information regarding the code repository, where the file updates are found, and where they need to be moved. In addition, there should be step-by-step instructions on how to create an application package or a build to be deployed.

All these documents should be readily available to the developers and team members on the project. These can be placed in a document sharing portal for easy access, access control, and version control. In order for them to be useful, they should be updated as changes are made or new enhancements and processes or features are added to the software. Having all the necessary documents pertaining to the project will make the development and maintenance efforts more efficient. Although writing documentation takes time, it will definitely save time, efforts and money in the long run.

Another problem that is facing by the company is quality assurance or QA testing that is a predictable step in software development procedure as it ensures that there are no defects or bugs in the application. Before the software is released, it should be tested thoroughly to fix the problems at an early stage. There are only a few QA testers (about two staffs) in dedicated QA team of the company and that is not enough to test the systems efficiently to add value to the released software products. In software development process, bugs, defects, imperfections or flows in a program can be caused when the development of software may be carried out by several people and they tend to make mistakes, when priorities and requirements may be changed by the clients and this can lead to alter the development process, when it has poor documentation of codes, when entry-level programmers are assigned to the project and/or when there is a lack of communication or communication gap between the software engineers. The longer a bug goes undetected, the costlier it is to fix. QA testing adds value by having a great impact on the brand's reputation by ensuring that the product is of high quality and meet the defined project requirements.

Therefore, the company should hire more QA testers to produce the qualified products. A simple cost vs benefit analysis also shows that the benefits of employing a skilled and well-equipped QA & testing team and adequate quality processes far

outweigh the costs. However, it needs to know that quality assurance is not the last link in the development process and the QA professionals should perform manual and automated testing during each and every stage of software development and optimize the deliverable in the best possible way.

Most importantly, there are some problems in the project management process of the company mainly because of staffing mistakes. Projects lack the right resources with the right skills. It does not have the right staffs working on the projects. No software can be developed only by coders or programmers. It needs to have software architects who define the appropriate programming languages and frameworks associated with the project, solution architects who design UI/UX of the project, designers who improve the look and feel of UI, database administrators who handle and manage database design and migration, system analysts who determine whether the user requirements are appropriate and find suitable approaches and etc.

Not having the right people in the right role can kill the project. The key to getting a project successfully accomplished is getting the right people with the right skills. Therefore, the company should assign works to the right staffs according to their personal skills. It is the responsibility of IT and project managers to have full visibility into the skills and workloads of all of their resources, including consultants, contractors and outsourcers.

The above-mentioned problems are the most critical cases to be solved by the company to be successful in software industry in long run. After overcoming these problems and challenges, the company will have a strong and healthy organizing structure to produce more qualified products and maintain the sweet reputation for many years.

8. Conclusion

This three-month internship offers me a hands-on opportunity to work in software industry. I knew how my course of study applies to the real world and build a valuable experience in software development. It offers me the chance to learn by doing in a setting where I am supervised by a work-place professional and have the opportunity to achieve my own learning goals, without the responsibilities of being a permanent employee. It also offers me the opportunity to work with someone who can become a mentor for me - not only in the internship but throughout your career.

Moreover, I had a chance to learn new skills and add to my knowledge base while gaining confidence in my abilities. My major tasks and duties are to detect and fix the defects and errors of the PC version of HotelPro software written by using C# programming languages and Microsoft SQL server and to develop the new feature (Check-in) of the mobile version of the software written by android. Internship provides me an opportunity to practice communication and teamwork skills. I also gain industry knowledge first hand from an organization and professionals. Then, it provided the evidence that I have initiative, am reliable, and have a sense of responsibility. I could apply some of the ideas learned in school and provide a bridge between school and the professional world and I achieved a sense of accomplishment by contributing to the organization. Besides, I met new people and practiced networking skills while establishing a network of professional contacts, mentors, and references. Especially, it opened the door to advice on the next steps to take on my career path. And it is my good luck to receive a full-time job offer at the end of my internship.

