**TD BDD**

**Exercice 1**

R1 = Voiture1 U Voiture2

|  |  |  |  |
| --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers |
| 12AB91 |  |  |  |
| 145GH76 |  |  |  |
| 4567GT94 |  |  |  |
| 3456FR93 |  |  |  |
| 32GH95 |  |  |  |
| 546HY01 |  |  |  |
| 34FR95 |  |  |  |
| 1234FR95 |  |  |  |

On a tout sélectionné sauf la deuxième occurrence de 32GH95.

SELECT \* FROM voiture1, voiture2 ;

R2 = Voiture1 – Voiture2

|  |  |  |  |
| --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers |
| 12AB91 |  |  |  |
| 145GH76 |  |  |  |
| 4567GT94 |  |  |  |
| 3456FR93 |  |  |  |

On a sélectionné Voiture1 sauf les attributs présents dans les deux tables.

SELECT \* FROM voiture1 WHERE nom-voiture NOT IN (SELECT nom-voiture FROM voiture2)

R3 = Voiture2 – Voiture1

|  |  |  |  |
| --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers |
| 546HY01 |  |  |  |
| 34FR95 |  |  |  |
| 1234FR95 |  |  |  |

SELECT \* FROM voiture2 WHERE nom-voiture NOT IN (SELECT nom-voiture FROM voiture1)

R4 = Voiture2 \* Personne

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers | Num-Pers | Nom-Pers |
| 546HY01 |  |  |  |  | Jean |
| 546HY01 |  |  |  |  | Jean |
| 546HY01 |  |  |  |  | Luc |
| 546HY01 |  |  |  |  | Pierre |
| 546HY01 |  |  |  |  | Pierre |
| 546HY01 |  |  |  |  | Marie |
| 546HY01 |  |  |  |  | Anne |
| 546HY01 |  |  |  |  | Paul |
| 546HY01 |  |  |  |  | Michel |
| 34FR95 |  |  |  |  | Jean |
| 34FR95 |  |  |  |  | Luc |
| 34FR95 |  |  |  |  | Pierre |
| 34FR95 |  |  |  |  | Pierre |
| 34FR95 |  |  |  |  | Marie |
| 34FR95 |  |  |  |  | Anne |
| 34FR95 |  |  |  |  | Paul |
| 34FR95 |  |  |  |  | Michel |
| 1234FR95 |  |  |  |  | Jean |
| 1234FR95 |  |  |  |  | Jean |
| 1234FR95 |  |  |  |  | Luc |
| 1234FR95 |  |  |  |  | Pierre |
| 1234FR95 |  |  |  |  | Pierre |
| 1234FR95 |  |  |  |  | Marie |
| 1234FR95 |  |  |  |  | Anne |
| 1234FR95 |  |  |  |  | Paul |
| 1234FR95 |  |  |  |  | Michel |
| 32GH95 |  |  |  |  | Jean |
| 32GH95 |  |  |  |  | Jean |
| 32GH95 |  |  |  |  | Luc |
| 32GH95 |  |  |  |  | Pierre |
| 32GH95 |  |  |  |  | Pierre |
| 32GH95 |  |  |  |  | Marie |
| 32GH95 |  |  |  |  | Anne |
| 32GH95 |  |  |  |  | Paul |
| 32GH95 |  |  |  |  | Michel |

R5 = σ[couleur = rouge] (Voiture1)

|  |  |  |  |
| --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers |
| 145GH76 |  | Rouge |  |
| 4567GT94 |  | Rouge |  |

SELECT \* FROM Voiture1 WHERE couleur=”rouge”

R6 = Voiture2 ∩ Personne

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Num-Pers | Nom-Pers |
| 546HY01 |  |  | 5 | Jean |
| 34FR95 |  |  | 14 | Marie |
| 1234FR95 |  |  | 15 | Pierre |
| 32GH95 |  |  | 17 | Anne |

