

Company Database Schema

Here is the schema of a company database, please implement it on any RDBMS you like and then try to create the following requests (queries): "create only the dependent table with all data and relations"

Employee:

Fname	Lname	SSN	BDATE	Addresss	Sex	Salary	Superssn	Dno
Ahmed	Ali	112233	1/1/1965	15 Ali fahmy St.Giza	M	1300	223344	10
Kamel	Mohamed	223344	15/10/1970	38 Mohy el dien abo el Ezz St.Cairo	M	1800	321654	10
Hanaa	Sobhy	123456	18/3/1973	38 Abdel Khalik Tharwat St. Downtown.Cairo	F	800	223344	10
Amr	Omran	321654	14/9/1963	44 Hilopolis.Cairo	M	2500	null	null
Noha	Mohamed	968574	1/2/1975	55 Orabi St. El Mohandiseen .Cairo	F	1600	321654	20
Edward	Hanna	512463	19/8/1972	18 Abaas El 3akaad St. Nasr City.Cairo	M	1500	321654	30
Mariam	Adel	669955	12/6/1982	269 El-Haram st. Giza	F	750	512463	20
Maged	Raooof	521634	6/4/1980	18 Kholosi st.Shobra.Cairo	M	1000	968574	30

Department

Dname	DNum	MGRSSN	MGRStart date
DP1	10	223344	1/1/2005
DP2	20	968574	1/3/2006
DP3	30	512463	1/6/2006

Works for

ESSN	Pno	Hours
223344	100	10
223344	200	10
223344	300	10
112233	100	40
968574	400	15
968574	700	15
968574	300	10
669955	400	20
223344	500	10
669955	700	7
669955	300	10
512463	500	10
512463	600	25
521634	500	10
521634	600	20
521634	300	6
521634	400	4

Project

Pname	Pnumber	Plocation	City	Dnum
AL Solimaniah	100	Cairo_Alex Road	Alex	10
Al Rabwah	200	6 th of October City	Giza	10
Al Rawdah	300	Zaied City	Giza	10
Al Rowad	400	Cairo_Faiyom Road	Giza	20
Al Rehab	500	Nasr City	Cairo	30
Pitcho american	600	Maady	Cairo	30
Ebad El Rahman	700	Ring Road	Cairo	20

Dependent

ESSN	Dependent_name	Sex	Bdate
112233	Hala Saied Ali	F	18/10/1970
223344	Ahmed Kamel Shawki	M	27/3/1998
223344	Mona Adel Mohamed	F	25/4/1975
321654	Ramy Amr Omran	M	26/1/1990
321654	Omar Amr Omran	M	30/3/1993
321654	Sanaa Gawish	F	16/5/1973
512463	Sara Edward	F	15/9/2001
512463	Nora Ghaly	F	22/6/1976

*** Try to create the following Queries:**

1. Display the Department id, name and id and the name of its manager.

```
SELECT Dnum, Dname, SSN, Fname+' '+Lname as Name
FROM Departments d, Employee e
WHERE d.MGRSSN = e.SSN;
```

Dnum	Dname	SSN	Name
10	DP1	223344	Kamel Moham
20	DP2	968574	Noha Mohame
30	DP3	512463	Edward Hanna

2. Display the name of the departments and the name of the projects under its control.

```
SELECT Dname, Pname
FROM Departments d, Project p
WHERE d.Dnum = p.Dnum;
```

Dname	Pname
DP1	AL Solimaniah
DP1	Al Rabwah
DP1	Al Rawdah
DP2	Al Rowad
DP2	Ebad El Rahma
DP3	Al Rehab
DP3	Pitcho america

3. Display the full data about all the dependence associated with the name of the employee they depend on him/her.

```
SELECT ESSN, Dependent_name, d.gender, d.Bdate, Fname+' '+Lname as Name
FROM Dependent d, Employee e
WHERE d.ESSN = E.SSN;
```

ESSN	Dependent_name	gender	Bdate	Name
123456	Hala Saied Ali	F	18/10/1970	Hanaa Sobhy
223344	Ahmed Kamel	M	27/03/1998	Kamel Moham
223344	Mona Adel Mo	F	25/04/1975	Kamel Moham
321654	Omar Amr Om	M	30/03/1993	Amr Omran
321654	Ramy Amr Om	M	26/01/1990	Amr Omran
321654	Sanaa Gawish	F	16/05/1973	Amr Omran
512463	Nora Ghaly	F	22/06/1976	Edward Hanna
512463	Sara Edward	F	15/09/2001	Edward Hanna

