

Systeme d'informations et applications web – TD

Semestre 4

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Rappel sur le SQL – LDD/LMD

```
1 | create table PROJET(  
2 |   NP varchar(4),  
3 |   nomP varchar(32),  
4 |   ne varchar(4),  
5 |   pbudget decimal(16),  
6 |   constraint pk_projet PRIMARY KEY(np),  
7 |   constraint fk_projet_ne FOREIGN KEY(ne) REFERENCES equipe(ne),  
8 |   constraint ck_projet_pbudget CHECK(ne >= 0)  
9 | );  
  
1 | update PROJET set pbudget = pbudget * 0.80;  
2 | update PROJET set pbudget = pbudget + 5000 where ne='e1';  
  
1 | delete from AFF where nc=(select nc from chercheur where nomc='Jean');  
  
1 | alter table EQUIPE ADD (  
2 |   np decimal(3),  
3 |   bt decimal(3),  
4 |   constraint ck_equipe_bt check(bt >= 0),  
5 |   constraint ck_equipe_np check(np >= 0)  
6 | );  
7 |  
8 | update equipe e1 set np = (select count(*) from projets WHERE projets.ne=e1.ne),  
9 |   bt = (select sum(pbudget) from projets where projets.ne=e1.ne);
```

Projection – Sélection – Agrégation

1. $R = \Pi_{ne} \text{ equipe}$ $R[ne]$
`| select distinct NE from equipe;`
2. $R = \Pi_{nomP, pBudget}(\sigma_{Ne='e1'} \text{ equipe})$ $R[nomp, pbudget]$
`| select distinct nomp, pbudget from projet where ne='e1';`
`| select distinct nomp, pbudget from (select * from projets where ne='e1');`
3. $R = \Pi_{nomC, nc}(\sigma_{nomc \text{ like } '%a\%'} \text{ chercheur})$ $R[nomc]$
`| select distinct nomc from chercheur where nomC like '%a%';`
`| select distinct nomc from (select * from chercheur where nomC like '%a%');`
4. $R = \text{COUNT}(\text{projet}, ne, np)$ $R[ne, count(np)]$
`| select ne, count(np) as COUNT_NP from projet group by ne;`
5. $R = \text{COUNT}(\text{aff}, np, nc)$ $R[np, count(nc)]$
`| select np, count(nc) as COUNT_NC from aff group by np;`
6. $R = \text{SUM}(\text{projet}, ne, pBudget)$ $R[ne, count(pBudget)]$
`| select ne, sum(pBudget) as SUM_PBUDGET from projet group by ne;`
7. $R = \text{COUNT}(\text{aff}, nc; ; \text{count}(np) = 2)$ $R[nc]$
`| select nc from aff group by nc having count(np) = 2;`

Imbrication – Ensembliste

R Interdiction d'utiliser les jointures

$$1. R = \Pi_{\text{nome}}(\sigma_{ne \in (\Pi_{ne} \text{Projet})})$$

```
select distinct nome from equipe e1
where e1.ne in (select distinct ne from projet);
```

$$2. R = \Pi_{\text{nomc}}(\sigma_{nc \in (\Pi_{nc}(\sigma_{np='p1'} \text{aff}))} \text{Chercheur})$$

```
select distinct nomc from chercheur
where nc in (select distinct nc from aff where np='p1');
```

3.

$$\begin{aligned} R &= \Pi_{\text{nomc}}(\sigma_{nc \in R_1} \text{chercheur}) \\ R_1 &= \Pi_{nc}(\sigma_{np \in R_2} \text{aff}) \\ R_2 &= \Pi_{np}(\sigma_{ne='e1'} \text{Projet}) \end{aligned}$$

```
select distinct nomc from chercheur
where nc IN (select nc from aff
              where np in (select np from projet where ne = 'e1'));
```

$$4. \Pi_{\text{nomc}}(\sigma_{nc \in (\Pi_{nc} \text{aff})} \text{chercheur})$$

```
select distinct nomc from chercheur where nc in (select distinct n from aff);
```

$$5. \Pi_{\text{nomc}}(\sigma_{nc \notin (\Pi_{nc} \text{aff})} \text{chercheur})$$

```
select distinct nomc from chercheur where nc not in (select distinct n from aff);
```

6.

R À partir de cette question la notation algébrique n'est pas indispensable. L'utilisation des opérateurs ensembliste est indispensable, chercher ensuite une requête non ensembliste

```
select nomc from chercheur where nc in (
  select ne from aff
  where np in (select np from projet where nomp = 'SRI')
)
intersect
select nomc from chercheur where nc in (
  select ne from aff
  where np in (select np from projet where nomp = 'BIG')
)
```

7.

```
select nomc from chercheur c
where ne = (select ne from projet where ne = c.ne and nomp<>'SRI')
intersect
select nomc from chercheur c
where ne = (select ne from projet where ne = c.ne and nomp<>'BIG')
```