



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Sem.1 2022/2023

SECD 2523 Database

Section 09

PHASE 3:

Database Conceptual Design

< Pesta Tanglung UTM Management System >

<Team SKTT1>

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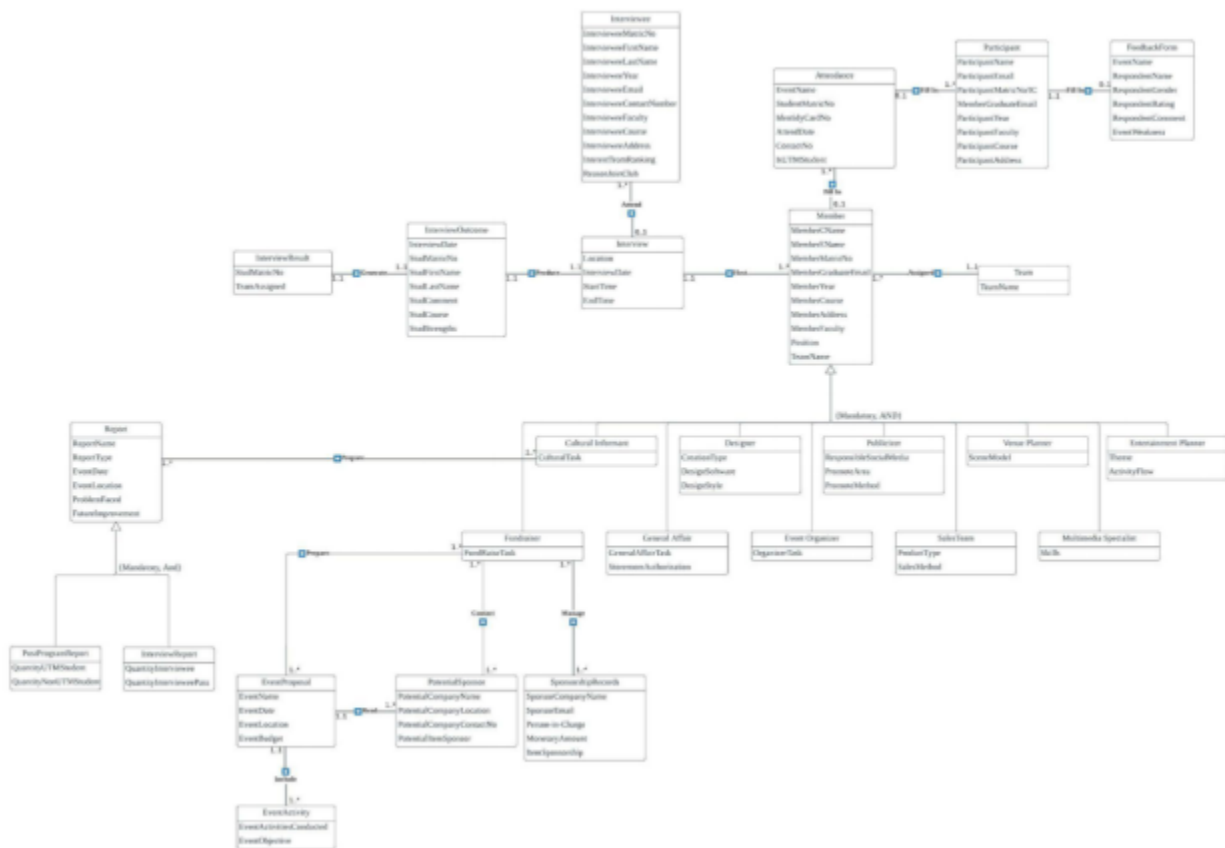
1.0 Introduction

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 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	<ul style="list-style-type: none">• MemberCName• MemberENAME• MemberMatricNo• MemberGraduateEmail• MemberYear• MemberCourse• MemberAddress• MemberFaculty• Position• TeamName	MemberMatricNo is unique and not null
Interviewee	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• ParticipantName• ParticipantEmail• ParticipantMatricNo/IC• ParticipantGraduateEmail• ParticipantYear• ParticipantFaculty• ParticipantCourse• ParticipantAddress	ParticipantMatricNo/IC is unique and not null
Attendance	<ul style="list-style-type: none">• UTMStudMatricNo/IC• AttendDate• ContactNo	UTMStudMatricNo/IC is unique and not null
FeedbackForm	<ul style="list-style-type: none">• EventName• RespondentName• RespondentGender	EventName is unique and not null

