Sem.1 2022/2023

SECD 2523 Database

Section 09

FINAL REPORT:

< Pesta Tanglung UTM Management System>

<Team SKTT1>

Team Members:

1. YEO CHUN TECK A21EC0148

2. LEW CHIN HONG A21EC0044

3. NG KAI ZHENG A21EC0101

4. GAN HENG LAI A21EC0176

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Section 09

PHASE 1:

Project Proposal

< Pesta Tanglung UTM Management System>

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1.0 Introduction

This project discusses the development of a new data management system for Pesta Tanglung UTM which is a university student club that often holds the activities, especially Mooncake Festival and Cultural Night at the outdoor venue. The purpose of this project is to help the Pesta Tanglung Club to construct a new data management system that might perform more effectively than the current method processes by the committees in the club. The current processes method of PTUTM Club is found to have several weaknesses that cause some issues when the amount of data entry is growing year by year. These problems could cause inefficient workflow and unnecessary time consumption then influence the accurately stored data. Thus, the new system is required to replace the current process method. The new system development to the club will help the committees be able to smoothly control things such as automatically updating or altering the student information and prevent the duplication of data in the club database. The information synchronization will give the committee assistance in accessing the members' information and activities arrangement.

The project will investigate the issues and provide solutions in the proposal to meet the club's needs by using the system development life cycle which is a staged method to overcome their problems. One of the requirements or features that need to be included in the system is an efficient data management system with a good tracking feature. Regarding these matters, the project team looked into the problems and proposed feasibility studies in the proposal to endure them. When it came to these issues, the project team investigated the issues and provided several ideas in the plan to deal with them.

2.0 Background Study

The origins of Mooncake Festival and Cultural Night can be traced back in the year 1997, the year in which UTM Chinese Student Council was first founded. Mooncake Festival and Cultural Night (then, known as Mooncake Gathering Night) as well as Spring Festival Exhibition were the two main events of the UTM Chinese Student Council. The former was usually held at Balai Cerapan every year until its disbandment from UTM Chinese Student Council in 1997, due to several reasons within the society. It was not until the 23rd of November, 1998 that Mooncake Gathering Night was taken under the management of the Mooncake Festival and Cultural Night Club. Its name was gradually changed to Mooncake Festival and Cultural Night, signifying the drastic changes it had undergone. To date, it is the first student-organized event to take place in an open-air venue, not inside an official hall. Its attractions include a lantern parade, a gigantic floating lantern, and various theme-related venue decorations. All these assets are there to make attendees feel more attached to the Mooncake Festival spirit. Furthermore, it has been 19 years since the first Mooncake Festival and Cultural Night took place, and each festival was organized successfully every year, except for the one in 1998. Mooncake Festival and Cultural Night will not only introduce Nan Yang Chinese culture to the community, but it is also a platform for all

individuals to gather together and celebrate this traditional Chinese celebration, regardless of race and beliefs.

The above picture shows the official logo of Pesta Tanglung UTM. There are several meanings for each element in the logo. The purple colour brings the meaning of honourable and respectable. In the Chinese tradition, purple colour belongs to the royals. One prominent example is The Forbidden City (Zi Jing Cheng) in Beijing. The Moon element resembles the brightest Moon on the 15th day of the 8th month in the lunar calendar. Also used to portray the unity and cohesion among Chinese students in UTM. The City Walls resemble the unity of every member of PTUTM, an impregnable force, and the energy and determination to perpetuate Chinese culture. The last is cloud element content in the logo due to cloud and water is always in a cycle, a never-ending cycle. Depicting PTUTM will be continuous and perpetual.

3.0 Problem Statement

There are several problems that occurred in the current system of PTUTM used, The first one is manual data organization. The person in charge (PIC) of this management system needs to organize the raw data collected from the club members into different categories of relations in order to obtain any useful information from the data. These categories of relations would be determined by the demand or the requirements of the users. However, in the current system, the PIC has to enter and store every raw data into various tables which represent relations manually to allow the users to obtain the information they desired from the tables created without seeking the information from the sea of raw data. Thus, this would lead to a problem related to manual operation limitations. Since the PIC needs to enter and categorize the data one by one, thus too much time and energy would be consumed. As a result, the PIC might commit careless mistakes due to inattention such as the PIC could accidentally enter data into the wrong table or skipping a data record. This issue would become more significant when the number of data collected or the relation created rose.

The next problem is the separation and isolation of data. In the current system, different departments hold their own collection of data, which means the data is not shared among the departments even when different departments have participated in the same event or program. Therefore, we can see that a limitation on the access and control of the data arises. Moreover, since there are no overall rules about data management for every department to follow, every department will update its own regulation and this update will not be synchronised with other departments. As a result, it would cause difficulty when trying to integrate the data into a set of collections for general management due to the variation of the rules. Furthermore, this variation would produce some unnecessary procedures during the discussion about data with other departments. For instance, a department has to understand and get familiar with the data management rules of other departments. Lastly, due to the connectionless between the departments, the staff of a department may be unaware of potentially useful data held by other departments

The third problem is duplication of data. Duplication of data simply means entering the same data multiple times. The current system collects data via google forms that are created by the person in charge and filled in by the club member. Then, all the information collected will be stored and displayed in a Microsoft Excel spreadsheet. However, google form has no feature designed to identify whether the respondent has entered the same information twice or more than that. Hence, the system would treat the same data as distinct data since there is no restriction about data entering from a respondent. As a result, the same data would appear multiple times in the data storage of the current system. In addition, because the current system does not have any auto update or delete existing data function, hence the PIC needs to

check and update the spreadsheet whenever new data is recorded or delete duplicated data manually to avoid inaccuracy of results caused by data duplication. Besides, there is also another situation where a member keys in his/her data in different departments. For now, the different departments will create and spread their google form to club members for the same event. Therefore, there is a possibility that the same person fills in the same information on different google forms. Since the data collected are separated and not shared, the same data would not be merged and then will be identified as distinct data. Consequently, data storage would be wasted and the potential of getting different values or data for the same entity would be shrunk.

The fourth problem is the fixed queries or proliferation of application programs. This problem means that the operation that could be executed in the current system is limited, each program is written to fulfil a specific purpose. There is always a need for a new program when a new requirement arises. The current system could not fully satisfy the demand of the person in charge of solving a variety of tasks, such as summarising, sorting, calculation and so on. Due to this weakness, some of the processes are forced to be handled with external assistance outside the system such as external applications, manual methods, etc. Additionally, some of the programs or operations are developed to realise a specific function but the programs developed are not shared among the departments, so if a system needs a specific operation of another system, the system can only design another operation with the same logic.

Finally, the last problem would be the limitation of data operation. This problem leads to two sub-problems, the first one is the single data operation. In the current system, any operation done on the data could only be performed for a tuple at a time, meaning that the current system does not support the simultaneous operation for several tuples which have similar characteristics or criteria. As a consequence, the PIC has to repeat the same operation several times to manage several tuples, like updating information on every tuple of a collection of data. This circumstance would be expressed as the pipeline processing mode. In which the next sequences can only proceed once the previous sequences are done. Thence, the inevitability of repeated actions makes it impossible to complete the operation in a short time and the process would be delayed, subsequently, the system could not provide an instant response or reflection. Next, the second sub-problem is unresponsiveness to different conditions. The current system is unable to give different responses in different conditions, which means it could not operate differently to produce corresponding outcomes automatically based on different conditions. This situation occurred because it has no conditional operations that are responsible to identify and interpret the conditions and produce suitable results automatically. Thus, a person in charge is needed to monitor the consequences that are brought by any processes and execute suitable operations based on the situation faced. Since this is a manual process, it would rely on the experience and judgements of the PIC on the conditions encountered.

4.0 Proposed Solutions (include feasibility study)

Operational Feasibility

The new proposed system definitely will convenience the Pesta Tanglung UTM Club to manage and access control their student management system since the manual process has been minimized and replaced by automation. Since the proposed system could assist the committee in managing the student information hence no users would prevent it from becoming operationally feasible. Furthermore, there are no worries about human resource to operate since the committee of the club is a competent universities students and a fast learner who has the ability to operate the systems once it has been installed.

Technical Feasibility

In terms of technical, one personal desktop computer and monitor with Wi-Fi access are compulsory. This is because the users need the interfaces to interact with the database and Wi-Fi access to connect to the MyUTM website to do further action such as member appreciation certificate, check/key in member attendance and so on. The funds to purchase a personal desktop computer and monitor might be sponsored by i-league UTM, or else contributed by activity profit, member Fundraising, or product gains. In addition, regarding Wi-Fi access, Wi-Fi UTM will freely provide Wi-Fi- access for all the students on the UTM campus.

Economic Feasibility

Table 1: Estimated Costs and Expected Benefits for proposed system

Estimated Costs:		Expected Benefits:	
Hardware	RM3500	Product Sales	RM4000 per year
Software	RM12000	Activity Income	RM8000 per year
User Training	RM1000	Sponsor	RM3000 per year
Database Support	RM4000		
Maintenance	RM1000		

Table 2: Assumptions for the factor that Impact gain/loss

Assumptions:	
Discount rate	15%
Sensitivity factor (cost)	0.7
Sensitivity factor (benefit)	0.9
Annual increment (cost)	5%
Annual increment (benefit)	10%

Table 3: Cost-Benefit Analysis for proposed system

Criteria	YEAR									
	0		1		2		3		4	
1. Costs	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual
A. Development										
Hardware	3500.00	2450.00								
Software	12000.00	8400.00								
User Training	1000.00	700.00								
Total Development Cost	**16500.00**	**11550.00**								
B. Production										
Database Support			4000.00	2800.00	4200.00	2940.00	4410.00	3087.00	4630.50	3241.35
Maintenance			1000.00	700.00	1050.00	735.00	1102.50	771.75	1157.63	810.34
Annual Production Cost			**5000.00**	**3500.00**	**5250.00**	**3675.00**	**5512.50**	**3858.75**	**5788.13**	**4051.69**
Present Value (PV)			**4347.83**	**3043.48**	**3969.75**	**2778.83**	**3624.56**	**2537.19**	**3309.38**	**2316.57**
Accumulated Cost			**20847.83**	**14593.48**	**24817.58**	**17372.31**	**28442.14**	**19909.50**	**31751.52**	**22226.06**
2. Benefits										
Product Sales			4000.00	3600.00	4400.00	3960.00	4840.00	4356.00	5324.00	4791.60
Activity Income			8000.00	7200.00	8800.00	7920.00	9680.00	8712.00	10648.00	9583.20
Sponsor			3000.00	2700.00	3300.00	2970.00	3630.00	3267.00	3993.00	3593.70
Annual Benefit			**15000.00**	**13500.00**	**16500.00**	**14850.00**	**18150.00**	**16335.00**	**19965.00**	**17968.50**
Present Value (PV)			**13043.48**	**11739.13**	**12476.37**	**11228.73**	**11933.92**	**10740.53**	**11415.05**	**10273.55**
Acccumalted Benefit			**13043.48**	**11739.13**	**25519.85**	**22967.86**	**37453.77**	**33708.39**	**48868.82**	**43981.94**
Gain or Loss			**(7804.35)**	**(2854.35)**	**702.27**	**5595.56**	**9011.63**	**13798.89**	**17117.30**	**21755.88**
Profitability Index	**1.32**	**1.88**								

Solutions

In our proposed system, there are five solutions, the first one is the automatic data organization. With this solution, the person in charge (PIC) could establish different categories of relations from the raw data according to the requirements in a short instant. With this function, the raw data collected would be able to be categorized into different attributes which specify the characteristic of a tuple. The different combinations of attributes would describe different relationships. In other words, the raw data will be categorized into different attributes and represented in the desired relation. In this function, the PIC just needs to be involved in the process of determining certain attributes that will be organized into a certain relation from a set of attributes. Thus, we can conclude that this simplification of the complex and redundant manual data organization process is achieved by removing the task of manual data entry from the whole data management process. This improvement could save tons of time because the PIC does not need to perform the one-by-one tuple-checking process to inspect any data error anymore. Hence, human error could be avoided since manual checking is difficult to avoid omissions Moreover, data alternation processes like removing or adding attributes in a relation can also be implemented easier.

The next solution is the unification of data. Firstly, data collection from different departments should be unified into a single global data collection that can be shared over all departments. To achieve this solution, we proposed to store the data collected from different departments in a single location, so that the data could be accessed and controlled by every department that is involved in the same event or program. However, this solution is not just simply combining the data from different departments, the data collected would be categorized into different groups based on the events these data are involved in or the purposes of the data collected. Therefore, the PIC would have no worries that the data collected for a specific event be messed up with other data. Besides, there would be no confusion or difficulty when several PICs from different departments are assigned to be involved in one event. After the data is stored, they will be specified with their source to allow the users to have information about where the data comes from or the purpose of the data and proceed with further investigation or operations. Since the data is unified, the general rules about data management are necessary for every department to follow. These rules will be discussed and determined by all departments so that the data from different departments would be stored in the same format that can be understood by all departments. As a result, the procedure of integrating the data from different departments could be removed since the data is stored in the same location initially and all the updates or changes in data will be synchronized automatically to every department. Hence, there is no explanation among departments about the data management needed and all departments could access desired data collected by other departments. Although the data collected from different departments are unified into a single collection, the departments would still have their own authority over their own data. Meaning that they could still use their own data only for their own department's purposes or uses like viewing, updating and so on. Any operations done on their own data would not affect other departments' data in the unified data collection and any operations done on other departments' data in the unified data collection would also have no effect on their own data. Next, they also have the freedom to decide the accessibility scope of other departments, such are limited access or whole access. Thus, some of the data might be hidden from other departments and not all operations done by other departments can be executed on the data. In general, the unification of data would establish a connection between different departments while still maintaining the data security of each department.

The third solution will be focused on the maintenance of consistency and accuracy of data. Our proposed solution will be able to identify whether the information or value of the new data entry is new by referring to the records in the data collection of the system and then producing a corresponding process to that data. For instance, when there is a new data entry, the system will search through the data collection to check if the same information exists in the collection. If yes, the system will map the information to the corresponding record instead of overwriting the record with the information.

Oppositely, the system will treat this data entry as new data to be recorded. Hence, the data duplication issue can be countered and the data will always be up to date so the data storage will not be wasted. In addition, the updation of the data will not just occur in a set of data collection only. If other data collection sets contain the same record that may consist of some attributes corresponding to the information of data entry, the update would also be reflected in these records.

The fourth solution suggests that the system should have the scalability for its operations provided in order to fulfill various demands of users. The operations provided would be more sufficient and useful in supporting the users anytime for multiple processes which ranged in any difficulty level. This means that the operation should not be limited to one process only, Each operation should be executable in different processes as steps for different requirements. Hence, it would be much easier and have more space for developing a new program. If there is a new requirement, the PIC does not have to redesign the whole program, just for adding a new operation. Consequently, the users will not have the demand for external methods or assistance since the system has a complete mechanism to help them realize their desired processes. Furthermore, all the operations should be integrated into one system instead of each department having its own operations. This action allows each department to use the functions of other departments and at the same time, the same operation would not be built repeatedly.

Eventually, "Improved Data Operations with parallel implementation and responsiveness to different conditions" will be our last proposed solution. In the designed system, the operation will be improved in its implementation as well as responsiveness. We aim that the execution of operations will not be limited to a single tuple only. The PIC will have the convenience of performing the same operation on more than one tuple simultaneously, which is the parallel data operations implementation method. This enhancement allows the outcome of the response to be reflected in a shorter instant because the repeating process on several tuples has been removed. Besides, all the operations in the system should be able to be initiated automatically in response to different conditions. Simply put, the system should have the ability to detect and identify the conditions based on the predefined condition criteria and rules. Then, it will carry out suitable operations to produce an appropriate result without the monitoring of the PIC. With the responsiveness to different scenarios, the system will lead to multiple possibilities for implementation in the system and the outcomes will also be produced accurately as the expectation of the PIC. As a consequence, this accurate response will gain the trust of the users to implement the system in different conditions.

5.0 Objectives

Our goal is to create a database that will help the Pesta Tanglung UTM Club address its present problems and improve upon them.