SELECT \* FROM Voiture2, Personne WHERE Voiture2.num-pers = Personne.num-pers

R7 = σ[puissance >= 7] (Modèle)

|  |  |
| --- | --- |
| Type | Puissance |
| Renault 25 | 10 |
| Peugeot 605 | 11 |

SELECT \* FROM modele WHERE puissance >= 7

R8 = π[Type] (Voiture1)

|  |
| --- |
| Type |
| Renault 25 |
| Peugeot 306 |
| Renault 5 |
| Ford Fiesta |

SELECT DISTINCT Type FROM Voiture1

R9 = π[Type, couleur] (Voiture1)

|  |  |
| --- | --- |
| Type | Couleur |
| Renault 25 | Bleue |
| Peugeot 306 | Rouge |
| Renault 5 | Bleue |
| Ford Fiesta | Blanche |

SELECT DISTINCT (Type, couleur) FROM Voiture1

R10 = π[Nom-Pers] (Personne)

|  |
| --- |
| Nom-Pers |
| Jean |
| Luc |
| Pierre |
| Marie |
| Anne |
| Paul |
| Michel |

SELECT DISTINCT Nom-Pers FROM Personne

R11 = σ[Type = « Renault 25 » v Couleur = « rouge »] (Voiture-1)­

|  |  |  |
| --- | --- | --- |
| Num-Voiture | Type | Couleur |
| 546HY01 | Renault 25 | Bleue |
| 145GH76 | Peugeot 306 | Rouge |
| 4567GT94 | Peugeot 306 | Rouge |

SELECT \* FROM Voiture1 WHERE Type = « Renault 25 » OR Couleur = « Rouge »

R12 = σ[puissance >= 7] (Voiture-2 ∩ Personne)­

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Nom-voiture | Type | Couleur | Puissance | Num-Pers | Nom-Pers |
| 34FR95 | Renault 25 | Bleue | 10 | 14 | Marie |

SELECT \* FROM Voiture2, Modele, Personne WHERE voiture2.type=modele.type AND modele.puissance > 7 AND voiture2.num-pers = personne.num\_pers

**Exercice 2**

1. SELECT NOMF FROM Fournisseur

π[NOMF] (Fournisseur)

1. SELECT NF, CATF FROM Fournisseur

π[NF, CATF] (Fournisseur)

1. SELECT \* FROM Fournisseur WHERE CATF=10

σ[CATF = 10] (Fournisseur)

1. SELECT NF FROM Fournisseur WHERE VILF=”Paris”

π[NF] (σ[VILF = Paris] (Fournisseur))

1. SELECT NF FROM Fournisseur WHERE VILF=”Paris” AND CATF>20

π[NF] (σ[(VILF = Paris) ^ (CATF>20)] (Fournisseur))

1. SELECT NP, NOMP FROM Pièce WHERE CLRP=”Rouge” AND PDSP>100

π[NP, NOMP] (σ[(VILF = Paris) ^ (PDSP>100)] (Pièce))

1. SELECT NF FROM Livraison, Pièce WHERE NOMP=”P4” AND QTE < 50 AND Livraison.NP = Piece.NP

π[NF] (σ[(NOMP=”P4”) ^ (QTE < 50)] (Livraison |X| Pièce))

1. SELECT NP FROM Livraison WHERE QTE>100

π[NP] (σ[QTE > 100] (Livraison))

1. SELECT NF FROM Fournisseur WHERE NF NOT IN (SELECT NF FROM Livraison)

[π[NF] (Fournisseur)] – [π[NF] (Livraison)]

1. π[NF] ((σ[NP = 8] (Livraison)) ∩ (σ[NP = 6] (Livraison)))

SELECT NF FROM Livraison WHERE NP = 8 AND NF IN (SELECT NF FROM Livraison WHERE NP = 6)

Ou

SELECT NF FROM Livraison WHERE NP = 8; INTERSECT SELECT NF FROM Livraison WHERE NP = 6

