

澳門理工學院
Instituto Politécnico de Macau
Macao Polytechnic Institute

School of Applied Sciences
Bachelor of Science in Computing

COMP410 Internship

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1 Introduction

This chapter mainly involves the brief introduction of LT Game company, general work tasks, responsibilities and the objectives of the job which are expected to be achieved at the end of the internship.

1.1 Overview

LT Game [1], a subsidiary of Paradise Entertainment Limited, is one of the major gaming products and casino solutions providers in Macau and in the world. Some of its famous and representative gaming products include the Live Multi Game System and the Paradise Jackpot System. Both products have been patented in Macau, USA and PCT countries.

Gaming is a fast-tracking and competitive industry based on innovative ideas and technical methods, LT Game had successfully developed various electronic table gaming, live multi-gaming, award-winning betting terminal, robot dealer-ADV1 and revolutionary slot machines.

Innovation, multiplicity and service are the three objectives of LT Game and the company will not only focus on improving the existing products but also put in numerous efforts to exploit futuristic possibilities.

With the strong presence in Macau, the cutting-edge innovation and well-defined product differentiation, LT Game is positioned to become a world's unique and leading gaming equipment and system supplier.

1.2 Employment Role

The main responsibility of the internship is to achieve data warehouse automate backup job which requires the system to update and backup SQL files every day, and log file is supposed to be generated to indicate the record of backup process.

The completed work includes learning background knowledge about usage and operations of Microsoft SQL [2], MySQL [3] and Belarc advisor [4] to get desired results, finding out system specification and scheduled jobs information, studying the project named DMZ Network Design Document and understand the objectives, connecting Microsoft SQL

and MySQL to complete synchronous data transmission, writing scripts to do automate backup job and generate a log file to indicate the completion, set up the backup job at task scheduler to achieve every day backup job.

The used remote desktop system is window 10 which can be assessed by the specified IP address with user name and password given by supervisor.

The software used are MySQL, Microsoft SQL and Belarc advisor, the first two are applied to transform data, the last one is used to find out system specification.

For a brief introduction of these three software, Microsoft SQL Server is a relational database management system, it is a software product with the primary function of storing and retrieving data. MySQL is also a free and open-source relational database management system, it is written in C and C++ and works on many system platforms. The Belarc advisor builds a detailed profile of users' installed software and hardware, network inventory, any missing Microsoft hotfixes, anti-virus status, security benchmarks and displays the results in users' web browser.

The methods and techniques applied during the internship include using ODBC to connect MySQL and Microsoft SQL, using dump [5] (a program on Unix-like operating systems used to backup file systems which operates on blocks) to store and backup the original files, writing batch file to execute the automate backup job and adding tasks to the task scheduler of computer management to make the system execute batch file everyday automatically.

Necessary skills in completing the backup job are the ability to do the whole project plan, the leaning ability of unknown knowledge and apply them in practice, and the ability of writing batch files such as mastering basic syntax.

1.3 Objectives

The general objectives required to be achieved at the end of the internship are listed below.

- Investigate current setup including project summary and system specifications
- Investigate scheduled job or services
- Investigate if the import script is working correctly

- Restart the casino export job
- Automate the import of the data
- Tide up the system

2 Reflection

This chapter describes the work performance including the role in technical, personal and professional aspects, analytic skills contains the problems encountered and the solutions , profession development comprises the area of knowledge that I would like to pursue afterwards.

2.1 Work Performances

The work achievements of the internship include:

- Use Belarc advisor to search the system specification such as server model, CPU, RAM, DISKS and RAID configurations.

Processor Intel(R) Xeon(R) Silver 4112 CPU@2.60HZ 2.59GHZ

RAM 32GB

Installed Applications: Microsoft.NET Framework4.8, version 4.8.03761

Server model: MsSQL, MySQL

Software version:

Microsoft-SQL server version 14.0.600.744(32/64-bit)

Microsoft-SQL server Data-Tier Application Framework version 14.0.3953.4

MySQL-Administrator version 1.2

MySQL-Migration Toolkit version 1.1

MySQL-Query Browser version 1.2

Properties:

SQL server Name: LTDWSRV01\DWHSERVER

Database Name: dw_ReportServer

OS: Windows Server 2012 R2 Standard (6.3)

Version 14.0.1000.169

Memory: 32429MB

Processor:8

- **Figure 1: System configuration**

- Conclude the general objective of the whole data warehouse and describe it with few sentences and a table.