1. To compare and contrast the limitations of the file-based system and the importance of using the database in an organization/business.
2. To learn how to identify and address problems in an existing system, and how to design and implement a new system that meets the needs of the users
3. To learn how to use database design tools and techniques, such as normalization and entity-relationship modelling, to ensure the integrity, efficiency and scalability of the database.
4. To learn how to use the system development life cycle (SDLC) to plan and execute a software development project, including conducting feasibility studies, creating a design document and testing and deploying the system.
5. To create a conceptual data model with ER modelling based on the data provided in an enterprise view.
6. To acquire skills in database design and management using Oracle SQL, including how to create tables and relationships, insert, update, and delete data, and use SELECT statements to retrieve and analyse data.
7. To gain knowledge and skills in system analysis and design as well as project management and team collaboration.

6.0 Scope

We are now planning to develop a database system that can help the Pesta Tanglung Club to simplify its student management process and enhance its current student management system. The proposed database system will easily committee on sorting categories, produce a list of systematic student information, record member attendance, etc. First-time users have to register to the system first and then log in to the system before access to the database. The project's duration is 15 weeks, which is approximately 4 months.

- **Major User View**

The major users of this project are the committee and members of the Pesta Tanglung UTM Club. From the perspective of the committee, an efficient and accurate system is required to ensure that data processing is error-free. For instance, in the process of recording members' information, checking and keying in attendance, members appreciate certificates, etc. From the perspective of the member, the member would not want their certificate information to be wrong and new systems could make sure to have records of their attendance. The committee have permission to add, update, delete and other modification to data on the database. However, the member of the club only has permission to view the data from the system.

6.1 Boundaries of database application

7.0 Project Planning

7.1 Human Resource

7.2 Work Breakdown Structure (WBS)

7.3 Gantt Chart

Activity	Task Name	Predecessor	Duration (Days)
A	Conduct problem background	None	2
B	System boundaries	A	3
C	Project Planning	B	5
D	Requirement Analysis	B,C	3
E	Current/Proposed Business Rule	D	4
F	Data Requirements	D	5
G	Transaction Requirements	F	3
H	ERD Drawing	E,F	3
I	DFD(AS-IS) Drawing	H	4
J	Database conceptual Design	I	5
K	Enhanced ERD Drawing	H	5
L	Data Dictionary	J,K	3
M	Database logical design	L	4
N	Logical ERD	M	5
O	Updated Data Dictionary	N	3
P	Relational Database Schemas	O	3
Q	SQL Statement (DDL & DML)	P	5

For more details, please visit:
https://sharing.clickup.com/26502109/g/h/t8ryx-188/8a05d908190800c

8.0 Benefit and Summary of Proposed System

The benefits of producing the database system compare to the current manual process are:

- To simplify the storing data process
- To sort the member information systematically
- To reduces the bugs and errors due to human mistake
- To increase the efficiency of managing and accessing data.
- To make accessing and handling data more efficient.

Our proposed student management system could help the committee of the Pesta Tanglung UTM Club to process the raw data to translate it into usable information. The raw data would be categorized into different tables which represent the desired relation followed by entering data which is corresponding to certain attributes automatically into the tables. This simplifies the complex process of manual data organization by removing the task of manual data entry from the process hence also avoiding human errors.

Furthermore, the proposed system ensures the unification of data since the database is a shared collection of logically related data. The developed system should have the ability to identify the information of the new data entry by referring to the records in the data collection of the system so as to avoid the duplication of data. Thus increasing the consistency and accuracy of data. The committee could obtain the output or response immediately right after the request to the database and could execute the same operation on multiple tuples simultaneously. The parallel implementation of the data operations would realize the shortening of the processing time for different tasks

With the new proposed database system, the committee of Pesta Tanglung UTM Club could manage their member information more easily and accurately.

Sem.1 2022/2023

SECD 2523 Database

Section 09

PHASE 2:

Database Requirement

< Pesta Tanglung UTM Management System>

<Team SKTT1>

Team Members:

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1.0 Introduction

This project discusses the development of a new data management system for Pesta Tanglung UTM which is a university student club that frequently holds the events, especially Mooncake Festival and Cultural Night at the outdoor venue. The purpose of this project is to assist the Pesta Tanglung Club in developing a new data management system that could function more efficiently than the existing approach used by the club committees. There are various flaws in the PTUTM Club's present process approach that become problematic when the volume of data entering increases year after year. These issues can result in an unproductive process and needless time consumption which would subsequently affect the data that was correctly saved.

Consequently, it is necessary for the new system to take the place of the existing process technique. This will allow the committees to more easily handle things like automatically updating or changing student information and avoiding data duplication in the club database. The information synchronization will let the committee access the information and activity planning of the members.

In this project report, we will state the current business process to build a future state that satisfies the requirements of the employees conducting the process by using the scenario and workflow. The current business rules help us to decide what steps should be followed in certain circumstances as well as to stop specific actions from occurring. The data requirements and transaction requirements were stated to give an assistant to produce the entity relationship diagram for PTUTM's current business processes.

2.0 Requirement Analysis (based on AS-IS analysis)

2.1 Current business process (scenarios, workflow)

Scenario

Before initiating the recruitment session, the head of departments would plan the recruitment. They would list out the requirements of their own departments including the estimated amount of new committees in demand, and the type of demands they require from new committees like speciality, experiences, achievement and others. Then, they would plan the flow of the recruitment session and determine the schedule of the flow including the duration of opening for interview registration, the time of the interview session and others

After planning the recruitment session, the Committee of the Pesta Tanglung club makes a recruitment poster with a QR code. Those students who are interested could scan the QR code and link to a google form. After the students fill in the google form, a link will be provided for them to join a WhatsApp group. The data collected has names, matric numbers, UTM graduate emails, years, courses, addresses and interested teams. Hence, the committee will release the interview details to the group including the date and time, and venue.

During the interview session, the interviewer records the session for later decision-making. The interviewee's information is temporarily recorded on paper. Later the discussion with each team leader decides whether the interviewee passed the interview and entered a certain team or failed the interview. The rating areas are Experience, Communication Skills, Characteristics and Attitude. After the confirmation, the interview result will be announced in the WhatsApp group that gathered all interviewees. Each committee can only be involved in one team and each team only can have one team leader. After that, the club's secretary manually updates the committee database present in the excel file with the new committee members' information. Then, the secretary would create a recruitment report based on the details of the recruitment sessions like the number of new committees in every department, their assigned categories and others.

One of the income of the Pesta Tanglung Club is Merchandise such as clothes. They will make clothes and sell them to students. The funds will be used for the future Mooncake Festival and Cultural Night event.

Every year, the club holds an annual Mooncake Festival and Cultural Night. First of all, a program proposal would be prepared by the secretary, the proposal includes but not only events held, estimated budget, committee list, sponsor, date and time, venue, etc. The program proposal hence submitted to the UTM-ACAD and wait for HEP approval. Once approved means the program can be hosted. If not, the event would be replanned and the proposal would be prepared by following the modification in the plan. The Fundraising team in the club would write a fundraising plan and find the sponsors. They would record the sponsor's name, email, phone number, the product/service its sponsor also the details of it.

Within the preparation event phase, If found the equipment/device such as an audio equipment error, the committee in charge would contact the UTM staff to maintain. The team would have different groups for assigning different tasks. Each team would update their current situation, problem, and progress rate and others in the WhatsApp group for all the committee to follow up. They would also have a meeting to update each team's progress, requirements, etc., and the secretary will record the minute of the meeting.

Once the event ends, the club has to generate a post-program report for HEP. The report includes the event outcome, future improvement, event data such as how many participants UTM students or people outside campus, races and other data. A feedback form would be prepared for the participants to fill in and the committee would have a review meeting.

A Google Form will be created and distributed to UTM students to do the attendance recording. Later, the clerical team would update the student's attendance in the myUTM system. Furthermore, the clerical team would generate the e-certificate for the participants.

Workflow

Start
Plan Recruitment
Create Interview Poster And Google Form
Post the Interview Poster
Interviewee Filled Google Form
Provide Interviewee Information
Plan Interview
Interview Schedule Announcement
Interviewee Participate Interview?
Yes
No
Discuss And Rating Interviewee
Annoucement Of Interview Result
Update Comittee Database
Create Interview Report
Planning Event
Create Program Proposal
Submit Program Poposal To UTM-ACAD
HEP-UTM Approval Event
Yes
No
Preparing Event
Create Participant Google Form
Distribute Participant Goole Form
Participant Attend Event
Yes
No
Record Attendance
Update Attendence
Create Appreciation Certificate
Distribute Appreciation Certificate
Collect Feedback & Review Event
Create Post Program Report Submit To HEP-UTM
End

3.0 Current business rule

Pesta Tanglung Club has one president, one vice president, one general secretary, two deputy secretaries, one general treasurer, and two deputy treasurers and a total of 10 teams exist in the club. These teams are the general affair team, design team, publicity team, sales team, venue team, event organizing team, fundraising team, cultural information team, entertainment team and multimedia team. Each team must have only one team leader. Each team must have at least one member. Every member of the club must be assigned to only one team.

Pesta Tanglung Club is in charge of one lecturer in UTM. A UTM lecturer only has in charge of a club.

The secretary of the club manages the member's information in the Excel File stored on the secretary's computer, with the backup in the deputy secretary's local computer. Secretary will update and edit the member's information if anything needs to be modified, such as a new member joining the club, position shift, changes of personal information, etc.

Next, every team is assigned a specific scope of tasks. The first team is the general affair team. All members of the general affair team can manage the inventory. That inventory is managed by all members of this team. The next team is the design team. This team is responsible for poster design. All members will design each poster and each poster can be designed by all members. Then, the publicity team will do the social media management. All members can manage each social media. The fourth team is the sales team. The sales team will manage the sales product. All members will sell each product. The last team is the fundraising team. The members of this team will manage the club property.

4.0 Data requirement

Entity	Input	Description
Member	• MemberCName • MemberEName • MemberMatricNo • MemberGraduateEmail • MemberYear • MemberCourse • MemberAddress • MemberFaculty • Position • TeamName	**MemberMatricNo is unique and not null**
Interviewee	• IntervieweeMatricNo • IntervieweeFirstName • IntervieweeLastName • IntervieweeYear • IntervieweeEmail • IntervieweeContactNumber • IntervieweeFaculty • IntervieweeCourse • IntervieweeAddress • InterestTeamRanking • ReasonJoinDepartment	**IntervieweeMatricNo is not null and unique** **InterestTeamRanking is the top three team that the interviewee interested in.**
Participant	• ParticipantName • ParticipantEmail • ParticipantMatricNo/IC • ParticipantGraduateEmail • ParticipantYear • ParticipantFaculty • ParticipantCourse • PArticipantAddress	**ParticipantMatricNo/IC is unique and not null**
Attendance	• UTMStudMatricNo/IC • AttendDate • ContactNo	**UTMStudMatricNo/IC is unique and not null**
FeedbackForm	• EventName • RespondentName • RespondentGender • RespondentRating • RespondentComment	**EventName is unique and not null**

	• EventWeakness	
Team	• TeamName	**TeamName is unique and not null**
Interview	• Location • InterviewDate • StartTime • EndTime	**DepartmentName is not null and unique**
InterviewOutcome	• StudMatricNo • StudFirstName • StudLastName • StudComment • StudCourse • StudStrengths	**StudMatricNo is unique and not null**
InterviewResult	• StudMatricNo • TeamAssigned	**StudMatricNo is unique and not null**
Cultural Informant	• CulturalTask	**CulturalTask is not null**
Designer	• CreationType • DesignSoftware • DesignStyle	**CreationType is the types of product that created by designer, not null**
Publicizer	• ResponsibleSocialMedia • PromoteArea • PromoteMethod	**ResponsibleSocialMedia is not null**
Venue Planner	• SceneModel	**SceneModel is the production and beautification of scene props, not null**
Entertainment Planner	• Theme • ActivityFlow	**Theme is the entertainment theme that planner responsible to handle, is not null**
Fundraiser	• FundRaiseTask	**FundRaiseTask is not null**
General Affair	• GeneralAffairTask • StoreroomAuthorization	**GeneralAffairTask is not null**

Event Organizer	• **OrganizerTask**	**OrganizerTask is not null**
Salesman	• **ProductType** • **SalesMethod**	**ProductType is product salesman responsible to sales, is not null**
Multimedia Specialist	• **Skills**	
Report	• **ReportName** • **ReportType** • **EventDate** • **EventLocation** • **ProblemFaced** • **FutureImprovement**	**ReportName is unique and not null** **ReportType is type of the report(PostProgramReport/InterviewReport)**
PostProgramReport	• **QuantityUTMStudent** • **QuantityNonUTMStudent**	**QuantityUTMStudent in not null** **QuantityNonUTMStudent is not null**
InterviewReport	• **QuantityInterviewee** • **QuantitiyInterviweePass**	**QuantityInterviewee is not null** **QuantityInterviweePass is not null**
EventProposal	• **EventName** • **EventDate** • **EventLocation** • **EventBudget**	**EventName is unique and not null**
EventActivity	• **EventActivitiesConducted** • **EventObjective**	**EventActivitiesConducted is unique and not null**
PotentialSponsor	• **PotentialCompanyName** • **PotentialCompanyLocation** • **PotentialCompanyContactNo** • **PotentialItemSponsor**	**PotentialCompanyName is unique and not null**
SponsorshipRecords	• **SponsorCompanyName** • **SponsorEmail** • **Person-In-Charge** • **MonetaryAmount** • **ItemSponsorship**	**SponsorCompanyName is unique and not null**

5.0 Transaction requirement (data entry, data update/delete, data queries)

5.1 Data entry

Entity	Data entry
Participant	Enter new participant information (such as name, matric number, email, etc)
Interviewee	Enter new interviewee information (such as name, matric number, email,etc.)
Member	Enter the new member's personal information (such as name, matric number, email, etc)
Team	Enter Team information (such as the name of the Team)
Interview Outcome	Enter the interview outcome (such as rating, comment, strengths)
Interview Result	Enter the interview result (such as matric number, the department assigned)
Interview attendance form	Enter the attendance of interviewee
Attendance	Enter the attendance record
Sponsorship	Enter the sponsorship record (such as sponsor company name, contact number, item sponsor)
Event proposal	Enter the event proposal information (such as event name, event date)
Feedback Form	Enter the feedback form information (such as name, rating, comment)
Event Meeting Report	Enter the meeting report (such as meeting date)

5.2 Data Update/Delete

1. Update/Delete the interview information
2. Update/Delete the student/participant information
3. Update/Delete the interviewee's information
4. Update/Delete member information
5. Update/Delete sponsorship status/information
6. Update/Delete event attendance record
7. Update/Delete event meeting/post program report
8. Update/Delete team information
9. Update/Delete the interview outcome
10. Update/Delete the event proposal information

5.3 Data Queries

1. List the student details who fills in the interview form
2. List the student details who participates in the interview
3. List the student's details numerically by matric no
4. List the group leader details based on department
5. Identify the member information based on degree year equal to 4
6. Identify the student details who own a transportation
7. Display the participant information who is a UTM student
8. Display the participant information by race
9. Display the participant information by gender
10. List the student's details based on the rating rated within interview session
11. List the student information who pass the interview
12. List the sponsorship details based on the likelihood of successful sponsorship
13. Display the sponsors who are willing to provide sponsorship
14. List the interviewee details who were recruited by the assigned departments
15. List the interviewee details who were recruited numerically by student matric no
16. List the feedback form filed by the participate
17. List the members' names who attended the meeting based on the date
18. List out the activities that would be held in the event
19. List out the interviewee who pass the interview meetings
20. List out the schedule and location of the interview meetings

6.0 ERD

https://lucid.app/documents/view/ade30a19-b8dd-4990-9d6e-fbadb4cb3c2e

7.0 Summary

In the phase of data gathering, we use an interview method to collect the problems existing in the current system. There are two types of questionnaires used in the interview which are open-ended questions and closed questions. The user's thoughts and experiences are extremely important for us to find out the user's needs and make some modifications to the to-be system in order to create an effective new system. After having the interview with the stakeholder, Ms Tay Jia Yi, we discovered that the present system had several flaws like the committee of the club has to manually update the information of each interviewee during the interview and entry to their club, update or delete the member information, passing documents to other teams, update the planning of events and record the attendance of the participants' information and feedback form. In the interview, we requested the user specifications they desired to see in the new system proposal. There are several requirements stated by the stakeholder such as updating and deleting the member details directly using matric numbers, preventing duplication of member data after data entry from multiple sources and providing a filtered interviewee list after recruitment activities.

