



ASSIGNMENT 5

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

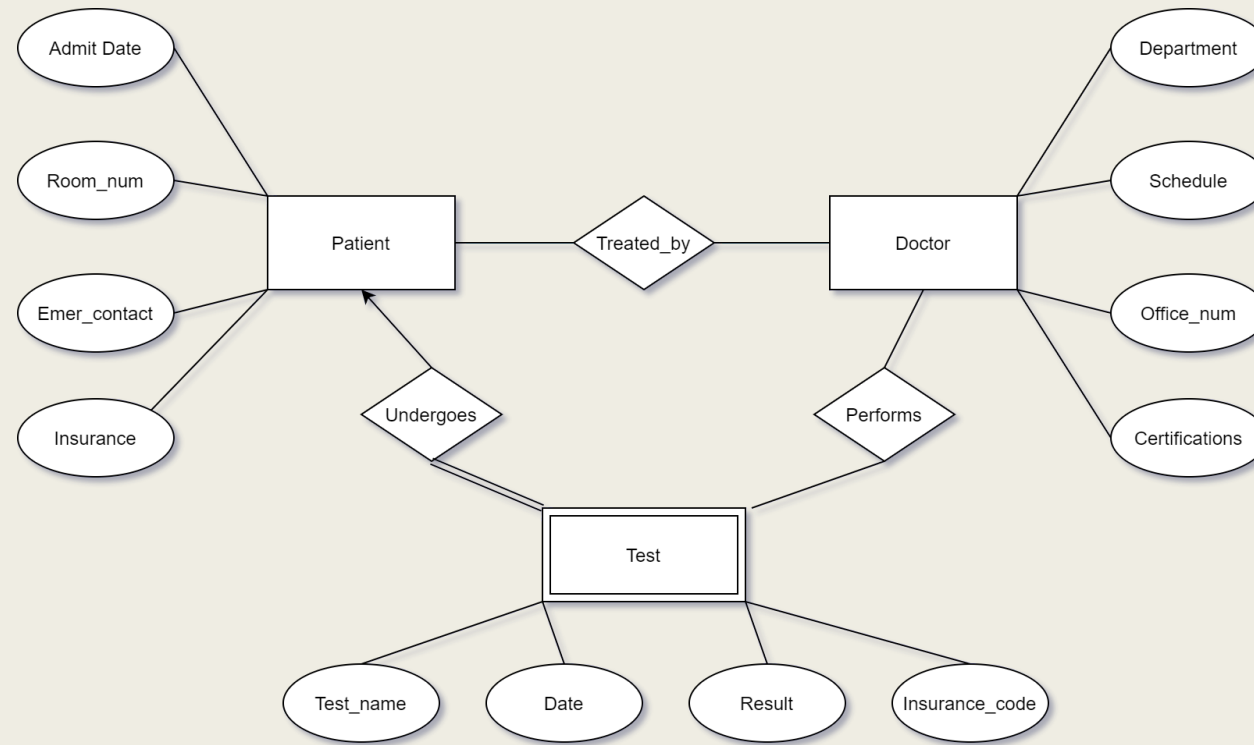
The graph is
disconnected:

- Pairs of entity sets are unrelated to each other
 - Could split into two graphs that are connected, essentially creating a second database

The graph has a cycle:

- All pairs are related to each other in at least two ways

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.



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?

- Adding primary key attributes to a weak entity set would mean duplicating the attribute in multiple tables, creating redundancy

Consider the employee database

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

- 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.employee_ID*

- FROM employee e, works w, company*

- WHERE e.employee_ID = w.employee_ID*

- AND e.city = c.city AND w.company_name = c.company_name*

Consider the employee database

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

- 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 e.employee_ID*
FROM employee e, employee r, manages m
WHERE e.employee_ID = m.employee_ID
AND m.manager_ID = r.employee_ID
AND e.street = r.street AND e.city = r.city

Consider the employee database

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

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

- *SELECT* employee_ID

- FROM* works w

- WHERE* salary >

- (*SELECT* AVG (salary)

- FROM* works s

- WHERE* w.company_name = s.company_name)