

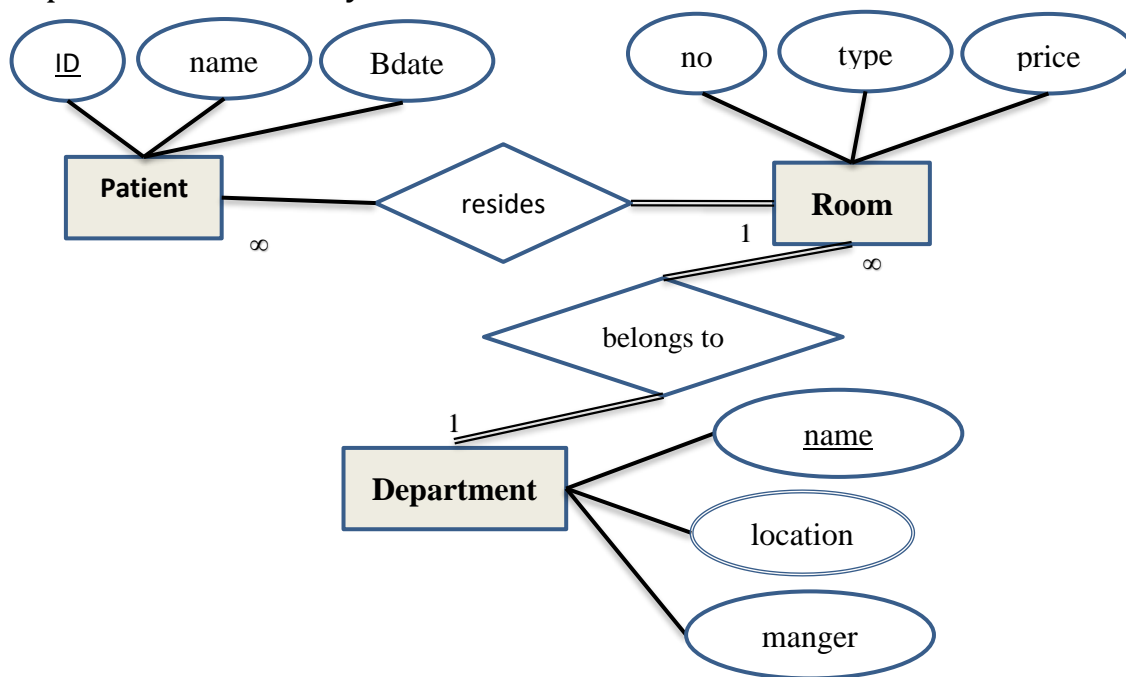


Sheet 4-Answer

After completing this sheet, you should be able to:

- transform ER to relational (logical) model (manually or by using forward engineer).
- insert data into tables using two different methods.
- understand the way to create foreign key manually and wizard.
- save the database as sql file.
- create database from sql file.

Q1) Given the following ER-Diagram, convert it to relational model. Then implement it manually.



Patient

ID	name	Bdate	roomNo
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Room

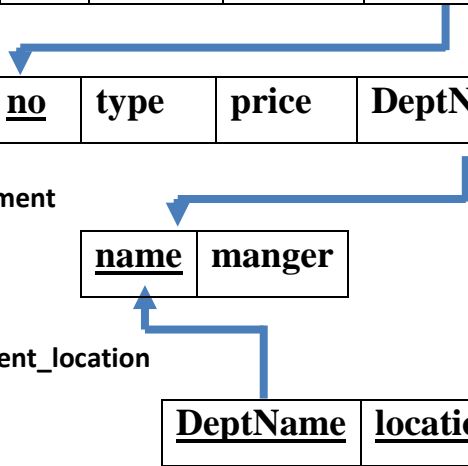
<u>no</u>	type	price	DeptName
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Department

<u>name</u>	manger
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Department_location

<u>DeptName</u>	<u>location</u>
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Q2) Using MySQL and Workbench, Implement the relational database as in the below figure.