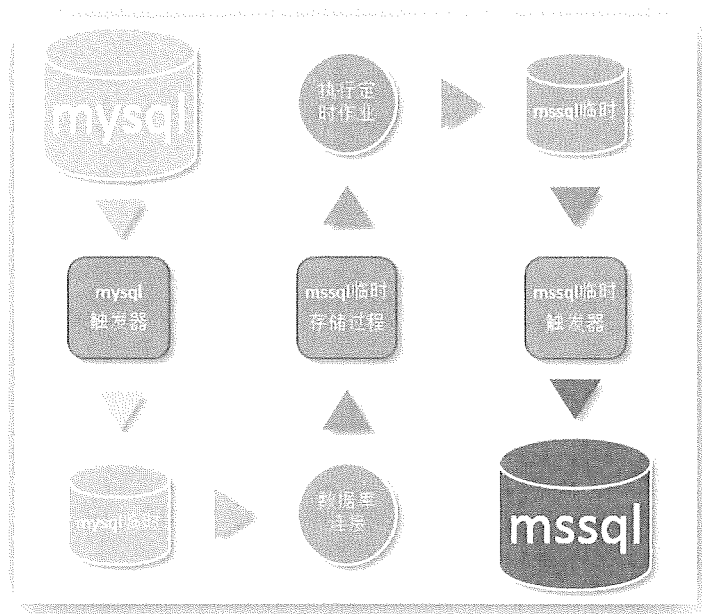
• 1.1 project summary

A brief introduction to the data warehouse: the data warehouse contains data of the casino, like customers' information and gaming records, it has four main parts: 'local', 'global', 'membership_local_daily' and 'membership_global_daily', which are important assets of LT Game, hence we developed a script to backup them on schedule time, it will import related data from MySQL server to MsSQL server daily, please see the attachment. Here are their IP address:

Name	IP Address
global	192.168.100.242
local	192.168.23.187
membership_global	172.30.10.73
membership_local	172.30.10.73

● **Figure 2: Data warehouse summary**

- Preparation work in converting files from MySQL to Microsoft SQL such as building triggers, creating two same temporary files in both sides and connecting the two software. The general procedures are illustrated as the figure 3.



● **Figure 3: Connection between Microsoft SQL and MySQL**

- Update and modify the TF_KP_Automated_Backup-Script.bat file to achieve automate backup task through defining the right file paths, specific operations statements, backup file locations and clean up statements.

The result of the successful execution of every day backup task is shown as figure 4.

backup_log.txt	11/6/2019 10:34 AM	Text Document
test3.sql	11/6/2019 10:29 AM	Microsoft SQL Server Query Fil
backkup_global2_daily_20191105.sql	11/5/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_kp_local_daily_20191105.sql	11/5/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_global_daily_20191105.sql	11/5/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_local_daily_20191105.sql	11/5/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_global2_daily_20191104.sql	11/4/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_kp_local_daily_20191104.sql	11/4/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_global_daily_20191104.sql	11/4/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_local_daily_20191104.sql	11/4/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_global2_daily_20191103.sql	11/3/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_kp_local_daily_20191103.sql	11/3/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_global_daily_20191103.sql	11/3/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_local_daily_20191103.sql	11/3/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_kp_local_daily_20191102.sql	11/2/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_global_daily_20191102.sql	11/2/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_local_daily_20191102.sql	11/2/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_global2_daily_20191102.sql	11/2/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_global_daily_20191101.sql	11/1/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_membership_local_daily_20191101.sql	11/1/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_global2_daily_20191101.sql	11/1/2019 5:42 PM	Microsoft SQL Server Query Fil
backkup_kp_local_daily_20191101.sql	11/1/2019 5:42 PM	Microsoft SQL Server Query Fil
Test2.bat	10/30/2019 5:40 PM	Windows Batch File