4. Display (Using Union Function)
 - a. The name and the gender of the dependence that's gender is Female and depending on Female Employee.
 - b. And the male dependence that depends on Male Employee.

```
SELECT Dependent_name, d.gender, e.gender
FROM Dependent d, Employee e
WHERE d.ESSN = E.SSN
AND e.gender = d.gender;
```

Dependent	d.gender	e.gender
Hala Saied Ali	F	F
Ahmed Kamel	M	M
Omar Amr Om	M	M
Ramy Amr Om	M	M

Using Union Function:

```
SELECT Dependent_name
from Dependent d,Employee e
where d.gender=F and e.gender=F
UNION
SELECT Dependent_name
from Dependent d,Employee e
where d.gender=M and e.gender=M;
```

5. Display the Id, name and location of the projects in Cairo or Alex city.

```
SELECT Pnumber, Pname, Plocation
FROM Project
WHERE City in('Alex', 'Cairo');
```

Pnumber	Pname	Plocation
100	AL Solimaniah	Cairo_Alex Roa
500	Al Rehab	Nasr City
600	Pitcho america	Maady
700	Ebad El Rahma	Ring Road

6. Display the Projects full data of the projects with a name starts with "a" letter.

```
SELECT *
FROM Project
WHERE Pname like'a*';
```

Pname	Pnumber	Plocation	City	Dnum
AL Solimaniah	100	Cairo_Alex Roa	Alex	10
Al Rabwah	200	6th of October	Giza	10
Al Rawdah	300	Zaied City	Giza	10
Al Rowad	400	Cairo_Faiyom	Giza	20
Al Rehab	500	Nasr City	Cairo	30

7. display all the employees in department 30 whose salary from 1000 to 2000 LE monthly

```
SELECT Fname+' '+Lname as [Full Name], Dno, Salary
FROM Employee
WHERE Dno = 30
AND Salary between 1000 and 2000 ;
```

Full Name	Dno	Salary
Edward Hanna	30	1500
Maged Raouf	30	1000

8. Retrieve the names of all employees in department 10 who works more than or equal 10 hours per week on "AL Rabwah" project.

```
SELECT e.Fname+' '+e.Lname as Full_Name, e.Dno
FROM Employee e, Works_for w
where w.ESSn = e.SSN
AND e.Dno = 10
AND w.Hours >= 10
AND w.Pno = 100;
```

Full_Name	Dno
Ahmed Ali	10
Kamel Moham	10

9. Find the names of the employees who directly supervised with Kamel Mohamed.

```
SELECT e.Fname+' '+e.Lname as [Full Name], s.Fname+' '+s.Lname as SV
FROM Employee e, Employee s
WHERE e.Superssn = s.SSN
AND E.Superssn = 223344;
```

Full Name	SV
Ahmed Ali	Kamel Moham
Hanaa Sobhy	Kamel Moham

10. For each project, list the project name and the total hours per week (for all employees) spent on that project.

```
SELECT p.Pname,sum(w.Hours) as [Total Hours]
FROM Project p, Works_for w
where p.Pnumber = w.Pno
group by p.Pname;
```

Pname	Total Hours
Al Rabwah	10
Al Rawdah	36
Al Rehab	30
Al Rowad	39
AL Solimaniah	50
Ebad El Rahma	22
Pitcho america	45

11. Retrieve the names of all employees and the names of the projects they are working on, sorted by the project name.

```
SELECT e.Fname+' '+Lname as Full_Name, p.Pname
FROM Project p, Employee e, Works_for w
where e.SSN = w.ESSn
AND w.Pno = p.Pnumber
order by p.Pname;
```

Full_Name	Pname
Kamel Moham	Al Rabwah
Kamel Moham	Al Rawdah
Maged Raoof	Al Rawdah
Mariam Adel	Al Rawdah
Noha Mohame	Al Rawdah
Maged Raoof	Al Rehab
Edward Hanna	Al Rehab
Kamel Moham	Al Rehab
Noha Mohame	Al Rowad
Mariam Adel	Al Rowad
Maged Raoof	Al Rowad
Ahmed Ali	AL Solimaniah
Kamel Moham	AL Solimaniah
Noha Mohame	Ebad El Rahma
Mariam Adel	Ebad El Rahma
Edward Hanna	Pitcho america
Maged Raoof	Pitcho america

