

**School of Public Administration  
Bachelor of Science in Computing**

**COMP407 Selected Topics II – IT Solutions for Business  
Final Report**2014/15 1st semester

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| SugarCRM Improvement System | |
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# Introduction

## Overview

As the LT Game Company continues to develop, the quantity of business transactions and corresponding interactions with customers will become larger. Consequently, a customer relationship management system is of the greatest necessity and importance for the company. The general aim of this project is to improve the SugarCRM system of LT Game Company.

## Objectives

* Optimize the functions. For example, the searching function would be improved.
* Add necessary functions if needed.
* Make the system more acceptable for the users.

# Background

LT Game is one of the major gaming and casino providers in Macau and in the Asia Pacific region. The products mainly include the Live Multiple Games System (Which has live dealers, supports multiple table and has a terminal-based multi-game selection system) and the Paradise Jackpot System (Baccarat Side-Bet Progressive Jackpot). Both have been patented in Macau, USA and PCT (Patent Cooperation Treaty) countries. LT Game is striving to be at the forefront of the global gaming industry. Live Multiple Game System provides first-rate live table gaming and is unparalleled in the electronic gaming world. The Live Multiple Games machines include Live Baccarat, Live Roulette, Live Sicbo, Live Blackjack, Live SanGong and Live Keno. The Paradise Jackpot is a patent granted Baccarat-based progressive jackpot. By linking up the side bet on the felt tables, players will be able to participate in the progressive jackpot in accordance to the DICJ’s (Macau Gaming Board) approved betting payout. Paradise Jackpot System is designed to be a cross-casino and cross-table system, it allows the jackpot pool size to increase in a rapid and enthralling rate.

The following is organizational structure of LT Game

CEO

Sales Admin

COO

IT Manager

Senior Manager

Project Manager

DB/System Engineer

Network Engineer

Potential Senior Technician

Assistant Technician Manager

Technician

Senior Technician

Potential Senior Technician

Technician

According to the organization structure of LT Game, before the plans of changing in functions are admitted, the technician would discuss and deliver the plans to potential senior technician, if the senior technician thinks the plans are valuable, and then he/she would deliver the cases to the DB/System engineer. After that the DB/System engineer, project manager and COO will have a meeting to discuss the plans. If it goes well, the plans would be executed.

There are many kinds of issues in marketing, sales, customer service and technical service. It’s hard to integrate the information without a customer relationship management (CRM) system. For example, there are lots of after-sale services in the LT Game, CRM system could track every service until it solved. A quality customer relationship management system can help us organize, automate and synchronize well the information, improve the efficiency, thus makes profit for company. It also enables the company to obtain business dealings with customers in a more systematic way in the market

SugarCRM is a customer relationship management (CRM) system that is available in both open-source and Commercial open-source applications. It enables businesses to create extraordinary customer relationships with the most innovative and affordable CRM solution in the market. It has a flexible management system and perfect IT equipment management function, which makes the process of managing customer relationships systematically. It is not only a management system, but also allows the users to know the solutions for sales. So that customers can trust us more. As a result, SugarCRM software can enhance the competitiveness of the enterprise and service quality.

The popular company IBM, has chosen SugarCRM for its lucrative CRM contract. In February 2012, Blytheco similarly chose to end its 30-year relationship with Sage in favor of SugarCRM.

# Methodology

## Requirement Elicitation

For gathering information of user requirements for improving SugarCRM system, we arranged Athena to go to the company and spent 3 months to take part in the operation and gain experiment of using it. After being as one of the user of SugarCRM, the following three points are collected:

* Search engine
  + The search engine just can search the first letter or word. If user wants to search the key word in a subject. It can’t be work.
  + Sometime it may want to find the machine for same special reason. When typing the key word such as hand pay, the system can’t find any result. Because of the subject name always name by machine number first.
* Interface
  + It provides different department to use. But each account can see the same function in the interface.
  + Creating the user account for the staff. It should have different jurisdiction. When access the different staff account. The system will show the same usable functions.
* Import/export
  + The system just can export the English word in case. If the tittle is Chinese word, it will show unreadable code However, if input some data in the system. You just can use its template. But I can’t see anyone try to follow the structure. Making easy to input the data.
  + Every day, each shift has a work sheet but the format or temple is different to the system. If the system can lead-in the document and updated the case’s status, it will save the input data time.

For problems mentioned above, two user requirements are rise for improving the system into a better version and enable user in the company can use this system much more efficiency.

