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IT 214 DL4 Spring 2024
3/31/2024
Assignment - P2 Project

Lunch Database:
Happy Learning's Lunch Data Solution

This updated database manages a kindergarten's operations with seven tables: CLASS, STUDENT, PARENT_OR_CARETAKER, TEACHER, LUNCH_ORDER, ORDER_ITEM, and LUNCH_ITEM. It links students to classes, teachers to classes, students to parents/caretakers, and handles lunch orders and items for a comprehensive representation.

Conceptual Analysis:

The analysis of Happy Learning Kindergarten's conceptual framework highlights four primary entities: CLASS, STUDENT, PARENT_OR_CARETAKER, and TEACHER. These entities form the basis for understanding the relationships within the database. Specifically, STUDENTS are enrolled in CLASSES, PARENTS_OR_CARETAKERS are linked to STUDENTS, and CLASSES are instructed by TEACHERS. The key relationships include: STUDENT to CLASS as Many to One, PARENT_OR_CARETAKER to STUDENT as One to Many, and CLASS to TEACHER as One to One. This conceptual framework aims to provide a structured approach to analyzing the kindergarten's database.

Additionally, three new entities related to the lunch ordering system have been identified: LUNCH_ITEM_JT, LUNCH_ORDER_JT, and ORDER_ITEM_JT. LUNCH_ITEM_JT covers the available lunch food items, LUNCH_ORDER_JT represents orders placed by parents for students, and ORDER_ITEM_JT serves as a junction table that specifies the items in each lunch order, further enhancing the database's structure.

Entities Analysis

The following is an entities analysis for the database:

Entity 1: CLASS

The "CLASS" entity is defined by a unique identifier called "CLASS_CODE_JT," serving as its Primary Key. This entity, which outlines the individual classes within the kindergarten, does not require a foreign key. A detailed analysis of this entity is provided in the accompanying table.

Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
CLASS_CODE_JT	CHAR(2)	Simple	Single	Required	Unique
ROOM_NUMBER_JT	INT	Simple	Single	Required	Duplicated
PHONE_NUMBER_JT	CHAR(12)	Simple	Single	Required	Duplicated
DIRECTIONS_JT	VARCHAR(150)	Simple	Single	Required	Duplicated
CAPACITY_JT	INT	Simple	Single	Required	Duplicated

Entity 2: STUDENT

The "STUDENT" entity captures the students enrolled in the kindergarten, featuring a diverse array of attributes including first name, middle name, last name, and nickname, among others. These attributes vary in domain and size but are primarily simple. A foreign key, "CLASS_CODE_JT," links students to their respective classes. A table provides a visual representation to enhance understanding of this entity.

14	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
15	STUDENT_ID_JT	INT	Simple	Single	Required	Unique
16	FIRST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
17	MIDDLE_NAME_JT	VARCHAR(21)	Simple	Single	Optional	Duplicated
18	LAST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
19	NICKNAME_JT	VARCHAR(15)	Simple	Single	Optional	Duplicated
20	DOB_JT	DATE	Simple	Single	Required	Duplicated
21	CITY_JT	VARCHAR(15)	Simple	Single	Required	Duplicated
22	ZIPCODE_JT	CHAR(5)	Simple	Single	Required	Duplicated
23	STREET_JT	VARCHAR(35)	Simple	Single	Required	Duplicated
24	CLASS_CODE_JT	CHAR(2)	Simple	Single	Required	Duplicated

Entity 3: PARENT_OR_CARETAKER

The "PARENT_OR_CARETAKER" entity contains detailed contact information and the relationship of a parent or caretaker to a student. Attributes include first names, last names, mobile and home phone numbers, all simple and singular in nature. The entity is identified by a surrogate primary key, "PARENT_ID_JT," and does not include a foreign key.

