Se considera drept sistem, un spital cu urmatoarele entitați

sectie(**codSectie**, Denumire)

Doctor(**codDoctor**, Nume, Prenume, Grad, Salariu, Prima, CodSef).

1. Știind ca intr-o sectie lucreasa mai mulți doctori, iar un doctor lucrează într-o singură secție sa se stabilească cardinalitatea asocierii dintre cele doua entități.

Rezolvare

Doctor

Sectie

lucreaza

1,1

0,n

1. Să se realizeze modelul relational al datelor.

Rezolvare

tSectii(**codSectie**, Denumire)

tDoctori(**codDoctor**, Nume, Prenume, Grad, Salariu, Prima, CodSef, #***CodSectie***)

1. Sa se creeze sis a se activeze baza de date ***dbSpital***

create database dbSpital

go

use dbSpital

1. Sa se creeze tabelele bazei de date

create table tSectii

( codSectie char(10) constraint pk\_sectie primary key,

denumire varchar(30) not null

)

create table tDoctori

(

codDoctor char(10) constraint pk\_doctori primary key,

nume varchar(25) not null,

prenume varchar(25) not null,

grad int constraint ck\_grad check (grad between 1 and 3),

salariu int,

prima int,

codSef char(10) constraint fk\_sef foreign key references tDoctori(codDoctor),

codSectie char(10) not null constraint fk\_sectie foreign key references tSectii(codSectie)

)

1. Sa se creeze schema *spital*

create schema spital

1. Sa se adauge schemei spital tabele doctor si sectii

alter schema spital transfer tSectii

alter schema spital transfer tDoctori

1. Sa se creeze sinonime pentru tabelele schemei *spital*

create synonym tSectii for spital.tSectii

create synonym tDoctori for spital.tDoctori

1. Sa se introduca date in tabele

insert into tSectii(codSectie, Denumire)

values ('s1','ORL'),

('s2','INTERNE'),

('s3','CHIRURGIE'),

('s4','CARDIOLOGIE')

insert into tDoctori (codDoctor, Nume, Prenume, Grad, Salariu, Prima, CodSef, CodSectie)

values ('1' , 'Mihai', 'Ion', 3, 8000, null, null, 's1'),

('2', 'Popescu', 'Marian', 1, 7000, 1200, '1', 's1'),

('3', 'Ionel', 'Mirel',1,10000,1200,null,'s4'),

('4', 'Mihaela', 'Georgiana',3,6000,null,'3' ,'s4'),

('5', 'Alexandra', 'Ioana',3,7500,100,'3' ,'s4'),

('6', 'Georgescu', 'Vlad',1,11000,null,null,'s3'),

('7', 'Andreescu', 'Alexandru',3,6500,200,'6','s3'),

('8', 'Ionela', 'Mirela',2,7500,150,'6','s3'),

('9', 'Popa', 'Andreea',2,7500,100,'6','s3'),

('10', 'Popa', 'Mircea',1,10000,1200,null ,'s2'),

('11', 'Popescu', 'Marius',3,5500,100,'10', 's2')

1. Sa se adauge in tabelul tDoctori coloana *statut* cu valorile posibile titular(T) sau asociat(A)

alter table spital.tDoctori

add statut char constraint ckstatut check(statut in ('T', 'A'))

1. Sa se seteze toti doctorii ca fiind titulari

update tDoctori set statut='T'

