

Phase I. ER Modeling

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0. Pre-Illumination

This report is a conceptual design of the database that we are designing for tracking attendance in university related events featuring a barcode system. This report consists of four parts. The first section deals with the assumptions we make about the database, the explanation of the superclass subclass relationships and limitations of our database. The second section of the report deals with the ER diagram for the database. In the third section, we explain the (min, max) notation for the relationships of entities in our database and finally, we provide a conclusion with a brief summary of this report.

1. Assumptions, Explanations and Limitations

In this part we discuss all the assumptions, explanations and limitations in this project to illuminate our E-R diagram, based on both the project description and real-life experiences.

1.1 Assumption

- All the data from the event will be protected and only be accessible to the Admins.
- We are assuming the software for this project has already been developed and we are creating the database for the software.
- We assume that every attendee in the attendee table will be either a student or a staff of the university. Hence, every attendee will have a unique ID assigned by the university and every attendee will have a unique barcode.
- Every guest is related to either staff, student, faculty or sponsors. One attendee can be associated with only two guests and each guest can be associated with only one attendee.

Also, guests do not have a unique barcode. Alumni of the university will be considered as guests.

- One event can be conducted in the span of several days.
- Several events might be conducted on the same day.
- Every event has one or more Admin who generates reports of the event. One admin can generate reports of several events and several admins can collectively generate reports of one event.
- Several sponsors can sponsor an event and one sponsor can sponsor several events.

1.2 Explanation

There are two subclass-superclass relationships in our ER model.

Attendees can be either a student, staff or faculty. Hence, the Attendee entity has three subclasses: Student, Staff and Faculty. The subclasses are overlapping.

Since we represented Student, Staff and Faculty as subclasses of Attendee, Attendee is the union or superclass of these subclasses.

Sponsors can be either companies or individuals. Hence, individuals and companies are subclasses of sponsors. The subclasses are disjoint i.e. One sponsor cannot be both individual and company.

1.3 Limitations

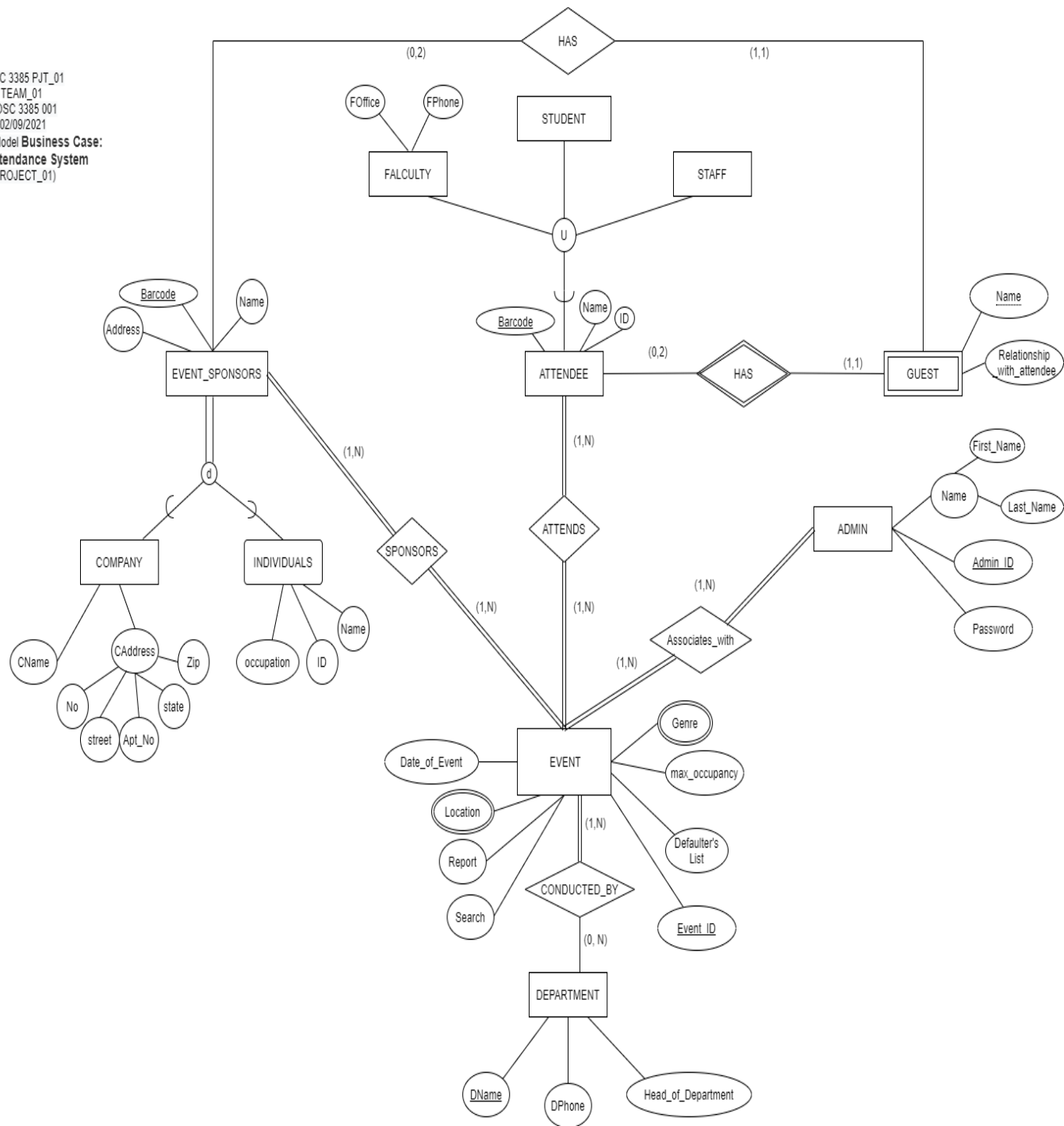
There are some limitations both from title statements and from daily life. We list them as follows:

- Each location used for an event has a maximum number of attendees that can be present in the event. Number of attendees may not exceed this capacity.
- Attendance cannot be taken without a barcode.
- Our database will be limited to tracking attendance of just the university related events. Some attributes like student and staff ID might not be present in events outside of the university.

2. E-R Design Diagram

In this part we draw an E-R design diagram with common notation introduced from the class. The following figure exhibits the whole design:

COSC 3385 PJT_01
 TEAM_01
 COSC 3385 001
 02/09/2021
 Purpose: To Model Business Case:
Event Attendance System
 (PROJECT_01)



For a clearer picture, please use this link:


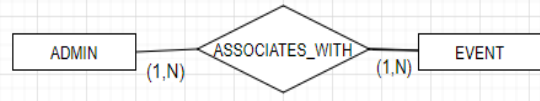
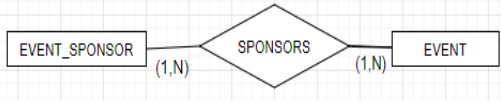

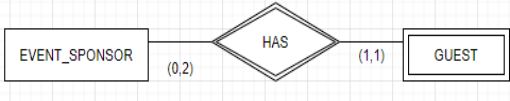
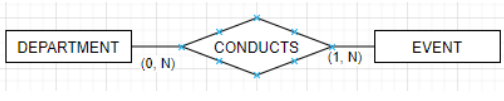
E-R diagram :

<https://app.diagrams.net/?src=about#Wb!C2lR6eJdP0iLtvo5gOaPe0yoF3w2YvVNghAgcHq-rCkzt4XmhtXgSJHR8VAroXUM%2F01QN2UI7DWHYGYVVNHUNG3BUMBFAZFZ3KN>

3. (Min, Max) Notation for Relationship

In this part we discuss the (min, max) notation for several relationships that exist in our E-R design diagram. Table 1 clearly specifies how the numerical expression corresponds to the relationship between two entities.

Table 1. Explanation for (Min, Max) Notation

Numerical Expression	Discussion
	<p>One attendee can have 0 to at most 2 guests associated with them.</p> <p>One guest can be associated with exactly one attendee.</p>
	<p>One event has at least one or many admins associated with it.</p> <p>One admin is associated with one or more events.</p>
	<p>One event sponsor sponsors one or many events.</p> <p>One event can be sponsored by one or many event sponsors.</p>
	<p>One attendee can attend one to many events.</p> <p>One event must be attended by at least one to many attendees.</p>
	<p>One event sponsor can have 0 to maximum 2 guests.</p> <p>One guest can be associated with only one event sponsor.</p>
	<p>One department can conduct 0 or more events.</p> <p>One event must be conducted by at least one to many departments.</p>

4. Conclusion

In this report we discussed and drew the E-R diagram for the Database of the event attendance system that uses barcodes to record the attendance. In the first part we made our assumptions and explanations, and then we gave the diagram for our E-R model. The last part is mainly focused on all relationships that existed in the E-R diagram.

This report analyzed the conceptual model of the event attendance Database. The next step is to build physical models and other details. In the future, we may change some mappings of this conceptual model when facing practical difficulties and other requests. In addition, Figure 1 includes all the details which we may omit in our description. For further questions please contact us or refer to the above discussions.