1. SELECT NF From Livraison T, Pièce X WHERE T.NP = X.NP AND NOMP = “P1” AND NF IN (SELECT NF FROM Livraison U, Pièce P WHERE U.NP = P.NP AND NOMP = ”P2”)
2. …
3. SELECT NF From Livraison T, Pièce X WHERE NOMP = “P1” OR NOMP = “P2” AND T.NP = X.NP

π[NF] (σ[(NOMP=”P1”) X (NOMP=”P4”)] (Livraison |X| Pièce))

1. SELECT NF From Livraison T, Pièce X WHERE T.NP = X.NP AND NOMP = “P1” AND NF IN (SELECT NF FROM Livraison U, Pièce P WHERE U.NP = P.NP AND NOMP = ”P2” AND NF NOT IN (SELECT NF FROM Livraison A, Pièce B WHERE A.NP = B.NP AND NOMP = ”P3”))
2. SELECT NF, COUNT(\*) AS NbreF FROM Livraison GROUP BY NF HAVING NbreF = (SELECT COUNT(\*) FROM piece)

**Exercice 3**

Création des tables, Mise en place les contraintes “pk”, “fk”

CREATE TABLE Departement

(

 Nudep INT(6) PRIMARY KEY NOT NULL

 Nomdep VARCHAR2(25)

 Ville VARCHAR2(25)

)

CREATE TABLE Employe

(

 Numemp INT(6) PRIMARY KEY NOT NULL

 Nomep VARCHAR2(25)

 Fonction VARCHAR2(25)

 Salaire INT(6) check (salaire > 1000)

 Commission INT(6)

 Nudep INT(6) FOREIGN KEY REFERENCES Departement(Nudep)

)

Saisie de quelques lignes :

INSERT INTO Employe VALUES (1, « John Doe », « CEO », 35000, 250, 31)

INSERT INTO Departement VALUES (31, « Sécurité », Toulouse)

1. SELECT \* FROM Employe WHERE nudep = 30
2. SELECT nomep, nudep, nomdep FROM Employe WHERE function = “Ouvrier”
3. SELECT nomdep FROM Departement WHERE nudep > 20
4. SELECT nomep, salaire, commission FROM Employe WHERE commission > salaire
5. SELECT nomep, salaire FROM Employe WHERE Departement.nudep = 30 AND Employe.salaire >= 21500 AND function = “Vendeur”
6. SELECT nomep, fonction, salaire FROM Employe WHERE function=”Directeur” OR salaire > 23000
7. SELECT \* FROM Employe WHERE nudep = 10 AND fonction IN (“Directeur”, “Ouvrier”)
8. SELECT \* FROM Employe WHERE nudep = 10 AND fonction NOT IN (“Directeur”, “Ouvrier”)
9. SELECT nomep, function, salaire FROM Employe WHERE salaire BETWEEN 12000 AND 13000
10. SELECT nomep, function, salaire FROM Employe WHERE salaire NOT BETWEEN 12000 AND 14000
11. SELECT nomep, nudep, fonction FROM Employe WHERE function IN (“Ouvrier”, “Analyste”, “Vendeur”)
12. SELECT nomep, function, salaire FROM Employe WHERE nudep = 30 ORDER BY salaire ASC
13. SELECT nomep, function, salaire FROM Employe WHERE nudep = 30 ORDER BY salaire DESC
14. SELECT nomep, function, salaire FROM Employe WHERE nudep = 30 ORDER BY function ASC, salaire DESC
15. SELECT AVG(salaire) FROM Employe WHERE function = “Ouvrier”
16. SELECT SUM(salaire), SUM(commission) FROM Employe WHERE function = “Vendeur”
17. SELECT AVG(salaire\*12) FROM Employe WHERE function = “Vendeur”
18. SELECT MAX(salaire) AS salairemax, MIN(salaire) AS salairemin, MAX(salaire) - MIN(salaire) AS difference FROM Employe
19. SELECT COUNT(\*) FROM Employe WHERE nudep = 30
20. SELECT COUNT(DISTINCT function) FROM Employe nudep = 20