1. Sa se afiseze continutul tabelului tDoctori

select \* from tDoctori

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| codDoctor | nume | prenume | grad | salariu | prima | codSef | codSectie | statut |
| 1 | Mihai | Ion | 3 | 8000 | NULL | NULL | s1 | T |
| 10 | Popa | Mircea | 1 | 10000 | 1200 | NULL | s2 | T |
| 11 | Popescu | Marius | 3 | 5500 | 100 | 10 | s2 | T |
| 2 | Popescu | Marian | 1 | 7000 | 1200 | 1 | s1 | T |
| 3 | Ionel | Mirel | 1 | 10000 | 1200 | NULL | s4 | T |
| 4 | Mihaela | Georgiana | 3 | 6000 | NULL | 3 | s4 | T |
| 5 | Alexandra | Ioana | 3 | 7500 | 100 | 3 | s4 | T |
| 6 | Georgescu | Vlad | 1 | 11000 | NULL | NULL | s3 | T |
| 7 | Andreescu | Alexandru | 3 | 6500 | 200 | 6 | s3 | T |
| 8 | Ionela | Mirela | 2 | 7500 | 150 | 6 | s3 | T |
| 9 | Popa | Andreea | 2 | 7500 | 100 | 6 | s3 | T |

1. Sa se seteze doctorii cu codurile 10 si 11 ca fiind asociati

update tDoctori set statut='A'

where codDoctor in ('10', '11')

1. Sa se afiseze codDoctor, codSectie, Nume, Prenume, Salariu, Prima, total venit

select codDoctor,codSectie,Nume,Prenume,Salariu,Prima,Salariu+Prima as [Total venit]

from tDoctori

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Prima | Total venit |
| 1 | s1 | Mihai | Ion | 8000 | NULL | NULL |
| 10 | s2 | Popa | Mircea | 10000 | 1200 | 11200 |
| 11 | s2 | Popescu | Marius | 5500 | 100 | 5600 |
| 2 | s1 | Popescu | Marian | 7000 | 1200 | 8200 |
| 3 | s4 | Ionel | Mirel | 10000 | 1200 | 11200 |
| 4 | s4 | Mihaela | Georgiana | 6000 | NULL | NULL |
| 5 | s4 | Alexandra | Ioana | 7500 | 100 | 7600 |
| 6 | s3 | Georgescu | Vlad | 11000 | NULL | NULL |
| 7 | s3 | Andreescu | Alexandru | 6500 | 200 | 6700 |
| 8 | s3 | Ionela | Mirela | 7500 | 150 | 7650 |
| 9 | s3 | Popa | Andreea | 7500 | 100 | 7600 |
|  |  |  |  |  |  |  |

Se observa ca Total venit nu este calculate correct

Solutie corecta este:

select codDoctor,codSectie,Nume,Prenume,Salariu,Prima,Salariu+ isnull(Prima,0) as [Total venit]

from tDoctori

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Prima | Total venit |
| 1 | s1 | Mihai | Ion | 8000 | NULL | 8000 |
| 10 | s2 | Popa | Mircea | 10000 | 1200 | 11200 |
| 11 | s2 | Popescu | Marius | 5500 | 100 | 5600 |
| 2 | s1 | Popescu | Marian | 7000 | 1200 | 8200 |
| 3 | s4 | Ionel | Mirel | 10000 | 1200 | 11200 |
| 4 | s4 | Mihaela | Georgiana | 6000 | NULL | 6000 |
| 5 | s4 | Alexandra | Ioana | 7500 | 100 | 7600 |
| 6 | s3 | Georgescu | Vlad | 11000 | NULL | 11000 |
| 7 | s3 | Andreescu | Alexandru | 6500 | 200 | 6700 |
| 8 | s3 | Ionela | Mirela | 7500 | 150 | 7650 |
| 9 | s3 | Popa | Andreea | 7500 | 100 | 7600 |

1. Considerand ca retinerile(impozit,CAS,CASS) reprezinta 47% din venit sa se afiseze Salariu brut, retinerile si salariu net

select codDoctor,codSectie,Nume,Prenume,Salariu,Prima,Salariu+ isnull(Prima,0) as [Total venit],

round((Salariu+isnull(Prima,0))\*47/100,0,1) as Retineri, (Salariu+ isnull(Prima,0))-

round((Salariu+isnull(Prima,0))\*47/100,0,1) as [Venit net]