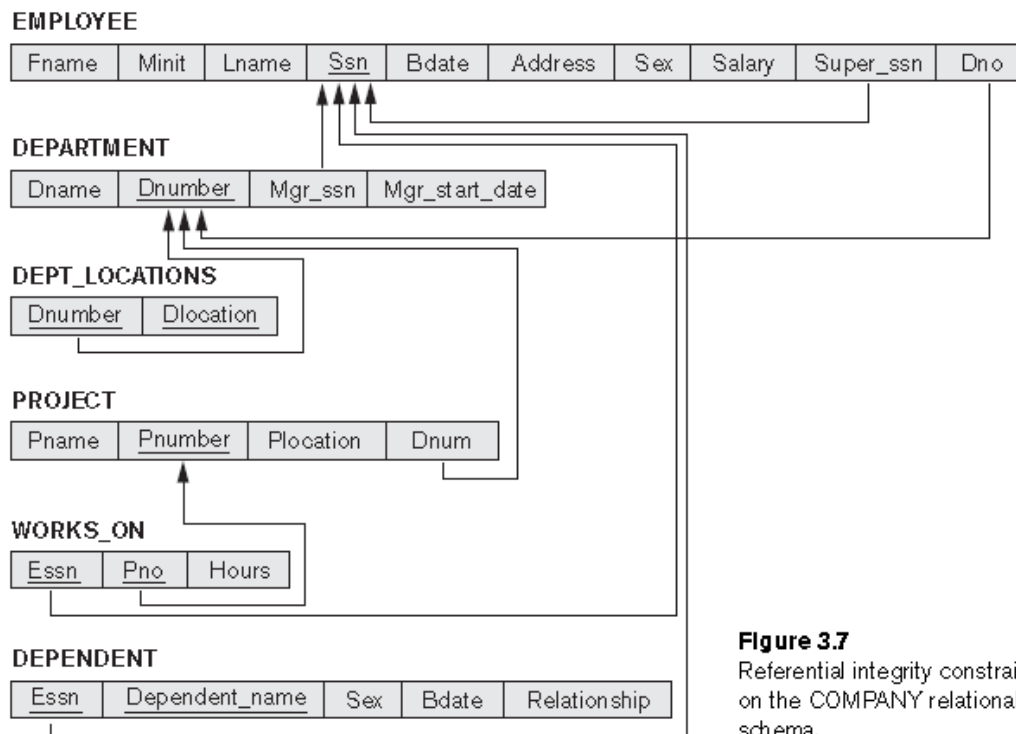


Figure 3.7
Referential integrity constraints displayed on the COMPANY relational database schema.

Fill this database with the following data

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	NULL	1

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date
Research	5	333445555	1988-05-22
Administration	4	987654321	1995-01-01
Headquarters	1	888665555	1981-06-19

DEPT_LOCATIONS

Dnumber	Dlocation
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

WORKS_ON

Essn	Pno	Hours
123456789	1	32.5
123456789	2	7.5
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0
987987987	30	5.0
987654321	30	20.0
987654321	20	15.0
888665555	20	NULL

PROJECT

Pname	Pnumber	Plocation	Dnum
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

DEPENDENT

Essn	Dependent_name	Sex	Bdate	Relationship
333445555	Alice	F	1986-04-05	Daughter
333445555	Theodore	M	1983-10-25	Son
333445555	Joy	F	1958-05-03	Spouse
987654321	Abner	M	1942-02-28	Spouse
123456789	Michael	M	1988-01-04	Son
123456789	Alice	F	1988-12-30	Daughter
123456789	Elizabeth	F	1967-05-05	Spouse

Specify the following queries in SQL on the COMPANY relational database and Show the result of each query if it is applied to the COMPANY database.

1. Retrieve names and salary of all male employee.

SELECT Fname, salary FROM employee WHERE sex='M'	Fname	Salary
	John	30000.00
	Franklin	40000.00
	Ramesh	38000.00
	James	55000.00
	Ahmed	25000.00

2. Retrieve names of employees who live in Houston.

SELECT Fname FROM employee WHERE address like '%Houston%'	Fname
	John
	Franklin
	Joyce
	James
	Ahmed

3. Retrieve names of employees who get salary between 30000 and 40000.

SELECT Fname FROM employee WHERE salary between 30000 and 40000	Fname
	John
	Franklin
	Ramesh

4. Retrieve name of the employee who has not supervisor.

SELECT Fname FROM employee WHERE super_ssn is null	Fname
	James

5. Retrieve the name of each employee and his/her supervisor.

SELECT e.Fname as Employee_name , s.Fname as supervisor FROM employee e, employee s	Employee_name	
	John	Franklin
	Franklin	James

WHERE e.super_ssn=s.ssn	Joyce	Franklin
	Ramesh	Franklin
	Jennifer	James
	Ahmed	Jennifer
	Alicia	Jennifer