9. References and Sources Used

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- [2] Orbicom and International Development Research Centre, *Digital Review of Asia Pacific 2009–2010*. New Delhi: Sage Publications, 2009.
- [3] “Bridging the Digital Divide, Enhancing Communications Capacity” in Cross Roads Magazine, Information Matrix Co., Ltd, Yangon, MM, 2011.
- [4] IDC, “Executive Summary Myanmar ICT Market Landscape Study”, 2016.

10. Appendices

Appendix A.

Internship Weekly Log

Company: Galaxy Software Co., Ltd
Department: Research & Development
Project : Hotel Management System
Project Supervisor: U Zaw Min Tun (Senior manager, R&D department)
E-mail: zawmintun.mail@gmail.com
Period: From (2-May-2018) To (31-July-2018)

1st Week Log - From (02-May-2018) To (04-May-2018)

No	Date	Task
1.	02-May-2018	<ul style="list-style-type: none">- IQ test- Introduction of all teams- Installation of Microsoft SQL Server 2014, Microsoft .Net package 3.5, Visual Studio 2012- Run and test features of HotelPro.exe- Read HotelPro user manual guide
2.	03-May-2018	<ul style="list-style-type: none">- Product orientation by Daw Khaing Khaing Oo (Manager of Service Department) and IT orientation by Ko Zaw Min Tun (senior manager of R&D department)- Group photo session of internship students- Learn and test the project- Find errors in some filters
3.	04-May-2018	<ul style="list-style-type: none">- Hotel team meeting- Assigned Job 1 (if credit-allowed guest is wanted to not allow credit anymore, it is allowed to do this only when no transactions are made by this guest)- Learn SQL from W3C- Learn basic C# from tutorialpoint.com

2nd Week Log - From (07-May-2018) To (11-May-2018)

No	Date	Task
1.	07-May-2018	<ul style="list-style-type: none">- R&D meeting (discussing about competitor products from ICT expo 2018)- Learn advanced C# from tutorialpoint.com- Uninstall Ubuntu OS from my laptop
2.	08-May-2018	<ul style="list-style-type: none">- Learn android development

		- Trace & debug for Job 1
3.	09-May-2018	<ul style="list-style-type: none"> - Trace & debug for Job 1 - Learn MS SQL stored procedures - Learn MVC in theory and practice in project
4.	10-May-2018	<ul style="list-style-type: none"> - Training for installation and management of MS SQL Server by U Zaw Min Tun - Receive reading document from DB Server - Repair code for Job 1
5.	11-May-2018	Office Off (R&D Trip to Beach)

3rd Week Log - From (14-May-2018) To (18-May-2018)

No	Date	Tasks
1.	14-May-2018	<ul style="list-style-type: none"> - Job 1 completed - Revise SQL queries - Read user guide book
2.	15-May-2018	<ul style="list-style-type: none"> - Submit Job 1 - Start learning android - Find errors (should show just reservation guest from today date in Check In/Out, Room filter is dim in reservation form)
3.	16-May-2018	<ul style="list-style-type: none"> - Learn Android - Project overall testing - Error when not choosing for sub guest group in Check In/Out - Error of not showing outstand in advance paid list - Error that sub guest group is not changed when guest group is changed in guest detail - Error that guest name is not showed in combo box for guests that have no sub guest group - Error that reserved date can be changed in reservation
4.	17-May-2018	<ul style="list-style-type: none"> - Learn android (GPS example) - Submit the error report - Assign Job 2 (Long stay guest list report must not be showed in report > general when it is off in system setting) - Solve Job 2. (frmSystemSetting.cs & fromReportMain.cs)
5.	18-May-2018	<ul style="list-style-type: none"> - Assign Job 3 (to enable Rooms subtab in Reservation) - Solve Job 3 (frmFilter.cs) - Assign Job 4 (Exception occurs when the guest has no sub guest group in Check In/Out and Reservation)

4th Week Log - From (21-May-2018) To (25-May-2018)

