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

**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 <sup>th</sup> of October	Giza	10
		City		
Al Rawdah	300	Zaied City	Giza	10
Al Rowad	400	Cairo_Faiyom	Giza	20
		Road		
Al Rehab	500	Nasr City	Cairo	30
Pitcho american	600	Maady	Cairo	30
Ebad El	700	Ring Road	Cairo	20
Rahman				

**Dependent** 

ESSN	Dependent_name	Sex	Bdate
112233	Hala Saied Ali	F	18/10/1970
223344	Ahmed Kamel	M	27/3/1998
	Shawki		
223344	Mona Adel	F	25/4/1975
	Mohamed		
321654	Ramy Amr	M	26/1/1990
	Omran		
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.

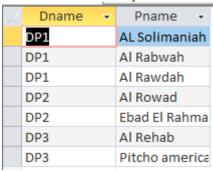
SELECT Dnum, Dname, SSN, Fname+' '+Lname as Name FROM Departments d, Employee e

WHERE d.MGRSSN = e.SSN;

Dnum →	Dname	+	SSN -	Name +
10	DP1		223344	Kamel Moham
20	DP2		968574	Noha Mohame
30	DP3		51246	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;



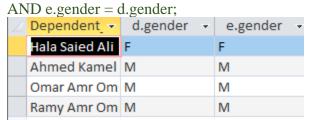
3. Display the full data about all the dependence associated with the name of the employee they depend on him/her.

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

4	ESSN -	Dependent	gender +	Bdate	→ Name →
	123456	Hala Saied Ali	F	18/10/19	970 Hanaa Sobhy
	223344	Ahmed Kamel	M	27/03/19	998 Kamel Moham
	223344	Mona Adel Mo	F	25/04/19	775 Kamel Moham
	321654	Omar Amr Om	M	30/03/19	993 Amr Omran
	321654	Ramy Amr Om	M	26/01/19	990 Amr Omran
	321654	Sanaa Gawish	F	16/05/19	973 Amr Omran
	512463	Nora Ghaly	F	22/06/19	976 Edward Hanna
	512463	Sara Edward	F	15/09/20	001 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



## 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');



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

SELECT \*
FROM Project

WHERE Pname like'a\*';

WILKE I name 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 I	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;



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

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

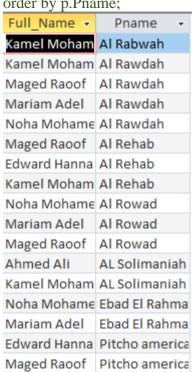
10. For each project, list the project name and the total hours per week (for all employees) spent on that project.

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
<b>AL</b> 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;

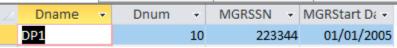


12. Display the data of the department which has the smallest employee ID over all employees' ID.

SELECT \*

FROM Departments

WHERE Dnum = (Select Dno from Employee where SSN = (SELECT min(SSN) From Employee));



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;

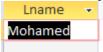
Dname -	max -	min 🔻	avg +
DP1	1800	800	1300
DP2	1600	750	1175
DP3	1500	1000	1250

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);



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.

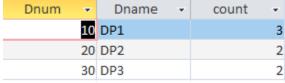
SELECT d.Dnum,d.Dname, count(e.SSN) as count

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);



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	∆l 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 3al	19/08/1972
600	30	DP3	Hanna	18 Abaas El 3al	19/08/1972
700	20	DP2	Mohamed	55 Orabi St. El I	02/01/1975