After gathering user opinions and needs for the existing system, we created a flow diagram based on the existing business process to clearly show how the workflow of the existing system operates. By listing down the workflow and scenario, we are able to assess the present system's effectiveness and validate its features. Additionally, we stated the data input, data update, data deletion, and data query requirements for the present system's transactions. Lastly, a model of entity relationships based on the data requirements of each entity was created.

Appendix

Interview With Ms Tay Jai Yi, Secretary of Club Pesta Tanglung

Questions asked during the interview:

 # Workflow & Business Rules

> Will there be any links in the association, and what kind of process will each link go through

- For example, the recruiting link, the event planning link, the registration of student information, etc.

> Could you lend us the slide from the "Fresh Guys" show? In this way, it is easier for us to understand the internal information of the society

> How do different departments interact and discuss cooperation

> About data classification and processing, what kind of work is usually done

 # Event Participation

> What kind of information will the association record when students sign up for activities

- such as payment method

> Why record these data

> Will more information be collected due to some factors in the event arrangement, such as whether there is transportation, etc. If yes, can you list them

> Is the job of key-in attendance, and certificate, those are all done by the committee?

> May I ask if the teacher in charge of the Mid-Autumn Festival club is responsible for any work?

> What is the process of the key in attendance and member appreciation certificate?

#Sponsor

> I would like to ask if there is a record of the sponsor and what information will be recorded

> Do you keep records of their past sponsors

> Will there be records related to the sponsor's discussion with the sponsor before?
- For example, things that can be sponsors

> Will these sponsor items be marked to indicate whether they have received these sponsors now?

#Expectation

> Is there any data that you want to add to record and process in the future?

> What operations and functions do you want to add in the future?

 # Department Member Management

> May I know what kind of data will be recorded when different departments of the club manage and process each member’s data?

> Will every member of all departments keep records of the details of the different activities they are involved in?
- For example, the name of the activity they joined as a working committee, the position they hold in their activity, what department they come from, the type of work they are responsible for, and the details of their work

> Is there any member who has experience involving more than two departments at the same time

> I want to know whether different departments of the association will evaluate different projects for members in their departments
- For example, their enthusiasm for participating in club activities, their ratings in various aspects, and their majors or skills
- An assessment of what the member will do

> In this case, will the head of the department give relevant comments on the performance of each member?

> For the club's activity plan, have you collected opinions and suggestions from each member on the current activities?
- For example, activities to improve progress and the like

> You can know what kind of process different departments of the club will follow in the process of recruiting members, what criteria will be based on or what priorities and backgrounds will be used to screen and interview students
- For example, resume, good skills, interesting job content, why you joined the club, interview position

> How many people will be in charge of the screening work? Will everyone screen each applicant together, or will everyone have their own list to screen

> How will clubs inform students of their interview details after screening

> Do different departments make reports on the details of their department members?
- For example, members' work experience, skills and technology, etc.

> In addition to these, will there be any other information in the report?
- Will there be a detailed summary of member activities, such as what activity records they have, what positions they are responsible for, their participation and contribution, their evaluation and evaluation, and their achievements

- Will there be data about how active members are in the club, how many activities they participate in on average, and their interest in specific activities?

> In addition, have different departments also statistically reported members' thoughts and suggestions on the future development of the association and current activities?

> I want to know if the club has a project similar to the year-end party to reward those members who perform well in the club and make great contributions

 # Club Management and Event Planning

> Wondering whether different departments will report details of their organization
- For example, the job details of the current department, human resource allocation, job planning and size for the coming year, and the list of candidates
- Discuss the transfer of members between departments and the subsequent development of its parts

> Will different departments also report their work details?
- For example, let other departments and the upper management know the work they can be responsible for, and let the upper management confirm whether their work is suitable for the department and whether it should be included in the scope of work of the department
- Also let others know the current centre of the department and the assignment of members in different activities

> In addition, will the departments also report on the progress of their activities and progress assessment
- For example, when holding a certain event, do all department members need to update the preparation status of their respective departments? For example, the photography team checks the equipment status, the game team reports the upcoming activities, etc.
- Or some projects require members to vote to decide whether each department will count the number of votes for each project and its voting results

> wonder who these reports are given to review or know

> Is it needed to upload membership report/activity report to Head of the club (teacher)?

Sem.1 2022/2023

SECD 2523 Database

Section 09

PHASE 3:

Database Conceptual Design

< Pesta Tanglung UTM Management System>

<Team SKTT1>

Team Members:

1. YEO CHUN TECK A21EC0148
2. LEW CHIN HONG A21EC0044
3. NG KAI ZHENG A21EC0101
4. GAN HENG LAI A21EC0176

1.0 Introduction

This project discusses the development of a new data management system for Pesta Tanglung UTM which is a university student club that frequently holds the events, especially Mooncake Festival and Cultural Night at the outdoor venue. The purpose of this project is to assist the Pesta Tanglung Club in developing a new data management system that could function more efficiently than the existing approach used by the club committees. There are various flaws in the PTUTM Club's present process approach that become problematic when the volume of data entering increases year after year. These issues can result in an unproductive process and needless time consumption which would subsequently affect the data that was correctly saved.

Consequently, it is necessary for the new system to take the place of the existing process technique. This will allow the committees to more easily handle things like automatically updating or changing student information and avoiding data duplication in the club database. The information synchronization will let the committee access the information and activity planning of the members.

In addition, in this phase, we draw the Data Flow Diagram (DFD) AS-IS system to further understand the current system process and list out the data & transaction requirements. Based on those requirements, we would proceed to database conceptual design by updating the business rule and producing a conceptual Entity Relationship Diagram (ERD). After that, an enhanced ERD and data dictionary will be generated based on updated business rules and conceptual ERD.

2.0 ERD (as-is)

https://lucid.app/documents/view/ade30a19-b8dd-4990-9d6e-fbadb4cb3c2e

3.0 Data & Transaction requirement

3.1 Current business rule

Pesta Tanglung Club has one president, one vice president, one general secretary, two deputy secretaries, one general treasurer, and two deputy treasurers and a total of 10 teams exist in the club. These teams are the general affair team, design team, publicity team, sales team, venue team, event organizing team, fundraising team, cultural information team, entertainment team and multimedia team. Each team must have only one team leader. Each team must have at least one member. Every member of the club must be assigned to only one team.

Pesta Tanglung Club is in charge of one lecturer in UTM. A UTM lecturer only has in charge of a club.

The secretary of the club manages the member's information in the Excel File stored on the secretary's computer, with the backup in the deputy secretary's local computer. Secretary will update and edit the member's information if anything needs to be modified, such as a new member joining the club, position shift, changes of personal information, etc.

Next, every team is assigned a specific scope of tasks. The first team is the general affair team. All members of the general affair team can manage the inventory. That inventory is managed by all members of this team. The next team is the design team. This team is responsible for poster design. All members will design each poster and each poster can be designed by all members. Then, the publicity team will do the social media management. All members can manage each social media. The fourth team is the sales team. The sales team will manage the sales product. All members will sell each product. The last team is the fundraising team. The members of this team will manage the club property.

3.2 Current data & transaction requirement

Current Data requirement

Entity	Input	Description
Member	• MemberCName • MemberEName • MemberMatricNo • MemberGraduateEmail • MemberYear • MemberCourse • MemberAddress • MemberFaculty • Position • TeamName	MemberMatricNo is unique and not null
Interviewee	• IntervieweeMatricNo • IntervieweeFirstName • IntervieweeLastName • IntervieweeYear • IntervieweeEmail • IntervieweeContactNo • IntervieweeFaculty • IntervieweeCourse • IntervieweeAddress • InterestTeamRanking • ReasonJoinDepartment	IntervieweeMatricNo is not null and unique InterestTeamRanking is the top three team that the interviewee interested in.
Participant	• ParticipantName • ParticipantEmail • ParticipantMatricNo/IC • ParticipantGraduateEmail • ParticipantYear • ParticipantFaculty • ParticipantCourse • PArticipantAddress	ParticipantMatricNo/IC is unique and not null
Attendance	• UTMStudMatricNo/IC • AttendDate • ContactNo	UTMStudMatricNo/IC is unique and not null
FeedbackForm	• EventName • RespondentName • RespondentGender	EventName is unique and not null

	• RespondentRating • RespondentComment • EventWeakness	
Team	• TeamName	**TeamName is unique and not null**
Interview	• Location • InterviewDate • StartTime • EndTime	**DepartmentName is not null and unique**
InterviewOutcome	• StudMatricNo • StudFirstName • StudLastName • StudComment • StudCourse • StudStrengths	**StudMatricNo is unique and not null**
InterviewResult	• StudMatricNo • TeamAssigned	**StudMatricNo is unique and not null**
Cultural Informant	• CulturalTask	**CulturalTask is not null**
Designer	• CreationType • DesignSoftware • DesignStyle	**CreationType is the types of product that created by designer, not null**
Publicizer	• ResponsibleSocialMedia • PromoteArea • PromoteMethod	**ResponsibleSocialMedia is not null**
Venue Planner	• SceneModel	**SceneModel is the production and beautification of scene props, not null**
Entertainment Planner	• Theme • ActivityFlow	**Theme is the entertainment theme that planner responsible to handle, is not null**
Fundraiser	• FundRaiseTask	**FundRaiseTask is not null**
General Affair	• GeneralAffairTask	**GeneralAffairTask is not**

	• StoreroomAuthorization	null
Event Organizer	• OrganizerTask	OrganizerTask is not null
Salesman	• ProductType • SalesMethod	ProductType is product salesman responsible to sales, is not null
MultimediaSpecialist	• Skills	
Report	• ReportName • ReportType • EventDate • EventLocation • ProblemFaced • FutureImprovement	ReportName is unique and not null ReportType is type of the report(PostProgramReport/InterviewReport)
PostProgramReport	• QuantityUTMStudent • QuantityNonUTMStudent	QuantityUTMStudent in not null QuantityNonUTMStudent is not null
InterviewReport	• QuantityInterviewee • QuantitiyInterviweePass	QuantityInterviewee is not null QuantityInterviweePass is not null
EventProposal	• EventName • EventDate • EventLocation • EventBudget	EventName is unique and not null
EventActivity	• EventActivitiesConducted • EventObjective	EventActivitiesConducted is unique and not null
PotentialSponsor	• PotentialCompanyName • PotentialCompanyLocation • PotentialCompanyContactNo • PotentialItemSponsor	PotentialCompanyName is unique and not null
SponsorshipRecords	• SponsorCompanyName • SponsorEmail • Person-In-Charge • MonetaryAmount • ItemSponsorship	SponsorCompanyName is unique and not null

Transaction requirement (data entry, data update/delete, data queries)

Data entry

Entity	Data entry
Participant	Enter new participant information (such as name, matric number, email, etc)
Interviewee	Enter new interviewee information (such as name, matric number, email,etc.)
Member	Enter the new member's personal information (such as name, matric number, email, etc)
Team	Enter Team information (such as the name of the Team)
Interview Outcome	Enter the interview outcome (such as rating, comment, strengths)
Interview Result	Enter the interview result (such as matric number, the department assigned)
Interview attendance form	Enter the attendance of interviewee
Attendance	Enter the attendance record
Sponsorship	Enter the sponsorship record (such as sponsor company name, contact number, item sponsor)
Event proposal	Enter the event proposal information (such as event name, event date)
Feedback Form	Enter the feedback form information (such as name, rating, comment)
Event Meeting Report	Enter the meeting report (such as meeting date)

Data Update/Delete

1. Update/Delete the interview information
2. Update/Delete the student/participant information
3. Update/Delete the interviewee's information
4. Update/Delete member information
5. Update/Delete sponsorship status/information
6. Update/Delete event attendance record
7. Update/Delete event meeting/post program report
8. Update/Delete lecturer information
9. Update/Delete the event activity information
10. Update/Delete the event report information

Data Queries

1. List the student details who fills in the interview form
2. List the student details who attend in the interview
3. List the student's details numerically by matric no
4. List the group leader details based on department
5. Identify the member information based on degree year equal to 4
6. Display the participant information who is a UTM student
7. Display the sponsorship information of those who sponsored more than 1000 monetary
8. List the student's details based on the rating rated within interview session
9. List the student information who pass the interview
10. Display the sponsors who are willing to provide sponsorship
11. List the interviewee details who were recruited by the assigned departments
12. List the interviewee details who were recruited numerically by student matric no
13. List the feedback form filed by the participate
14. List out the activities that would be held in the event
15. List out the interviewee who pass the interview meetings
16. List out the location of the interview meetings

4.0 Database conceptual design

4.1 Update business rule

Pesta Tanglung has one president, one vice president, one general secretary, two deputy secretaries, one general treasurer, and two deputy treasurers and a total of 10 teams exist in the club. These teams are the general affair team, design team, publicity team, sales team, venue team, event organizing team, fundraising team, cultural information team, entertainment team and multimedia team. Each team must have only one team leader. Each team must have only one team leader. Each team must have at least one member. Every member of the club must be assigned to only one team. Every member is managed by their team leader.

Pesta Tanglung Club is in charge of one lecturer in UTM. A UTM lecturer is only in charge of a club. The users of the proposed database could be members of the club and lecturer, The authority to update and control the database was given to the president, the vice president, the general secretary and every team leader. Other members could only view the data from the database. The proposals could be checked by one lecturer.

The users who wish to access the database have to sign up hence log in to the database. All of the members of the club are assigned to 1 of those 10 teams. Each team have a team leader. The responsibility of the team leader is to manage the team member.

Every year, the club have an interview for a recruitment session. Each of the interviewees could choose the top 3 interest team he/she want to join. However, not all of the interviewees would pass the interview and join the most interesting team. The interviewees' attendance will be recorded. The interviewees who passed the interview will be assigned to a team suitable for their capability according to the decision of the 10 team leaders. The interview outcome will be announced to all of the interviewees no matter he/she passed or failed.

When an event such as Mooncake Festival and Cultural Night event is held, participant attendance will be recorded for analysis use and UTM merit purpose (for those who are UTM students), as well as a feedback form, will be distributed to gather the comment from the participants so could overcome the event weakness. An event starts with an event proposal that has to submit to the UTM ACAD and wait for the approval. Many activities would be arranged in an event. All of the fundraisers in the club will start to find and contact the potential sponsor, and all of the fundraisers have the

responsibility to follow up on the latest circumstances and the contact date will be recorded. Furthermore, for every event organized, each sponsorship will be recorded to know what the item/monetary amount the sponsorship sponsor is.

A report has to be generated after conducting every program for analysis purposes and submitted to HEP. Several analyses will be done in a report, such as the quantity of UTM students and the quantity of Non-UTM students. Lastly, from the feedback form gathered, the member is able to realize the problem faced to perform a future improvement.

