

In Module 3 you will be interpreting an Entity Relationship Diagram (ERD). The ERD helps us to identify how the data is stored and related within a database. Using the LucidChart diagram we will practice how to read and understand an ERD. Follow along with the explanations in the video and answer each of the questions. You will also be making updates and changes to the ERD in LucidChart.

The Lucidchart diagram represents a database used to track employees for a human resources department.

All of the answers and chart explanations are provided in the learning videos.

1. Entities/Attributes

- a. Change the background color of each entity to green. Click on the square then use the fill option to change the color.

CHART

- b. List each attribute in the Employee entity.

employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id, department_id

- c. What data type is first_name?

varchar(20)

- d. What does the number 20 mean in the data type for first_name?

Up to 20 characters

- e. What data type is salary?

decimal

2. Primary Key

- a. Bold each entity's primary key.

CHART

3. Foreign Key

- a. Make each foreign key italicized, if it is also a primary key leave it bold and italicize it.

CHART

4. A relationship line helps us to see how our entities are related to one another.

- a. Change all relationship lines to purple.

CHART

Reading the relationship both ways is one way to help describe how the data is connected.

- b. Write two sentences reading both ways one of the relationships that was reviewed in the video.

A job can have zero to many job_histories.

A job_history can have only one job.

5. Which table has a self referential relationship?

Employee table (employee can be their own manager)

6. NULL vs NOT NULL - List all of the attributes that allow NULL values.

Jobs - min_salary, max_salary

Employees - salary, commission_pct, manager_id, department_id

Departments - location_id

Locations - street_address, postal_code, state_province, country_id

Countries - country_name, region_id

7. Add entities, attributes and relationships from video.

CHART

8. Add CREATE TABLE and CONSTRAINT scripts for the new tables Dependent and CompanyCar here:

```
CREATE TABLE Dependents (  
    dependentID INT NOT NULL AUTO_INCREMENT,  
    firstName VARCHAR(50) NOT NULL,  
    lastName VARCHAR(50) NOT NULL,  
    dateOfBirth DATE NOT NULL,  
    employee_id INT NOT NULL,  
    PRIMARY KEY (dependentID),  
    FOREIGN KEY (employee_id) REFERENCES Employees(employee_id)  
);
```

```
CREATE TABLE CompanyCar (  
    CompanyCarID INT NOT NULL AUTO_INCREMENT,  
    Make VARCHAR(50) NOT NULL,  
    Model VARCHAR(50) NOT NULL,  
    CarYear INT NOT NULL,  
    Mileage INT,  
    employee_id INT NOT NULL,  
    PRIMARY KEY (CompanyCarID),  
    FOREIGN KEY (employee_id) REFERENCES Employees(employee_id)  
);
```

9. **Insert a picture of the updated ERD. You can download your diagram as a picture and use Insert→ Image to put a copy of it in this document.**

I intentionally didn't color the new tables or lines to show you what I added.