	<ul style="list-style-type: none"> • RespondentRating • RespondentComment • EventWeakness 	
Team	<ul style="list-style-type: none"> • TeamName 	TeamName is unique and not null
Interview	<ul style="list-style-type: none"> • Location • InterviewDate • StartTime • EndTime 	DepartmentName is not null and unique
InterviewOutcome	<ul style="list-style-type: none"> • StudMatricNo • StudFirstName • StudLastName • StudComment • StudCourse • StudStrengths 	StudMatricNo is unique and not null
InterviewResult	<ul style="list-style-type: none"> • StudMatricNo • TeamAssigned 	StudMatricNo is unique and not null
Cultural Informant	<ul style="list-style-type: none"> • CulturalTask 	CulturalTask is not null
Designer	<ul style="list-style-type: none"> • CreationType • DesignSoftware • DesignStyle 	CreationType is the types of product that created by designer, not null
Publicizer	<ul style="list-style-type: none"> • ResponsibleSocialMedia • PromoteArea • PromoteMethod 	ResponsibleSocialMedia is not null
Venue Planner	<ul style="list-style-type: none"> • SceneModel 	SceneModel is the production and beautification of scene props, not null
Entertainment Planner	<ul style="list-style-type: none"> • Theme • ActivityFlow 	Theme is the entertainment theme that planner responsible to handle, is not null
Fundraiser	<ul style="list-style-type: none"> • FundRaiseTask 	FundRaiseTask is not null
General Affair	<ul style="list-style-type: none"> • GeneralAffairTask 	GeneralAffairTask is not

	<ul style="list-style-type: none"> • StoreroomAuthorization 	null
Event Organizer	<ul style="list-style-type: none"> • OrganizerTask 	OrganizerTask is not null
Salesman	<ul style="list-style-type: none"> • ProductType • SalesMethod 	ProductType is product salesman responsible to sales, is not null
MultimediaSpecialist	<ul style="list-style-type: none"> • Skills 	
Report	<ul style="list-style-type: none"> • ReportName • ReportType • EventDate • EventLocation • ProblemFaced • FutureImprovement 	ReportName is unique and not null ReportType is type of the report(PostProgramReport/InterviewReport)
PostProgramReport	<ul style="list-style-type: none"> • QuantityUTMStudent • QuantityNonUTMStudent 	QuantityUTMStudent in not null QuantityNonUTMStudent is not null
InterviewReport	<ul style="list-style-type: none"> • QuantityInterviewee • QuantityIntervieweePass 	QuantityInterviewee is not null QuantityIntervieweePass is not null
EventProposal	<ul style="list-style-type: none"> • EventName • EventDate • EventLocation • EventBudget 	EventName is unique and not null
EventActivity	<ul style="list-style-type: none"> • EventActivitiesConducted • EventObjective 	EventActivitiesConducted is unique and not null
PotentialSponsor	<ul style="list-style-type: none"> • PotentialCompanyName • PotentialCompanyLocation • PotentialCompanyContactNo • PotentialItemSponsor 	PotentialCompanyName is unique and not null
SponsorshipRecords	<ul style="list-style-type: none"> • 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.