6. Retrieve the name of each employee and his/her department name.

SELECT e.Fname as Emp_name , d.Dname as Dept_name FROM employee e, department d WHERE e.Dno=d.Dno OR SELECT e.Fname as Emp_name , d.Dname as Dept_name FROM employee e natural join department d OR SELECT e.Fname as Emp_name , d.Dname as Dept_name FROM employee e join department d on (e.Dno=d.Dno)	Emp_name	Dept_name
	Jennifer	Administration
	Ahmed	Administration
	Alicia	Administration
	James	Headquarters
	John	Research
	Franklin	Research
	Joyce	Research
	Ramesh	Research

7. Retrieve the name of each employee and his department location.

SELECT e.Fname as Emp_name, d.Dname as Dept_name, l.Dlocation as Location FROM employee e,	Emp_name	Dept_name	Location
	Jennifer	Administration	Stafford
	Ahmed	Administration	Stafford

department d, dept_locations l WHERE e.Dno=d.Dno and l.Dno=d.Dno OR SELECT e.fname, l.Dlocation FROM employee e, Dept_locations l where e. Dno =l.Dno;	Alicia	Administration	Stafford
	James	Headquarters	Houston
	John	Research	Bellaire
	Franklin	Research	Bellaire
	Joyce	Research	Bellaire
	Ramesh	Research	Bellaire
	John	Research	Houston
	Franklin	Research	Houston
	Joyce	Research	Houston
	Ramesh	Research	Houston
	John	Research	Sugarland
	Franklin	Research	Sugarland
	Joyce	Research	Sugarland
	Ramesh	Research	Sugarland

8. Retrieve the name of each department and its manager name.

SELECT d.Dname as Dept_name, e.Fname as mgr_name FROM department d, employee e WHERE d.Mgr_ssn=e.Ssn	Dept_name	mgr_name
	Headquarters	James
	Administration	Jennifer
	Research	Franklin

9. Retrieve the project name and its department name.

SELECT p.Pname as proj_name, d.Dname as Dept_name FROM project p natural join department d	proj_name	Dept_name
	Computerization	Administration
	Newbenefits	Administration
	Reorganization	Headquarters
	ProductX	Research
	ProductY	Research
	ProductZ	Research

10. For the project “Computerization”, retrieve the name of employee who works on it.

SELECT fname FROM project p, works_on w, employee e WHERE p.Pnumber= w.Pnumber and w.essn= e.ssn and p.Pname='Computerization';	<table><tr><td>Fname</td></tr><tr><td>Franklin</td></tr><tr><td>Ahmed</td></tr><tr><td>Alicia</td></tr></table>	Fname	Franklin	Ahmed	Alicia
Fname					
Franklin					
Ahmed					
Alicia					

11. For the project “Computerization”, retrieve the name of employee who works on it and his/her salary greater than 30000.

SELECT fname FROM project p, works_on w, employee e WHERE p.Pnumber= w.Pnumber and w.essn= e.ssn and p.Pname='Computerization'; and e.salary>30000	<table><tr><td>Fname</td></tr><tr><td>Franklin</td></tr></table>	Fname	Franklin
Fname			
Franklin			

12. Retrieve the names of all employees in department 5 who work more than 10 hours per week on the “ProductX” project.

SELECT e.Fname FROM project p, works_on w, employee e WHERE w.Essn =e.Ssn and w.Pnumber=p.Pnumber and p.Pname='ProductX' and e.Dno=5 and w.Hours>10	<table><tr><td>Fname</td></tr><tr><td>John</td></tr><tr><td>Joyce</td></tr></table>	Fname	John	Joyce
Fname				
John				
Joyce				

13. List the name of each employee and his/her spouse.

SELECT e.Fname,d.Dependent_name FROM employee e,dependent d WHERE e.Ssn=d.Essn and d.Relationship='Spouse'	<table border="1"> <tr> <th>Fname</th><th>Dependent_name</th></tr> <tr> <td>John</td><td>Elizabeth</td></tr> <tr> <td>Franklin</td><td>Joy</td></tr> <tr> <td>Jennifer</td><td>Abner</td></tr> </table>	Fname	Dependent_name	John	Elizabeth	Franklin	Joy	Jennifer	Abner
Fname	Dependent_name								
John	Elizabeth								
Franklin	Joy								
Jennifer	Abner								

With my best wishes

Dr. Wael Zakaria