27	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
28	PARENT_ID_JT	INT	Simple	Single	Required	Unique
29	FIRST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
30	MIDDLE_NAME_JT	VARCHAR(21)	Simple	Single	Optional	Duplicated
31	LAST_NAME_JT	VARCHAR(21)	Simple	Single	Required	Duplicated
32	HOME_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
33	MOBILE_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
34	WORK_PHONE_JT	CHAR(12)	Simple	Single	Optional	Duplicated
35	EMAIL_JT	VARCHAR(30)	Simple	Single	Optional	Duplicated
36	RELATIONSHIP_JT	VARCHAR(15)	Simple	Single	Required	Duplicated

Entity 4: TEACHER

The "TEACHER" entity details the kindergarten's teachers through various attributes such as name, home phone, email, alma mater, and highest degree earned. It uses a

surrogate primary key, "TEACHER_ID_JT," and incorporates a foreign key, "CLASS_CODE_JT," to link teachers to classes. A table is provided for clearer insight into this entity.

38	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
39	TEACHER_ID_JD	INT	Simple	Single	Required	Unique
40	FIRST_NAME_JD	VARCHAR(21)	Simple	Single	Required	Duplicated
41	MIDDLE_NAME_JD	VARCHAR(21)	Simple	Single	Optional	Duplicated
42	LAST_NAME_JD	VARCHAR(21)	Simple	Single	Required	Duplicated
43	HOME_PHONE_JD	CHAR(12)	Simple	Single	Required	Duplicated
44	WORK_EMAIL_JD	VARCHAR(30)	Simple	Single	Required	Duplicated
45	PERSONAL_EMAIL_JD	VARCHAR(30)	Simple	Single	Optional	Duplicated
46	COLLEGE_JD	VARCHAR(50)	Simple	Single	Required	Duplicated
47	HIGHEST_DEGREE_JD	CHAR(5)	Simple	Single	Required	Duplicated
48	DEGREE_AREA_JD	VARCHAR(25)	Simple	Single	Required	Duplicated
49	CLASS_CODE_JD	CHAR(2)	Simple	Single	Required	Duplicated

Entity 5: LUNCH_ORDER

The "LUNCH_ORDER" entity represents lunch orders placed by parents, each linked to a specific student and date. It is uniquely identified by "ORDER_ID_JT" and includes a foreign key, "STUDENT_ID_JT," connecting it to the student entity.

60	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
61	ORDER_ID_JT	INT	Simple	Single	Required	Unique
62	STUDENT_ID_JT	INT	Simple	Single	Required	Duplicated
63	ORDER_DATE_JT	DATE	Simple	Single	Required	Duplicated

Entity 6: LUNCH_ITEM

The "LUNCH_ITEM" entity outlines the individual food items available for lunch, characterized by a unique code, name, and calorie count. The only unique attribute in this table is "ITEM_CODE_JT."

54	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
55	ITEM_CODE_JT	INT	Simple	Single	Required	Unique
56	ITEM_NAME_JT	VARCHAR(26)	Simple	Single	Required	Duplicated
57	CALORIES_JT	INT	Simple	Single	Required	Duplicated

Entity 7: ORDER_ITEM

Lastly, the bridge table for lunch orders details the quantity of each item in an order. Attributes in this table are simple, single, required, and duplicated, offering a structured view into the specifics of each lunch order.

66	Attribute Name	Domain and Size	Simple/Composite	Single/Multi Value	Required/Optional	Unique/Duplicated
67	ORDER_ID_JT	INT	Simple	Single	Required	Duplicated
68	ITEM_CODE_JT	INT	Simple	Single	Required	Duplicated
69	QUANTITY_JT	INT	Simple	Single	Required	Duplicated
70						

Relationship Analysis

The following is a relationship analysis for the Happy Learning Lunch Database.

Relationship 1: STUDENT is enrolled in CLASS

Relationship Type: Many to One

- A student is enrolled in one class, but each class can have many students/multiple students.

Relationship Strength: Strong

- The relationship is strong because a student record is always tied to a class.

Participation: Total for Student, Partial for Class

- Every student has to be enrolled in a class, so therefore the participation for student is total. However, there might be classes that do not have any or certain students enrolled, therefore making it partial for CLASS.

Foreign Key: CLASS_CODE_JT in Student

Relationship 2: PARENT_OR_CARETAKER has STUDENT

Relationship Type: One to Many

- One parent or caretaker can have multiple students enrolled in the kindergarten, but each student only has one primary P or CT record in the database.

