PREPARE FOR CLASS #6

KARLA MARTINEZ

3. Problem-solver exercise

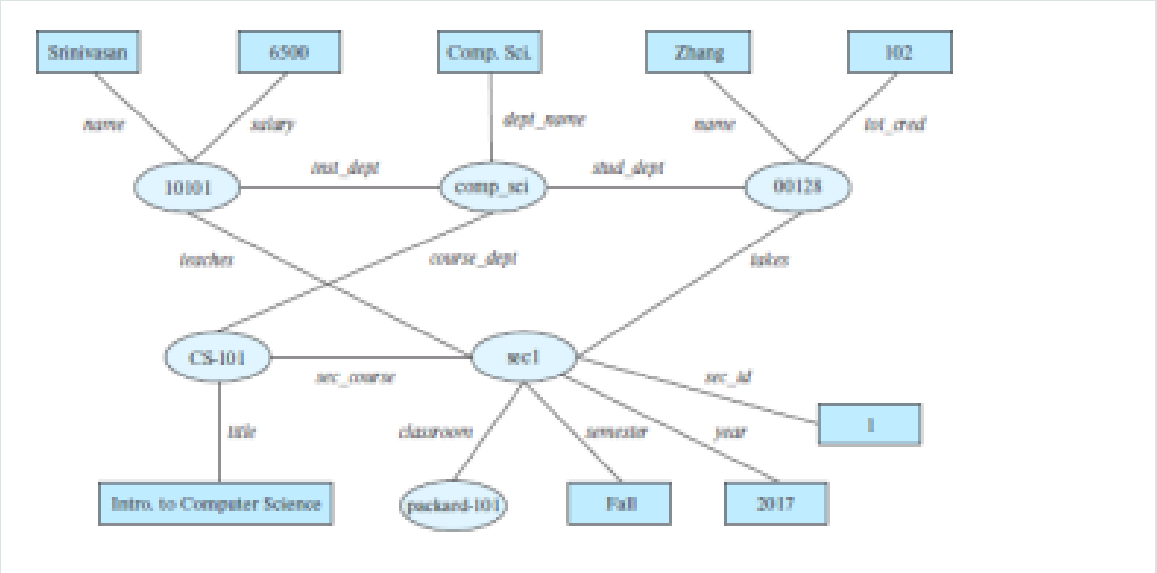
a. Do a quick survey on US election data

b. Design a database to house election data with query functions

c. What tables would you like to include?

a. (survery questions?)
b. Voter(ID, person_name, address, age, voter_number, partisanship)
   Election (election_id, date, election_type)
   Candidates(candidate_id, candidate_name, political_party)
c. I would like to include a voter table, election table, and candidate table

What is the following?



This is an ER diagram that shows computer science courses, who teaches them in what section and what semester.

Assignment #5

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QUESTION 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.
  - When there are paits of sets that are not related to each other. You could say in an enterprise, two parts are independent of each other. And separate relationships are not connected to each other.
- b) The graph has a cycle.
  - Graph has a cycle when every pair is related to each other in ATLEAST 2 different ways and basically starts and ends in the same in a circular reference.

QUESTION 2

- 2. Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted (Hint: use miro.com to draw the diagram with relationship sets).

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?

Weak entity sets are dependent on other entities hence it is helpful to have to know which is the stronger entity and how they are existent to maintain modeling of these relationships. Last week I used a song entity set being dependent on the artist or album, which shows. We need weak entity sets when there are strong entity sets.

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

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.**

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.**

i.
Select e.id, e.person_name
From e
JOIN works as w ON e.id=w.id
JOIN company as c ON c.company_name=w.company_name
Where e.city=c.city

ii.
Select e.id, e.person_name
From e
JOIN managesr as m ON e.m_id= m.id
JOIN emplyee as manager_emp ON m.mannager_id= manager_emp.ID
Where e.city= manager_emp.city AND e.street=manager_emp.street;

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

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

i.

```
Select e.id, e.person_name
From employee
Where salary> (Select AVG  (salary)
                From employee)
```

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.

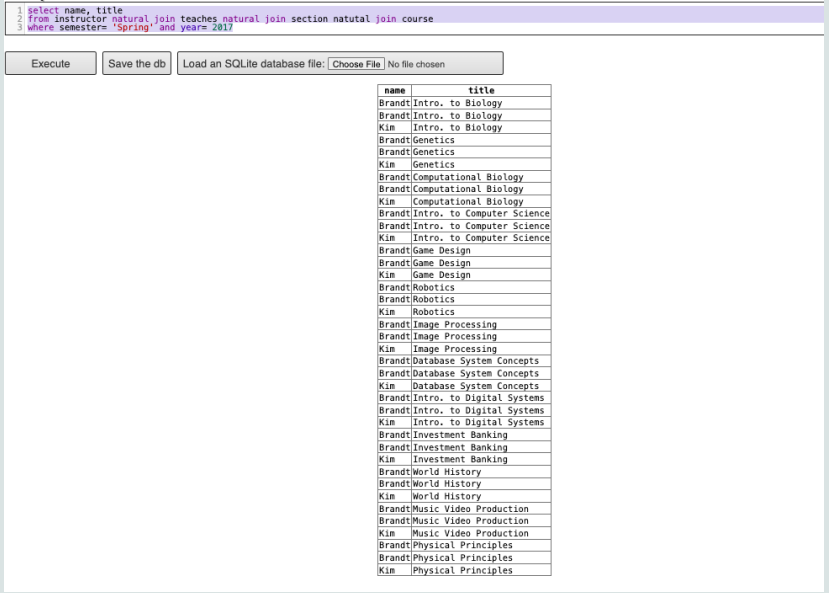
select name, title

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)

Questions: Is it bad to have natural joins like this??



```
1 select name, title
2 from instructor natural join teaches natural join section natutal join course
3 where semester= 'Spring' and year= 2017
```

Execute | Save the db | Load an SQLite database file: Choose File No file chosen

name	title
Brandt	Intro. to Biology
Brandt	Intro. to Biology
Kim	Intro. to Biology
Brandt	Genetics
Brandt	Genetics
Kim	Genetics
Brandt	Computational Biology
Brandt	Computational Biology
Kim	Computational Biology
Brandt	Intro. to Computer Science
Brandt	Intro. to Computer Science
Kim	Intro. to Computer Science
Brandt	Game Design
Brandt	Game Design
Kim	Game Design
Brandt	Robotics
Brandt	Robotics
Kim	Robotics
Brandt	Image Processing
Brandt	Image Processing
Kim	Image Processing
Brandt	Database System Concepts
Brandt	Database System Concepts
Kim	Database System Concepts
Brandt	Intro. to Digital Systems
Brandt	Intro. to Digital Systems
Kim	Intro. to Digital Systems
Brandt	Investment Banking
Brandt	Investment Banking
Kim	Investment Banking
Brandt	World History
Brandt	World History
Kim	World History
Brandt	Music Video Production
Brandt	Music Video Production
Kim	Music Video Production
Brandt	Physical Principles
Brandt	Physical Principles
Kim	Physical Principles

Having too many natural joins can be problematic? In case there are attributes that some tables do not have hence we have to be specific.
I believe it would be:
Select i.name, c.title
From instructor as I JOIN teaches ON i.ID=t.id
JOIN section as t ON t.sec.id=s.sec_id and t.course_id=s.course_id and t.semester=s.semester and t.year=s.year
JOIN coure on s.course_id= c.course_id
Where semester='Spring' and year=2017