4.2 Conceptual ERD

https://lucid.app/documents/view/61432891-b766-4c7a-a12e-3219ca42ec61

5.0 Enhanced ERD

https://lucid.app/documents/view/8c30212c-f457-4f54-b8ca-ef45268cb5f1

6.0 Data dictionary

Entity	Data to be stored	Description	Data Length & Type	Null	Multi-value
Student	• MemberID • MemberFirstName • MemberLastName • MemberMatricNo • MemberGraduateEmail • MemberYear • MemberCourse • MemberAddress • MemberFaculty • ClubPosition • TeamLeaderID • MemberUserID • MemberUserPassword	Unique ID First name of member Last name of member Unique matric no Unique UTM email of member Degree year of member Course of member Address of member Faculty of member Position of member in club ID of team leader Unique ID User password for member to access the system	10 variable characters 20 variable characters 20 variable characters 10 variable characters 30 variable characters Number 30 variable characters 80 variable characters 50 variable characters 15 variable characters 10 variable characters 10 variable characters 15 variable characters	NO NO NO NO NO NO NO NO NO NO NO NO NO	NO NO NO NO NO NO NO NO NO NO NO NO NO
EntertainmentPlanner	• Theme	Theme of Entertainment	20 variable characters	NO	NO
Designer	• CreationType	Type of creation	20 variable characters	NO	YES
Publicizer	• ResponsibleSocialMedia	Handle's social media	15 variable characters	NO	NO
VenuePlanner	• SceneModel	Production of scene props	50 variable characters	NO	YES
GeneralAffair	• GeneralAffairTask	General Affair's task	50 variable characters	NO	YES
CulturalInformant	• CulturalTask	Cultural Informant's task	50 variable characters	NO	YES
Salesman	• ProductType	Type of product	20 variable characters	NO	YES
EventOrganizer	• OrganizerTask	Task performed by Event Organizer	50 variable characters	NO	YES
MultimediaSpecialist	• Skills	Skills mastered	30 variable characters	YES	YES
Fundraiser	• FundRaiseTask	Task performed by Fundraiser	50 variable characters	NO	YES
EventProposal	• ProposalNo • EventBudget • EventDescription • EventObjective	Unique NO Budget of event Description of event Objective of event	Number Number 80 variable characters 80 variable characters	NO NO NO NO	NO NO YES YES

	• CheckStatus	Complete status of event	50 variable characters	NO	NO
Student	• StudentID • StudentMatricNo • • StudentFirstName • StudentLastName • StudentYear • StudentUTMEmail • StudentContactNo • • StudentFaculty • StudentCourse • StudentAddress	Unique ID Unique matric no of interviewee First name of interviewee Last name of interviewee Degree year of interviewee Email of interviewee Contact number of interviewee Faculty of interviewee Course of interviewee Address of interviewee	Number 10 variable characters 20 variable characters 20 variable characters Number 30 variable characters Number 50 variable characters 30 variable characters 80 variable characters	NO NO NO NO NO NO NO NO NO NO	NO NO NO NO NO NO NO NO NO NO
Lecturer	• LecturerID • LecturerUserID • LecturerUserPassword • LecturerName • LecturerAge • LecturerAddress • LecturerContactNo • LecturerEmail • LecturerFaculty	Unique ID Unique ID User password for lecturer to access the system Name of lecturer Age of lecturer Address of lecturer Contact number of lecturer Email of lecturer Faculty of lecturer	10 variable characters 10 variable characters 15 variable characters 40 variable characters Number 80 variable characters Number 30 variable characters 50 variable characters	NO NO NO NO NO NO NO NO	NO NO NO NO NO YES NO NO
Participant	• ParticipantID • IsUTMStudent • ParticipantName • ParticipantEmail • ParticipantContactNo • ParticipantGraduateEmail • ParticipantMatricNo/IC • ParticipantYear • ParticipantFaculty • ParticipantCourse • ParticipantAddress	Unique ID Whether the Participant is UTM Student Participant's name Participant's email address Participant's contact number Participant's UTM email address Participant's MatricNo/IC Participant's degree year Participant's faculty Participant's course Participant's address	10 variable characters Boolean 40 variable characters 30 variable characters Number 30 variable characters 15 variable characters Number 50 variable characters 30 variable characters 80 variable characters	NO NO NO NO NO YES YES YES YES YES YES	NO NO NO NO NO NO NO NO NO NO NO
FeedbackForm	• FeedbackNo • EventName • RespondentName • RespondentGender • RespondentRating • RespondentComment • EventWeakness	Unique NO Event's name Respondent's name Respondent's gender Respondent's rating Respondent's comment Event's weakness	10 variable characters 20 variable characters 40 variable characters 6 variable characters Number 50 variable characters 50 variable characters	NO NO NO NO NO YES YES	NO NO NO NO NO YES YES
Event	• EventNo	Unique NO	10 variable characters	NO	NO

	• EventName • EventStartDate • EventEndDate • EventLocation	Event's name Event's start date Event's end date Event held location	20 variable characters Date Date 80 variable characters	NO NO NO NO	NO NO NO NO
EventActivity	• EventActivityNo • EventActivityName • EventActivityObjective • EventActivityStartTime • EventActivityEndTime	Unique NO Event activity name Object of event activity Event activity's start time Event activity's end time	10 variable characters 20 variable characters 50 variable characters Time Time	NO NO NO NO NO	NO NO YES NO NO
Team	• TeamID • TeamName • TeamWhatsAppLink	Unique ID Team's name Whatsapp application link	10 variable characters 20 variable characters 50 variable characters	NO NO NO	NO NO NO
Report	• ReportNo • ReportName • ReportType • ReportDescription • ProblemFaced • FutureImprovement	Unique NO Report's name Report's type Report's description Problem faced during event Future Improvement of event	20 variable characters 20 variable characters 50 variable characters 80 variable characters 50 variable characters 50 variable characters	NO NO NO NO NO NO	NO NO NO NO YES YES
PostProgramReport	• QuantityUTMStudent • QuantityNonUTMStudent	Amount of UTM student Amount of non-UTM student	Number Number	NO NO	NO NO
InterviewReport	• QuantityInterviewee • QuantityInterviweePass	Quantity of interviewee Quantity of interviewee who pass	Number Number	NO NO	NO NO
PotentialSponsor	• PotentialSponsorID • PotentialCompanyName • PotentialCompanyLocation • PotentialCompanyContact No • PotentialCompanyEmail • PotentialItemSponsor	Unique ID Names of potential sponsoring company Location of potential sponsoring company Contact no of potential sponsoring company Email of potential sponsoring company Item a sponsor may sponsor	10 variable characters 40 variable characters 80 variable characters Number 30 variable characters 30 variable characters	NO NO NO NO NO NO	NO NO NO YES YES YES
SponsorshipRecords	• SponsorshipRecordsNo • SponsorCompanyName • SponsorEmail • MonetaryAmount • SponsorContactNo • ItemSponsorship	Unique NO The name of the sponsoring company The email address of the sponsor Amount of sponsorship Contact number of sponsor Sponsored Items	10 variable characters 40 variable characters 30 variable characters Number Number 30 variable characters	NO NO NO YES NO YES	NO NO YES NO YES YES

7.0 Summary

Some functions of the present in use system have been improved upon in the new system by moving from manual to automatic operation in our proposed system. The improvement of its system is important to ease the member in finding the information details from the huge amount of data. The automated system is simpler to use and can eliminate data redundancy.

When a member imports new member data into their file, one function in the new system went from manual to automated. In the current system, the members need to verify the correctness of data, key in the member data one by one by themselves and update it if any correction is needed. Other than that, they just have the file-based processing approach to record the details of events and activities every year by writing it into a piece of paper and putting it into an online document editor such as Notion or Google Docs. However, our proposed system has the capability to instantly import member data obtained from a google form into the system database and quickly examine it back in the database.

Besides, the member can also import information about the events held every year such as details of the responsible teams, events proposals, activities conducted in events and sponsorship of events into our system database. This kind of design helps members reduce the time to record and manage the processes of the event and the data recorded becomes the guideline for them to succeed in their event in the future. Next, another important difference of our redesign proposed system is that we include the lecturer who is mainly responsible for the PTUTM club. It has the ability to check the process of the event and activity.

In conclusion, we have upgraded a few of the system's currently employed capabilities by switching from manual to automatic operation. For the benefit of the users, we are also including some new features in our system.

Sem.1 2022/2023

SECD 2523 Database

Section 09

PHASE 4:

Database Logical Design & SQL

< Pesta Tanglung UTM Management System>

<Team SKTT1>

Team Members:

1. YEO CHUN TECK A21EC0148
2. LEW CHIN HONG A21EC0044
3. NG KAI ZHENG A21EC0101
4. GAN HENG LAI A21EC0176

1.0 Introduction

This project discusses the development of a new data management system for Pesta Tanglung UTM which is a university student club that frequently holds the events, especially Mooncake Festival and Cultural Night at the outdoor venue. The purpose of this project is to assist the Pesta Tanglung Club in developing a new data management system that could function more efficiently than the existing approach used by the club committees. There are various flaws in the PTUTM Club's present process approach that become problematic when the volume of data entering increases year after year. These issues can result in an unproductive process and needless time consumption which would subsequently affect the data that was correctly saved.

Consequently, it is necessary for the new system to take the place of the existing process technique. This will allow the committees to more easily handle things like automatically updating or changing student information and avoiding data duplication in the club database. The information synchronization will let the committee access the information and activity planning of the members.

Phase 4 of the project will involve transforming the conceptual Entity Relationship Diagram (ERD) developed in Phase 3 into a logical ERD by removing non-relational features such as many-to-many relationships and complex relationships. From this logical ERD, the schema of the relation will be derived and the relations will be normalized up to Boyce-Codd Normal Form (BCNF). The final logical ERD will be drawn to represent the BCNF relations, and the data dictionary will be updated based on these normalized relations. The logical ERD will also be validated against the system's transaction requirements.

As a deliverable, a report will be produced containing the logical ERD (global data model), the relational database schemas after normalization, and the updated data dictionary for the normalized logical design. The report will also include SQL statements for Data Definition Language (DDL) and Data Manipulation Language (DML).

2.0 Overview of Project

The project is developed to design a database for the Pesta Tanglung Club in Universiti Teknologi Malaysia (UTM) to improve their student management system. The current system used is a manual and file-based system which could cause a lot of human error and low efficiency. To improve the current system, we proposed a new database which will store all the information related to student management.

Based on the requirement and information gathered from the interview section with the secretary of the club, we have known more about the user requirements, their system weakness and needs. Therefore, we designed the new proposed database system based on the user requirements. The proposed database allows the user to establish different categories of relations from the raw data according to the requirements in a short instant, unification of data and the most essential part in the new system is the maintenance of consistency and accuracy of data which could eliminate the human type in error.

3.0 Database conceptual design

3.1 Update business rule

Pesta Tanglung has one president, one vice president, one general secretary, two deputy secretaries, one general treasurer, and two deputy treasurers and a total of 10 teams exist in the club. These teams are the general affair team, design team, publicity team, sales team, venue team, event organizing team, fundraising team, cultural information team, entertainment team and multimedia team. Each team must have only one team leader. Each team must have only one team leader. Each team must have at least one member. Every member of the club must be assigned to only one team. Every member is managed by their team leader.

Pesta Tanglung Club is in charge of one lecturer in UTM. A UTM lecturer is only in charge of a club. The users of the proposed database could be members of the club and lecturer, The authority to update and control the database was given to the president, the vice president, the general secretary and every team leader. Other members could only view the data from the database. The proposals could be checked by one lecturer.

The users who wish to access the database have to sign up hence log in to the database. All of the members of the club are assigned to 1 of those 10 teams. Each team have a team leader. The responsibility of the team leader is to manage the team member.

Every year, the club have an interview for a recruitment session. Each of the interviewees could choose the top 3 interest team he/she want to join. However, not all of the interviewees would pass the interview and join the most interesting team. The interviewees' attendance will be recorded. The interviewees who passed the interview will be assigned to a team suitable for their capability according to the decision of the 10 team leaders. The interview outcome will be announced to all of the interviewees no matter he/she passed or failed.

When an event such as Mooncake Festival and Cultural Night event is held, participant attendance will be recorded for analysis use and UTM merit purpose (for those who are UTM students), as well as a feedback form, will be distributed to gather the comment from the

participants so could overcome the event weakness. An event starts with an event proposal that has to submit to the UTM ACAD and wait for the approval. Many activities would be arranged in an event. All of the fundraisers in the club will start to find and contact the potential sponsor, and all of the fundraisers have the responsibility to follow up on the latest circumstances and the contact date will be recorded. Furthermore, for every event organized, each sponsorship will be recorded to know what the item/monetary amount the sponsorship sponsor is.

A report has to be generated after conducting every program for analysis purposes and submitted to HEP. Several analyses will be done in a report, such as the quantity of UTM students and the quantity of Non-UTM students. Lastly, from the feedback form gathered, the member is able to realize the problem faced to perform a future improvement.

3.2 Conceptual ERD

For a better view, please visit:

https://lucid.app/documents/view/61432891-b766-4c7a-a12e-3219ca42ec61

4.0 DB logical design

4.1 Logical ERD

For a better view, please visit:

https://lucid.app/documents/view/e5166a9d-4277-47a8-a43b-582323511a4c

4.2 Updated Data dictionary

Entity	Data to be stored	Description	Data Length & Type	Null	Multi-value
Team	• TeamID	Unique ID	10 variable characters	NO	NO
	• TeamName	Team's name	30 variable characters	NO	NO
	• TeamWhatsAppLink	Whatsapp application link	50 variable characters	NO	NO
	• MemberID	Unique ID	10 variable characters	NO	NO
	• MemberFirstName	First name of member	20 variable characters	NO	NO
	• MemberLastName	Last name of member	20 variable characters	NO	NO
	• MemberMatricNo	Unique matric no	10 variable characters	NO	NO
	• MemberGraduateEmail	Unique UTM email of member	30 variable characters	NO	NO
	• MemberYear	Degree year of member	Number	NO	NO
	• MemberCourse	Course of member	30 variable characters	NO	NO
	• MemberAddress	Address of member	80 variable characters	NO	NO
	• MemberFaculty	Faculty of member	50 variable characters	NO	NO
	• ClubPosition	Position of member in club	20 variable characters	NO	NO
	• MemberUserID	Unique ID	10 variable characters	NO	NO
	• MemberUserPassword	User password for member to access the system	15 variable characters	NO	NO
	• TeamLeaderID	UniqueID	10 variable characters	YES	NO
MemberAttribute	• Task	Task of each member	100 variable characters	YES	NO
	• Skills	Skills of each member	50 variable characters	YES	NO
	• Theme	Theme of entertainment	50 variable characters	YES	NO
	• StoreroomAuthorization	Member authority status of storeroom	1 variable characters	YES	NO
	• ResponsibleSocialMedia	Handle's social media	50 variable characters	YES	NO
	• ProductType	Type of product	50 variable characters	YES	NO
	• SceneModel	Production of scene props	50 variable characters	YES	NO
EventProposal	• ProposalNo	Unique NO	10 variable characters	NO	NO
	• EventBudget	Budget of event	Number	NO	NO
	• EventDescription	Description of event	200 variable characters	NO	NO
	• EventObjective	Objective of event	200 variable characters	NO	NO
	• CheckStatus	Status of checking	1 variable character	NO	NO
Student	• StudentID	Unique ID	10 variable characters	NO	NO
	• StudentMatricNo	Unique matric no of Student	10 variable characters	NO	NO
	• StudentFirstName	First name of Student	20 variable characters	NO	NO
	• StudentLastName	Last name of Student	20 variable characters	NO	NO
	• StudentYear	Degree year of Student	Number	NO	NO
	• StudentEmail	Email of Student	30 variable characters	NO	NO
	• StudentContactNo	Contact number of Student	Number	NO	NO
	• StudentFaculty	Faculty of Student	50 variable characters	NO	NO
	• StudentCourse	Course of Student	30 variable characters	NO	NO

	• StudentAddress	Address of Student	80 variable characters	NO	NO
Interview	• InterviewNo • InterviewPosition • StartTime • EndTime • Location	Unique ID Interview's club position Starting time for interview Ending time for interview Location of interview	10 variable characters 50 variable characters Timestamp Timestamp 80 variable characters	NO NO NO NO NO	NO NO NO NO NO
InterviewOutcome	• InterviewOutcomeNo • InterviewComment • InterviewStrength • InterviewResult	Unique ID Comment of interviewee Strength of interviewee Result of interview	10 variable characters 100 variable characters 100 variable characters 1 variable characters	NO NO NO NO	NO NO NO NO
TeamInterested	• InterestTeamRanking • ReasonJoinClub	Ranking of team interested Reason of joining club	Number 50 variable characters	NO NO	NO NO
AttendingInterview	• AttendanceNo • AttendanceStatus	Unique NO Status of attendance	10 variable characters 1 variable characters	NO NO	NO NO
Lecturer	• LecturerID • LecturerUserID • LecturerUserPassword • LecturerName • LecturerAge • LecturerAddress • LecturerContactNo • LecturerEmail • LecturerFaculty	Unique ID Unique ID User password for lecturer to access the system Name of lecturer Age of lecturer Address of lecturer Contact number of lecturer Email of lecturer Faculty of lecturer	10 variable characters 10 variable characters 15 variable characters 40 variable characters Number 80 variable characters Number 30 variable characters 50 variable characters	NO NO NO NO NO NO NO NO NO	NO NO NO NO NO NO NO NO NO
Participant	• ParticipantID • IsUTMStudent • ParticipantName • ParticipantEmail • ParticipantContactNo • ParticipantGraduateEmail • ParticipantMatricNo/IC • ParticipantYear • ParticipantFaculty • ParticipantCourse • ParticipantAddress	Unique ID Whether the Participant is UTM Student Participant's name Participant's email address Participant's contact number Participant's UTM email address Participant's MatricNo/IC Participant's degree year Participant's faculty Participant's course Participant's address	10 variable characters 1 variable characters 40 variable characters 30 variable characters Number 30 variable characters 15 variable characters Number 50 variable characters 30 variable characters 80 variable characters	NO NO NO NO NO YES YES YES YES YES YES	NO NO NO NO NO NO NO NO NO NO NO
FeedbackForm	• FeedbackNo • RespondentRating • RespondentComment • EventWeakness	Unique NO Respondent's rating Respondent's comment Event's weakness	10 variable characters Number 200 variable characters 200 variable characters	NO NO YES YES	NO NO NO NO
Event	• EventNo	Unique NO	10 variable characters	NO	NO