12. Display the data of the department which has the smallest employee ID over all employees' ID.

```
SELECT *
FROM Departments
WHERE Dnum = (Select Dno from Employee where SSN = (SELECT min(SSN)
From Employee));
```

Dname	Dnum	MGRSSN	MGRStart Dt
DP1	10	223344	01/01/2005

13. For each department, retrieve the department name and the maximum, minimum and average salary of its employees.

```
SELECT d.Dname, max(e.Salary) as max, min(e.Salary) as min, avg(e.Salary) as avg
FROM Employee e, Departments d
where e.Dno = d.Dnum
group by d.Dname;
```

Dname	max	min	avg
DP1	1800	800	1300
DP2	1600	750	1175
DP3	1500	1000	1250

14. List the last name of all managers who have no dependents.

```
SELECT Lname
FROM Employee
where SSN in (SELECT Superssn from Employee) and SSN not in (SELECT ESSN from Dependent);
```

Lname
Mohamed

15. For each department-- if its average salary is less than the average salary of all employees-- display its number, name and number of its employees.

```
SELECT d.Dnum,d.Dname, count(e.SSN) as count
FROM Employee e, Departments d
where d.Dnum = e.Dno
group by d.Dnum, d.Dname
HAVING (SELECT avg(e.Salary)from Employee e, Departments d where e.Dno = d.Dnum) < (SELECT avg(Salary)from Employee);
```

Dnum	Dname	count
10	DP1	3
20	DP2	2
30	DP3	2

16. Retrieve a list of employees and the projects they are working on ordered by department and within each department, ordered alphabetically by last name, first name.

```
SELECT d.Dnum, e.Fname, e.Lname, p.Pname
FROM Employee e, Project p, Departments d, Works_for w
where w.ESSn = e.SSN
```

AND p.Pnumber = W.Pno
order by d.Dnum, e.Lname, e.Fname;

Dnum	Fname	Lname	Pname
10	Mariam	Adel	Al Rawdah
10	Mariam	Adel	Al Rowad
10	Mariam	Adel	Ebad El Rahma
10	Ahmed	Ali	AL Solimaniah
10	Edward	Hanna	Pitcho america
10	Edward	Hanna	Al Rehab
10	Kamel	Mohamed	Al Rehab
10	Kamel	Mohamed	Al Rawdah
10	Kamel	Mohamed	AL Solimaniah
10	Kamel	Mohamed	Al Rabwah
10	Noha	Mohamed	Al Rawdah
10	Noha	Mohamed	Al Rowad
10	Noha	Mohamed	Ebad El Rahma
10	Maged	Raoof	Pitcho america
10	Maged	Raoof	Al Rawdah
10	Maged	Raoof	Al Rowad
10	Maged	Raoof	Al Rehab
20	Mariam	Adel	Al Rawdah
20	Mariam	Adel	Al Rowad
20	Mariam	Adel	Ebad El Rahma
20	Ahmed	Ali	AL Solimaniah
20	Edward	Hanna	Al Rehab
20	Edward	Hanna	Pitcho america
20	Kamel	Mohamed	Al Rawdah
20	Kamel	Mohamed	AL Solimaniah
20	Kamel	Mohamed	Al Rehab
20	Kamel	Mohamed	Al Rahwah

17. For each project located in Cairo City , find the project number, the controlling department name ,the department manager last name ,address and birthdate.

SELECT p.Pnumber, p.Dnum, d.Dname, e.Lname, e.Address, e.Bdate
FROM Employee e, Project p, Departments d
where p.City = 'Cairo'
AND p.Dnum = d.Dnum
AND d.MGRSSN = E.SSN;

Pnumber	Dnum	Dname	Lname	Address	Bdate
500	30	DP3	Hanna	18 Abaas El 3ah	19/08/1972
600	30	DP3	Hanna	18 Abaas El 3ah	19/08/1972
700	20	DP2	Mohamed	55 Orabi St. El I	02/01/1975