No	Date	Tasks
1.	21-May-2018	<ul style="list-style-type: none"> - Allocating and setting PCs in new office - Solved Job 4 (fromReservation.cs & frmCheckInOut.cs) - Assign Job 5 (Round to the total amount in Customer wise report) - Solve Job 5 (RPT_CUSTOMERWISE_LIST.rdlc) - Assign Job 6 (No of nights is wrongly shown in Reservation by each invoice report) - Solved Job 6 (RPT_RESERVATION_BYEACHINV.rdlc)
2.	22-May-2018	<ul style="list-style-type: none"> - Assign Job 7 (No of nights can be increasingly changed but not decreasingly changed in reservation) - Solved Job 7 (EtySP_UpdateReservRoomRentCharges& FN_RPT_RESERVATION) - R&D meeting (for necessities in new office and office warming party)
3.	23-May-2018	<ul style="list-style-type: none"> - Assign Job 8 (Cancel status for each room is not shown in cancel reservation list) - Solved Job 8 (RptSP_CancelReservationList & EtySP_UpdateReservation) - Assign Job 9 (adding description for reservation by room type daily) - Solved Job 9 (RPT_RoomTypeRentDaily.rdlc & RPT_RoomTypeRentDailyDetail.rdlc) - Assign Job 10 (not to show \$ sign for the room assigned guest in Room Stay View)
4.	24-May-2018	<ul style="list-style-type: none"> - Fixing error in Job 10 - Solved Job 10 in procedure but the result is not satisfied and still fixed it in 25-05-2018 - Assign Job 11 (After check in or reservation with multiselect and back to main screen, multiselect is not available, but got it when refresh)
5.	25-May-2018	<ul style="list-style-type: none"> - Solved Job 11 (frmRoomInfoEnq.cs) but not completed - Found error source for Job 10 (Record is saved in CheckInOutAdvPaid for room assign). - Solved it (CheckInOutController.cs) but not succeed (Final solution in 13-06-2018)

5th Week Log - From (28-May-2018) To (01-June-2018)

No	Date	Tasks
1.	28-May-2018	<ul style="list-style-type: none"> - Solved Job 1 (fromReservation.cs, frmCheckInOut.cs & frmRoomInfoEnq.cs) - Submit repaired file - Assign Job 12 (Room cannot be selected in Room Info

		when selected in any filter)
2.	29-May-2018	- Testing and debugging for Job 12
3.	30-May-2018	- Solved Job 12 (fromRoomInfoEnq.cs & frmFilter.cs) - Get latest version for overall testing - Restore database and log - Change server name, user name and password in App.config - Debug and find errors in latest version - Errors found (total of 11 errors)
4.	31-May-2018	- C# Training by Ko Thein Htet Aung from 8am to 9:30am - Create Google form for Lunch order system and fill data - Submit Job 12 - Assign Job 13 (Floor item that has no sortid in setup is shown at topmost) - Solved Job 13 (SP_ReadFilter)
5.	01-June-2018	- C# training day 2 - Creating app for lunch ordering system by using AppSheet - Assign Job 14 (Error occurs when sub guest group is chosen at first in reservation) - Solved Job 14 (frmReservation.cs)

6th Week Log - From (04-June-2018) To (08-June-2018)

No	Date	Tasks
1.	04-June-2018	- Assign Job 15 (when no of nights is chosen, name is disappeared) - Solved Job 15 - Hotel team meeting
2.	05-June-2018	- Assign Job 16 (Person count become 1 after choosing room in reservation) - Solved Job 16 (frmReservation.cs) - Assign Job 17 (To show extra bed even if not yet set charges for it in setup) - Learn pivot in MS SQL - Found error (Clear table is not working well)
3.	06-June-2018	- Assign Job 18 (if room is changed in details, show confirm message) - Solved Job 18 (frmCheckInOut.cs) - Assign Job 19 (Key 6 is added for room service in CheckInOut) - Solved Job 19 (frmCheckInOut.design & frmCheckInOut.cs) - Assign Job 20 (Cursor is nor working well when entering in roomType setup) - Solved Job 20 (frmRoomType.cs)
4.	07-June-2018	- C# training from 8am to 10am