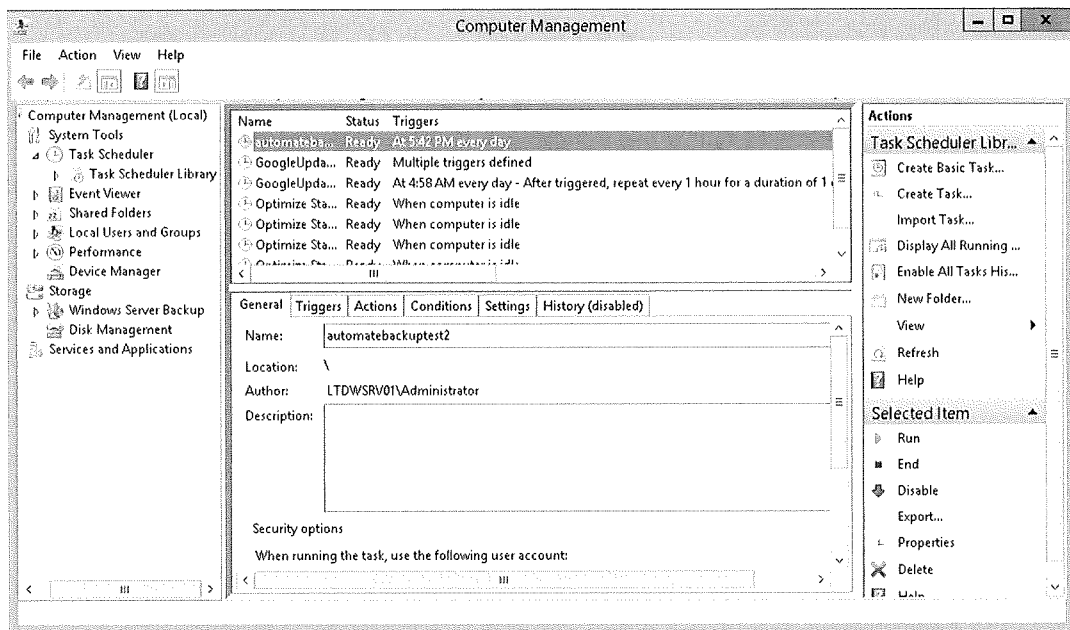
● Figure 4: Backup task completion every day

The log file shown as figure 5 indicates the automatically completion of back up job every day including content of file location, file name and completion time.

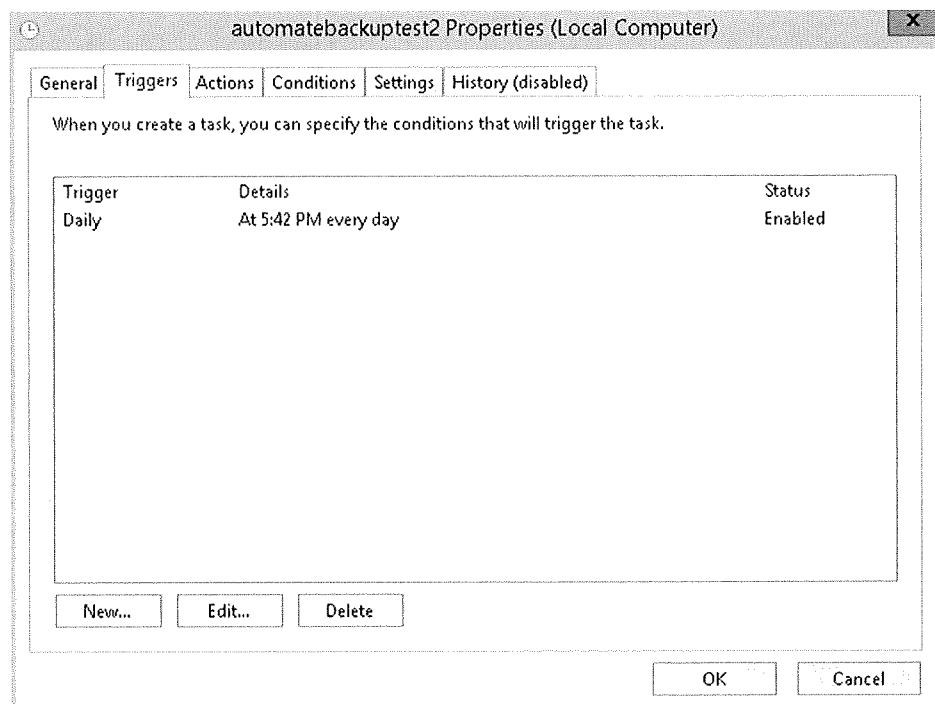
```
import data start at 17:32:01.04 Wed 10/30/2019
filename : Z:\test3.sql finished time 17:32:01.07 Wed 10/30/2019
import data start at 17:40:37.57 Wed 10/30/2019
filename : Z:\backkup_global2_daily.sql finished time 17:40:38.42 Wed 10/30/2019
filename : Z:\backkup_kp_local_daily.sql finished time 17:40:38.42 Wed 10/30/2019
filename : Z:\backkup_membership_global_daily.sql finished time 17:40:38.42 Wed 10/30/2019
filename : Z:\backkup_membership_local_daily.sql finished time 17:40:38.43 Wed 10/30/2019
```

