



King Fahd University of Petroleum & Minerals

KFUPM Business School

Department: Information Systems & Operations Management

MIS 311: Business Data Management

Spring Semester 2021-2022 (212)

Project Title: KFUPM Extracurricular Activities Database

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Date of Submission

May 9th , 2022

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Introduction

In this project, we are developing a shared database for the extracurricular activities at KFUPM. All clubs, events, non-academic lectures, volunteering activities will be combined and stored into a single database. The availability of this database will enhance the generation of the reports made by the system for both students as well as the Deanship of Student Affairs. Moreover, the produced attendance report can be generated by students to get a glimpse of what extracurricular activities have been attended. The availability of a certificate for students will serve as proof of the extracurricular activities attended in the university, which will give students a competitive advantage when they graduate. Likewise, the shared database will generate reports for KFUPM student clubs, Student Success Center, and the Deanship of Student Affairs, which will help to improve the organization of future events.

Background

In this project, we are developing a shared database with the help of KFUPM Student Success Center (SSC), Deanship of Excellence & Success, and the Deanship of Student Affairs. After extensive communication with the departments concerned, we have investigated the current methods of storing and managing data. The events organized by the Student Success Center are organized and sent through emails to all students to register using an electronic form, and then the data generated is stored into a single database system. However, KFUPM student clubs are using spreadsheets to store the data generated from electronic forms for each event. The integration of the data from these two sources is causing much apprehension and the Student Success Center is not able to store the resulting data from different student clubs. As a result, there is no shared database that can store all data from extracurricular activities and hence, many problems occur. It is evident that the Deanship of Student Affairs with the help of Student Success Center is

concerned with the well-being of students in both academic and personal lives. For this reason, we have decided to work with the Student Success Center in order to get the support needed to fully design the database.

Specific Business Problem

In this section, we will describe the existing process for storing and managing data in the Student Success Center and different KFUPM student clubs. Firstly, as the present method of registering for events, and activities organized by the Student Success Center is mainly done through separate emails and electronic forms, the collection of data is time consuming and rigid. Furthermore, after communicating with the Student Success Center, they indicated that a lot of time is spent to store and manage the data generated from these forms. Likewise, the current method of managing data in student clubs is outdated and has a lot of problems. To illustrate, after gathering information from student clubs, they are mostly using spreadsheets to store data generated from electronic forms. By doing so, data manipulation and drawing clear insight from the spreadsheets is extremely difficult

Another rationale for developing the extracurricular activities database is to solve the problems occurring from the usage of spreadsheets and electronic forms to create, manage, and store data. As using these methods makes it difficult to combine data from multiple sources, data redundancies usually occur. Similarly, using spreadsheets can affect data security and cause data inconsistency. As a solution, the shared database will eliminate most of the data inconsistencies, data anomalies. The proposed database will allow the Deanship of Student Affairs to have a proper dataset that can be used to perform advanced data analytics and improve the existing events and activities. Finally, KFUPM students will have an incentive to register in more extracurricular activities and events as an official certificate will be issued to them, which will help students both

academically and personally.

From students' perspective, there is no detailed attendance report for both club activities and events organized by SSC that can be generated. The current database and storage method has many features that can be improved. For instance, students cannot see and filter their searches for attended non-academic events and activities to get accurate results according to their needs. Likewise, the Deanship of Student Affairs does not have a detailed summary report that shows all the events that have been organized in the university during the semester. The proposed database aims to solve all these issues.

Business Rules

- A student can register in zero or many clubs.
- An event can be organized by either a KFUPM club or the SSC (Student Success Centre)
- Each KFUPM club organizes one or many events.
- Each club event is organized by one and only one KFUPM club.
- Each club must have at least three students.
- Each club is managed by one student
- When a student joins a club, the member join date must be recorded
- Each student can register in zero or many events
- Each event must have at least one or many students
- When a student attends an event, the attendance record must be recorded.

