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P1 Project

Happy Learning:
A Rudimentary Database Approach

The Database in focus is intended to be a solution for a Kindergarten referred to as “Happy Learning”. There are four main tables: CLASS, STUDENT, PARENT, and TEACHER. These relationships are defined and created to link the students to their respective classes, teachers to their classes, students to parents, so on so forth, this is intended to allow an understanding of Happy Learnings operations.

Conceptual Analysis

For the main entities involved in this database, we can identify four key components: CLASS, STUDENT, PARENT, and TEACHER. These main entities form the foundation for understanding the desired relationships between them. The primary relationships are as follows: a STUDENT is enrolled in a CLASS, a PARENT has a STUDENT, and a CLASS is taught by a TEACHER. These relationships constitute the core connections within the model and serve as a reference when analyzing the relationship types. Between STUDENT and CLASS, we have a Many-to-One relationship, indicating that multiple students can be enrolled in a single class. The relationship between PARENT and STUDENT is One-to-Many, signifying that a parent can have multiple students. Lastly, the CLASS to TEACHER relationship is One-to-One, meaning that each class is taught by a single teacher, and each teacher is assigned to a specific class.

Entities Analysis

The following is an entities analysis for the database:

Entity 1: Class

Description: The table below represents the attributes of the kindergarten classes. Where we factor in the age level and student color scheme in regards to organizing the database. We store other information such as the Room Number and Phone Number, as well as brief directions to the kindergarten. Class Code is what will be the primary key.

Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
CLASS_CODE_JT	VARCHAR(2)	Simple	Single	Required	Unique
AGE_LEVEL_JT	VARCHAR(10)	Simple	Single	Required	Duplicated
COLOR_JT	VARCHAR(10)	Simple	Single	Required	Duplicated
ROOM_NUMBER_JT	INT	Simple	Single	Required	Duplicated
PHONE_NUMBER_JT	VARCHAR(12)	Composite	Single	Required	Duplicated
MAX_CAPACITY_JT	INT	Simple	Single	Required	Duplicated
LOCATION_DIRECTIONS_JT	VARCHAR(150)	Composite	Multi	Optional	Unique

Entity 2: Student

Description: The table below represents the attributes of the kindergarten students. We have information such as their first, middle, and last name. Also their nickname. Some of these are required, like first and last, and some of these are optional - such as Nickname and Middle Name. Other attributes, relevant to the table and database are Zipcode, City, and DOB.

FIRST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
MIDDLE_NAME_JT	VARCHAR(21)	Simple	Single	Optional	Duplicated
LAST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
NICKNAME_JT	VARCHAR(15)	Simple	Single	Optional	Duplicated
DOB_JT	DATE	Simple	Single	Required	Duplicated
CITY_JT	VARCHAR(15)	Simple	Single	Required	Duplicated
ZIPCODE_JT	CHAR(5)	Simple	Single	Required	Duplicated
STREET_JT	VARCHAR(35)	Simple	Single	Required	Duplicated
CLASS_CODE_JT	CHAR(2)	Simple	Single	Required	Duplicated

Entity 3: Parent

Description: The table below represents the attributes of the kindergarten parents. We have information such as their first, middle, and last name. Some of these are required, like first and last, and some of these are optional - such as Middle Name. Other attributes, relevant to the table and database are Relationship to the student and their email.

FIRST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
MIDDLE_NAME_JT	VARCHAR(21)	Simple	Single	Optional	Duplicated
LAST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
HOME_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
MOBILE_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
WORK_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
EMAIL_JT	VARCHAR(30)	Simple	Single	Optional	Duplicated
RELATIONSHIP_JT	VARCHAR(15)	Simple	Single	Required	Duplicated

Entity 4: Teacher

Description: The table below represents the attributes of the kindergarten Teachers. We have information such as their first, middle, and last name. We include their degree area, their highest degree, and even their college. Some of these are required, like first and last, and some of these are optional - such as Personal Email and Middle Name.