● Figure 5: Backup log file

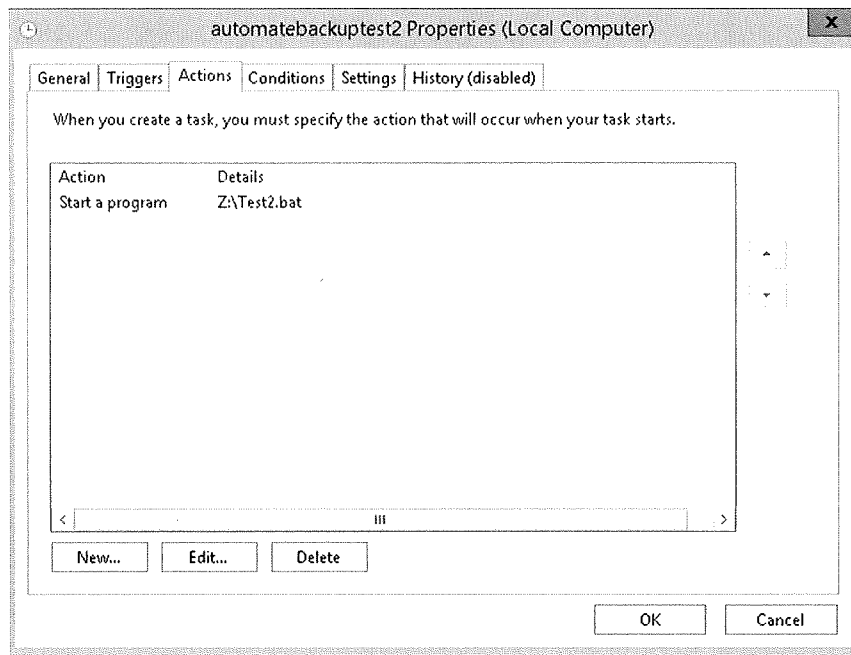
- Set the modified batch file become executed every day without human control through windows task scheduler library to create tasks. The specific procedures are performed as figure 6 to 8. Firstly open the computer management interface, find the task scheduler to create new task. Then set the new triggers to define specific time. At last set the actions of the task through entering the execution file path.



● Figure 6: Task Scheduler



● Figure 7: Create Task Triggers



● **Figure 8: Create Task Actions**

In terms of personal, the responsibility involves keep the process of tasks stay on schedule, maintain good cooperative relationship with the partner and colleagues which can be necessary in solving problems.

As for professional aspect, the responsible part contains learning background knowledge of applied software, learning batch file coding statements used to execute the core part of the task and the procedures of setting the automatic execution of bat file in the system.

At the beginning preparation stage, much background knowledge is needed to learn and understand to successfully apply them in real practical process. During the three-week preparation period, theoretically knowledge is widely learned from both official website and blogs where other people share the experience of using the technology, real exercises of applying these new technologies were carried out to enhance the ability of the practical use them to solve problems.

2.2 Analytic Skills

During the internship, I encountered several problems and the corresponding solutions are taken to solve them.

One problem is failing to install Microsoft SQL at the local computer because of the operating system on the computer or its service pack level does not meet the minimum requirements for SQL server 2017. Therefore, the resolution can be stop installing Microsoft SQL and MySQL at the local computer for exercises, then try to create brand new sample test SQL files at the Remote Desktop where equipped with complete environment to try the whole backup process without damaging the original data files.

The other problem is building connection between Microsoft SQL and MySQL. When preparing the two same tables in both sides, and original data is stored in MySQL waiting to be transferred to the other side, the connection between the two applications is needed to be built. However, the IP address and password are unknown so the connection was not able to build. The solution is to create a new user account to build connection though new IP address and password set by ourselves. The new user account can be used to connect the two applications through ODBC and data in MySQL can be synchronized to the Microsoft SQL.

2.3 Profession Development

After the internship, the area of knowledge I expected to learn more is system design.

