## Business Rules

- Each applicant can submit one or more applications (one application per year for multiple years). Each application is submitted by only one applicant.
- Each school can be associated with one or more applications. Each application is associated with only one school.
- Each application must include two or more recommendations. Each recommendation is included with only one application.
- Each bowling center can be associated with one or more applications. Each application is associated with only one bowling center.

Entity-Relationship Diagram (ERD)
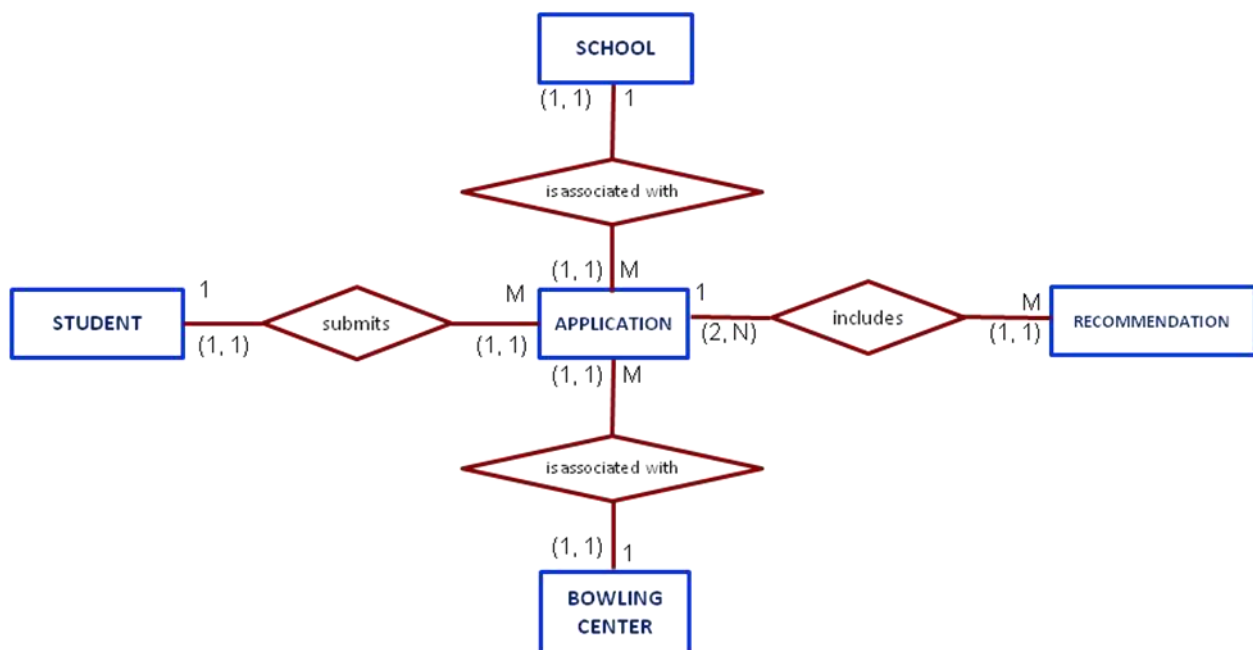
Entities and Relationships

APPLICATION Table

The APPLICATION table is the Scholarship Application Database's central entity, and it stores data about each individual application that the HGL Young Bowlers Foundation receives. The table contains an automatically generated application ID number (APP_ID), which serves as the primary key; other attributes include application date, student ID, bowling center name, school ID, current school name, class level, GPA, GPA scale, academic honors, extracurricular activities, community activities, other activities, essay grade, other scholarships awarded, and financial need.
The table also stores data that indicates whether a particular application is associated with a returning applicant or with an applicant who has received an HGL scholarship in the past, and data that indicates whether the application includes a completed essay. Academic honors and all activities are entered into the database through text boxes, by request of the client. Financial need is assessed and converted to a Likert value through review of the applicant's 1040 or similar documentation.

The APPLICATION table is directly joined to all of the other tables in the Scholarship Application Database. It has a one-to-many relationship with the RECOMMENDATION table and a many-to-one relationship with the STUDENT, SCHOOL, and BOWL_CENTER tables; APP_ID, APP_SCHOOL_ID, and APP_BOWL_CTR_ID function as the foreign keys to STUDENT, SCHOOL, and BOWL_CENTER, respectively.

STUDENT Table

The STUDENT table stores data specific to each scholarship applicant; it is linked to the APPLICATION table in a one-to-many relationship, with APP_STU_AUTO_ID acting as the foreign key in the APPLICATION table. An automatically generated student ID number (STU_AUTO_ID) serves as the STUDENT table's primary key. The table also contains fields for each student's last name, first name, middle initial, date of birth, address, city, state, zip code, county of residence, day and evening phone numbers, email address, and USBC number.

SCHOOL Table

The SCHOOL table is linked to the APPLICATION table in a one-to-many relationship, and the APP_SCHOOL_ID field serves as the foreign key in the APPLICATION table. All data about a given school is stored in the SCHOOL table, and the automatically generated school ID number (SCHOOL_ID) forms the table's primary key. Also included in the SCHOOL table are fields for the school name, type, address, city, state, zip code, and phone number.

BOWL_CENTER Table

The BOWL_CENTER table stores all available data about the bowling center associated with each application. This table is joined to the APPLICATION table in a one-to-many relationship, with APP_BOWL_CENTER_ID serving as the foreign key in the APPLICATION table. An automatically generated bowling center ID (CENTER_ID) is the primary key for the BOWL_CENTER table, which also contains fields for the bowling center name, address, city, state, zip code, and phone number.