		<ul style="list-style-type: none"> - Assign Job 21 (to check person count in room assign) - Solved Job 21 (frmRoomAssign.cs) - Assign Job 22 (Person count is not working well in check in out. E.g. person count 3 is not allowed for 3 single rooms) - Solved Job 22 (frmCheckInOut.cs)
5.	08-June-2018	<ul style="list-style-type: none"> - C# training day 4 - Learn android

7th Week Log - From (11-June-2018) To (15-June-2018)

No	Date	Tasks
1.	11-June-2018	<ul style="list-style-type: none"> - Test for repaired job after code integration - Find errors in report - Found a total of 6 report errors - Add Package table in clear table (Clear_Package.sql)
2.	12-June-2018	<ul style="list-style-type: none"> - Testing overall project - Successfully solved Job 12 (frmRoomInfoEnq.cs loading case)
3.	13-June-2018	<ul style="list-style-type: none"> - Testing version 1.41 - Found a total of 4 errors and report them - R&D meeting (Aim for efficient workforce)
4.	14-June-2018	<ul style="list-style-type: none"> - C# Training from 8am to 10am - Repair errors - Take general knowledge placement test of 30 questions about sql, SE, programming language - SQL training by U Zaw Min Tun from 4:30pm to 5:30
5.	15-June-2018	<ul style="list-style-type: none"> - C# training day 6 - Assign Job 23 (when insert the already inserted room in Room setup, dialog alert is shown again and again) - SQL training from 4:30pm to 5:30

8th Week Log - From (18-June-2018) To (22-June-2018)

No	Date	Tasks
1.	18-June-2018	<ul style="list-style-type: none"> - Hotel team meeting - Submit repaired code - Assign Job 24 (to add new feature of keeping the guest's preference (like/dislike))
2.	19-June-2018	<ul style="list-style-type: none"> - Assign Job 25 (To show guest who do not check out yet in in-house list) - Solved Job 25 (SP_ReadCheckInOutEnq) - Solved Job 24 (frmCheckInOut.cs, CheckInOutController.cs CheckInOutDA.cs, frmReservation.cs, ReservationController.cs, ReservationDA.cs, RoomAssign, GuestDA.cs,

		GuestInfo.cs, frmGuestDetail.cs, frmGuestDetail.design)
3.	20-June-2018	<ul style="list-style-type: none"> - Assign Job 26 (Service amount is not included in printing of room assign) - SQL training day 3
4.	21-June-2018	<ul style="list-style-type: none"> - Solved Job 27 (Staff detail is not shown when enter key 6 in staff setup) - SQL training day 4
5.	22-June-2018	<ul style="list-style-type: none"> - Install android studio and necessary packages and download gradle files - SQL training day 5

9th Week Log - From (25-June-2018) To (29-June-2018)

No	Date	Tasks
1.	25-June-2018	<ul style="list-style-type: none"> - Code integration - Solved Job 28 (Access denied to server occurs when uploading photo in customer detail from client site)
2.	26-June-2018	<ul style="list-style-type: none"> - Run and test android tutorials (Multi-Select List)
3.	27-June-2018	<ul style="list-style-type: none"> - Run and test android tutorials (Recycler View) - Generate required APIs for Android check-in - Hotel team meeting
4.	28-June-2018	<ul style="list-style-type: none"> - Submit Job 28 (Just need to access (login) NFS of server at least one time.) - Creating Web Service - Write code and procedures for check-in. (related with AllAvailableRoom)

10th Week Log - From (02-July-2018) To (06-July-2018)

No	Date	Tasks
1.	02-July-2018	<ul style="list-style-type: none"> - Hotel team meeting (sharing of the findings from hotel training) - Solved Job 29 (Reserve arrival list report does not work well)
2.	03-July-2018	<ul style="list-style-type: none"> - Solved Job 30 (Voucher no. do not restart counting after clearing all tables)
3.	04-July-2018	<ul style="list-style-type: none"> - Run and test android tutorials - R&D meeting
4.	05-July-2018	<ul style="list-style-type: none"> - Run and test android tutorials - Designing the layouts and forms for android check-in

5.	06-July-2018	<ul style="list-style-type: none"> - Run and test android tutorials - Designing available room form and walk-in form
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11th Week Log - From (09-July-2018) To (13-July-2018)