from tDoctori

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Prima | Total venit | Rtineri | Venit net |
| 1 | s1 | Mihai | Ion | 8000 | NULL | 8000 | 3760 | 4240 |
| 10 | s2 | Popa | Mircea | 10000 | 1200 | 11200 | 5264 | 5936 |
| 11 | s2 | Popescu | Marius | 5500 | 100 | 5600 | 2632 | 2968 |
| 2 | s1 | Popescu | Marian | 7000 | 1200 | 8200 | 3854 | 4346 |
| 3 | s4 | Ionel | Mirel | 10000 | 1200 | 11200 | 5264 | 5936 |
| 4 | s4 | Mihaela | Georgiana | 6000 | NULL | 6000 | 2820 | 3180 |
| 5 | s4 | Alexandra | Ioana | 7500 | 100 | 7600 | 3572 | 4028 |
| 6 | s3 | Georgescu | Vlad | 11000 | NULL | 11000 | 5170 | 5830 |
| 7 | s3 | Andreescu | Alexandru | 6500 | 200 | 6700 | 3149 | 3551 |
| 8 | s3 | Ionela | Mirela | 7500 | 150 | 7650 | 3595 | 4055 |
| 9 | s3 | Popa | Andreea | 7500 | 100 | 7600 | 3572 | 4028 |

1. Sa se afiseze doctorii care au prima

select \* from tDoctori

where Prima is not null

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| codDoctor | nume | prenume | grad | salariu | prima | codSef | codSectie | statut |
| 10 | Popa | Mircea | 1 | 10000 | 1200 | NULL | s2 | a |
| 11 | Popescu | Marius | 3 | 5500 | 100 | 10 | s2 | a |
| 2 | Popescu | Marian | 1 | 7000 | 1200 | 1 | s1 | T |
| 3 | Ionel | Mirel | 1 | 10000 | 1200 | NULL | s4 | T |
| 5 | Alexandra | Ioana | 3 | 7500 | 100 | 3 | s4 | T |
| 7 | Andreescu | Alexandru | 3 | 6500 | 200 | 6 | s3 | T |
| 8 | Ionela | Mirela | 2 | 7500 | 150 | 6 | s3 | T |
| 9 | Popa | Andreea | 2 | 7500 | 100 | 6 | s3 | T |

1. Sa se afiseze doctorii si denumirile sectiilor in care lucreaza

select codDoctor, B.codSectie, Denumire,Nume,Prenume

from tDoctori as A inner join tSectii as B on A.codSectie=B.codSectie

order by codSectie

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| codDoctor | codSectie | Denumire | Nume | Prenume |
| 2 | s1 | ORL | Popescu | Marian |
| 1 | s1 | ORL | Mihai | Ion |
| 10 | s2 | INTERNE | Popa | Mircea |
| 11 | s2 | INTERNE | Popescu | Marius |
| 6 | s3 | CHIRURGIE | Georgescu | Vlad |
| 7 | s3 | CHIRURGIE | Andreescu | Alexandru |
| 8 | s3 | CHIRURGIE | Ionela | Mirela |
| 9 | s3 | CHIRURGIE | Popa | Andreea |
| 3 | s4 | CARDIOLOGIE | Ionel | Mirel |
| 4 | s4 | CARDIOLOGIE | Mihaela | Georgiana |
| 5 | s4 | CARDIOLOGIE | Alexandra | Ioana |

1. Sa se afiseze total salarii la nivel de sectie

select A.codSectie, Denumire, sum(Salariu+ isnull(Prima,0)) as [Toatal Salarii]

from tDoctori as A inner join tSectii as B on A.codSectie=B.codSectie

group by A.codSectie, Denumire

|  |  |  |
| --- | --- | --- |
| codSectie | Denumire | Toatal Salarii |
| s1 | ORL | 16200 |
| s2 | INTERNE | 16800 |
| s3 | CHIRURGIE | 32950 |
| s4 | CARDIOLOGIE | 24800 |

1. Afisati doctorii cu salariul cel mai mare

select codDoctor, Nume, Prenume, Salariu

from tDoctori

where Salariu=(select max(Salariu) from tDoctori)