RECOMMENDATION Table

The RECOMMENDATION table stores data about the various coach and counselor recommendations associated with each scholarship application. The table's primary key is an automatically generated recommendation ID (REC_ID). It is joined to the APPLICATION table in a many-to-one relationship; thus, REC_APP_ID is the foreign key in the RECOMMENDATION table. Fields for recommendation date, recommender first and last name, recommender middle initial, and relationship of recommender to applicant are included in this table. In addition, a series of fields contains standardized numerical values that indicate the recommender's opinions of each applicant's attribute rankings, including sportsmanship, mental attitude, improvement, willingness, motivation, creativity, potential, responsibility, honesty, and cooperation.
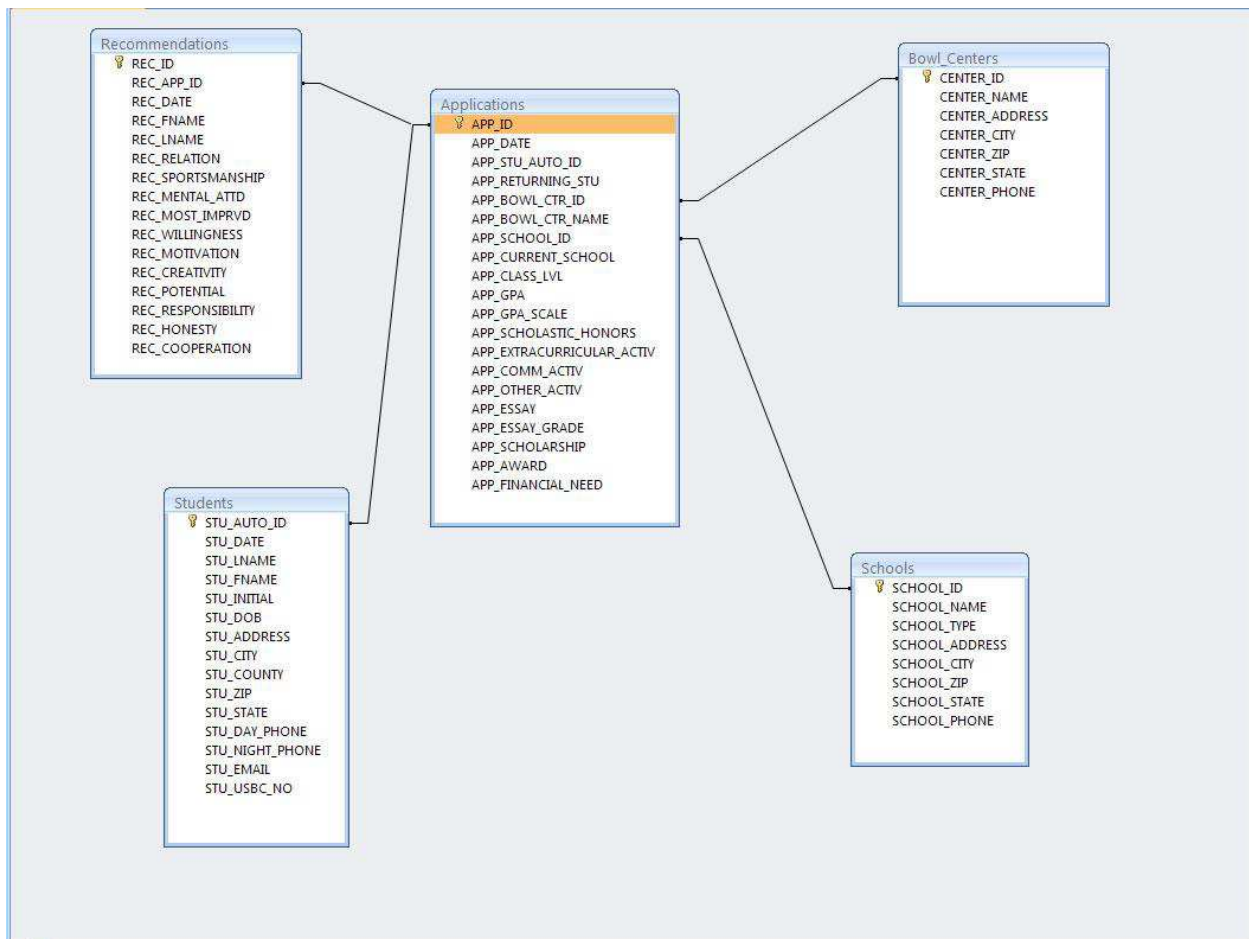
Database System Task List

a. Tasks the Database Will Perform
- Enter and store student's personal and contact information
- Enter and store data from recommendation forms
- Enter school information
- Enter bowling center information
- View student's scholarship application
- Search for student information

b. Questions the Database Will Answer
- How many applications were received in a given year?
- How many scholarships were awarded in a given year?
- How many of the applications received in a given year were received from students who have applied for scholarships in a previous year?
- How many times has a particular student applied for a scholarship?
- Has a particular student been awarded an HGL Young Bowlers Foundation scholarship in the past?
- How many applications were associated with a specific bowling center in a given year?
- How many applications were associated with a specific school in a given year?
- What is the average score given to an applicant by his/her recommenders?

d. Sample Queries
- Query that lists student name, county, city, zip code, and application date
- Additional queries are all used to generate the reports listed below

e. Sample Reports
- Report that lists all of the applicants in the database, sorted by year and by last name, as well as the total number of applicants currently stored in the database
- Report that lists all of the applicants who have been awarded a scholarship in the past, sorted by year and by last name; also provides count of total number of scholarship recipients