FIRST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
MIDDLE_NAME_JT	VARCHAR(21)	Simple	Single	Optional	Duplicated
LAST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
HOME_PHONE_JT	CHAR(12)	Simple	Single	Required	Duplicated
WORK_EMAIL_JT	VARCHAR(30)	Simple	Single	Required	Duplicated
PERSONAL_EMAIL_JT	VARCHAR(30)	Simple	Single	Optional	Duplicated
COLLEGE_JT	VARCHAR(50)	Simple	Single	Required	Duplicated
HIGHEST_DEGREE_JT	CHAR(5)	Simple	Single	Required	Duplicated
DEGREE_AREA_JT	VARCHAR(25)	Simple	Single	Required	Duplicated
CLASS_CODE_JT	CHAR(2)	Simple	Single	Required	Duplicated

RELATIONSHIP ANALYSIS

The following is a relationship analysis of the Database in Reference:

Relationship 1 - STUDENT is enrolled in CLASS:

Relationship Type: One to Many

- Each student is enrolled in many classes.

Relationship Strength: Strong

- This is because a student record is tied to a class.

Participation: Total for STUDENT, Partial for CLASS

- Each student must be enrolled in a class, however classes' existence of itself does not always imply said student or even a student making it partial.

Foreign Key: CLASS_CODE_JT in STUDENT Table

Relationship 2 - PARENT has STUDENT:

Relationship Type: One to Many

- One parent can have multiple students in the kindergarten, however each student only has one primary parent recorded in the database.

Relationship Strength: Strong

- This is because a student

Participation: TOTAL, Both

- Each student needs to have and or be associated with a parent and each parent needs to have or be associated with their child
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Foreign Key: PARENT_ID_JT in STUDENT Table

Relationship 3 - CLASS is taught by TEACHER:

Relationship Type: One to One

- One class is taught by one teacher, and each teacher is assigned to teach one class.

Relationship Strength: Strong

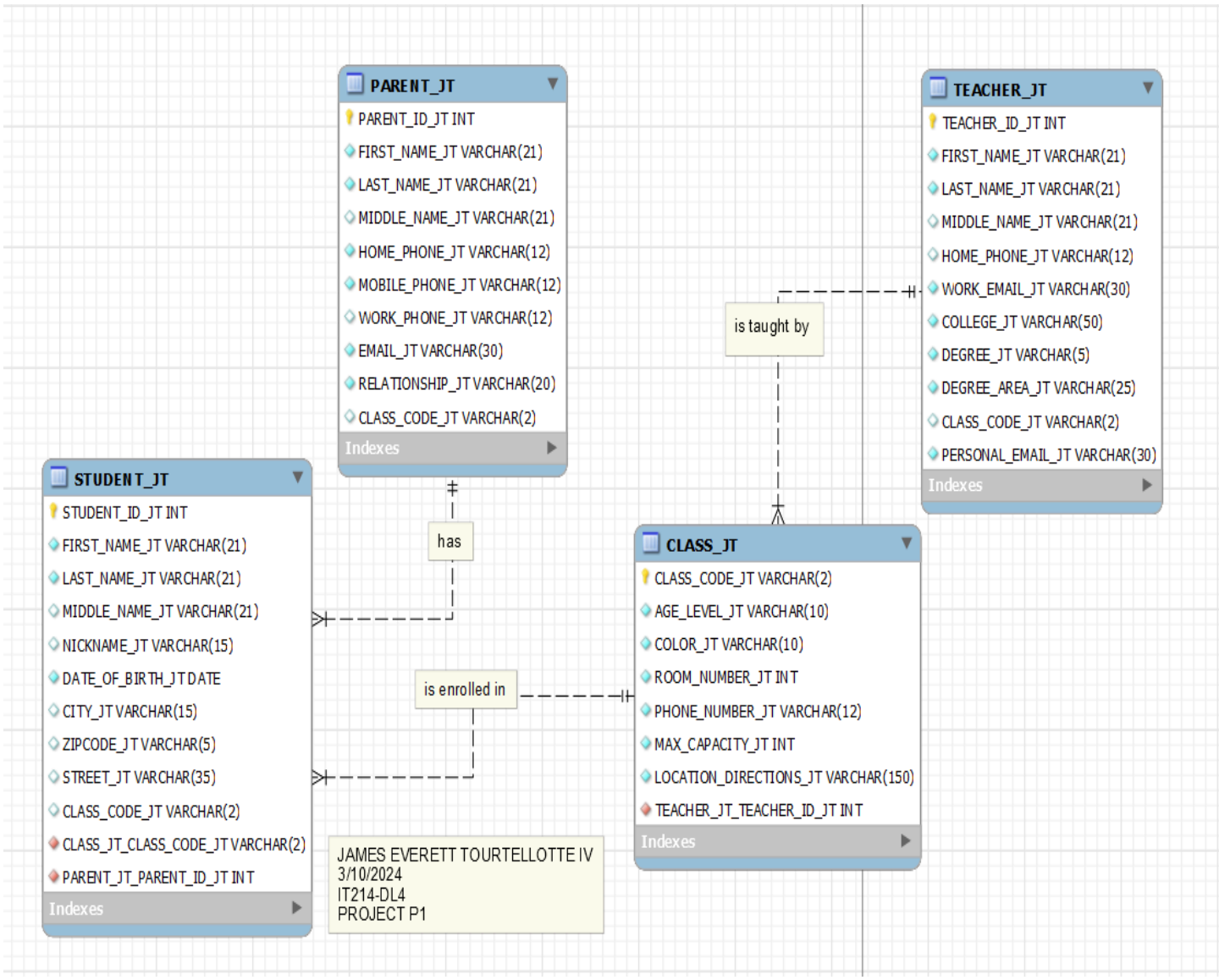
- The relationship is strong because the existence of a teacher is fundamental to the kindergarten's operations.

