**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 | Raoof | 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 | 6th 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,fname,mgrssn

From departments d,employee e

Where d.mgrssn=e.ssn

1. 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

1. Display the full data about all the dependence associated with the name of the employee they depend on him/her. Easier way?

Select fname,dependent\_name,d.sex,d.bdate

From dependent d,employee e

Where d.essn=e.ssn

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

Select d.dependent\_name,d.sex

From dependent d,employee e

where d.essn=e.ssn and d.sex='F' and e.sex='F'

union

Select d.dependent\_name,d.sex

From dependent d,employee e

where d.essn=e.ssn and d.sex='M' and e.sex='M'

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

Select pname,pnumber,plocation

From project

Where city in ('Alex','Cairo')

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

Select \*

From project

Where pname like 'a%'

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

select e.fname

from employee e,departments d

where e.dno=d.dnum and d.dnum=30 and e.salary between 1000 and 2000

1. Retrieve the names of all employees in department 10 who works more than or equal10 hours per week on "AL Rabwah" project.

Select e.fname

From employee e, departments d,project p,works\_for w

Where e.dno=d.dnum and w.pno = p.pnumber and p.dnum = d.dnum

And pname= 'Al Rabwah' and d.dnum=10 and w.hours>=10

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

Select e.fname

From employee e,employee s

Where e.superssn=s.ssn and s.fname='Kamel' and s.lname='Mohamed'

1. 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)

From works\_for w,project p

where w.pno=p.pnumber

Group by p.pname

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

Select e.fname,p.pname

From employee e,project p,works\_for w

Where p.pnumber=w.pno and w.essn=e.ssn

Order by p.pname asc

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

Select d.dname,d.dnum

From departments d,employee e

Where d.dnum=e.dno and e.ssn=(select min(ssn) from employee)

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

select d.dnum, max(e.salary),min(e.salary),avg(e.salary)

from departments d, employee e

where d.dnum=e.dno

group by d.dnum

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

select e.lname

from employee e, departments d

where e.ssn=d.mgrssn and e.ssn in (select e.ssn

from employee e left join dependent d on e.ssn=d.essn

where d.essn is null)

1. 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)

from departments d,employee e

where d.dnum=e.dno and d.dnum in(select d.dnum

from departments d, employee e

where d.dnum=e.dno

group by d.dnum

having avg(e.salary) < (select avg(e.salary) from employee e))

group by d.dnum,d.dname

1. 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.dname,e.lname,e.fname,p.pname

from departments d, employee e, project p,works\_for w

where w.pno=p.pnumber and w.essn=e.ssn and d.dnum = p.dnum

order by d.dname,e.lname,e.fname

1. 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,d.dname,e.lname,e.address,e.bdate,p.plocation

from employee e, project p,departments d

where p.dnum=d.dnum and d.mgrssn=e.ssn and p.plocation like 'Cairo\*'