

Chapitre 7

Le langage SQL DML (1)

Ce document reprend les requêtes SQL du chapitre 7 de l'ouvrage *Bases de données - Concepts, utilisation et développement*.

7.1 INTRODUCTION

7.2 REQUÊTES ÉLÉMENTAIRES

7.2.1 Extraction simple

```
select NCLI, NOM, LOCALITE
from CLIENT;
```

```
select *
from CLIENT;
```

7.2.2 Extraction de lignes sélectionnées

```
select NCLI, NOM
from CLIENT
where LOCALITE = 'Toulouse';
```

7.2.3 Lignes dupliquées dans le résultat

```
select LOCALITE
from CLIENT
where CAT = 'C1';
```

```
select distinct LOCALITE
from CLIENT
where CAT = 'C1';
```

```
select NCLI
from COMMANDE;
```

```
select distinct NCLI
from COMMANDE;
```

7.2.4 Des conditions de sélection plus complexes

a) *Autres conditions élémentaires*

```
CAT is null
CAT is not null
```

```
CAT in ('C1','C2','C3')
LOCALITE not in ('Toulouse','Namur','Breda')
```

```
COMPTE between 1000 and 4000
CAT not between 'B2' and 'C1'
```

```
CAT like '_1'
ADRESSE like '%Neuve%'
```

```
LIBELLE like '%$_CHENE%' escape '$'
```

```
DATECOM like '%2009%'
```

```
ADRESSE not like '%Neuve%'
```

b) *Expressions composées*

```
select NOM, ADRESSE, COMPTE
from CLIENT
where LOCALITE = 'Toulouse' and COMPTE < 0;
```

```
where COMPTE > 0
and (CAT = 'C1' or LOCALITE = 'Paris')
```

```
where (LOCALITE = 'Toulouse') and (COMPTE < 0)
```

7.3 DONNÉES EXTRAITES ET DONNÉES DÉRIVÉES

```
select 'TVA de ', NPRO, ' = ', 0.21*PRIX*QSTOCK
from   PRODUIT
where  QSTOCK > 500;
```

```
select NPRO as Produit, 0.21*PRIX*QSTOCK as Valeur_TVA
from   PRODUIT
where  QSTOCK > 500;
```

7.3.1 Les fonctions SQL

```
select NCLI,
       case substring(CAT from 1 for 1)
         when 'A' then 'bon'
         when 'B' then 'moyen'
         when 'C' then 'occasionnel'
         else      'inconnu'
       end, LOCALITE
from   CLIENT;
```

7.3.2 Les registres du système

```
select NPRO, LIBELLE, QSTOCK
from   CLIENT
where  QSTOCK < 0
and    extract(day from current_date) = 1;
```

7.4 LES FONCTIONS AGRÉGATIVES (OU STATISTIQUES)

```
select 'Namur', avg(COMPTE) as Moyenne,
       max(COMPTE)-min(COMPTE) as Ecart_max,
       count(*) as Nombre
from   CLIENT
where  LOCALITE = 'Namur';
```

```
select sum(QSTOCK*PRIX)
from   PRODUIT
where  LIBELLE like '%SAPIN%';
```

```
select count(NCLI)
from   COMMANDE;
```

```
select distinct count(NCLI)
from   COMMANDE;

select count(distinct NCLI)
from   COMMANDE;

select count(*)
from   CLIENT;

select count(NCLI) as Nombre,
       count(NOM) as Noms,
       count(LOCALITE) as Localités,
       count(CAT) as Catégories
from   CLIENT;

select count(distinct NCLI) as Nombre,
       count(distinct NOM) as Noms,
       count(distinct LOCALITE) as Localités,
       count(distinct CAT) as Catégories
from   CLIENT;
```

a) ... et aux ensembles vides

```
select count(*) as Somme, sum(COMPTE) as Somme,
       max(CAT) as Max
from   CLIENT
where  LOCALITE = 'Alger';
```

7.5 LES SOUS-REQUÊTES

7.5.1 Condition par sous-requêtes

```
select NCLI
from   CLIENT
where  LOCALITE = 'Namur';

select NCOM, DATECOM
from   COMMANDE
where  NCLI in ('C123', 'S127', 'B062', 'L422');

select NCOM, DATECOM
from   COMMANDE
where  NCLI in (select NCLI
                from   CLIENT
                where  LOCALITE = 'Namur');
```

7.5 Les sous-requêtes

```
select *
from   PRODUIT
where  NPRO in
      (select NPRO
       from   DETAIL
       where  NCOM in
            (select NCOM
             from   COMMANDE
             where  NCLI in
                  (select NCLI
                   from   CLIENT
                   where  LOCALITE='Namur'))));
```

7.5.2 Sous-requête et clé étrangère multi-composants

```
select *
from   COMPTE
where  (NCLI,NFOURN) in (select NCLI,NFOURN
                        from   ACHAT
                        where  DATEA='12-09-2009');
```

7.5.3 Attention aux conditions d'association négatives

```
Q1:  select NCOM, DATECOM, NCLI
      from   COMMANDE
      where  NCOM not in (select NCOM
                          from   DETAIL
                          where  NPRO = 'PA60');
```

```
Q2:  select NCOM, DATECOM, NCLI
      from   COMMANDE
      where  NCOM in (select NCOM
                      from   DETAIL
                      where  NPRO <> 'PA60');
```

```
      from   CLIENT
      where  LOCALITE = 'POITIERS'
      and   NCLI not in (select NCLI
                          from   COMMANDE
                          where  DATECOM like '%2008')
```

7.5.4 Références multiples à une même table

```
select *
from   CLIENT
where  LOCALITE in (select LOCALITE
                    from   CLIENT
                    where  NCLI = 'B512');
```

```

select *
from  COMMANDE
where NCOM in (select NCOM
                from  DETAIL
                where NPRO = 'PA60'
                and    QCOM < (select QCOM
                                from  DETAIL
                                where NPRO = 'PA60'
                                and    NCOM = '30182'));

select *
from  PRODUIT as P1
where P1.PRIX > 123;

select NCLI, NOM, LOCALITE, COMPTE
from  CLIENT as C
where COMPTE > (select avg(COMPTE)
                from  CLIENT
                where LOCALITE = C.LOCALITE)
order by LOCALITE, COMPTE, NCLI;1

select *
from  CLIENT
where COMPTE > (select COMPTE
                from  CLIENT where NCLI = 'C400');

select NCOM, DATECOM, NCLI
from  COMMANDE C
where (select count(*)
        from DETAIL
        where NCOM = C.NCOM) >= 3;

select NCLI from CLIENT
where CAT in (select CAT
              from  CLIENT
              where NCLI = 'D063');

```

7.6 LES QUANTIFICATEURS ENSEMBLISTES

```

select NPRO, LIBELLE
from  PRODUIT as P
where not exists (select *
                  from  DETAIL
                  where NPRO = P.NPRO);

select *
from  DETAIL
where QCOM <= all (select QCOM
                  from  DETAIL

```

1. Cette clause, qui peut être ignorée, sera expliquée plus tard.

7.6 Les quantificateurs ensemblistes

```
                                where NPRO = 'PA60')
and    NPRO = 'PA60';
select *
from    DETAIL
where   QCOM > any (select QCOM
                    from    DETAIL
                    where   NPRO = 'PA60')
and    NPRO = 'PA60';
select *
from    COMPTE C
where   exists (select *
                from    ACHAT
                where   NCLI = C.NCLI
                and     NFOURN = C.NFOURN
                and     DATEA = '12-09-2009'));
```