Participation: Total for both

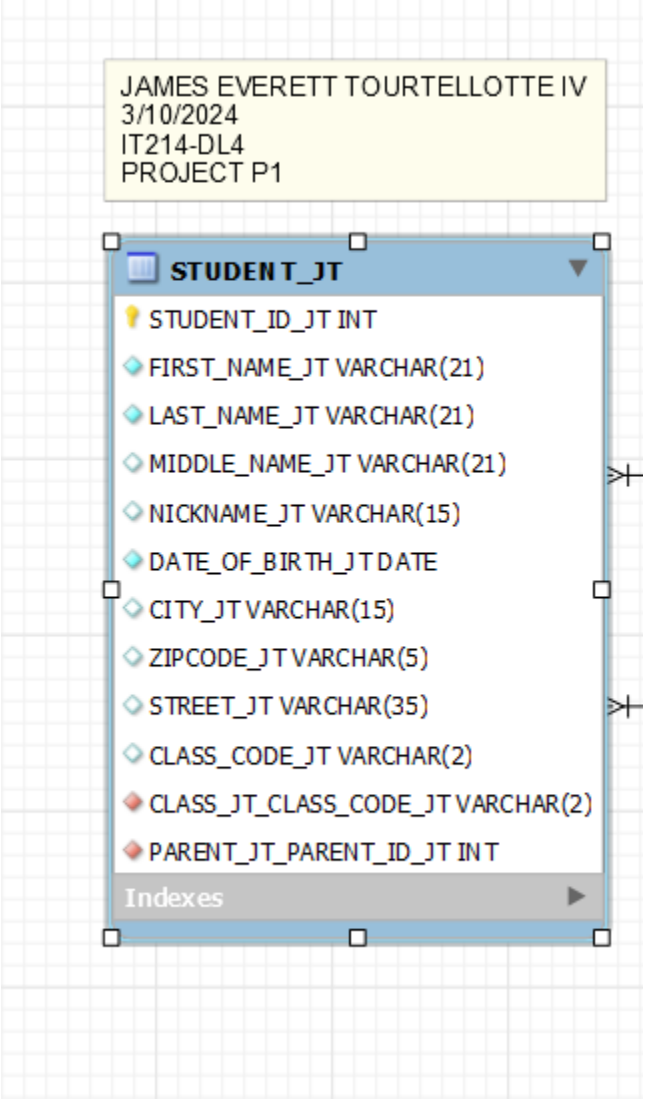
- Each class needs a teacher, and each teacher needs a class.