No	Date	Tasks
1.	09-July-2018	<ul style="list-style-type: none"> - Write APIs and stored procedures for retrieving setup guest data in Web service - R&D meeting
2.	10-July-2018	<ul style="list-style-type: none"> - Write functions in Database helper and activity & adapter for accepting guest list.
3.	11-July-2018	<ul style="list-style-type: none"> - Run and test auto complete textview and dialog fragment for inputting guest name in android check-in
4.	12-July-2018	<ul style="list-style-type: none"> - Run and test for passing object between android activities. - Learn and test passing data with Json
5.	13-July-2018	<ul style="list-style-type: none"> - Run and test datetime picker for selecting check-in date and check-out date - Design and put datetime picker in check-in module

12th Week Log - From (16-July-2018) To (20-July-2018)

No	Date	Tasks
1.	16-July-2018	<ul style="list-style-type: none"> - Write control for number of nights increase and decrease - Write control of person count increase and decrease. Validate the allowed person count.
2.	17-July-2018	<ul style="list-style-type: none"> - Run and test for spinner item selected event - Design spinner for payment type, currency and card type - Write APIs for getting payment type, currency and card type and add controls to them
3.	18-July-2018	<ul style="list-style-type: none"> - Create design for showing selected rooms - Calculate the total amount, net amount, total taxes and total discount. - Write a dialog for successful check-in process
4.	19-July-2018	<ul style="list-style-type: none"> - Office Off (Martyrs' Day)
5.	20-July-2018	<ul style="list-style-type: none"> - Debug the C# project for inserting android check-in data

13th Week Log - From (23-July-2018) To (20-July-2018)

No	Date	Tasks
1.	23-July-2018	<ul style="list-style-type: none"> - Debug the C# project for inserting android check-in data - Write APIs for inserting check-in data in Web service

2.	24-July-2018	<ul style="list-style-type: none"> - Give summary internship presentation about tasks, got knowledge, suggestion to CEO, CSO & Service Department Manager - Write procedures for inserting check-in data
3.	25-July-2018	<ul style="list-style-type: none"> - Leave with permission (UCSY ITCamp 2018)
4.	26-July-2018	<ul style="list-style-type: none"> - Write procedures for inserting check-in data - Test and upgrade design for android check-in
5.	27-July-2018	<ul style="list-style-type: none"> - War-So Full Mon Day

14th Week Log - From (30-July-2018) To (31-July-2018)

No	Date	Tasks
1.	30-July-2018	<ul style="list-style-type: none"> - Write procedures for inserting check-in data - Debug UpdateCheckInOut procedure
2.	31-July-2018	<ul style="list-style-type: none"> - Test android check-in - Improve design and performance of android check-in



U Zaw Min Tun


(Senior Manager)

Research and Development Department

Galaxy Software Co., Ltd

Appendix B.

Scanned copy of the Internship Letter

	Galaxy Software Co., Ltd.
Yangon (HO)	: No.29-A, 2 nd Floor, New University Avenue Road, Bahan Township, Yangon.
Phone	: 09-443344401, 09-795400731
Mandalay	: 09-440067577, 09-978030881
Nay Pyi Taw	: 09-257333214, 09-974432762
Patheingyi	: 09-455042500, 09-455042499
Taunggyi	: 09-444200771, 09-444200772
Myeik	: 09-424008080, 09-955042499

To Whom It May Concern

Dated: 24-July-2018

This is to certify that **Mr. Ye Min Tun**, a student of University of Computer Studies, Mandalay has successfully completed three months (from 2nd May, 2018 to 31st July 2018) long internship programme at this **Galaxy Software Company Limited**.

Accomplishments:

During the period of his internship programme with us he was found punctual, hardworking and inquisitive. He has studied in the area of business application development with C#, MS SQL Server and android studio. He has completed the assigned system that is implemented for Android Check In system for Hotel Management System through his hard work and dedication to his studies. We feel, over time would help him to develop in to a professional software developer.

We wish him every success in life.

Galaxy Software

Mr. Zaw Min Tun
Manager
Research & Development