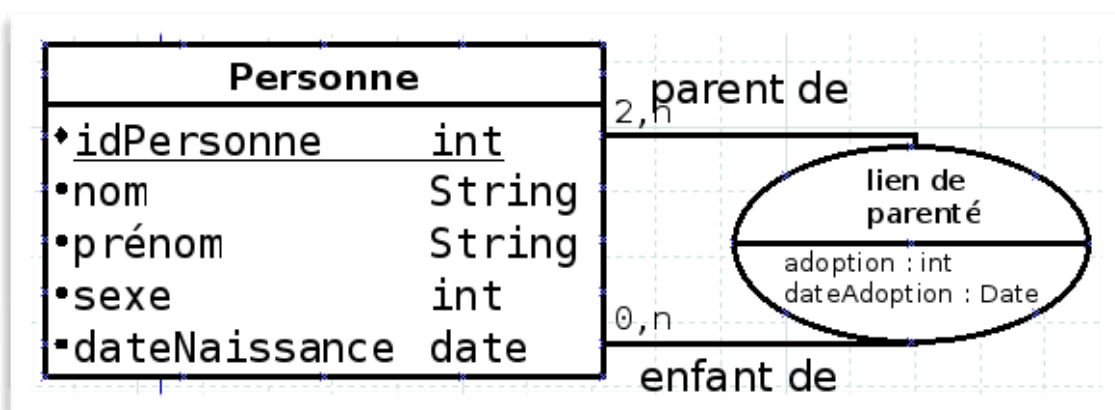
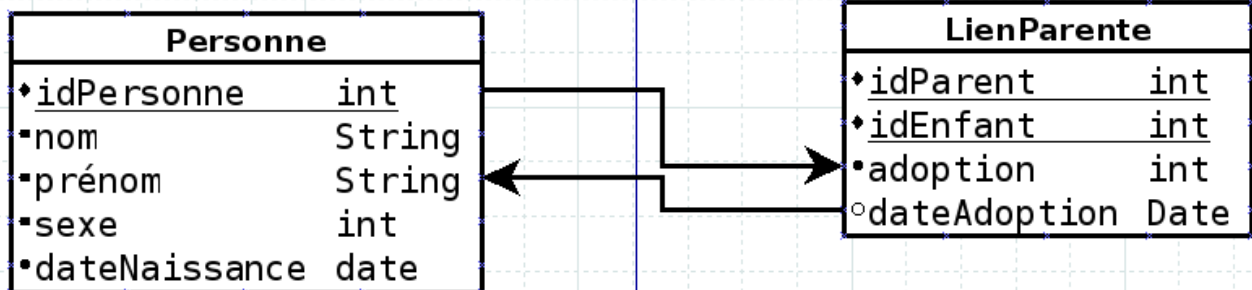


Client-serveur

ADRIEN VEILLAULT
ERIC LE MAÎTRE

Création de la base de données :



```

CREATE TABLE personnes(
idPersonne NUMBER GENERATED ALWAYS AS IDENTITY,
nom VARCHAR2(30) NOT NULL,
prenom VARCHAR2(30) NOT NULL,
sexe NUMBER(1) NOT NULL,
dateNaissance DATE NOT NULL);

ALTER TABLE personnes
ADD PRIMARY KEY (idPersonne);

CREATE TABLE lienParente(
idParent Number,
idEnfant Number,
adoption NUMBER(1) NOT NULL,
dateAdoption DATE);

ALTER TABLE lienParente
ADD PRIMARY KEY (idParent,idEnfant);

ALTER TABLE lienParente
ADD CONSTRAINT idParent FOREIGN KEY (idParent) REFERENCES personnes(idPersonne);

ALTER TABLE lienParente
ADD CONSTRAINT idEnfant FOREIGN KEY (idEnfant) REFERENCES personnes(idPersonne);

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Potter','Harry',0, to_date('24/05/1985', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Granger','Hermione',1, to_date('02/11/1956', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Weasley','Ronald',0, to_date('18/09/1854', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Black','Sirius',0, to_date('25/10/1947', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Dumbledore','Albus',0, to_date('30/05/1962', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Lovegood','Luna',1, to_date('21/08/1999', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Rogue','Severus',0, to_date('19/02/1974', 'dd/mm/yyyy'));

INSERT INTO personnes (nom, prenom, sexe, dateNaissance)
VALUES('Mimi','Geignarde',1, to_date('19/02/2000', 'dd/mm/yyyy'));