Data Model Entities

1. STUDENT

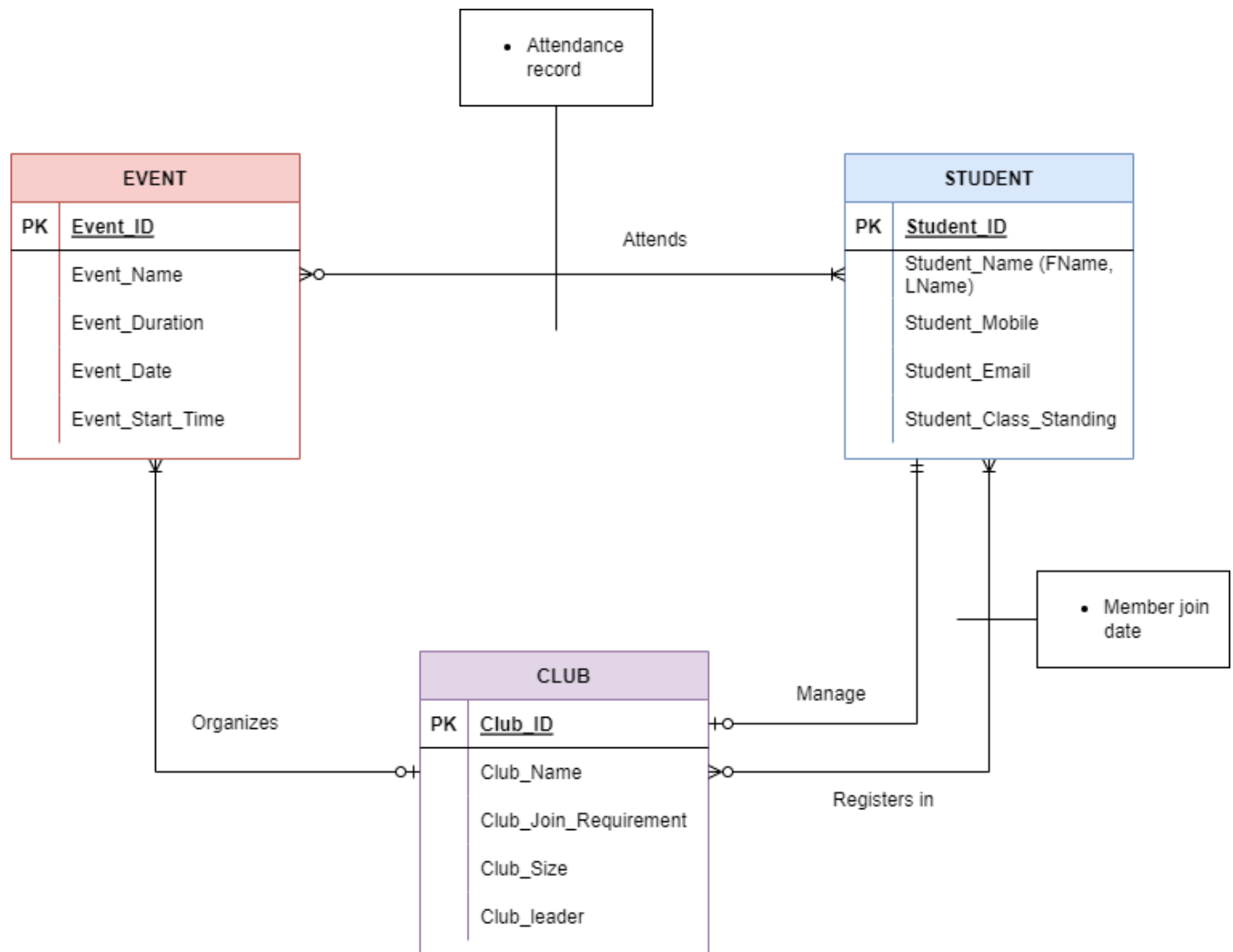
- a. Student_ID
- b. Student_Name(FName,Lname)
- c. Student_Mobile
- d. Student_Email
- e. Student_class_standing