	• EventName • EventStartDate • EventEndDate • EventLocation	Event's name Event's start date and time Event's end date and time Event held location	50 variable characters Timestamp Timestamp 100 variable characters	NO NO NO NO	NO NO NO NO
MemberAttending	• AttendanceNo • AttendTimeStamp	Unique NO Time of the member attend	10 variable characters Timestamp	NO NO	NO NO
ParticipantAttending	• AttendanceNo • AttendTimeStamp • AttendanceStatus	Unique NO Time of the participant attend Status of attendance	10 variable characters Timestamp 1 variable characters	NO NO NO	NO NO NO
EventActivity	• EventActivityNo • EventActivityName • EventActivityObjective • EventActivityDescription • EventActivityStartTime • EventActivityEndTime	Unique NO Event activity name Object of event activity Event activity's description Event activity's start time Event activity's end time	10 variable characters 50 variable characters 100 variable characters 100 variable characters Timestamp Timestamp	NO NO NO NO NO NO	NO NO NO NO NO NO
Report	• ReportNo • ReportName • ReportType • ReportDescription • ProblemFaced • FutureImprovement • QuantityUTMStudent • QuantityNonUTMStudent	Unique NO Report's name Report's type Report's description Problem faced during event Future Improvement of event Amount of UTM student Amount of non-UTM student	10 variable characters 50 variable characters 30 variable characters 300 variable characters 300 variable characters 300 variable characters Number Number	NO NO NO NO NO NO NO NO	NO NO NO NO NO NO NO NO
PotentialSponsor	• PotentialSponsorID • PotentialCompanyName • PotentialCompanyLocation • PotentialCompanyEmail	Unique ID Names of potential sponsoring company Location of potential sponsoring company Email address of potential sponsoring company	10 variable characters 50 variable characters 80 variable characters 30 variable characters	NO NO NO NO	NO NO NO NO
PotentialTelephone	• PotentialCompanyContactNo	Contact number of potential sponsoring company	Number	NO	YES
PotentialItem	• PotentialItemSponsor	Potential item sponsored by company	80 variable characters	NO	YES
Reading	• ReadDate	Reading proposal's date	Date	NO	NO
SponsorshipRecords	• SponsorshipRecordsNo • SponsorCompanyName • SponsorEmail • MonetaryAmount	Unique NO The name of the sponsoring company The email address of the sponsor Amount of sponsorship	10 variable characters 50 variable characters 50 variable characters Number	NO NO NO YES	NO NO NO NO

SponsorTelephone	• SponsorContactNo	Contact number of the sponsor	Number	NO	YES
SponsorItem	• ItemSponsorship	Item of sponsor	80 variable characters	NO	YES
Contacting	• ContactDate	Date of contacting	Date	NO	NO

4.3 Normalization

UNF

FeedbackNo	StudentMatricNo	StudentFirstName	StudentLastName	StudentYear	StudentEmail
StudentContactNo	StudentFaculty	StudentCourse	StudentAddress	AttendanceNo	
AttendanceStatus	InterviewNo	InterviewPosition	Location	InterviewStartTime	
InterviewEndTime	InterviewOutcomeNo	InterviewResult	InterestTeamRanking	ReasonJoinClub	
TeamID	TeamName	TeamWhatsAppLink	MemberID	MemberFirstName	
MemberLastName	MemberMatricNo	MemberGraduateEmail	MemberYear	MemberAddress	
MemberCourse	ClubPosition	MemberUserID	MemberUserPassword	TeamLeaderID	
Task	Skills	Theme	StoreroomAuthorization	ResponsibleSocialMedia	
ProductType	SceneModel	ContactDate	PotentialSponsorID	PotentialCompanyName	
PotentialCompanyLocation	PotentialCompanyEmail	PotentialCompanyContactNo	PotentialItemSponsor	AttendanceNo	
AttendTimeStamp	EventNo	EventName	EventStartDate	EventEndDate	
EventLocation	ProposalNo	EventBudget	EventDescription	EventObjective	
CheckStatus	ReportNo	ReportName	ReportType	ReportDescription	
ProblemFaced	FutureImprovement	QuantityUTMStudent	QuantityNonUTMStudent	QuantityInterviewee	
QuantityIntervieweePass	AttendanceNo	AttendanceStatus	AttendTimeStamp	ParticipantID	
IsUTMStudent	ParticipantName	ParticipantEmail	ParticipantContactNo	ParticipantGraduateEmail	
ParticipantMatricNo/IC	ParticipantYear	ParticipantFaculty	ParticipantCourse		
ParticipantAddress	FeedbackNo	RespondentRating	RespondentComment	EventWeakness	
LecturerID	LecturerUserID	LecturerUserPassword	LecturerName	LecturerAge	
LecturerAddress	LecturerContactNo	LecturerEmail	LecturerFaculty		
EventActivityNo	EventActivityName	EventActivityObjective	EventActivityStartTime	EventActivityEndTime	
SponsorshipRecordsNo	SponsorCompanyName	SponsorEmail	MonetaryAmount	SponsorContactNo	
ItemSponsorship					

1NF

FeedbackNo	StudentMatricNo	StudentFirstName	StudentLastName	StudentYear	StudentEmail
StudentContactNo	StudentFaculty	StudentCourse	StudentAddress	AttendanceNo	
AttendanceStatus	InterviewNo	InterviewPosition	Location	InterviewStartTime	
InterviewEndTime	InterviewOutcomeNo	InterviewResult	InterestTeamRanking	ReasonJoinClub	
TeamID	TeamName	TeamWhatsAppLink	MemberID	MemberFirstName	

MemberLastName	MemberMatricNo	MemberGraduateEmail	MemberYear	MemberAddress
MemberCourse	ClubPosition	MemberUserID	MemberUserPassword	TeamLeaderID
Task	Skills	Theme	StoreroomAuthorization	ResponsibleSocialMedia
ProductType	SceneModel	ContactDate	PotentialSponsorID	PotentialCompanyName
PotentialCompanyLocation	PotentialCompanyEmail	PotentialCompanyContactNo	PotentialItemSponsor	AttendanceNo
AttendTimeStamp	EventNo	EventName	EventStartDate	EventEndDate
EventLocation	ProposalNo	EventBudget	EventDescription	EventObjective
CheckStatus	ReportNo	ReportName	ReportType	ReportDescription
ProblemFaced	FutureImprovement	QuantityUTMStudent	QuantityNonUTMStudent	QuantityInterviewee
QuantityIntervieweePass	AttendanceNo	AttendanceStatus	AttendTimeStamp	ParticipantID
IsUTMStudent	ParticipantName	ParticipantEmail	ParticipantContactNo	ParticipantGraduateEmail
ParticipantMatricNo/IC	ParticipantYear	ParticipantFaculty	ParticipantCourse	
ParticipantAddress	FeedbackNo	RespondentRating	RespondentComment	EventWeakness
LecturerID	LecturerUserID	LecturerUserPassword	LecturerName	LecturerAge
LecturerAddress	LecturerContactNo	LecturerEmail	LecturerFaculty	
EventActivityNo	EventActivityName	EventActivityObjective	EventActivityStartTime	EventActivityEndTime
SponsorshipRecordsNo	SponsorCompanyName	SponsorEmail	MonetaryAmount	SponsorContactNo
ItemSponsorship				

MemberID, EventNo => MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, clubPosition, MemberUserID, MemberUserPassword, TeamLeaderID, TeamID, TeamName, TeamWhatsAppLink, Task, Skills, Theme, StoreroomAuthorization, ResponsibleSocialMedia, ProductType, SceneModel, StudentID, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress, Intereset TeamRanking, ReasonJoinClub, InterviewNo, InterviewPosition,InterviewStartTime, InterviewEndTime, Location, AttendanceNo, AttendanceStatus, InterviewOutcomeNo, InterviewResult, PotentialSponsorID, PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail, PotentialCompanyContactNo, PotentialCompanySponsor, ContactDate, ProposalNo, EventBudget, EventDescription, EventObjective, CheckStatus, ReportNo, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent, LecturerID, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly, EventNo, EventName, EventStartDate, EventEndDate, EventLocation, AttendTimeStamp, ParticipantID, IsUTMStudent, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC,

ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress, AttendanceTimeStamp, FeedbackNo, RespondentRating, RespondentComment, EventWeakness, EventActivityNo, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime, SponsorshipRecordsNo, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount, SponsorContactNo, ItemSponsorship
(Primary Key)

Second Normal Form (2NF):

FD 1:

MemberID, EventNo => MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, clubPosition, MemberUserID, MemberUserPassword, TeamLeaderID, TeamID, TeamName, TeamWhatsAppLink, Task, Skills, Theme, StoreroomAuthorization, ResponsibleSocialMedia, ProductType, SceneModel, StudentID, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress, InteresetTeamRanking, ReasonJoinClub, InterviewNo, InterviewPosition,InterviewStartTime, InterviewEndTime, Location, AttendanceNo, AttendanceStatus, InterviewOutcomeNo, InterviewResult, PotentialSponsorID, PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail, PotentialCompanyContactNo, PotentialCompanySponsor, ContactDate, ProposalNo, EventBudget, EventDescription, EventObjective, CheckStatus, ReportNo, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent, LecturerID, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly, EventNo, EventName, EventStartDate, EventEndDate, EventLocation, AttendTimeStamp, ParticipantID, IsUTMStudent, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress, AttendanceTimeStamp, FeedbackNo, RespondentRating, RespondentComment, EventWeakness, EventActivityNo, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime, SponsorshipRecordsNo, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount, SponsorContactNo, ItemSponsorship
(Primary Key)

FD 2:

MemberID => TeamID, MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, ClubPosition, MemberUserID, MemberUserPassword, TeamLeaderID
(Partial Dependency)

FD 3:

EventNo => EventName, EventStartDate, EventEndDate, EventLocation, ProposalNo, ReportNo
(Partial Dependency)

FD 4:

TeamID => TeamName, TeamWhatsAppLink
(Transitive Dependency)

FD 5:

StudentID => StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress
(Transitive Dependency)

FD 6:

TeamID, StudentID => InteresetTeamRanking, ReasonJoinClub
(Transitive Dependency)

FD 7:

InterviewNo, InterviewPosition, InterviewStartTime => Location, InterviewEndTime
(Transitive Dependency)

FD 8:

InterviewStartTime, InterviewPosition => Location
(Non-candidate key)

FD 9:

StudentID, AttendanceNo, InterviewNo, InterviewPosition => AttendanceStatus
(Transitive Dependency)

FD 10:

StudentID, InterviewNo, InterviewOutcomeNo => InterviewResult
(Transitive Dependency)

FD 11:

PotentialSponsorID => PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail
(Transitive Dependency)

FD 12:

PotentialCompanyContactNo => PotentialSponsorID
(Transitive Dependency)

FD 13:

PotentialCompanySponsor, PotentialSponsorID => {}
(Transitive Dependency)

FD 14:

MemberID, PotentialSponsorID => ContactDate
(Transitive Dependency)

FD 15:

ProposalNo => EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID
(Transitive Dependency)

FD 16:

ReportNo => ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent
(Transitive Dependency)

FD 17:

LecturerID => LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)
(Transitive Dependency)

FD 18:

ParticipantID, IsUTMStudent => ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress
(Transitive Dependency)

FD 19:

EventNo, ParticipantID, IsUTMStudent, AttendanceNo => AttendanceStatus, AttendanceTimeStamp
(Transitive Dependency)

FD 20:

FeedbackNo, EventNo => RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent
(Transitive Dependency)

FD 21:

EventActivityNo, EventNo => EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime
(Transitive Dependency)

FD 22:

SponsorshipRecordsNo, EventNo=> SpnsorCompanyNmae, SponsorEmail, MonetaryAmount,
(Transitive Dependency)

FD 23:

SponsorContactNo => SponsorshipRecordsNo
(Transitive Dependency)

FD 24:

ItemSponsorship, SponsorshipRecordsNo => {}
(Transitive Dependency)

2NF Relations:

From FD 2:
MemberAttributeTeam(**MemberID**, MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, ClubPosition, MemberUserID, MemberUserPassword,TeamID, TeamName, TeamWhatsAppLink, TeamLeaderID, Task, Skills, Theme, StoreroomAuthorization, ResponsibleSocialMedia, ProductType, SceneModel)

From FD 3:

EventProposalReport(**EventNo**, EventName, EventStartDate, EventEndDate, EventLocation, ProposalNo, EventBudget, EventDescription, EventObjective, CheckStatus, ReportNo, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent)

The Rest:

InterviewStudentParticipantAttendEventSponsor(**MemberID, EventNo**, , StudentID, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress, InteresetTeamRanking, ReasonJoinClub, InterviewNo, InterviewPosition,InterviewStartTime, InterviewEndTime, Location, AttendanceNo, AttendanceStatus, InterviewOutcomeNo, InterviewResult, PotentialSponsorID, PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail, PotentialCompanyContactNo, PotentialCompanySponsor, ContactDate, LecturerID, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly, AttendTimeStamp, ParticipantID, IsUTMStudent, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress, AttendanceTimeStamp, FeedbackNo, RespondentRating, RespondentComment, EventWeakness, EventActivityNo, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime, SponsorshipRecordsNo, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount, SponsorContactNo, ItemSponsorship

Third Normal Form (3NF) :

FD 4:

TeamID => TeamName, TeamWhatsAppLink
(Transitive Dependency)

FD 5:

StudentID => StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress
(Transitive Dependency)

FD 6:

TeamID, StudentID => IteresetTeamRanking, ReasonJoinClub
(Transitive Dependency)

FD 7:

InterviewNo, InterviewPosition, InterviewStartTime => Location, InterviewEndTime
(Transitive Dependency)

FD 9:

StudentID, AttendanceNo, InterviewNo, InterviewPosition => AttendanceStatus
(Transitive Dependency)

FD 10:

StudentID, InterviewNo, InterviewOutcomeNo => InterviewResult
(Transitive Dependency)

FD 11:

PotentialSponsorID => PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail
(Transitive Dependency)

FD 12:

PotentialCompanyContactNo => PotentialSponsorID
(Transitive Dependency)

FD 13:

PotentialCompanySponsor, PotentialSponsorID => {}
(Transitive Dependency)

FD 14:

MemberID, PotentialSponsorID => ContactDate
(Transitive Dependency)

FD 15:

ProposalNo => EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID
(Transitive Dependency)

FD 16:

ReportNo => ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent
(Transitive Dependency)

FD 17:

LecturerID => LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)
(Transitive Dependency)

FD 18:

ParticipantID, IsUTMStudent => ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress
(Transitive Dependency)

FD 19:

EventNo, ParticipantID, IsUTMStudent, AttendanceNo => AttendanceStatus, AttendanceTimeStamp
(Transitive Dependency)

FD 20:

FeedbackNo, EventNo => RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent
(Transitive Dependency)

FD 21:

EventActivityNo, EventNo => EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime
(Transitive Dependency)

FD 22:

SponsorshipRecordsNo, EventNo=> SpnsorCompanyNmae, SponsorEmail, MonetaryAmount,
(Transitive Dependency)

FD 23:

SponsorContactNo => SponsorshipRecordsNo
(Transitive Dependency)

FD 24:

ItemSponsorship, SponsorshipRecordsNo => {}
(Transitive Dependency)

3NF Relations:

From FD 4:

Team(**<u>TeamID</u>**, TeamName, TeamWhatsAppLink)
(Transitive Dependency)

From FD 5:

Student(**<u>StudentID</u>**, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress)
(Transitive Dependency)

From FD 6:

TeamInterested(**<u>TeamID, StudentID</u>**, InteresetTeamRanking, ReasonJoinClub)
(Transitive Dependency)

From FD 7:

Interview(**<u>InterviewNo, InterviewPosition</u>,** Location, InterviewStartTime, InterviewEndTime)
(Transitive Dependency)