```

```

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Black'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Potter'),
1, to_date('16/09/1989', 'dd/mm/yyyy'));

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Lovegood'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Potter'),
1, to_date('16/09/1989', 'dd/mm/yyyy'));

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Granger'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Lovegood'),
0, NULL);

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Rogue'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Lovegood'),
0, NULL);

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Weasley'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Black'),
1, to_date('16/09/1981', 'dd/mm/yyyy'));

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Black'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Mimi'),
1, to_date('16/09/2002', 'dd/mm/yyyy'));

INSERT INTO lienParente (idParent, idEnfant, adoption, dateAdoption)
VALUES ((SELECT idPersonne FROM personnes p WHERE p.nom='Lovegood'),
(SELECT idPersonne FROM personnes p WHERE p.nom='Mimi'),
1, to_date('16/09/2002', 'dd/mm/yyyy'));

```

Requêtes sur la base de données :

```
SELECT DISTINCT p.nom, p.prenom, p.sexe
FROM personnes p, lienParente l
WHERE p.idPersonne = l.idEnfant AND l.adoption = 1;
```

Execution Plan

Plan hash value: 2862776428

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		5	430	5 (20)	00:00:01
1	HASH UNIQUE		5	430	5 (20)	00:00:01
2	NESTED LOOPS		5	430	4 (0)	00:00:01
3	NESTED LOOPS		5	430	4 (0)	00:00:01
* 4	TABLE ACCESS FULL	LIENPARENTE	5	130	3 (0)	00:00:01
* 5	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
6	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	60	1 (0)	00:00:01

```
SELECT DISTINCT p.nom, p.prenom, p.sexe
FROM personnes p, lienParente l
WHERE p.idPersonne = l.idEnfant
AND l.idParent IN ( SELECT p.idPersonne
                     FROM personnes p, lienParente l
                     WHERE p.idPersonne = l.idEnfant
                     AND l.adoption = 1
                     AND l.dateAdoption > (to_date('01/01/1981', 'dd/mm/yyyy')));
```

Execution Plan

Plan hash value: 1889356112

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		1	116	5 (20)	00:00:01
1	HASH UNIQUE		1	116	5 (20)	00:00:01
2	NESTED LOOPS SEMI		1	116	4 (0)	00:00:01
3	NESTED LOOPS		1	103	3 (0)	00:00:01
4	NESTED LOOPS		1	56	2 (0)	00:00:01
5	INDEX FULL SCAN	SYS_C00516536	7	182	1 (0)	00:00:01
* 6	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	30	1 (0)	00:00:01
* 7	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
8	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	47	1 (0)	00:00:01
* 9	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 10	INDEX RANGE SCAN	SYS_C00516536	7	91	1 (0)	00:00:01

```

SELECT DISTINCT p.nom, p.prenom
FROM personnes p, lienParente l
WHERE p.idPersonne = l.idEnfant
AND l.idParent IN ( SELECT p.idPersonne
                    FROM personnes p, lienParente l
                    WHERE p.idPersonne = l.idParent
                    AND p.prenom='Sirius');

```

Execution Plan

Plan hash value: 3146639763

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		6	726	4 (25)	00:00:01
1	HASH UNIQUE		6	726	4 (25)	00:00:01
2	NESTED LOOPS		6	726	3 (0)	00:00:01
3	NESTED LOOPS		6	726	3 (0)	00:00:01
4	NESTED LOOPS SEMI		6	366	2 (0)	00:00:01
5	INDEX FULL SCAN	SYS_C00516536	7	182	1 (0)	00:00:01
* 6	TABLE ACCESS BY INDEX ROWID BATCHED	LIENPARENTE	4	140	1 (0)	00:00:01
* 7	INDEX SKIP SCAN	SYS_C00516536	1		1 (0)	00:00:01
* 8	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
9	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	60	1 (0)	00:00:01

```

SELECT DISTINCT p.nom, p.prenom,
  (SELECT p.nom FROM personnes p WHERE l.idParent =p.idPersonne) "Nom du pere"
FROM personnes p, lienParente l
WHERE p.idPersonne = l.idEnfant
AND l.idParent IN ( SELECT p.idPersonne
                    FROM personnes p, lienParente l
                    WHERE p.idPersonne = l.idParent
                    AND p.prenom='Sirius');