Relationship Strength: Strong

- The relationship is strong because the existence of a student is closely tied to a parent or caretaker

Participation: Total for both

- Every student must be associated with a parent or with a caretaker, and every parent or caretaker in the database must have one student enrolled.

Foreign Key: PARENT_ID_JT in STUDENT

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 just 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

- Every class needs an assigned teacher and every teacher needs to be assigned a class.

Foreign Key: CLASS_CODE_JT in TEACHER

Relationship 4: LUNCH ORDER is made by PARENT OR CARETAKER

Relationship Type: Many to One

- Each lunch order is made for one student, but a student can have multiple lunch orders over time. Because this is done by a Parent or Caretaker, the relationship is between those two

Foreign Key: STUDENT_ID_JT which is in LUNCH_ORDER_JT

Relationship 5: LUNCH ORDER contains LUNCH ITEM

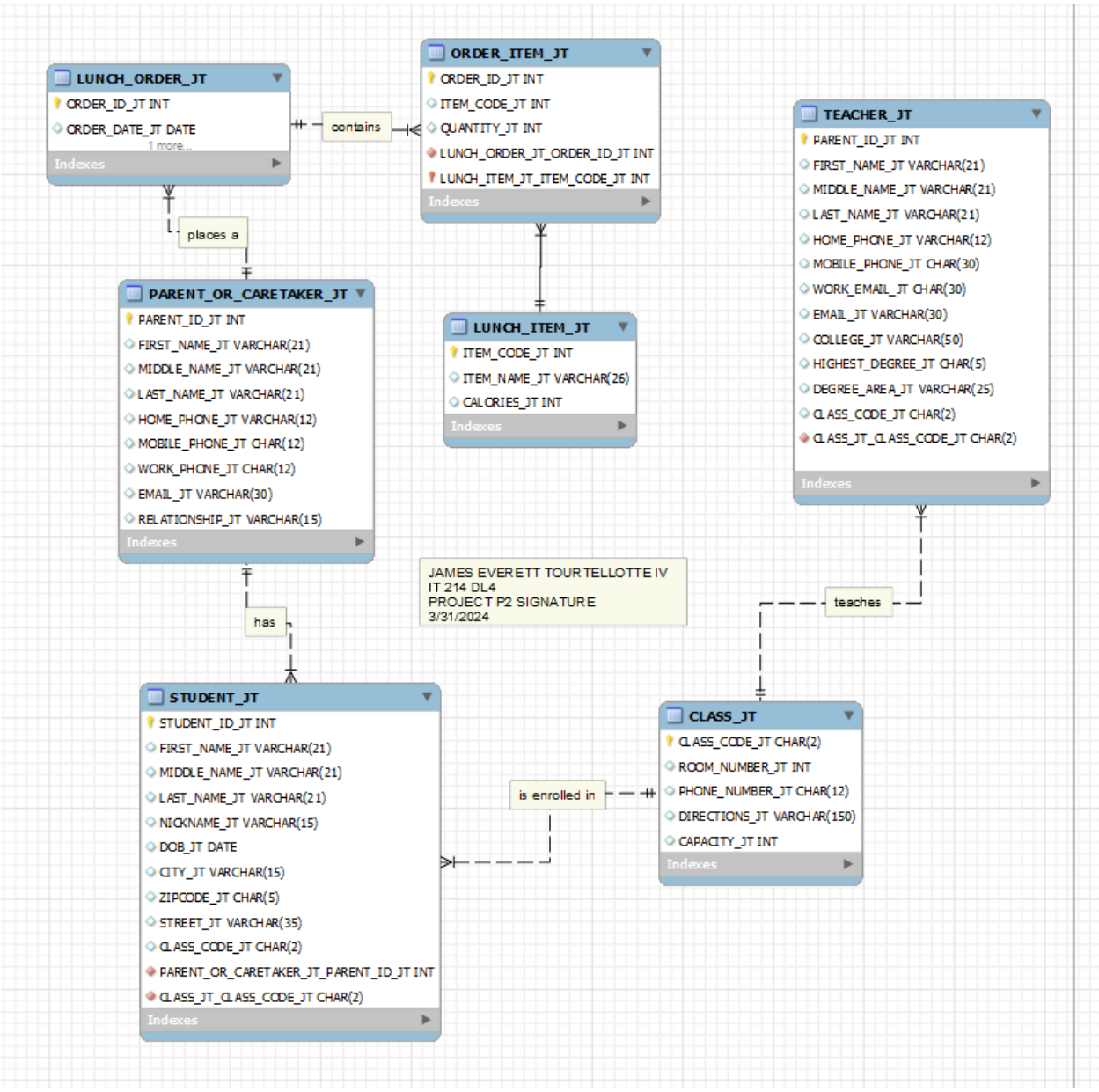
Relationship Type: Many to Many

- Each lunch order can contain multiple items, and each item can be in multiple lunch orders

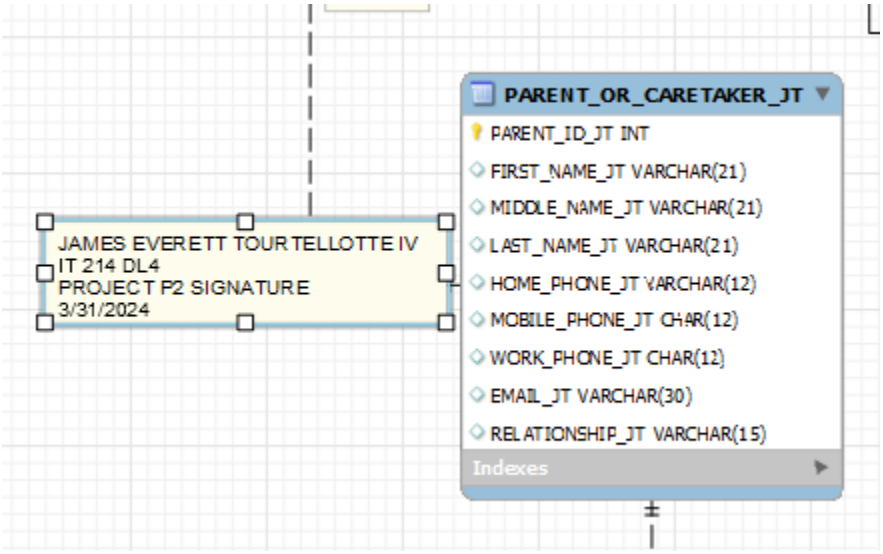
Foreign Key: ORDER_ID_JT and ITEM_CODE_JT in ORDER_ITEM_JT

Project P2 Assignment
MySQL Deliverables:

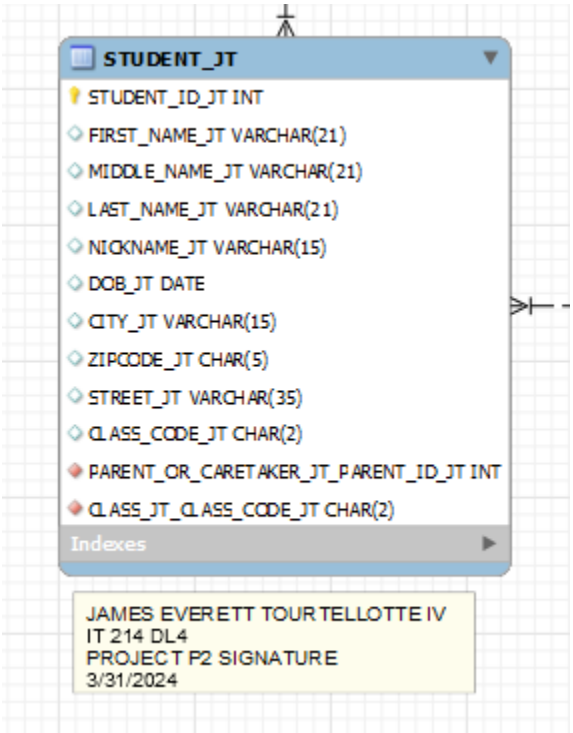
Full ERD -



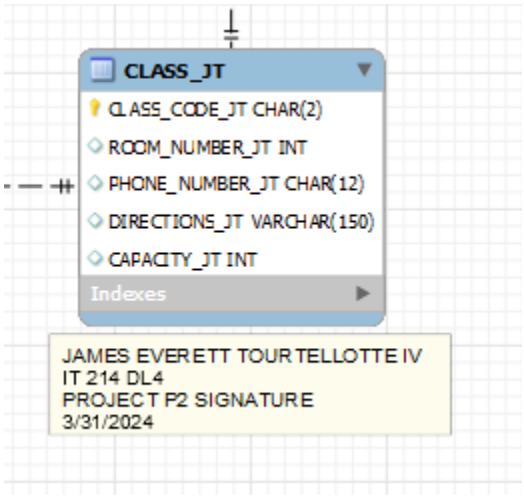
PARENT_OR_CARETAKER TABLE -



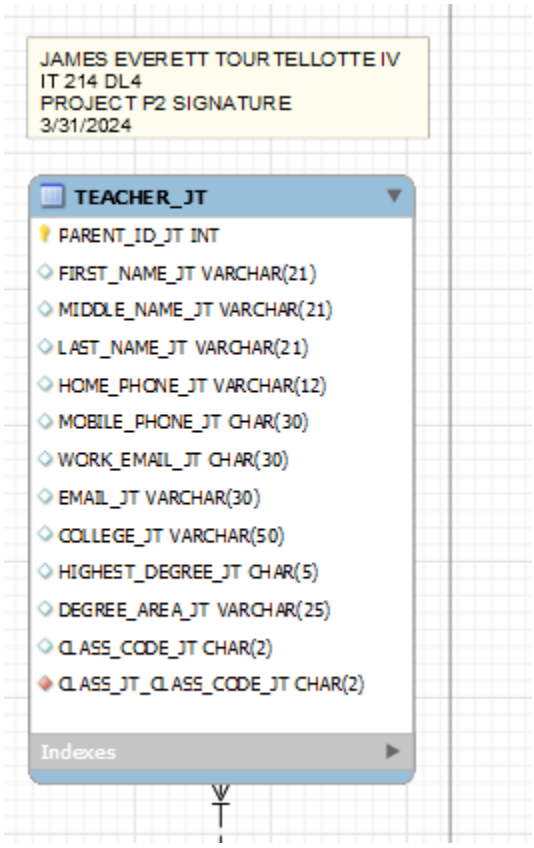
STUDENT TABLE -



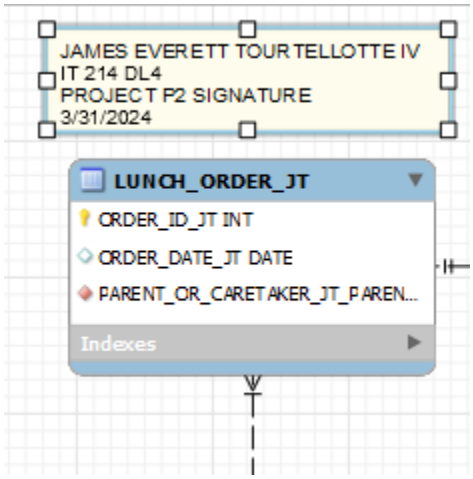
CLASS TABLE -



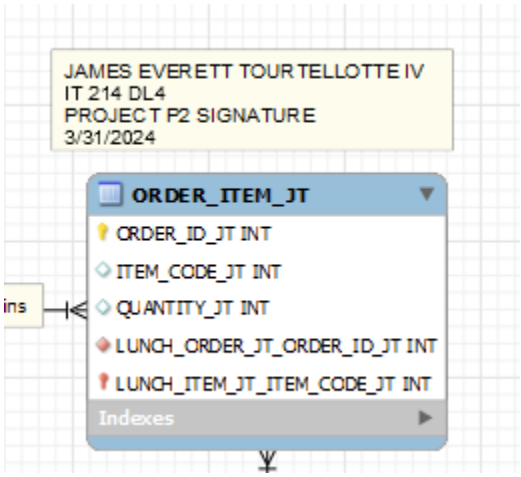
TEACHER TABLE -



LUNCH ORDER TABLE -



ORDER ITEM TABLE -



LUNCH ITEM TABLE -