2. EVENT

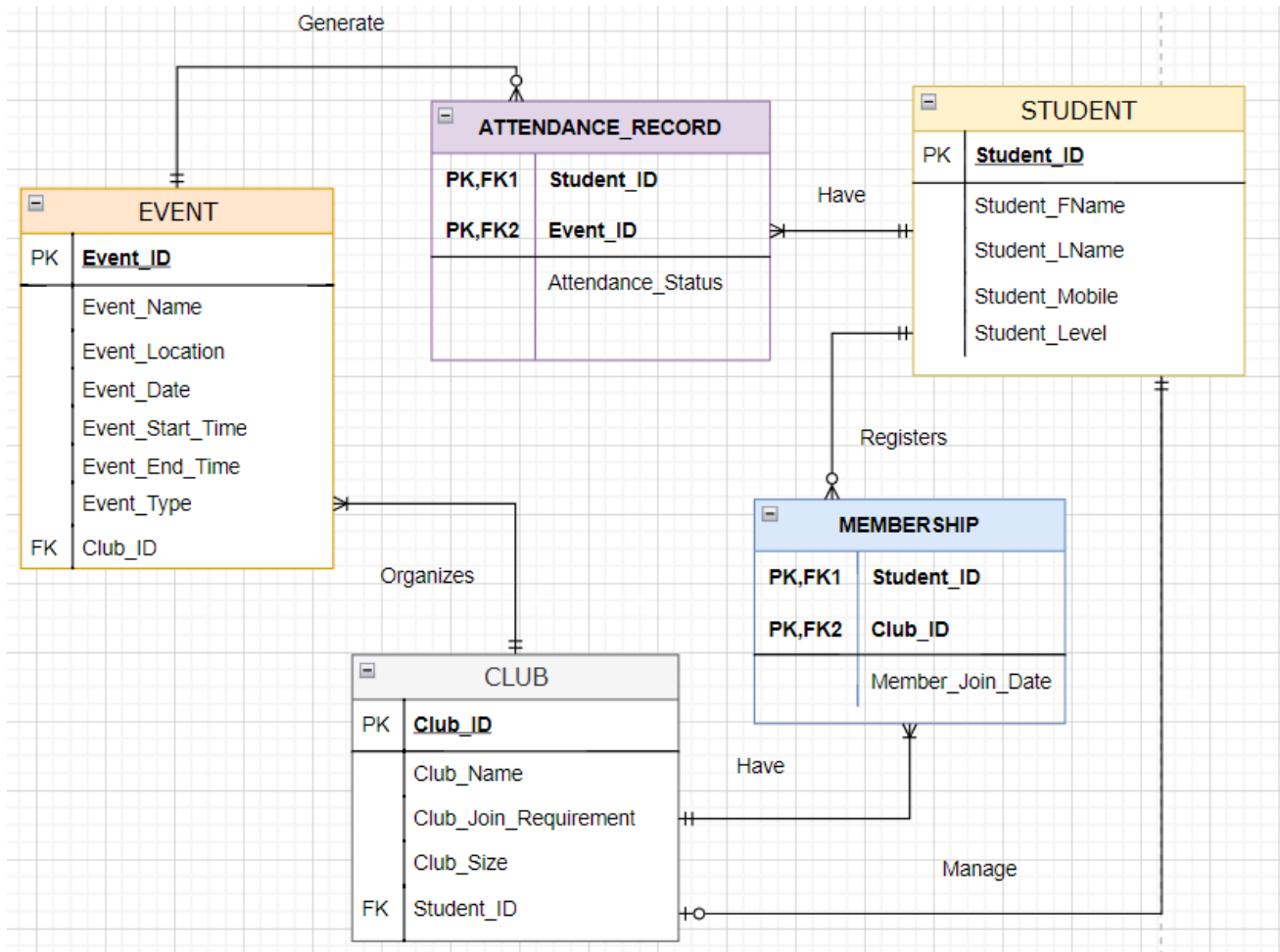
- a. Event_ID
- b. Event_Name
- c. Event_Duration
- d. Event_Date
- e. Event_Start_time

