```sql
/*
 Sa se afiseze cod specializare, cod student, nume, cod curs, nota.
   Lista va fi ordonata crescator dupa cod specializare, nume si cod
curs
*/


Select
 CodSpec, tStudenti.codStud,nume,codCurs, nota
from tStudenti inner join tNote on tStudenti.codStud=tNote.codStud
order by nume,codcurs
```

```
CodSpec    codStud    nume             codCurs    nota
---------- ---------- ---------------- ---------- ----
Mate       S13        Adrian           FP         9
Info       S03        Alexandra        ASD        8
Info       S03        Alexandra        FP         4
Info       S04        Andreea          ASD        5
Info       S04        Andreea          FP         10
Mate       S11        Flavius          ASD        7
Mate       S11        Flavius          FP         10
Info       S01        Florin           ASD        7
Info       S01        Florin           FP         7
Mate       S12        Marian           FP         6
Info       S02        Mihai            ASD        9
Info       S02        Mihai            FP         6
```

```sql
/*
Sa se afiseze media notelor la nivel de student.
Lista va fi ordonata crescator dupa medie
*/

select
 tStudenti.codStud, nume, avg(convert(decimal(4,2),nota)) as media
from tStudenti inner join tNote on tStudenti.codStud=tNote.codStud
group by tStudenti.codStud, nume
order by media asc
```

```
codStud    nume            media
---------- --------------- ------------------------------------
S03        Alexandra       6.000000
S12        Marian          6.000000
S01        Florin          7.000000
S02        Mihai           7.500000
S04        Andreea         7.500000
S11        Flavius         8.500000
S13        Adrian          9.000000
```

```
/*
Sa se afiseze studentul cu media cea mai mica
*/

select top 1
 tStudenti.codStud,nume,avg(convert(decimal(4,2),nota)) as media
from tStudenti inner join tNote on tStudenti.codStud=tNote.codStud
group by tStudenti.codStud, nume
order by media asc




/*
Sa se afiseze studentii cu media cea mai mica
*/


select top 1 with ties
 tStudenti.codStud,nume,avg(convert(decimal(4,2),nota)) as media
from tStudenti inner join tNote on tStudenti.codStud=tNote.codStud
group by tStudenti.codStud, nume
order by media asc


codStud     nume             media
----------  ----------------  ---------
S03         Alexandra        6.000000
S12         Marian           6.000000
```

```
/*
Sa se afiseze media mediilor notelor studentilor la nivel de
specializare


Rezolvare:
Functiile de agregare, AVG, Sum, Max, Min, etc. nu pot fi imbricate.
De aceea vom rezolva problema in doua etape:
 1 - vom crea o vedere cu media notelor la nivel de student (in cadrul
specializarii).
 2 - vom determina media mediilor la nivel de specializare
*/

create view vMediiStud
as
select  codSpec,  tStudenti.codStud,nume,avg(convert(decimal(4,2),nota)) as
media
from tStudenti inner join tNote on tStudenti.codStud=tNote.codStud
group by CodSpec, tStudenti.codStud, nume


select codSpec, avg(media) as [Media mediilor]
from vMediiStud
group by codSpec


codSpec     Media mediilor
----------- ----------------
Info        7.000000
Mate        7.833333




/*

Sa se afiseze studentii cu media tuturor notelor

*/

select avg(nota) from tNote


-----------
7
```

```
/*

Sa se afiseze studentii cu media mai mare decat media tuturor notelor

*/


select
     codSpec,A.codStud,nume, avg(convert(decimal(4,2),nota)) as media
from tStudenti as A inner join tNote as B on A.codStud=B.codStud
group by codSpec,A.codStud,nume
having  avg(convert(decimal(4,2),nota))>(select avg(nota) from tNote)


codSpec     codStud     nume              media
----------  ----------  ----------------  ---------
Info        S02         Mihai             7.500000
Info        S04         Andreea           7.500000
Mate        S11         Flavius           8.500000
Mate        S13         Adrian            9.000000
```

/*Comentariu:

Subinterogarea

     (select avg(nota) from tNote)

fiind necorelata cu interogarea principala se executa o singura data, independent de interogarea principal (din exteriorul ei)

*/


```
/*

Subinterogari corelate

Sa se afiseze studentii cu media mai mare decat media notelor
studentilor de la aceeasi specializare

*/
```

```sql
select
    codSpec,A.codStud,nume, avg(convert(decimal(4,2),nota)) as media
from tStudenti as A inner join tNote as B on A.codStud=B.codStud
group by codSpec,A.codStud,nume
having  avg(convert(decimal(4,2),nota))>
        (select avg(nota) from tNote where A.CodSpec=CodSpec)
```

```
codSpec     codStud     nume              media
----------  ----------  ----------------  ----------
Info        S02         Mihai             7.500000
Info        S04         Andreea           7.500000
Mate        S11         Flavius           8.500000
Mate        S13         Adrian            9.000000
```

/* Comentariu:

Se observa ca subinterogarea corelata

```sql
(select avg(nota) from tNote where A.CodSpec=CodSpec)
```

se executa pentru fiecare rand al interogarii din exteriorul ei.
Prin urmare, solutia nu este optima.

Putem optimiza solutia, creand o vedere sau un tabel temporar cu mediile la nivel de specializare
Vom crea un tabel temporar
*/

```sql
select codSpec, avg(nota) as MedieSpec
into ##tMediiSpec
from tStudenti as A inner join tNote as B on A.CodStud=B.CodStud
group by codSpec
```

```sql
select * from ##tMediiSpec
```

```
codSpec     MedieSpec
----------  -----------
Info        7
Mate        8
```

```sql
select A.codSpec,A.codStud, nume, B.media
from tStudenti as A inner join
     (select codStud, avg(convert(decimal(4,2),nota)) as media
      from tNote group by codStud) as B
      on A.CodStud=B.CodStud
      inner join ##tMediiSpec as C on A.CodSpec=C.CodSpec
where B.media>medieSpec
```

```
codSpec     codStud     nume              media
----------  ----------  ----------------  ----------
Info        S02         Mihai             7.500000
Info        S04         Andreea           7.500000
Mate        S11         Flavius           8.500000
Mate        S13         Adrian            9.000000
```