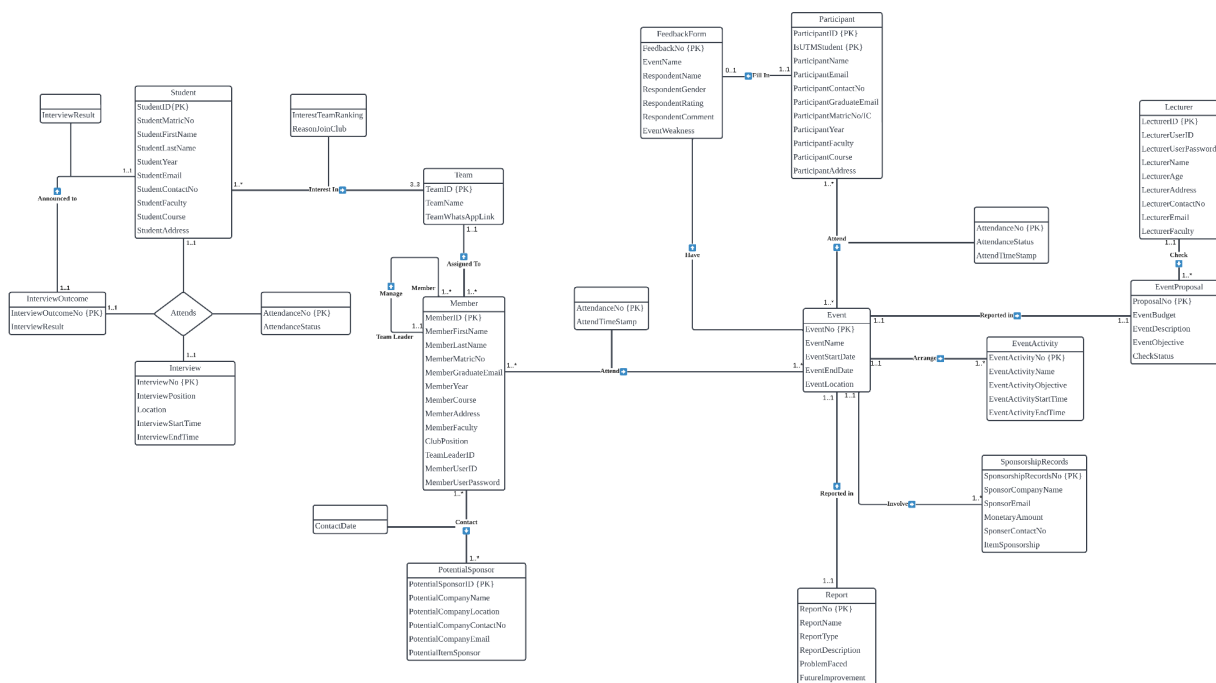
Every year, the club have an interview for a recruitment session. Each of the interviewees could choose the top 3 interest team he/she want to join. However, not all of the interviewees would pass the interview and join the most interesting team. The interviewees' attendance will be recorded. The interviewees 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.