Basic knowledge about database management, data software operations and data warehouse are all involved during the internship. So I have already mastered these technologies and can apply them to real situations after the internship.

The expected area of the knowledge is about system design which requires the background of analysis system requirements, design the process flow of the system to generate a popular system. It is kind of work like product manager in charge of the production of a software application or system to satisfy all the customers' needs and provide more functions to make it popular.

The reason I want to pursue the knowledge about system or software application design is that with the practical experience of database management, MySQL and Microsoft SQL applications operations and data warehouse work experience, I have realized that all the data analysis and management work are related to the adjustment of the system to achieve better

performance of the business intelligent. So it may be also interesting in design the system for customers.

3 Future Career Plan

This part concentrates on the future career plan including the academic enhancement which describes the aspects of gained experience that will be helpful in the future, self-evaluation describes how the intern experience changed the view about my chosen path, and self-marking reveals how do I mark myself to a graduated employee.

3.1 Academic Enhancement

During the internship, I have found much useful experience which can be helpful in my future study and work.

Firstly, it is important to know exactly what tasks are required to complete with what restrictions. The most significant thing is to figure out the general idea of the overall objectives which can always remind me during the work to achieve the goal defined at the beginning.

Secondly, once encounter technology problems or other trouble in the software application, there will be error messages appeared to remind me the reason of the error. At this time, it is necessary to search the Internet or personal blogs written by other developers sharing the problem-solving experience which can play a significant role in dealing with errors.

In addition, when confused about the task given by the supervisor in a certain stage, employee or students should firstly consider all the probability and solutions of the problem and offer these to the supervisor for the clear instruction for the next step.

Also, it is better to conclude weekly job within few sentences and submit to the supervisor to know what I have done and my problems as well as the progress of the whole project. It can not only remind me to complete a certain amount of tasks everyday but also record the progress of work.

3.2 Self-Evaluation

During the process of completing data warehouse backup task, I realised that data management, data analysis and software application operations are used to operate on data recordings which can be complex when the SQL file carries too much data information, it

becomes really heavy and difficult to open and view fluently to have a overlook of what the file done.

After the internship, I found that database related tasks still interesting because they can do operations on data to extract information, also data recordings can be maintained to support the system or some business intelligence.

However, database related work can be tedious and complex sometimes which can be a major challenge during the work process.

3.3 Self-Marketing

I would market myself through showing my strengths in the professional field to the graduate employer like this:

I am Katherine, graduated from Macao Polytechnic Institute. The major I took is computer science and the specialization is enterprise information systems. I have taken many courses at the university and got great grades in data management related courses.

During the internship at LT Game, I have completed a project named data warehouse backup task which required to back up SQL files every day automatically. This is a project relevant to data management and I finishes it successfully. I have applied Microsoft SQL, MySQL in completing the tasks which are used to transfer SQL files and store the backup files. Also, the program named dump is also used in the backup process.

In addition, I can write batch files to update the data warehouse files and backup them daily while the new created documents can be reserved, the original files can be cleaned up automatically by the system. Furthermore, I achieved the function that the system can execute the specified batch file every day at a certain time so important data files will never lost.

My supervisor was really satisfied with the work achievements as he knew the progress of the whole project because I submitted my work conclusion every week.

Besides, I have another internship experience during the summer vocation in 2019. I was an intern of technical department of China Minsheng Banking Corp. Ltd at in Xiamen. The main responsibility of me was to design the database system of the small loan process tracking

system project. This is also a data management related task and I have accomplished it with great performance.

After the two internship, I have realized that data management related tasks are really interesting as once I figure out the problem, I will have a sense of satisfaction and accomplishment. Also I have gained a lot communication skills with colleagues at work.

In addition, is my native language is Mandarin and I am good at English as I got overall 6.5 point in IELTS. So I can read English documentations, listening English material, write and speak English fluently.

At last, I am a hard-working person and responsible so I can finish my tasks with my best efforts.

4 Conclusion

In conclusion, I have finished the work of transferring data from MySQL to Microsoft SQL, modifying the batch file to backup SQL files and generate log file, set the batch file being executed every day by the system.

I have also gained a great deal of valuable work and study experience. For example, it is important to know the objectives at the beginning. Also, we can ask for the help from the supervisor. In addition, keep recoding the work progress is helpful for the completion.