* Create a client server
  + This system just can use in the sky office. Sometime IT department will receive the floor manager called. They said that there was betting terminal had problem. If they can directly put those problem in the system via the client side.
  + There is much maintenance received from the customer every day. They will have a phone call first. At that moment, it will have some missing point for communication.
* Report function
  + The system doesn’t have any analyzing function. It can’t count the total of time that problem have been occurred before in a machine.
  + There are many machine have been constantly failure again and again. It can easy to analyze which machine has a big problem.

## Requirement Specification

The SugarCRM have a lot of functions with module. However, some special role of the operating in the IT department is related to the system specification. This section will show the requirement below which have been used in LTGame.

### Functional requirements

|  |  |
| --- | --- |
| Functions | Description |
| Create Account | It creates a new account in the database. The name of account is the cooperation casino name. |
| View Accounts | It will show all the accounts which have been created before. The editing is accepted normally. |
| Import Accounts | It imports account document by using the system’s template. |
| Create Case | It creates a new case in the database. The name of case is a cooperation project or bad machine. |
| View Cases | It will show all the cases which have been created before. The editing is accepted normally. |
| Import Cases | It imports case document by using the system’s template. |
| Search function | Searching all the cases by option. It includes number of case, status, subjects, assigned to, account name and priority. |
| User administration | It changes the user personal information. |
| Project function | It creates a new project type of case. That involves the schedule arrangement function. |

### Non-functional requirements

The CRM system shall be available to IT department on 24 hours every day. System response time shall not exceed two seconds without upload document. The database storage shall be more than 25GB. Consider with culture problem so the system provides two languages which are Chinese and English.

Users of CRM system shall be IT support or floor manager. In addition, they need to register in the system first. The user name of an account is used the front of their e-mail address which is provided form the casino.

When the IT support finished their maintenance work, they need to fill in a maintenance form which includes start time, finish time, reference number, content of work, confirmatory person, IT staff, etc. Through upload the form then close corresponding case. Only manager of the LTGame can check and update reports. Besides the manager of LT Game, once the report is sent, no change is accepted. In addition, providing a training course for the floor manager can increase the system efficiently. The manager of the casino should be forced to use this system with the order form their CEO. Any other forms of reports should not accept any more.

The system server should have a maintenance each week. All the reports should be check in this maintenance. If a report is not yet closed for a week, a warning should appear to alert the manager to change the status of the report to emergency in the beginning of the maintenance time. Also, for this not yet closed reports, an email should be send to both the manager of the LTGame. This maintenance should be done with a copy of all the reports in the server offline. Once all the reports are checked, update to the server process should be done within 2 minutes.

Besides the above points, system server should not shut down over 2 minutes including maintenance. If unexpected shut down happen, all the reports should be kept in the buffer of the client side. Once the system is recovery all the buffered report should be uploaded to the server automatically. Fail to send report due to the server shut down is not acceptable.

### Domain requirements

The CRM system (both server side and client side) shall run on windows os and mac os which are the most common personal computer platform. Main using the web technology establishes this system. Therefore, it must have network connection in a computer.

# System Implementation

## Architecture

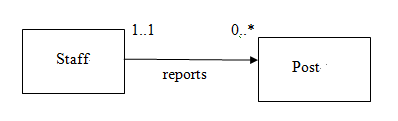
The client-server web application follows MVC software design pattern.



## Data Modelling

### Identifying entity type

|  |  |  |  |
| --- | --- | --- | --- |
| Entity name | Description | Aliases | Occurrence |
| Staff | General term describing all the staffs in the casinos who takes responsible of reporting machine problem and have registered the website. | Staff | Each staff who has registered the website then will be able to report problems. . |
| Post | General term describing what problem the staff has reported, with the post status, which are pending, under solving, solved. | Problem | Each post shows which staff reported it and the post status. |



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Entity name | Attributes | Description | Data type &length | Nulls | Multi-valued |
| Staff | Email | Uniquely identity email of customer | 30 variable characters | No | No |
| Name | The name of staff | 15 variable characters | No | No |
| Company | The company of the staff | 50 variable characters | No | No |
| Password | Password for user verification | 6-16 characters and numbers | No | No |
| Post | Subject | The subject of the post | 30 variable characters | No | No |
| description | The description of the post | 200 variable characters | No | No |
| PostDate | The date the staff that post the problem | Date | No | No |
| status | The problem of posts’ status | 15 variable characters | No | No |