From FD 9:

AttendingInterview(**<u>StudentID, AttendanceNo, InterviewNo</u>**, InterviewPosition => AttendanceStatus)
(Transitive Dependency)

From FD 10:

InterviewOutcome(**<u>StudentID, InterviewNo, InterviewOutcomeNo</u>**, InterviewResult)
(Transitive Dependency)

From FD 11:

PotentialSponsor(**<u>PotentialSponsorID</u>,** PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail)
(Transitive Dependency)

From FD 12:

PotentialTelephone(**<u>PotentialCompanyContactNo</u>**, PotentialSponsorID)
(Transitive Dependency)

From FD 13:

PotentialItem(**<u>PotentialCompanySponsor, PotentialSponsorID</u>**)
(Transitive Dependency)

From FD 14:

Contacting(**<u>MemberID, PotentialSponsorID</u>,** ContactDate)
(Transitive Dependency)

From FD 15:

EventProposal(**<u>ProposalNo</u>**, EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID)
(Transitive Dependency)

From FD 16:

ProgramReport(**<u>ReportNo</u>**, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent)
(Transitive Dependency)

From FD 17:

Lecturer(**<u>LecturerID</u>**, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)
(Transitive Dependency)

From FD 18:

Participant(**<u>ParticipantID, IsUTMStudent</u>**, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress)
(Transitive Dependency)

From FD 19:

ParticipantAttending(**EventNo, ParticipantID, IsUTMStudent, AttendanceNo,** AttendanceStatus, AttendanceTimeStamp)
(Transitive Dependency)

From FD 20:

FeedbackForm(**FeedbackNo, EventNo**, RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent)
(Transitive Dependency)

From FD 21:

EventActivity(**EventActivityNo, EventNo**, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime)
(Transitive Dependency)

From FD 22:

SponsorshipRecords(**SponsorshipRecordsNo, EventNo**, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount)
(Transitive Dependency)

Form FD 23:

SponsorTelephone(**SponsorContactNo**, SponsorshipRecordsNo)
(Transitive Dependency)

From FD 24:

SponsorItem(**ItemSponsorship, SponsorshipRecordsNo**)
(Transitive Dependency)

After 3NF:

Team(**TeamID**, TeamName, TeamWhatsAppLink)

Student(**StudentID**, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress)

TeamInterested(**TeamID, StudentID**, InteresetTeamRanking, ReasonJoinClub)

Interview(**InterviewNo, InterviewPosition, InterviewStartTime**, Location, InterviewEndTime)

Member(**MemberID**, MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, ClubPosition, MemberUserID, MemberUserPassword,TeamID,TeamLeaderID)

Event(**EventNo**, EventName, EventStartDate, EventEndDate, EventLocation, ProposalNo, ReportNo)

AttendingInterview(**StudentID, AttendanceNo, InterviewNo**, InterviewPosition => AttendanceStatus)

InterviewOutcome(**StudentID, InterviewNo, InterviewOutcomeNo**, InterviewResult)

PotentialSponsor(**PotentialSponsorID**, PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail)

PotentialTelephone(**PotentialCompanyContactNo**, PotentialSponsorID)

PotentialItem(**PotentialCompanySponsor**, PotentialSponsorID)

Contacting(**MemberID, PotentialSponsorID**, ContactDate)

EventProposal(**ProposalNo**, EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID)

ProgramReport(**ReportNo**, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent)

Lecturer(**LecturerID**, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)

Participant(**ParticipantID, IsUTMStudent**, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress)

ParticipantAttending(**EventNo, ParticipantID, IsUTMStudent, AttendanceNo**, AttendanceStatus, AttendanceTimeStamp)

FeedbackForm(**FeedbackNo, EventNo**, RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent)

EventActivity(**EventActivityNo, EventNo**, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime)

SponsorshipRecords(**SponsorshipRecordsNo, EventNo**, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount)

SponsorTelephone(**SponsorContactNo**, SponsorshipRecordsNo)

SponsorItem(**ItemSponsorship**, SponsorshipRecordsNo)

MemberAttending(**MemberID, EventNo, AttendanceNo,** AttendTimeStamp)

Boyce Codd Normal Form (BCNF)

FD 8:

InterviewStartTime, InterviewPosition => Location
(Non-candidate key)

BCNF Relations:

From FD 8:

InterviewLocation(**InterviewStartTime, InterviewPosition**, Location)

After BCNF:

Team(**<u>TeamID</u>**, TeamName, TeamWhatsAppLink)

Student(**<u>StudentID</u>**, StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress)

TeamInterested(**<u>TeamID, StudentID</u>**, IteresetTeamRanking, ReasonJoinClub)

Interview(**<u>InterviewNo, InterviewPosition, InterviewStartTime</u>**, InterviewEndTime)

InterviewLocation(**<u>InterviewStartTime, InterviewPosition</u>**, Location)

Member(**<u>MemberID</u>**, MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, ClubPosition, MemberUserID, MemberUserPassword,TeamID,TeamLeaderID)

Event(**<u>EventNo</u>**, EventName, EventStartDate, EventEndDate, EventLocation, ProposalNo, ReportNo)

AttendingInterview(**<u>StudentID, AttendanceNo, InterviewNo</u>**, InterviewPosition => AttendanceStatus)

InterviewOutcome(**<u>StudentID, InterviewNo, InterviewOutcomeNo</u>**, InterviewResult)

PotentialSponsor(**<u>PotentialSponsorID</u>**, PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail)

PotentialTelephone(**<u>PotentialCompanyContactNo</u>**, PotentialSponsorID)

PotentialItem(**<u>PotentialCompanySponsor, PotentialSponsorID</u>**)

Contacting(**<u>MemberID, PotentialSponsorID</u>**, ContactDate)

EventProposal(**<u>ProposalNo</u>**, EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID)

ProgramReport(**<u>ReportNo</u>**, ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent)

Lecturer(**<u>LecturerID</u>**, LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)

Participant(**ParticipantID, IsUTMStudent**, ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress)

ParticipantAttending(**EventNo, ParticipantID, IsUTMStudent, AttendanceNo**, AttendanceStatus, AttendanceTimeStamp)

FeedbackForm(**FeedbackNo, EventNo**, RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent)

EventActivity(**EventActivityNo, EventNo**, EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime)

SponsorshipRecords(**SponsorshipRecordsNo, EventNo**, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount)

SponsorTelephone(**SponsorContactNo**, SponsorshipRecordsNo)

SponsorItem(**ItemSponsorship, SponsorshipRecordsNo**)

MemberAttending(**MemberID, EventNo, AttendanceNo,** AttendTimeStamp)

5.0 Relational DB Schemas (after normalization)

Team(**TeamID**, TeamName, TeamWhatsAppLink)

Member(**MemberID**, TeamID, MemberFirstName, MemberLastName, MemberMatricNo, MemberGraduateEmail, MemberYear, MemberAddress, MemberCourse, ClubPosition, MemberUserID, MemberUserPassword, TeamLeaderID)

MemberAttribute(Task, Skills, Theme, StoreroomAuthorization, ResponsibleSocialMedia, ProductType, SceneModel, MemberID)

Student(**StudentID,** StudentMatricNo, StudentFirstName, StudentLastName, StudentYear, StudentEmail, StudentContactNo, StudentFaculty, StudentCourse, StudentAddress)

TeamInterested(**StudentID, TeamID,** IteresetTeamRanking, ReasonJoinClub)

Interview(**InterviewNo, InterviewPosition**, **InterviewStartTime**, InterviewEndTime)

InterviewLocation(**InterviewNo, InterviewPosition,** Location)

AttendingInterview(**StudentID, AttendanceNo, InterviewNo, InterviewPosition** AttendanceStatus)

InterviewOutcome(**StudentID, InterviewNo, InterviewPosition, InterviewOutcomeNo,** InterviewResult)

PotentialSponsor(**PotentialSponsorID,** PotentialCompanyName, PotentialCompanyLocation, PotentialCompanyEmail)

PotentialTelephone(**PotentialCompanyContactNo,** PotentialSponsorID)

PotentialItem(**PotentialCompanySponsor,** PotentialSponsorID)

Contacting(**MemberID, PotentialSponsorID,** ContactDate)

EventProposal(**ProposalNo**, EventBudget, EventDescription, EventObjective, CheckStatus, LecturerID)

ProgramReport(**ReportNo,** ReportName, ReportDescription, ProblemFaced, FutureImprovement, QuantityUTMStudent, QuantityNonUTMStudent)

Lecturer(**<u>LecturerID</u>,** LecturerUserID, LecturerUserPassword, LecturerName, LecturerAge, LecturerAddress, LecturerContactNo, LecturerEmail, LecturerFacutly)

Event(**<u>EventNo</u>,** EventName, EventStartDate, EventEndDate, EventLocation, ProposalNo, ReportNo)

MemberAttending(**<u>MemberID</u>, <u>EventNo</u>, <u>AttendanceNo</u>,** AttendTimeStamp)

Participant(**<u>ParticipantID, IsUTMStudent</u>,** ParticipantName, ParticipantEmail, ParticipantContactNo, ParticipantGraduateEmail, ParticipantMatricNo/IC, ParticipantYear, ParticipantFaculty, ParticipantCourse, ParticipantAddress)

ParticipantAttending(**<u>EventNo</u>, <u>ParticipantID, IsUTMStudent</u>, <u>AttendanceNo</u>,** AttendanceStatus, AttendanceTimeStamp)

FeedbackForm(**<u>FeedbackNo</u>**, RespondentRating, RespondentComment, EventWeakness, ParticipantID, IsUTMStudent, EventNo)

EventActivity(**<u>EventActivityNo</u>,** EventActivityName, EventActivityObjective, EventActivityStartTime, EventActivityEndTime, EventNo)

SponsorshipRecords(**<u>SponsorshipRecordsNo</u>**, SpnsorCompanyNmae, SponsorEmail, MonetaryAmount, EventNo)

SponsorTelephone(**<u>SponsorContactNo</u>,** SponsorshipRecordsNo)

SponsorItem(**<u>ItemSponsorship</u>,** SponsorshipRecordsNo)