3. CLUB

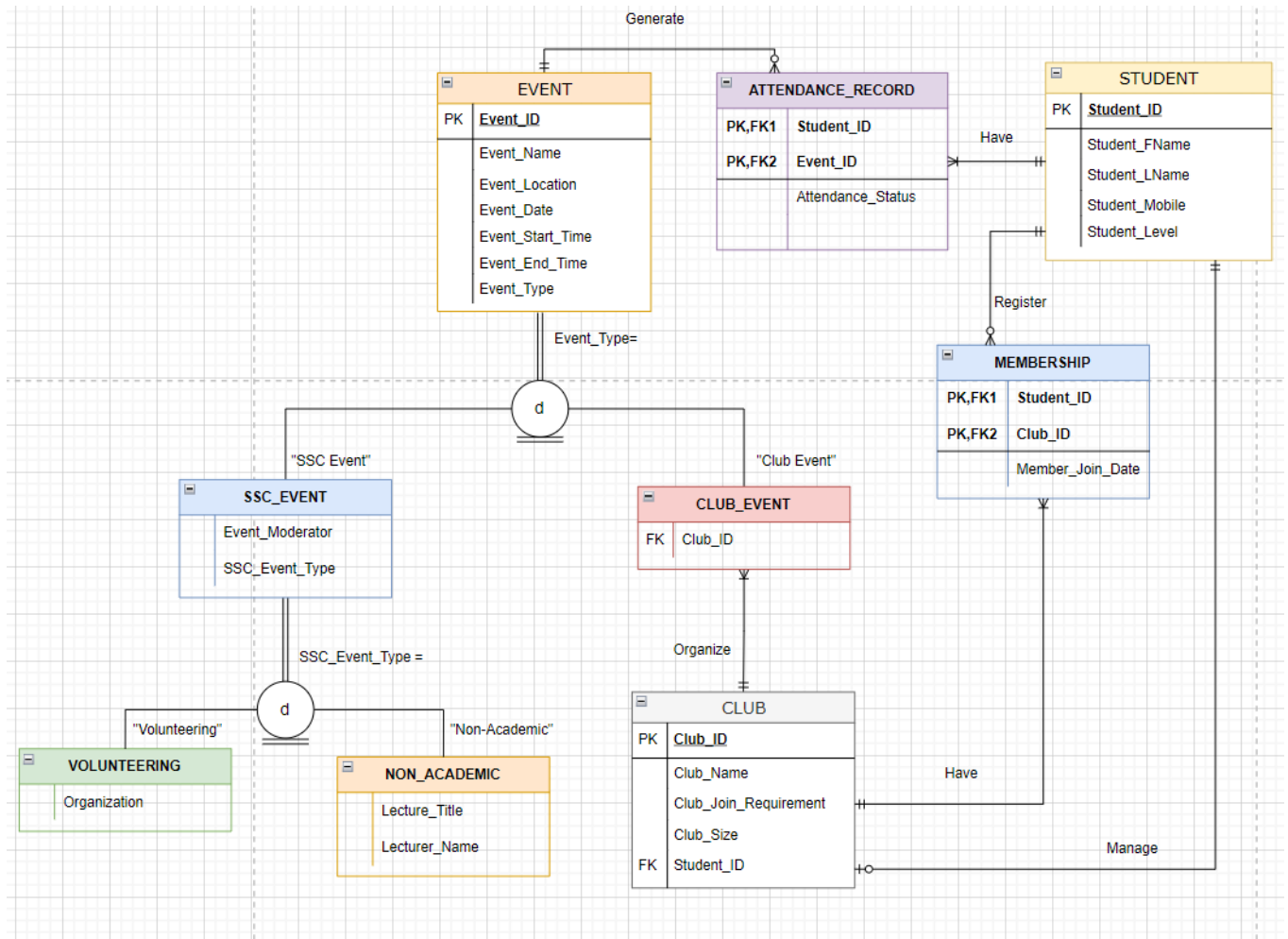
- a. Club_ID
- b. Club_Name
- c. Club_join_requirements
- d. Club_Size
- e. Club_leader



