Middle East Technical University

Department of Computer Engineering

Ceng 302

Introduction to Database Management Systems

Fall 2014-2015-HW3

QUESTIONS

Consider the following relations for an imaginary database.

MEDICAL_RECORD(RecordNo,Type,Date,PatientID)
PATIENT(PatientID,Name,Sex,Birthday)
DOCTOR(EmployeeID,Name,Sex,Birthday,Salary,Specialty)
EXAMINES(EmployeeID,PatientID)

The current state of the database is given below:

MEDICAL_RECORD	RecordNo	Type	Date	PatientID
	1	Prescription	01.11.2012	900001
	2	Test Result	20.04.2013	900001
	3	EKG Image	13.06.2014	900001
	4	MR Image	13.06.2011	900002
	5	Test Result	11.01.2012	900002
	6	Prescription	11.04.2010	900004
	7	Other	06.09.2009	900006
	8	Test Result	16.07.2012	900008
	9	Prescription	06.02.2008	900003
	10	MR Image	12.01.2013	900005
	11	Test Result	15.05.2010	900007

PATIENT	PatientID	Name	Sex	Birthday
	900001	Ahmet	Male	01.03.1989
	900002	Melike	Female	11.04.1967
	900003	Hasan	Male	23.04.1949
	900004	Hikmet	Male	15.06.1996
	900005	Ceren	Female	10.10.1991
	900006	Sena	Female	29.10.1938
	900007	Zeynep	Female	23.05.1972
	900008	Murat	Male	01.12.1981

DOCTOR	EmployeeID	Name	Sex	Birthday	Salary	Specialty
	10001	Serdar	Male	02.04.1969	7000	Cardiologist
	10002	Emel	Female	12.06.1977	6000	Neurologist
	10003	Mehmet	Male	24.10.1986	5000	Dermatologist
	10004	Doruk	Male	16.10.1982	5000	Psychiatrist
	10005	Sibel	Female	11.06.1955	8000	Endocrinologist
	10006	Berna	Female	30.12.1961	7000	Urologist
	10007	Filiz	Female	24.03.1973	6000	Oncologist
	10008	Ömer	Male	02.05.1966	7000	Hematologist

EXAMINES	EmployeeID	PatientID
	10001	900001
	10001	900002
	10002	900003
	10002	900004
	10003	900006
	10004	900002
	10005	900003
	10006	900007
	10006	900005
	10007	900008
	10007	900006
	10008	900008

The business requirements are as follows:

- A medical record belongs to a particular patient.

- A patient may have multiple medical records.

- A patient may be examined by more than one doctors, while a doctor may examine more than one patients.

1. Given the above relational schema, write SQL statements corresponding to the following queries.

   a) List the name of patients who have MR Image in their medical records.

   b) List the patient ID of patients who are examined by at least two doctors.

   c) List the name of patients who have at most 2 medical records.

   d) List the name and specialty of doctors who have neither the maximum nor minimum salary.

2. Express the below SQL statements into corresponding English queries.

   a) SELECT PatientID FROM PATIENT P WHERE NOT EXISTS
      (SELECT Type FROM MEDICAL_RECORD WHERE Type NOT IN
      (SELECT MR.Type FROM MEDICAL_RECORD MR WHERE P.PatientID=MR.PatientID))

   b) SELECT * FROM DOCTOR D1
      WHERE (2)=(SELECT COUNT(DISTINCT(D2.Salary)) FROM DOCTOR D2
      WHERE D2.Salary>D1.Salary)

Regulations for HW3

- The homework must be completed individually; copying from others is strictly forbidden.

- You have to submit your homework as soft copy (in pdf format) through odtuclass.

- The deadline for the homework is 13.12.2014 23:55.

- Late homeworks will not be evaluated.