6.0 SQL Statements (DDL & DML)

```
CREATE TABLE Team(
   TeamID VARCHAR2(10) NOT NULL,
   TeamName VARCHAR2(30) NOT NULL,
   TeamWhatsAppLink VARCHAR2(50) NOT NULL,
   CONSTRAINT PK_Team PRIMARY KEY (TeamID)
);

CREATE TABLE Member(
   MemberID VARCHAR2(10) NOT NULL,
   MemberFirstName VARCHAR2(20) NOT NULL,
   MemberLastName VARCHAR2(20) NOT NULL,
   MemberMatricNo VARCHAR2(10) NOT NULL,
   MemberGraduateEmail VARCHAR2(30) NOT NULL,
   MemberYear NUMBER NOT NULL,
   MemberAddress VARCHAR2(80) NOT NULL,
   MemberCourse VARCHAR2(30) NOT NULL,
   ClubPosition VARCHAR2(20) NOT NULL,
   MemberUserID VARCHAR2(10) NOT NULL,
   MemberUserPassword VARCHAR2(15) NOT NULL,
   TeamLeaderID VARCHAR2(10) NOT NULL,
   TeamID VARCHAR2(10) NOT NULL,
   CONSTRAINT PK_Member PRIMARY KEY (MemberID),
```

```
    CONSTRAINT fk_MemberTeam FOREIGN KEY (TeamID) REFERENCES TEAM(TeamID)

);



CREATE TABLE MemberAttribute(

  Task VARCHAR2(100),

  Skills VARCHAR2(50),

  Theme VARCHAR2(50),

  StoreroomAuthorization VARCHAR2(1),

  ResponsibleSocialMedia VARCHAR2(50),

  ProductType VARCHAR2(50),

  SceneModel VARCHAR2(50),

  MemberID VARCHAR2(10),

  CONSTRAINT FK_MemberID FOREIGN KEY (MemberID) REFERENCES Member(MemberID)

);


CREATE TABLE Student(

  StudentID VARCHAR2(10) NOT NULL,

  StudentMatricNo VARCHAR2(10) NOT NULL,

  StudentFirstName VARCHAR2(20) NOT NULL,

  StudentLastName VARCHAR2(20) NOT NULL,

  StudentYear NUMBER NOT NULL,
```

```
    StudentEmail VARCHAR2(50) NOT NULL,
    StudentContactNo NUMBER NOT NULL,
    StudentFaculty VARCHAR2(50) NOT NULL,
    StudentCourse VARCHAR2(30) NOT NULL,
    StudentAddress VARCHAR2(80) NOT NULL,
    CONSTRAINT PK_Student PRIMARY KEY(StudentID)
);

CREATE TABLE TeamInterested(
    StudentID VARCHAR2(10) NOT NULL,
    TeamID VARCHAR2(10) NOT NULL,
    IteresetTeamRanking NUMBER NOT NULL,
    ReasonJoinClub VARCHAR2(80) NOT NULL,
    CONSTRAINT FK_StudentID FOREIGN KEY (StudentID) REFERENCES Student(StudentID),
    CONSTRAINT FK_TeamID FOREIGN KEY (TeamID) REFERENCES Team(TeamID),
    CONSTRAINT PK_TeamInterested PRIMARY KEY(StudentID, TeamID)
);

CREATE TABLE Interview(
    InterviewNo VARCHAR2(10) NOT NULL,
    InterviewPosition VARCHAR2(50) NOT NULL,
    InterviewStartTime TIMESTAMP NOT NULL,
    interviewEndTime TIMESTAMP NOT NULL,
```

```
        CONSTRAINT PK_Interview PRIMARY KEY(InterviewNo, InterviewPosition, InterviewStartTime)

);


CREATE TABLE INTERVIEWLOCATION

(

   InterviewNo VARCHAR2(10) NOT NULL,

   InterviewPosition VARCHAR2(50) NOT NULL,

   Location VARCHAR2(80) NOT NULL,

            CONSTRAINT PK_InterviewLocation PRIMARY KEY (InterviewNo, InterviewPosition)

   );


CREATE TABLE AttendingInterview

(

   StudentID VARCHAR2(10) NOT NULL,

   InterviewNo VARCHAR2(10) NOT NULL,

   InterviewPosition VARCHAR2(50) NOT NULL,

InterviewStartTime TIMESTAMP NOT NULL,

   AttendanceNo VARCHAR2(10) NOT NULL,

   AttendanceStatus VARCHAR2(1) NOT NULL,

     CONSTRAINT FK_InterviewStudentID FOREIGN KEY(StudentID) REFERENCES Student(StudentID),
```

```
    CONSTRAINT FK_InterviewNo FOREIGN KEY(InterviewNo, InterviewPosition, InterviewStartTime) REFERENCES Interview(InterviewNo, InterviewPosition, InterviewStartTime),

        CONSTRAINT PK_AInterview PRIMARY KEY(StudentID, InterviewNo, InterviewPosition, InterviewStartTime, AttendanceNo)

);


CREATE TABLE InterviewOutcome(

  StudentID VARCHAR2(10) NOT NULL,

  InterviewNo VARCHAR2(10) NOT NULL,

  InterviewPosition VARCHAR2(50) NOT NULL,

InterviewStartTime TIMESTAMP NOT NULL,

  InterviewOutcomeNo VARCHAR2(10) NOT NULL,

  InterviewResult VARCHAR2(1) NOT NULL,

    CONSTRAINT PK_InterviewOutcome PRIMARY KEY(StudentID, InterviewNo, InterviewPosition, InterviewStartTime, InterviewOutcomeNo),

   CONSTRAINT FK_OutcomeStudentID FOREIGN KEY(StudentID) REFERENCES Student(StudentID),

        CONSTRAINT FK_OutcomeInterviewNo FOREIGN KEY(InterviewNo, InterviewPosition, InterviewStartTime) REFERENCES Interview(InterviewNo, InterviewPosition, InterviewStartTime)

);


CREATE TABLE PotentialSponsor(

  PotentialSponsorID VARCHAR2(10) NOT NULL,

  PotentialCompanyName VARCHAR2(50) NOT NULL,
```

```
    PotentialCompanyLocation VARCHAR2(80) NOT NULL,

    PotentialCompanyEmail VARCHAR2(50) NOT NULL,

    CONSTRAINT PK_PotentialSponsor PRIMARY KEY(PotentialSponsorID)

);


CREATE TABLE PotentialTelephone(

    PotentialCompanyContactNo NUMBER NOT NULL,

    PotentialSponsorID VARCHAR2(10) NOT NULL,

    CONSTRAINT PK_PTelephone PRIMARY KEY(PotentialCompanyContactNo),

     CONSTRAINT FK_PSponsorID FOREIGN KEY(PotentialSponsorID) REFERENCES
PotentialSponsor(PotentialSponsorID)

);


CREATE TABLE PotentialItem(

    PotentialCompanySponsor VARCHAR2(80) NOT NULL,

    PotentialSponsorID VARCHAR2(10) NOT NULL,

CONSTRAINT PK_PItem PRIMARY KEY (PotentialCompanySponsor,
PotentialSponsorID),

CONSTRAINT FK_PItemSponsorID FOREIGN KEY(PotentialSponsorID)
REFERENCES PotentialSponsor(PotentialSponsorID)

);


CREATE TABLE Contacting(

    MemberID VARCHAR2(10) NOT NULL,
```

```
   PotentialSponsorID VARCHAR2(10) NOT NULL,

   ContactDate DATE NOT NULL,

     CONSTRAINT FK_ContactMemberID FOREIGN KEY(MemberID) REFERENCES Member(MemberID),

          CONSTRAINT FK_ContactSponsorID FOREIGN KEY(PotentialSponsorID) REFERENCES PotentialSponsor(PotentialSponsorID),

   CONSTRAINT PK_Contacting PRIMARY KEY(MemberID, PotentialSponsorID)

);


CREATE TABLE Lecturer(

LecturerID VARCHAR2(10) NOT NULL,

LecturerUserID VARCHAR2(10) NOT NULL,

         LecturerUserPassword VARCHAR2(15) NOT NULL,

LecturerName VARCHAR2(40) NOT NULL,

LecturerAge NUMBER NOT NULL,

LecturerAddress VARCHAR2(80) NOT NULL,

LecturerContactNo NUMBER NOT NULL,

LecturerEmail VARCHAR2(30) NOT NULL,

LecturerFaculty VARCHAR2(50) NOT NULL,

CONSTRAINT PK_LecturerID PRIMARY KEY (LecturerID)

);


CREATE TABLE EventProposal(

ProposalNo VARCHAR(10) NOT NULL,
```

```
EventBudget NUMBER NOT NULL,

EventDescription VARCHAR2(200) NOT NULL,

EventObjective VARCHAR2(200) NOT NULL,

CheckStatus VARCHAR2(1) NOT NULL,

LecturerID VARCHAR2(10) NOT NULL,

CONSTRAINT PK_EventProposal PRIMARY KEY (ProposalNo),

CONSTRAINT FK_LecturerID FOREIGN KEY (LecturerID) REFERENCES Lecturer(LecturerID)

);


CREATE TABLE PROGRAMREPORT

(

   ReportNo VARCHAR2(10) NOT NULL,

   ReportName VARCHAR2(50) NOT NULL,

   ReportDescription VARCHAR2(300) NOT NULL,

   ProblemFaced VARCHAR2(300) NOT NULL,

   FutureImprovement VARCHAR2(300) NOT NULL,

   QuantityUTMStudent NUMBER NOT NULL,

   QuantityNonUTMStudent NUMBER NOT NULL,

   CONSTRAINT pk_ProgramReport PRIMARY KEY (ReportNo)

);


CREATE TABLE EVENT

(
```

```
   EventNo VARCHAR2(10) NOT NULL,

   EventName VARCHAR(50) NOT NULL,

   EventStartDate TIMESTAMP NOT NULL,

   EventEndDate TIMESTAMP NOT NULL,

   EventLocation VARCHAR2(100) NOT NULL,

   ProposalNo VARCHAR2(10) NOT NULL,

   ReportNo VARCHAR2(10) NOT NULL,

   CONSTRAINT pk_Event PRIMARY KEY (EventNo),

      CONSTRAINT fk_EventProposal FOREIGN KEY (ProposalNo) REFERENCES EVENTPROPOSAL(ProposalNo),

       CONSTRAINT fk_EventReport FOREIGN KEY (ReportNo) REFERENCES PROGRAMREPORT(ReportNo)

);


CREATE TABLE PARTICIPANT

(

   ParticipantID VARCHAR2(10) NOT NULL,

   IsUTMStudent VARCHAR2(1) NOT NULL,

   ParticipantName VARCHAR2(40) NOT NULL,

   ParticipantEmail VARCHAR2(50) NOT NULL,

   ParticipantContactNo NUMBER NOT NULL,

   PariticipantGraduateEmail VARCHAR2(50),

   ParticipantMatricNo_IC VARCHAR2(15),

   ParticipantYear NUMBER,
```

```
    ParticipantFaculty VARCHAR2(50),

    ParticipantCourse VARCHAR2(30),

    ParticipantAddress VARCHAR2(80),

    CONSTRAINT pk_Participant PRIMARY KEY (ParticipantID,IsUTMStudent)

);


CREATE TABLE PARTICIPANTATTENDING

(

    AttendanceNo VARCHAR2(10) NOT NULL,

    AttendTimeStamp TIMESTAMP NOT NULL,

    AttendanceStatus VARCHAR2(1) NOT NULL,

    ParticipantID VARCHAR2(10),

    IsUTMStudent VARCHAR2(1),

    EventNo VARCHAR2(10),

        CONSTRAINT pk_ParticipantAttending PRIMARY KEY (AttendanceNo, ParticipantID, IsUTMStudent, EventNo),

        CONSTRAINT fk_ParticipnatAttending FOREIGN KEY (ParticipantID, IsUTMStudent) REFERENCES PARTICIPANT(ParticipantID, IsUTMStudent),

        CONSTRAINT fk_ParticipnatAttendingEvent FOREIGN KEY (EventNo) REFERENCES EVENT(EventNo)

);


CREATE TABLE FEEDBACKFORM

(
```

```
   FeedbackNo VARCHAR2(10) NOT NULL,

   RespondentRating NUMBER NOT NULL,

   RespondentComment VARCHAR2(200),

   EventWeakness VARCHAR2(200),

   EventNo VARCHAR2(10),

   ParticipantID VARCHAR2(10),

   IsUTMStudent VARCHAR2(1),

   CONSTRAINT pk_FeedbackForm PRIMARY KEY (FeedbackNo),

     CONSTRAINT fk_FeedbackFormEvent FOREIGN KEY (EventNo) REFERENCES EVENT(EVentNo),

          CONSTRAINT fk_FeedbackParticipant FOREIGN KEY (ParticipantID, IsUTMStudent) REFERENCES PARTICIPANT(ParticipantID, IsUTMStudent)

);



CREATE TABLE MEMBERATTENDING

(

   AttendanceNo VARCHAR2(10) NOT NULL,

   AttendTimeStamp TIMESTAMP NOT NULL,

   MemberID VARCHAR2(10),

   EventNo VARCHAR2(10),

     CONSTRAINT pk_MemberAttending PRIMARY KEY (AttendanceNo, MemberID, EventNo),

          CONSTRAINT fk_MemberAttendingTeam FOREIGN KEY (MemberID) REFERENCES MEMBER(MemberID),
```

```
    CONSTRAINT fk_MemberAttendingEvent FOREIGN KEY (EventNo) REFERENCES EVENT(EventNo)

);


CREATE TABLE EVENTACTIVITY

(

EventActivityNo VARCHAR2(10) NOT NULL,

EventActivityName VARCHAR2(50) NOT NULL,

EventActivityObjective VARCHAR2(100) NOT NULL,

EventActivityStartTime TIMESTAMP NOT NULL,

EventAvtivityEndTime TIMESTAMP NOT NULL,

EventNo VARCHAR(10),

CONSTRAINT pk_EventActivity PRIMARY KEY (EventActivityNo),

        CONSTRAINT fk_EventActivity FOREIGN KEY (EventNo) REFERENCES EVENT(EventNo)

);


CREATE TABLE SPONSORSHIPRECORDS

(

SponsorshipRecordsNo VARCHAR2(10) NOT NULL,

SponsorsCompanyName VARCHAR2(50) NOT NULL,

SponsorEmail VARCHAR2(50) NOT NULL,

MonetaryAmount NUMBER,

EventNo VARCHAR(10),
```

```
CONSTRAINT pk_SponsorshipRecords PRIMARY KEY (SponsorshipRecordsNo),

CONSTRAINT fk_SponsorshipRecords FOREIGN KEY (EventNo) REFERENCES EVENT(EventNo)

);


CREATE TABLE SPONSORTELEPHONE

(

SponsorContactNo NUMBER NOT NULL,

SponsorshipRecordsNo VARCHAR2(10),

CONSTRAINT pk_SponsorTelephone PRIMARY KEY (SponsorContactNo),

CONSTRAINT fk_SponsorTelephone FOREIGN KEY (SponsorshipRecordsNo) REFERENCES SPONSORSHIPRECORDS(SponsorshipRecordsNo)

);


CREATE TABLE SPONSORITEM

(

ItemSponsorship VARCHAR2(80) NOT NULL,

SponsorshipRecordsNo VARCHAR2(10),

CONSTRAINT pk_SponsorItem PRIMARY KEY (ItemSponsorship, SponsorshipRecordsNo),

        CONSTRAINT fk_SponsorItem FOREIGN KEY (SponsorshipRecordsNo) REFERENCES SPONSORSHIPRECORDS(SponsorshipRecordsNo)

);
```

—INSERT—

INSERT NEW DATA INTO Member TABLE

INSERT INTO Member
VALUES('MB0003', 'Loh', 'Qian Eng', 'A21EC0100', 'lohqian@graduate.utm.my', '2', 'KTR', 'SECJH', 'member', 'lohqian', '33819383', 'MB0002', '04');

INSERT NEW DATA INTO Contacting TABLE

INSERT INTO Contacting
VALUES ('MB0016', 'POTSPON20', DATE'2022-04-26');

INSERT NEW DATA INTO Student TABLE

INSERT INTO Student
VALUES('stud005','A20CE0005','Jun Jie','Lim', 3,'junjie@gradaute.utm.my', 60198619263,'Faculty of civil engineering','SKAW', 'KRP');

INSERT NEW DATA INTO TeamInterested TABLE

INSERT INTO TeamInterested
VALUES ('stud007','01',1,'I want to have fun and enjoy myself');

INSERT NEW DATA INTO SPONSORSHIPRECORDS TABLE

INSERT INTO SPONSORSHIPRECORDS
VALUES ('SPONREC01', 'SPA PARAGON', 'SPAPARAGON@GMAIL.COM', 1000, 'EVT001');

–UPDATE–

UPDATE Interview End Time

```
UPDATE Interview
    SET interviewEndTime=TIMESTAMP '2022-10-12 14:00:00'
    WHERE InterviewPosition = 'Multimedia Specialist'
        AND
        interviewEndTime=TIMESTAMP '2022-10-12 12:00:00'
```

UPDATE Participant ‘s Status

```
UPDATE Participant
SET IsUTMStudent = 'Y'
    WHERE  ParticipantID =  'PART0025';
```

UPDATE Student ‘s Contact Number

```
UPDATE Student
SET StudentContactNo = 60123456789
WHERE StudentID ='stud020';
```

Update Member ‘s Club Position

```
UPDATE Member
SET ClubPosition ='Vice President'
WHERE MemberID = 'MB0040';
```

Update Sponsorship Record

```
UPDATE SPONSORSHIPRECORDS
SET MonetaryAmount = 500
WHERE SponsorshipRecordsNo = 'SPONREC01';
```

—DELETE—

DELETE THE MEMBER FROM ARE YEAR 4 FROM MEMBER TABLE

```
DELETE FROM MEMBER
WHERE MemberYear = 4
```

DELETE THE STUDENT FROM STUDENT TABLE

```
DELETE FROM STUDENT
WHERE StudentMatricNo = 'A21EC0001'
```

DELETE THE LECTURER FROM LECTURER TABLE

```
DELETE FROM LECTURER
WHERE LecturerName = 'Dr. John Doe'
```

DELETE THE EVENT ACTIVITY FROM EVENTACTIVITY TABLE

```
DELETE FROM EVENTACTIVITY
WHERE EventActivityName = 'Food Bazaar'
```

DELETE THE REPORT FROM PROGRAMREPORT TABLE

```
DELETE FROM PROGRAMREPORT
WHERE ReportName = 'Mooncake Festival 2018 Report'
```

—SELECT—

DISPLAY ALL THE TEAM ID AND TEAM NAME

```
SELECT TEAMID, TEAMNAME
FROM TEAM
```

TEAMID	TEAMNAME
01	Multimedia Specialist
02	Entertainment Planning
03	GeneralAffair
04	Design
05	Publicity
06	Event Organizing
07	Venue Planning
08	Sales
09	Cultural Information
10	Fundraising

DISPLAY THE EVENT ACTIVITY NAME AND OBJECTIVE HELD IN EVENT = 'EVT001'

```
SELECT EventActivityName, EventActivityObjective
FROM EVENTACTIVITY
WHERE EventNo = 'EVT001'
```

EVENTACTIVITYNAME	EVENTACTIVITYOBJECTIVE
Mooncake Making Competition	To promote cultural encourage participation in traditional activities during the Mooncake Festival
Lantern Decorating Workshop	To educate participants on the significance and traditional methods of lantern making
Dragon Dance Performance	To showcase traditional Chinese performances and entertain guests
Food Bazaar	To provide a diverse range of traditional food options for guests to enjoy
Cultural Night	To showcase traditional performances and dances from various cultures

Download CSV

5 rows selected.

DISPLAY THE SPONSOR COMPANY NAME AND EMAIL WHO SPONSOR MORE THAN 1000 MONETARY

```
SELECT SponsorsCompanyName,SponsorEmail
FROM SponsorshipRecords
WHERE MonetaryAmount > 1000
```

SPONSORSCOMPANYNAME	SPONSOREMAIL
EXPLORATION KIDS	EXPLORATIONKIDS@GMAIL.COM
LUXURY HOTEL	LUXURYHOTEL@GMAIL.COM
ART GALLERY	ARTGALLERY@HOTMAIL.COM
HEALTHCARE PROVIDER	HEALTHCAREPROVIDER@GMAIL.COM
FASHION RETAILER	FASHIONRETAILER@GMAIL.COM

Download CSV

5 rows selected.