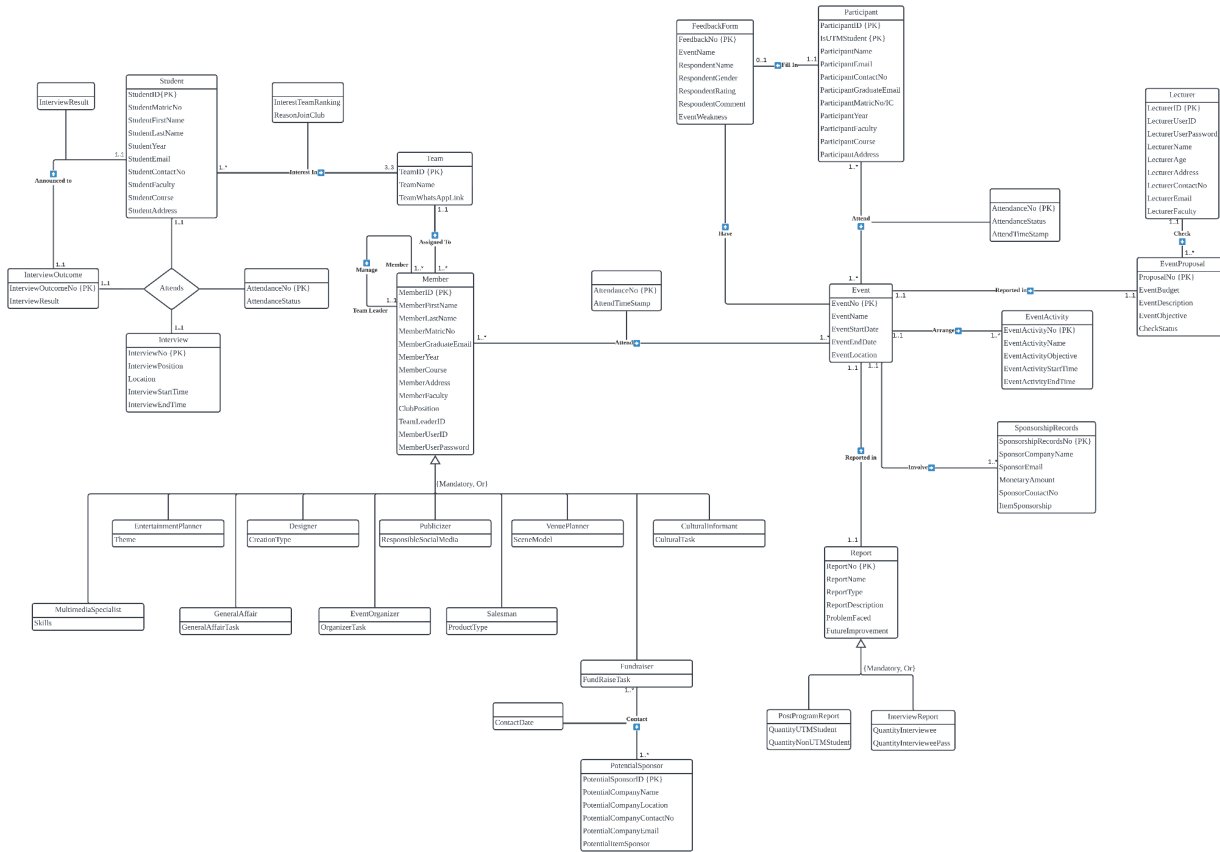
A report has to be generated after conducting every program for analysis purposes and submitted to HEP. Several analyses will be done in a report, such as the quantity of UTM students and the quantity of Non-UTM students. Lastly, from the feedback form gathered, the member is able to realize the problem 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	<ul style="list-style-type: none"> MemberID 	Unique ID	10 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberFirstName 	First name of member	20 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberLastName 	Last name of member	20 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberMatricNo 	Unique matric no	10 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberGraduateEmail 	Unique UTM email of member	30 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberYear 	Degree year of member	Number	NO	NO
	<ul style="list-style-type: none"> MemberCourse 	Course of member	30 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberAddress 	Address of member	80 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberFaculty 	Faculty of member	50 variable characters	NO	NO
	<ul style="list-style-type: none"> ClubPosition 	Position of member in club	15 variable characters	NO	NO
	<ul style="list-style-type: none"> TeamLeaderID 	ID of team leader	10 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberUserID 	Unique ID	10 variable characters	NO	NO
	<ul style="list-style-type: none"> MemberUserPassword 	User password for member to access the system	15 variable characters	NO	NO
EntertainmentPlanner	<ul style="list-style-type: none"> Theme 	Theme of Entertainment	20 variable characters	NO	NO
Designer	<ul style="list-style-type: none"> CreationType 	Type of creation	20 variable characters	NO	YES
Publicizer	<ul style="list-style-type: none"> ResponsibleSocialMedia 	Handle's social media	15 variable characters	NO	NO
VenuePlanner	<ul style="list-style-type: none"> SceneModel 	Production of scene props	50 variable characters	NO	YES
GeneralAffair	<ul style="list-style-type: none"> GeneralAffairTask 	General Affair's task	50 variable characters	NO	YES
CulturalInformant	<ul style="list-style-type: none"> CulturalTask 	Cultural Informant's task	50 variable characters	NO	YES
Salesman	<ul style="list-style-type: none"> ProductType 	Type of product	20 variable characters	NO	YES
EventOrganizer	<ul style="list-style-type: none"> OrganizerTask 	Task performed by Event Organizer	50 variable characters	NO	YES
MultimediaSpecialist	<ul style="list-style-type: none"> Skills 	Skills mastered	30 variable characters	YES	YES
Fundraiser	<ul style="list-style-type: none"> FundRaiseTask 	Task performed by Fundraiser	50 variable characters	NO	YES
EventProposal	<ul style="list-style-type: none"> ProposalNo 	Unique NO	Number	NO	NO
	<ul style="list-style-type: none"> EventBudget 	Budget of event	Number	NO	NO
	<ul style="list-style-type: none"> EventDescription 	Description of event	80 variable characters	NO	YES
	<ul style="list-style-type: none"> EventObjective 	Objective of event	80 variable characters	NO	YES

	<ul style="list-style-type: none"> ● CheckStatus 	Complete status of event	50 variable characters	NO	NO
Student	<ul style="list-style-type: none"> ● StudentID ● StudentMatricNo ● ● StudentFirstName ● StudentLastName ● StudentYear ● StudentUTMEEmail ● 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 NO NO NO
Lecturer	<ul style="list-style-type: none"> ● 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 YES NO NO NO
Participant	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● EventNo 	Unique NO	10 variable characters	NO	NO

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • QuantityUTMStudent • QuantityNonUTMStudent 	Amount of UTM student Amount of non-UTM student	Number Number	NO NO	NO NO
InterviewReport	<ul style="list-style-type: none"> • QuantityInterviewee • QuantityIntervieweePass 	Quantity of interviewee Quantity of interviewee who pass	Number Number	NO NO	NO NO
PotentialSponsor	<ul style="list-style-type: none"> • PotentialSponsorID • PotentialCompanyName • PotentialCompanyLocation • PotentialCompanyContactNo • 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	<ul style="list-style-type: none"> • 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.