1. Sa se afiseze doctorii care au salariu mai mare decat salariu mediu

select codDoctor,Nume,Prenume, Salariu

from tDoctori

where Salariu>(select avg(Salariu) from tDoctori)

|  |  |  |  |
| --- | --- | --- | --- |
| codDoctor | Nume | Prenume | Salariu |
| 1 | Mihai | Ion | 8000 |
| 10 | Popa | Mircea | 10000 |
| 3 | Ionel | Mirel | 10000 |
| 6 | Georgescu | Vlad | 11000 |

1. Sa se afiseze doctorii care au salariu mai mare decat salariu mediu al doctorilor din propria sectie

select codDoctor,codSectie, Nume,Prenume, Salariu,

(select avg(Salariu) from tDoctori where codSectie=A.codSectie) as [Salariu mediu pe sectie]

from tDoctori as A

where Salariu>(select avg(Salariu) from tDoctori where codSectie=A.codSectie)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Salariu mediu pe sectie |
| 1 | s1 | Mihai | Ion | 8000 | 7500 |
| 10 | s2 | Popa | Mircea | 10000 | 7750 |
| 6 | s3 | Georgescu | Vlad | 11000 | 8125 |
| 3 | s4 | Ionel | Mirel | 10000 | 7833 |

varianta 2:

select codDoctor,B.codSectie, Nume,Prenume, Salariu, [Salariu mediu sectie]

from tDoctori as A inner join

(select codSectie,avg(Salariu)as [Salariu mediu sectie] from tDoctori group by codSectie) as B

on A.codSectie=B.codSectie

where Salariu>([Salariu mediu sectie])

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Salariu mediu sectie |
| 1 | s1 | Mihai | Ion | 8000 | 7500 |
| 10 | s2 | Popa | Mircea | 10000 | 7750 |
| 6 | s3 | Georgescu | Vlad | 11000 | 8125 |
| 3 | s4 | Ionel | Mirel | 10000 | 7833 |

-- varianta 3

create view vSalariiMedii

as (select codSectie,avg(Salariu)as [Salariu mediu sectie] from tDoctori group by codSectie)

go

select codDoctor,B.codSectie, Nume,Prenume, Salariu, [Salariu mediu sectie]

from tDoctori as A inner join vSalariiMedii as B on A.codSectie=B.codSectie

where Salariu>([Salariu mediu sectie])

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| codDoctor | codSectie | Nume | Prenume | Salariu | Salariu mediu sectie |
| 1 | s1 | Mihai | Ion | 8000 | 7500 |
| 10 | s2 | Popa | Mircea | 10000 | 7750 |
| 6 | s3 | Georgescu | Vlad | 11000 | 8125 |
| 3 | s4 | Ionel | Mirel | 10000 | 7833 |

1. Sa se afiseze sectiile care nu au medici asociati

select codSectie,Denumire

from tSectii

where codSectie not in (select distinct codSectie from tDoctori where statut='a')

codSectie Denumire

s1 ORL

s3 CHIRURGIE

s4 CARDIOLOGIE

1. Sa se afiseze CodDoctor, Nume doctor, Cod sef, Nume sef

select A.codDoctor,A.nume+' '+A.Prenume as [Nume doctot],

A.CodSef,B.Nume+' '+B.Prenume as [Nume sef]

from tDoctori as A left join tDoctori as B on A.CodSef=B.CodDoctor

|  |  |  |  |
| --- | --- | --- | --- |
| codDoctor | Nume doctot | CodSef | Nume sef |
| 1 | Mihai Ion | NULL | NULL |
| 10 | Popa Mircea | NULL | NULL |
| 11 | Popescu Marius | 10 | Popa Mircea |
| 2 | Popescu Marian | 1 | Mihai Ion |
| 3 | Ionel Mirel | NULL | NULL |
| 4 | Mihaela Georgiana | 3 | Ionel Mirel |
| 5 | Alexandra Ioana | 3 | Ionel Mirel |
| 6 | Georgescu Vlad | NULL | NULL |
| 7 | Andreescu Alexandru | 6 | Georgescu Vlad |
| 8 | Ionela Mirela | 6 | Georgescu Vlad |
| 9 | Popa Andreea | 6 | Georgescu Vlad |