Project P1 Assignment Deliverables:

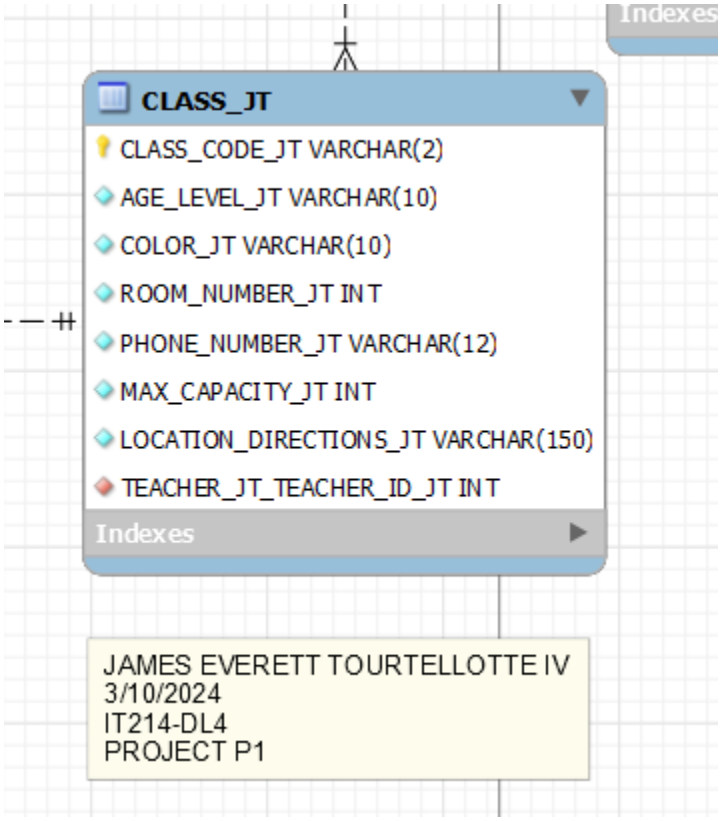
Full ERD:



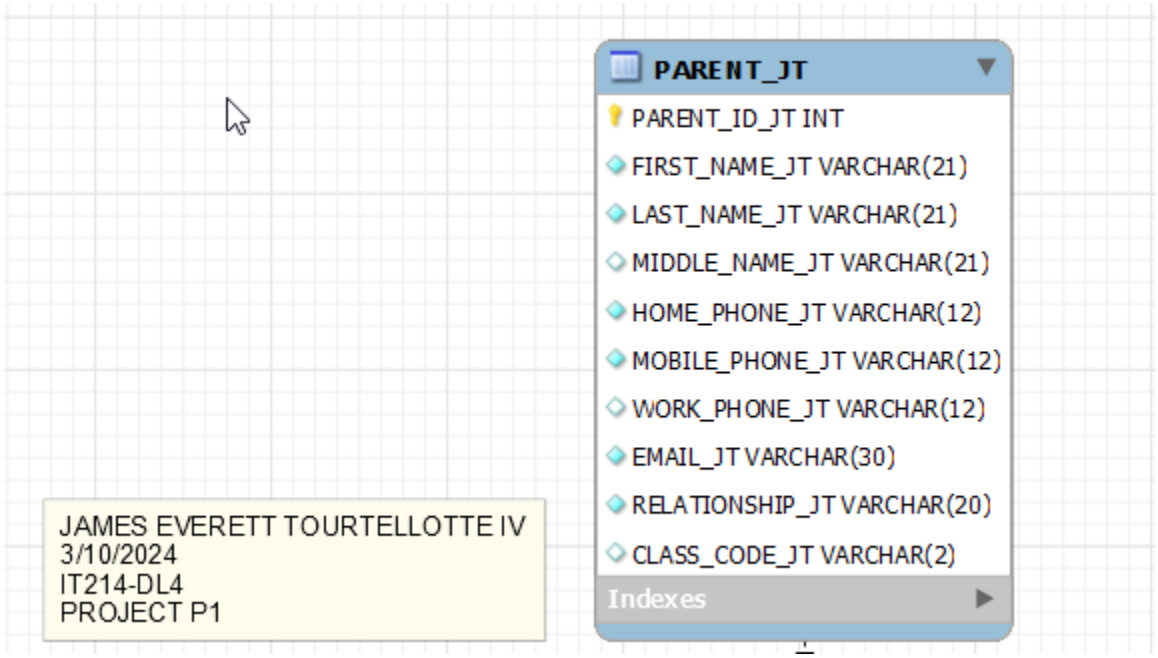
STUDENT TABLE -



CLASS TABLE -



PARENT TABLE -



TEACHER TABLE -