Assignment 5

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1. An E-R diagram can be viewed as a graph. What do the following mean in terms of the structure of an enterprise schema?

a) The graph is disconnected. – Means that entities in the graph are not connected. For example we can have 2 entities like customers and employees which may not be connected, even though they are part of the same company.

b) The graph has a cycle.- This shows interconnection of data. For example, player is part of a team, team plays a match, player is part of the match

We can convert any weak entity set to a strong entity set by simply adding appropriate attributes. Why, then, do we have weak entity sets?

- Not every data entity needs to have capabilities like keys to reference. For example, if you need to store a emergency contact of a patient, you don’t need to setup this entity as a Person. Mostly weak entities are addendum data.

employee (*ID*, *person_name*, *street*, *city*)
works (*ID*, *company_name*, *salary*)
company (*company_name*, *city*)
manages (*ID*, *manager_id*)

4. SQL exercise:

a) Consider the employee database

- where the primary keys are underlined. Give an expression in SQL for each of the following queries. (Hint: use from employee as e, works as w, company as c, manages as m) i. Find ID and name of each employee who lives in the same city as the location of the company for which the employee works. Select e.ID, person_name from employee e inner join works w on e.ID = w.ID inner join company c on w.company_name = c.company_name where e.city = c.city;

ii. Find ID and name of each employee who lives in the same city and on the same street as does her or his manager.

- Select ea.ID, ea.person_name from employee ea inner join manages m on ea.ID = m.ID inner join employee eb on m.manager_id = eb.ID where ea.city = eb.city;

iii. Find ID and name of each employee who earns more than the average salary of all employees of her or his company.

- Select e.ID, e.person_name from employee e inner join works w on e.ID = w.ID where w.salary >(Select avg(w.salary) from works w);

b) Consider the following SQL query that seeks to find a list of titles of all courses taught in Spring 2017 along with the name of the instructor.

- select name, title from instructor natural join teaches natural join section natural join course where semester = 'Spring' and year = 2017
- What is wrong with this query? (Hint: check book website)
- The query is missing column join the tables.