select A.codDoctor,A.nume+' '+A.Prenume as [Nume doctot],

isnull(A.CodSef,'-')as CodSef,isnull(B.Nume+' '+B.Prenume,'-') as [Nume sef]

from tDoctori as A left join tDoctori as B on A.CodSef=B.CodDoctor

order by convert(int,A.codDoctor)

|  |  |  |  |
| --- | --- | --- | --- |
| codDoctor | Nume doctot | CodSef | Nume sef |
| 1 | Mihai Ion | - | - |
| 2 | Popescu Marian | 1 | Mihai Ion |
| 3 | Ionel Mirel | - | - |
| 4 | Mihaela Georgiana | 3 | Ionel Mirel |
| 5 | Alexandra Ioana | 3 | Ionel Mirel |
| 6 | Georgescu Vlad | - | - |
| 7 | Andreescu Alexandru | 6 | Georgescu Vlad |
| 8 | Ionela Mirela | 6 | Georgescu Vlad |
| 9 | Popa Andreea | 6 | Georgescu Vlad |
| 10 | Popa Mircea | - | - |
| 11 | Popescu Marius | 10 | Popa Mircea |

select A.codDoctor,A.nume+' '+A.Prenume as [Nume doctot],

isnull(A.CodSef,'-')as CodSef,isnull(B.Nume+' '+B.Prenume,'-') as [Nume sef]

from tDoctori as A left join tDoctori as B on A.CodSef=B.CodDoctor

order by convert(int,A.codDoctor)\*1000+isnull(convert(int,B.CodDoctor),0)

|  |  |  |  |
| --- | --- | --- | --- |
| codDoctor | Nume doctot | CodSef | Nume sef |
| 1 | Mihai Ion | - | - |
| 2 | Popescu Marian | 1 | Mihai Ion |
| 3 | Ionel Mirel | - | - |
| 4 | Mihaela Georgiana | 3 | Ionel Mirel |
| 5 | Alexandra Ioana | 3 | Ionel Mirel |
| 6 | Georgescu Vlad | - | - |
| 7 | Andreescu Alexandru | 6 | Georgescu Vlad |
| 8 | Ionela Mirela | 6 | Georgescu Vlad |
| 9 | Popa Andreea | 6 | Georgescu Vlad |
| 10 | Popa Mircea | - | - |
| 11 | Popescu Marius | 10 | Popa Mircea |

select A.codDoctor,A.nume+' '+A.Prenume as [Nume doctot],

isnull(A.CodSef,'-')as CodSef,isnull(B.Nume+' '+B.Prenume,'-') as [Nume sef]

from tDoctori as A left join tDoctori as B on A.CodSef=B.CodDoctor

order by isnull(convert(int,B.CodDoctor),0)\*1000+convert(int,A.codDoctor)

|  |  |  |  |
| --- | --- | --- | --- |
| codDoctor | Nume doctot | CodSef | Nume sef |
| 1 | Mihai Ion | - | - |
| 3 | Ionel Mirel | - | - |
| 6 | Georgescu Vlad | - | - |
| 10 | Popa Mircea | - | - |
| 2 | Popescu Marian | 1 | Mihai Ion |
| 4 | Mihaela Georgiana | 3 | Ionel Mirel |
| 5 | Alexandra Ioana | 3 | Ionel Mirel |
| 7 | Andreescu Alexandru | 6 | Georgescu Vlad |
| 8 | Ionela Mirela | 6 | Georgescu Vlad |
| 9 | Popa Andreea | 6 | Georgescu Vlad |
| 11 | Popescu Marius | 10 | Popa Mircea |