Furthermore, maintain a great cooperation relationship with partner can be important. When encounter problems, different people may have various ideas of solutions which can be complementary.

It is really an excellent internship experience which inspires me in thinking about the future work direction. I think computer science related work really interesting, once I figure out it then I will have a sense of accomplishment and satisfaction. So I may look for a job like this in the future.

Also, I really appreciate the encouragement and help from my colleagues which made me realized that the importance of cooperation and hard-working. I will always treasure the help and encouragement I received during my internship at LT Game.

References

- [1] LT Game official website: <http://www.ltgame.net/en/> [Oct 29,2019]
- [2] https://en.wikipedia.org/wiki/Microsoft_SQL_Server [Nov 12,2019]
- [3] <https://en.wikipedia.org/wiki/MySQL>[Nov 12,2019]s
- [4] Belarc Advisor Official website https://www.belarc.com/products_belarc_advisor[Nov 12,2019]
- [5] [https://en.wikipedia.org/wiki/Dump_\(program\)](https://en.wikipedia.org/wiki/Dump_(program)) [Nov 12,2019]

Appendix



CV_

Curriculum Vitae

Personal Information

English name:

Mobile(Macao):

Mobile(Mainland):

Address:

E-mail:

Gender:

Nationality:

Date of birth:

Education

2016 - Present	Fourth-year student in Bachelor of Science in Computing School of Applied Sciences Macao Polytechnic Institute Macao SAR, China (Overall GPA:3.52/4.0)
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2013 - 2016	Senior High School Certificate Xiamen Shuangshi Middle School of Fujian Fujian Province, China
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2010 - 2013	Junior High School Certificate Xiamen Wuyuan Experimental School Fujian Province, China
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Professional Experience

Sep – Nov 2019	Participated in the internship program of LT Game, Macao at Data processing department, mainly engaged in data warehouse back up task and processing data in MySQL and Microsoft SQL
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May – July 2019	Participated in the internship program of China Minsheng Banking Corp. Ltd at Technical department in Xiamen
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Aug 2018	Participated in the UCLA summer exchange Programme. Complete
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a summer research project work named uMatrix Cleaner Online System using ASP.NET Web API Core, RESTful API and C# programming language.

- | | |
|----------|---|
| Sep 2017 | Participated in the Computing Programme Volunteer Student Mentor Program |
| Jun 2017 | Participated in the 9 th Macao-wide IT Competition-ALICE 3D Programming contest, Macao Polytechnic Institute, Macao SAR, China |

Technical Skills and Competences

Experienced in operating Windows and programming. Interested in data processing. Basic skills in languages.

- Operating System: Windows
- Languages: Java, Python, HTML, PHP, JavaScript
- Applications: Microsoft (Word, Power Point, Excel), Eclipse, MySQL , MsSQL, Adobe Photoshop, Sketch Up, Unity, Visual Studio

Languages

- Mandarin (mother tongue)
- English (fluent in reading, fair in speaking, listening and writing)

CET-6	531points	
IELTS	Overall result:	6.5
	Listening:	6.5
	Reading:	7.0
	Written:	6.0
	Speaking:	6.0
- Cantonese (basic in listening)

Awards and Scholarships

- | | |
|-------------|--|
| 2018 – 2019 | Nam Kwong Education Scholarship |
| 2017 – 2018 | <p>Outstanding Student Scholarship of the college offered by Macao Polytechnic Institute</p> <p>Special Scholarship for Freshmen in Xiamen, Fujian Province offered by Macao Polytechnic Institute</p> |

2016 - 2017 Special Scholarship for Freshmen in Xiamen, Fujian Province offered by Macao Polytechnic Institute

2015 - 2016 Gold Awards in the Hong Kong International Arts Festival, Hong Kong SAR, China

Special Award in 2015 Asia International Music and Dance Art Contest, Hong Kong SAR, China

Art scholarship offered by Zhen Fu Huang.

Central Conservatory of Music School of Music Piano Grading Test level 10 certificate

2014 - 2015 Gold Awards in the Final of Activities of Charming China

Relevant Experience

2017 – 2018 Participated in Helping Peratuan Kebajikan Elijah misi JB. (KULAI) Volunteer Program as a volunteer for one week in Malaysia

2015 – 2016 Participated in China Thinks Big (CTB) in Shang Hai

Personal Interests

Playing the piano, photographing, yoga, swimming and reading