## Enhancement to existing system

The improvement system will be design as a new application mainly used by the casino. This system provides an easy to learn interface for casino staff which problem reports can be type in a text box without open the SugarCRM or Excel file. Data input to this system will be transfer to another Excel automatically and then transfer into the SugarCRM. Rapidly occurs problem information will be group together and the number of similar problem occurred will be shown in the SugarCRM interface too. This reduce the complex process of doing a report from the staff to the SugarCRM system because all the staff need to do is type the same simple description into this application and send it out. ~~It looks no difference with the pass way staff do, but once a report is sent, information will be as send into the SugarCRM system as well. In the pass, after the staff sent a problem report, manager in LT Game need to input it back to the SugarCRM one by one which is really inefficient.~~ In addition, once a problem is reported, E-mail will be also sent to the manager. Of course, rapidly occurred problem reports will be group together and if the same case occur over 10 times in a day a warning message will be also sent to the manager’s cell-phone. This application will be a combine of add function and the existing SugarCRM which will have a great improvement for managers.

## Key problems and their solutions

Some problems occurred in implementing this project. Firstly, SugarCRM is only available inside the company which means we have to go to the LT Game office to do the implementation. For this problem, meeting time is arranged with the LT Game so that everyone can go to the office and access the SugarCRM system. Even though some open source codes is found in the Internet, but there is some limitation in the free trial version, touching the real complete system is still required. Secondly, some new functions cannot overwrite the original one in the SugarCRM due to the protection. Therefore, a new function name or a new class should be create to solve this problem. Last but not least, even though this system is development, training is needed for managers. The importance of using this system needs more promotion. Otherwise, there is no need to develop this application.

# Results and discussion

## Project Outcome

After analysis, design and implement here comes an enhanced CRM system fulfill the requirement listed in section 2. This enhanced CRM system is much more powerful function and a much more user-friendly interface.

In this enhanced CRM system, functions in SugarCRM like input reports, list all the reports, etc. are presented in the system as well. Also, following the requirements, for client now they can do the following actions:

**Casino floor manager:**

* Create new account for IT support member
* Import account by using system template.
* Change account information under his/her group

**Casino IT support:**

* Login their own account
* Report new cases
* Select the priority of the case

**LTGame manager:**

* Create new account
* View all the created accounts in group of casinos.
* View all the reported cases
* Change case status
* Search case
* Sort search results by case name, status, subject, people to assign, account name, priority

**For all Client:**

* Run on windows and MAC os
* Respond time is about 1.5 seconds
* Bio-language interface with English and Chinese
* Change display language in option
* Register into the system
* Use e-mail front name as the account name

**For server:**

* Run on windows and MAC os.
* Run for 24-hour
* Do maintenance with a copy of all the data in server database
* Update maintained data in 2 minutes
* Check not yet closed case
* Send warning to LTGame manager, casino floor manager and casino IT support for not yet closed cases last for over a week

## System evaluation

For gathering information

# Appendix

## Project plan

Gantt Chart

# Refernces

[1] LTGame web page. <http://www.ltgame.com/about.aspx>.[Sep. 10, 2014]

[2] SugarCRM company web page. <http://www.sugarcrm.com/>.[Sep. 10, 2014]

[3] Talkincloud. <http://talkincloud.com/sugarcrm-wins-ibms-crm-business-ibm-unveils-new-bi-tools>. [Sep. 10, 2014]

## Peer Assessment Form

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S:\3rd ITC\2nd ITC\MPI_logos\MPI logo09_C349 CPE.tif  BSc. in Computing 2013/14  COMP321 Information System Implementation  Peer Assessment Form | | | | | | |
| Group number |  | | | | | |
| Group members | |  |  |  | | --- | --- | --- | |  | Student ID | Student name | | *1.* |  |  | | *2.* |  |  | | *3.* |  |  | | *4.* |  |  | | 5. |  |  | | | | | | |
| Contribution **(**Each row must total to 100%) | | | | | | |
|  | | Member 1 | Member 2 | Member 3 | Member 4 | Member 5 |
| 1. Project leadership | | % | % | % | % | % |
| 2. Data modeling | | % | % | % | % | % |
| 3. User interface design | | % | % | % | % | % |
| 4. Program development | | % | % | % | % | % |
| 5. Solving technical problems | | % | % | % | % | % |
| 6. Testing and sample data | | % | % | % | % | % |
| 7. Report writing | | % | % | % | % | % |
| 8. Preparing / giving presentation | | % | % | % | % | % |

By default, the eight items above have the same weight when calculating the overall contribution percentage. You are welcome to suggest different weight if you consider some aspects should carry more weight.