**Exercice 4**

1. SELECT \* FROM Succursale, Compte WHERE Succursale.nom\_suc = Compte.nomsuc
2. SELECT \* FROM Succursale, Compte WHERE Succursale.Ville\_suc= “Romorentin” AND Succursale.Nom\_suc = Compte.Nom\_suc
3. SELECT Compte.Nom\_cli FROM Succursale, Compte WHERE Succursale.Nom\_succ = Compte.Nom\_succ AND ville\_succ = “Romorentin”

UNION

SELECT Emprunt.Nom\_cli FROM Succursale, Emprunt WHERE Succursale.Nom\_succ = Emprunt.Nom\_Succ AND Ville.succ = “Romorentin”

1. SELECT Compte.Nom\_cli FROM Succursale, Compte WHERE Succursale.Nom\_succ = Compte.Nom\_succ AND ville\_succ = “Romorentin”

INTERSECT

SELECT Emprunt.Nom\_cli FROM Succursale, Emprunt WHERE Succursale.Nom\_succ = Emprunt.Nom\_Succ AND Ville.succ = “Romorentin”

1. SELECT Compte.Nom\_cli FROM Succursale, Compte WHERE Succursale.Nom\_succ = Compte.Nom\_succ AND ville\_succ = “Romorentin”

MINUS

SELECT Emprunt.Nom\_cli FROM Succursale, Emprunt WHERE Succursale.Nom\_succ = Emprunt.Nom\_Succ AND Ville.succ = “Romorentin”

1. SELECT Nom\_cli, Ville\_cli FROM Clients, Compte WHERE Client.nom\_cli=Compte.nom\_cli

SELECT Nom\_cli, Ville\_cli FROM Clients, Compte, Succursale WHERE Client.nom\_cli=Compte.nom\_cli AND Succursale.Ville\_succ = Compte.Ville\_succ

1. SELECT Nom\_cli, Ville\_cli FROM Clients, Compte, Succursale WHERE Client.nom\_cli=Compte.nom\_cli AND Succursale.Ville\_succ = « Paris Etoile »
2. SELECT Client.Succursale FROM Compte, Succursale WHERE Succursale.Nom\_succ = Client.Nom\_succ AND Client.Nom\_succ IN (SELECT Nom\_succ FROM EMprunt WHERE Nom\_cli = “Claude”)
3. SELECT Nom\_succ FROM Succursale WHERE actif > ALL (SELECT actif FROM Succursale WHERE Ville\_succ = “Orsay”)

SELECT Nom\_succ FROM succursale WHERE actif > (SELECT MAX(actif) FROM Succursale WHERE Ville\_succ = “Orsay”)

1. SELECT Compte.Ville\_suc, COUNT(\*) FROM Client, Succursale, Compte WHERE Succursale.Nom\_suc = Compte.Nom\_suc AND Ville\_suc = “Orsay” GROUP BY Nom\_cli HAVING COUNT = (SELECT COUNT(Nom\_succ) FROM Succursale WHERE Ville\_succ = “Orsay”)
2. SELECT nom\_cli FROM compte WHERE Nom\_succ IN (SELECT nom\_succ FROM Succursale WHERE Ville\_suc = “Orsay”)
3. SELECT Nomcli FROM Emprunt, Succursale WHERE Succursale.Nom\_succ = Emprunt.Nom\_succ AND Ville\_succ = “Paris-Etoile” ORDER BY Nom\_cli ASC
4. SELECT AVG(solde), Nom\_succ FROM Compte GROUP BY nom\_succ
5. HAVING solde > 5000
6. SELECT COUNT(\*) FROM Client WHERE Ville.cli = “Paris”
7. SELECT Compte.Nom\_cli FROM Succursale, Client, Compte WHERE Succursale.Nom\_suc = COmpte.Nom\_suc AND Compte.Nom\_cli = Client.Nom\_cli AND Ville\_suc = “Paris-Etoile” AND Ville\_cli = NULL