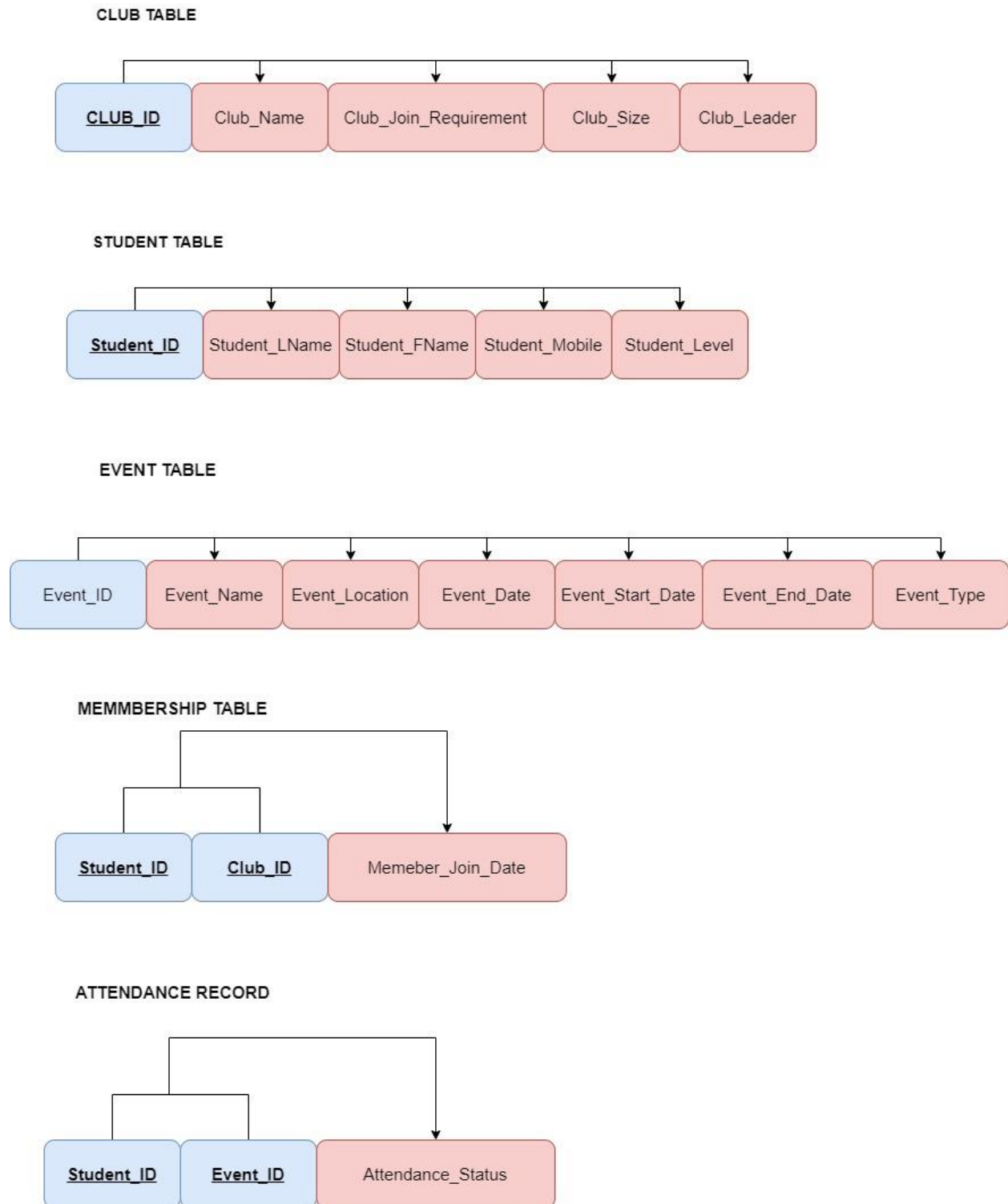
ERD



Extended ERD



Functional Dependency Diagram



Note: There was no need for normalization as all tables were in 3NF

Conclusion

To conclude, the database will integrate and store all student clubs, non-academic lectures, and volunteering activities in a single shared storage place. The combination of all these activities included in the database will ease the management of student clubs and Student Success Center while simultaneously encouraging students to register in clubs and events. The management of KFUPM clubs will benefit from the database having a data storage for budgeting and organizing events rather than using spreadsheets. Likewise, volunteering events and non-academic lectures organized by the Student Success Center will be stored in the database, easing the management for the SSC. The availability of a well-structured database will ease the process of communication between the management and students. This will simplify managing the clubs and activities for both club management and Student Success Center. As a result, students will have an incentive to register for events, activities, and student clubs, as they will have a detailed certificate for extracurricular activities.

Furthermore, the Deanship of Student Affairs, KFUPM clubs, and the Student Success Center will obtain a summary report for all activities done in the academic year as all data is stored and integrated in a single database. This integration will provide an efficient and effective way and ease the process of storing and managing the data and provide more detailed information about all activities done in the university for future improvements in the quality of extracurricular activities. Therefore, it will provide significant value to KFUPM graduates as well as the Deanship of Student Affairs. Finally, KFUPM Extracurricular Activities Database will encourage students to participate in various types of nonacademic activities, which will give them a competitive advantage after graduation.

How the Designed Database Helps in Solving the Identified Business Problem

With this new design of the shared database having an enhanced ERD and normalized tables, the Deanship of Student Affairs should now be able to see how their system can be improved. The Deanship of Student Affairs, along with the Student Success Center will have a new developed database that combines all of the KFUPM activities in one shared place to make it simpler to gather all information for all staff. Moreover, students can keep a record of their joined extracurricular activities such as volunteering and clubs. In addition, the new database will keep a record of the attendance of all student activities from clubs and Student Success Center. This will keep any allowance, belongings, and certificates in a report format so that all dues are served. This shared database will boost the power of the current system and will benefit the university in its academic and technical endeavors. Finally, it is important to note that the development of the database stems from our need (as students) to improve the functionality of our university's extracurricular activities.