DISPLAY THE LECTURER INFORMATION

```
SELECT *
FROM LECTURER
```

LECTURERID	LECTURERUSERID	LECTURERUSERPASSWORD	LECTURERNAME	LECTURERAGE	LECTURERADDRESS	LECTURERCONTACTNO	LECTUREREMAIL	LECTURERFACULTY
LECT001	JohnDoe	password123	Dr. John Doe	35	1, Jalan Universiti, Skudai, Johor	167867678	johndoe@utm.my	Faculty of Engineering

DISPLAY THE MEMBER INFORMATION WHO IN YEAR 2

```
SELECT *
FROM MEMBER
WHERE MEMBERYEAR = '2'
```

MEMBERID	MEMBERFIRSTNAME	MEMBERLASTNAME	MEMBERMATRICNO	MEMBERGRADUATEEMAIL	MEMBERYEAR	MEMBERADDRESS	MEMBERCOURSE	CLUBPOSITION	MEMBERUSERID	MEMBERUSERPASSWORD	TEAMLEADERID	TEAMID
MB0001	Gan	Heng Lai	A21EC0176	ganlai@graduate.utm.my	2	KTDI	SECVH	member	ganlai	82736321	-	01
MB0002	Liew	Kai Zheng	A21EC0100	liewkai@graduate.utm.my	2	KTHO	SECBH	treasurer	liewkai	21939173	-	04
MB0003	Loh	Qian Eng	A21EC0100	lohqian@graduate.utm.my	2	KTR	SECJH	member	lohqian	33819383	MB0002	04
MB0006	Lim	Siew Yee	A21EC0125	limsiew@graduate.utm.my	2	KTF	SECOH	member	limsiew	87654321	-	05
MB0009	Kee	Chew Chen	A21EC0115	keechew@graduate.utm.my	2	KTHO	SEAWH	member	keechew	34567812	-	08
MB0011	Lim	Kok Heng	A21EC0126	limkok@graduate.utm.my	2	KTF	SECOH	member	limkok	31083913	-	10
MB0014	Kee	Sze Ming	A21EC0116	keesze@graduate.utm.my	2	KTHO	SEAWH	member	keesze	29123312	MB0005	03
MB0016	Lim	Wei Ling	A21EC0127	limwei@graduate.utm.my	2	KTF	SECOH	Vice President	limwei	73193719	MB0011	10
MB0019	Kee	Wei Seng	A21EC0117	keewei@graduate.utm.my	2	KTHO	SEAWH	member	keewei	92167133	MB0002	04
MB0022	Ooi	Boon Kiat	A21EC0129	ooiboon@graduate.utm.my	2	KTHO	SECBH	committee	ooiboon	98765432	MB0002	04
MB0025	Ng	Wei Seng	A21EC0133	ngwei@graduate.utm.my	2	KTHO	SEAWH	member	ngwei	45678901	MB0010	09
MB0028	Foo	Boon Kiat	A21EC0151	fooboon@graduate.utm.my	2	KTHO	SECBH	committee	fooboon	78901234	MB0007	06
MB0031	Mu Lan	Hua	A21EC0020	hualan@graduate.utm.my	2	KRP	SKAW	member	muhua	4567898	MB0001	01
MB0032	Heng Lai	Gan	A21EC0002	ganlai@graduate.utm.my	2	KTHO	SECVH	member	henlai	5678910	MB0002	04
MB0038	Wu Xian	Wei	A21CE0011	weixian@graduate.utm.my	2	KRP	SKAW	member	wuxian	1234567	MB0010	09
MB0039	Chang Sheng	Chen	A21CE0015	chensheng@graduate.utm.my	2	KTDI	SKAW	member	chasheng	2345678	MB0004	02

—JOIN—

DISPLAY STUDENT(S) WHO ATTEND THE INTERVIEW

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName
FROM STUDENT
JOIN ATTENDINGINTERVIEW
USING (StudentID)
WHERE ATTENDANCESTATUS = 'Y'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME
A21EC0001	Chin Hong	Lew
A21EC0002	Heng Lai	Gan
A20ET0003	James	Parker
A19ME0004	Jia Le	Lee
A21EE0006	Xiao Mei	Huang
A20CE0007	Xiao Shuai	Tan
A21ME0008	Ji Eun	Lee
A19EC0009	Isabella	Han
A19ET0010	Zi Yang	Neo
A21CE0011	Wu Xian	Wei
A20ME0012	Wang Ji	Lan
A21EC0013	Ning	Wen
A21ET0014	Elizabeth	Kuo
A21CE0015	Chang Sheng	Chen
A20CE0016	Xuan De	Lew
A19EC0018	Yi De	Chong
A19ET0019	Zi Long	Zhao
A21CE0020	Mu Lan	Hua

DISPLAY STUDENT(S) WHO ATTEND TO THE INTERVIEW THAT RECUIRT THE DESIGNER

```sql
SELECT StudentMatricNo, StudentFirstName, StudentLastName
FROM STUDENT
JOIN ATTENDINGINTERVIEW
USING (StudentID)
WHERE InterviewPosition = 'Designer'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME
A21EC0002	Heng Lai	Gan
A21ET0014	Elizabeth	Kuo

DISPLAY STUDENT(S) WHO PASSED THE INTERVIEW

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName
FROM STUDENT
JOIN INTERVIEWOUTCOME
USING (StudentID)
WHERE InterviewResult = 'Y'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME
A21EC0002	Heng Lai	Gan
A20ET0003	James	Parker
A19ME0004	Jia Le	Lee
A20CE0007	Xiao Shuai	Tan
A19EC0009	Isabella	Han
A21CE011	Wu Xian	Wei
A21CE0015	Chang Sheng	Chen
A20CE0016	Xuan De	Lew
A19EC0018	Yi De	Chong
A21CE0020	Mu Lan	Hua

Download CSV

10 rows selected.

DISPLAY STUDENT WHO PASSED THE INTERVIEW FOR EVENT ORGANIZER RECRUITMENT

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName
FROM STUDENT
JOIN INTERVIEWOUTCOME
USING (StudentID)
WHERE InterviewResult = 'Y' AND InterviewPosition = 'Event Organizer'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME
A19EC0018	Yi De	Chong

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DISPLAY THE STUDENT'S NAME, THE REASON JOIN THE CLUB AND THE TEAM NAME FOR THOSE WHOSE THE FIRST CHOICE IS TEAMID = 07

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName, ReasonJoinClub, TeamName
FROM TEAMINTERESTED
JOIN STUDENT
USING (STUDENTID)
JOIN TEAM
USING (TeamID)
WHERE InteresetTeamRanking = 1 AND TeamID = '07'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME	REASONJOINCLUB	TEAMNAME
A21EC0001	Chin Hong	Lew	I want to meet new people and make friends	Venue Planning
A21ME0008	Ji Eun	Lee	I want to develop a sense of belonging	Venue Planning
A21CE011	Wu Xian	Wei	I want to develop new interests	Venue Planning
A19EC0018	Yi De	Chong	I want to improve my resume or college application	Venue Planning

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4 rows selected.

DISPLAY ALL 3 INTERESTED TEAM AND THEIR REASON TO JOIN THE CLUB FOR THE STUDENT WHO MATRIC NO IS A21EC0002

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName, InteresetTeamRanking,
ReasonJoinClub, TeamName
FROM TEAMINTERESTED
JOIN STUDENT
ON TEAMINTERESTED.StudentID = STUDENT.StudentID
JOIN TEAM
ON TEAMINTERESTED.TeamID = TEAM.TeamID
WHERE StudentMatricNo = 'A21EC0002'
ORDER BY InteresetTeamRanking
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME	INTERESETTEAMRANKING	REASONJOINCLUB	TEAMNAME
A21EC0002	Heng Lai	Gan	1	I want to learn new skills and hobbies	Entertainment Planning
A21EC0002	Heng Lai	Gan	2	I want to be part of a group with shared values or beliefs	GeneralAffair
A21EC0002	Heng Lai	Gan	3	I want to improve my stress management skills	Multimedia Specialist

Download CSV

3 rows selected.

DISPLAY STUDENT MATRIC NO, FIRSTNAME, LASTNAME AND REASON FOR JOINING THE CLUB FOR THOSE WHO CHOOSE THE ENTERTAINMENT PLANNING TEAM AS THEIR FIRST RAKING OF THE INTERESTED TEAM

```
SELECT StudentMatricNo, StudentFirstName, StudentLastName, ReasonJoinClub
FROM TEAMINTERESTED
JOIN STUDENT
ON (TEAMINTERESTED.StudentID = STUDENT.StudentID)
JOIN TEAM
ON (TEAMINTERESTED.TeamID = TEAM.TeamID)
WHERE InteresetTeamRanking = 1 AND TeamName = 'Entertainment Planning'
```

STUDENTMATRICNO	STUDENTFIRSTNAME	STUDENTLASTNAME	REASONJOINCLUB
A21EC0002	Heng Lai	Gan	I want to learn new skills and hobbies
A21EE0006	Xiao Mei	Huang	I want to make a difference in the community
A20ME0012	Wang Ji	Lan	I want to gain access to resources and opportunities
A20CE0016	Xuan De	Lew	I want to improve my self-confidence

Download CSV

4 rows selected.

DISPLAY ALL THE MEMBERID AND NAME IN SALES TEAM

```
SELECT MemberID, MemberFirstName, MemberLastName
FROM MEMBER
JOIN TEAM
ON MEMBER.TeamID = TEAM.TeamID
WHERE TeamName = 'Sales'
```

MEMBERID	MEMBERFIRSTNAME	MEMBERLASTNAME
MB0009	Kee	Chew Chen
MB0020	Tan	Kok Weng
MB0026	Lee	Kok Weng
MB0036	Isabella	Han

Download CSV

4 rows selected.

DISPLAY EACH TEAM HAVE HOW MANY MEMBER

```
SELECT Team.TeamName, COUNT(Member.TeamID) as MemberCount
FROM Team
JOIN Member ON Team.TeamID = Member.TeamID
GROUP BY Team.TeamName
```

TEAMNAME	MEMBERCOUNT
Publicity	3
Sales	4
Event Organizing	5
Multimedia Specialist	4
Entertainment Planning	5
GeneralAffair	4
Cultural Information	4
Design	5
Fundraising	3
Venue Planning	3

Download CSV

10 rows selected.

DISPLAY THE POTENTIAL SPONSOR HAS A POTENTIAL TO SPONSOR MONETARY TO THE CLUB

```
SELECT PotentialCompanyName, PotentialCompanyEmail
FROM PotentialSponsor
JOIN PotentialItem
ON PotentialSponsor.PotentialSponsorID = PotentialItem.PotentialSponsorID
WHERE PotentialCompanySponsor = 'Monetary'
ORDER BY PotentialCompanyName
```

POTENTIALCOMPANYNAME	POTENTIALCOMPANYEMAIL
ART GALLERY	ARTGALLERY@HOTMAIL.COM
CONSTRUCTION COMPANY	CONSTRUCTIONCOMPANY@GMAIL.COM
EXPLORATION KIDS	EXPLORATIONKIDS@GMAIL.COM
FASHION RETAILER	FASHIONRETAILER@GMAIL.COM
FINANCIAL SERVICES	FINANCIALSERVICES@HOTMAIL.COM
HEALTHCARE PROVIDER	HEALTHCAREPROVIDER@GMAIL.COM
LUXURY HOTEL	LUXURYHOTEL@GMAIL.COM
REAL ESTATE AGENCY	REALESTATEAGENCY@HOTMAIL.COM
SPA PARAGON	SPAPARAGON@GMAIL.COM

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9 rows selected.

DISPLAY THE EVENT WHICH THE BUDGET IS MORE THAN RM10000

```
SELECT  EventNo, EventName, EventBudget
FROM EventProposal
JOIN Event
ON EventProposal.ProposalNo = Event.ProposalNo
WHERE EventBudget >= 10000
```

EVENTNO	EVENTNAME	EVENTBUDGET
EVT001	Mooncake Festival 2018	15000
EVT002	Mid-Autumn Festival 2019	10000
EVT005	Mid-Autumn Family Fun Day 2022	18000

DISPLAY THE NUMBER OF PARTICIPANTS WHO FILLED OUT THE FEEDBACK FORM

```
SELECT Event.EventNo, Event.EventName, COUNT(FeedbackForm.ParticipantID) as FeedbackCount
FROM Event
JOIN FeedbackForm ON Event.EventNo = FeedbackForm.EventNo
GROUP BY Event.EventNo, Event.EventName
ORDER BY Event.EventNo
```

EVENTNO	EVENTNAME	FEEDBACKCOUNT
EVT001	Mooncake Festival 2018	4
EVT002	Mid-Autumn Festival 2019	4
EVT003	Mid-Autumn Cultural Night 2020	4
EVT004	Mid-Autumn Festival Night 2021	16
EVT005	Mid-Autumn Family Fun Day 2022	2

DISPLAY EACH EVENT HAVE HOW MANY PARTICIPANT IS UTMSTUDENT THAT SUBMIT FEEDBACK FORM

```
SELECT Event.EventNo, Event.EventName, COUNT(FeedbackForm.ParticipantID) as FeedbackCount
FROM Event
JOIN FeedbackForm
ON Event.EventNo = FeedbackForm.EventNo
JOIN Participant
ON FeedbackForm.ParticipantID = Participant.ParticipantID
AND FeedbackForm.IsUTMStudent = Participant.IsUTMStudent
WHERE Participant.IsUTMStudent = 'Y'
GROUP BY Event.EventNo, Event.EventName
ORDER BY Event.EventNo
```

EVENTNO	EVENTNAME	FEEDBACKCOUNT
EVT001	Mooncake Festival 2018	2
EVT002	Mid-Autumn Festival 2019	2
EVT003	Mid-Autumn Cultural Night 2020	1
EVT004	Mid-Autumn Festival Night 2021	9
EVT005	Mid-Autumn Family Fun Day 2022	1

Download CSV

5 rows selected.

DISPLAY EACH EVENT HAVE HOW MANY PARTICIPANT IS UTMSTUDENT THAT SUBMIT FEEDBACK FORM WITH RATING HIGHER THAN 3

```
SELECT Event.EventNo, Event.EventName, COUNT(FeedbackForm.ParticipantID) as FeedbackCount
FROM Event
JOIN FeedbackForm
ON Event.EventNo = FeedbackForm.EventNo
JOIN Participant
ON FeedbackForm.ParticipantID = Participant.ParticipantID
AND FeedbackForm.IsUTMStudent = Participant.IsUTMStudent
WHERE Participant.IsUTMStudent = 'Y'
AND FeedbackForm.RespondentRating > 3
GROUP BY Event.EventNo, Event.EventName
ORDER BY Event.EventNo
```

EVENTNO	EVENTNAME	FEEDBACKCOUNT
EVT001	Mooncake Festival 2018	2
EVT004	Mid-Autumn Festival Night 2021	5

Download CSV

2 rows selected.

DISPLAY THE NUMBER OF PARTICIPANTS WHO ARE UTM STUDENTS ATTENDING THE EVENTNAME = 'MID-AUTUMN FESTIVAL 2019'.

```
SELECT EventName, COUNT(ParticipantID) AS CountParticipant
FROM ParticipantAttending
JOIN Event
ON (ParticipantAttending.EventNo = Event.EventNo)
WHERE EventName = 'Mid-Autumn Festival 2019'
GROUP BY EventName
```

EVENTNAME	COUNTPARTICIPANT
Mid-Autumn Festival 2019	5

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DISPLAY THE EVENT ACTIVITY NAME AND OBJECTIVE HELD IN EVENT = 'EVT001'

```
SELECT EventActivityName, EventActivityObjective
FROM EVENTACTIVITY
WHERE EventNo = 'EVT001'
```

EVENTACTIVITYNAME	EVENTACTIVITYOBJECTIVE
Mooncake Making Competition	To promote cultural encourage participation in traditional activities during the Mooncake Festival
Lantern Decorating Workshop	To educate participants on the significance and traditional methods of lantern making
Dragon Dance Performance	To showcase traditional Chinese performances and entertain guests
Food Bazaar	To provide a diverse range of traditional food options for guests to enjoy
Cultural Night	To showcase traditional performances and dances from various cultures

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5 rows selected.

DISPLAY THE SPONSOR COMPANY NAME AND EMAIL WHO SPONSOR MORE THAN 1000 MONETARY.

```
SELECT SponsorsCompanyName,SponsorEmail
FROM SponsorshipRecords
WHERE MonetaryAmount > 1000
```

SPONSORSCOMPANYNAME	SPONSOREMAIL
EXPLORATION KIDS	EXPLORATIONKIDS@GMAIL.COM
LUXURY HOTEL	LUXURYHOTEL@GMAIL.COM
ART GALLERY	ARTGALLERY@HOTMAIL.COM
HEALTHCARE PROVIDER	HEALTHCAREPROVIDER@GMAIL.COM
FASHION RETAILER	FASHIONRETAILER@GMAIL.COM

DISPLAY ALL OF THE CONTACT NO OF THE COMPANY NAME = 'LUXURY HOTEL'

```
SELECT SponsorsCompanyName, SponsorContactNo
FROM SponsorTelephone
JOIN SponsorshipRecords
ON (SponsorTelephone.SponsorshipRecordsNo = SponsorshipRecords.SponsorshipRecordsNo)
WHERE SponsorsCompanyName = 'LUXURY HOTEL'
```

SPONSORSCOMPANYNAME	SPONSORCONTACTNO
LUXURY HOTEL	60123456793
LUXURY HOTEL	60123456794

7.0 Summary

The main focus of the phase 4 project was to design the logical structure of the database for the Pesta Tanglung UTM Club. This included transforming the conceptual ERD from phase 3 into a logical ERD by removing non-relational features such as many-to-many relationships and complex relationships. The relations schema was then derived from the logical ERD and the relations were normalized up to BCNF. The final logical ERD was drawn to represent the BCNF relations, and the data dictionary was updated based on the normalized relations. The logical ERD was also validated against the system's transaction requirements.

The deliverables for this phase included a report containing the following:

- Logical ERD (global data model)
- Relational database schemas (normalized up to BCNF)
- Data dictionary for the normalized logical design
- SQL statements for data definition and manipulation

The report was used to assess the logical design of the database and ensure that it was able to meet the needs of the Pesta Tanglung UTM Club. The report was also used to document the design process and provide information on the normalized relations and data dictionary for future reference.