```

Execution Plan

Plan hash value: 269846870

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		1	116	6 (17)	00:00:01
1	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	30	1 (0)	00:00:01
* 2	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
3	HASH UNIQUE		1	116	6 (17)	00:00:01
4	NESTED LOOPS SEMI		1	116	4 (0)	00:00:01
5	NESTED LOOPS		1	103	3 (0)	00:00:01
6	NESTED LOOPS		1	56	2 (0)	00:00:01
7	INDEX FULL SCAN	SYS_C00516536	7	182	1 (0)	00:00:01
* 8	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	30	1 (0)	00:00:01
* 9	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
10	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	47	1 (0)	00:00:01
* 11	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 12	INDEX RANGE SCAN	SYS_C00516536	7	91	1 (0)	00:00:01

```

SELECT DISTINCT p.idPersonne, p.nom, p.prenom
FROM personnes p, lienParente l
WHERE (l.idParent=p.idPersonne
      AND l.adoption=0
      AND(SELECT COUNT(1)
          FROM personnes p, lienParente l
          WHERE l.idEnfant=p.idPersonne AND p.sexe=1)=0)
OR (p.idPersonne Not In (SELECT l.idParent
                        FROM lienparente l));

```

Execution Plan

Plan hash value: 27495582

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		48	3504	18 (6)	00:00:01
1	HASH UNIQUE		48	3504	18 (6)	00:00:01
* 2	FILTER					
3	MERGE JOIN CARTESIAN		56	4088	14 (0)	00:00:01
4	TABLE ACCESS FULL	LIENPARENTE	7	182	3 (0)	00:00:01
5	BUFFER SORT		8	376	11 (0)	00:00:01
6	TABLE ACCESS FULL	PERSONNES	8	376	2 (0)	00:00:01
7	SORT AGGREGATE		1	39		
8	NESTED LOOPS		5	195	2 (0)	00:00:01
9	NESTED LOOPS		7	195	2 (0)	00:00:01
10	INDEX FULL SCAN	SYS_C00516536	7	91	1 (0)	00:00:01
* 11	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 12	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	26	1 (0)	00:00:01
* 13	INDEX RANGE SCAN	SYS_C00516536	1	13	1 (0)	00:00:01

```

SELECT per.idPersonne, per.nom, per.prenom,
      (SELECT p.prenom FROM personnes p WHERE l.idEnfant = p.idPersonne) "Prenom garcon",
      (SELECT p.dateNaissance FROM personnes p WHERE l.idEnfant = p.idPersonne) "DateNaissance garcon"
FROM personnes per, lienparente l
WHERE l.idParent=per.idPersonne
AND l.idEnfant IN( SELECT li.idEnfant
                  FROM personnes p, lienparente li
                  WHERE li.idEnfant = p.idPersonne
                  AND p.dateNaissance = ( SELECT MIN(p.dateNaissance)
                                          FROM personnes p, lienparente l
                                          WHERE l.idEnfant = p.idPersonne
                                          AND l.idParent = per.idPersonne
                                          AND p.sexe=0
                                          AND(SELECT count(1)
                                              FROM personnes p, lienparente l
                                              WHERE l.idEnfant = p.idPersonne
                                              AND l.idParent = per.idPersonne
                                              AND p.sexe=1)>=1)
                  );

```

Execution Plan

Plan hash value: 1043230224

Id	Operation	Name	Rows	Bytes	Cost (%CPU)	Time
0	SELECT STATEMENT		1	73	25 (0)	00:00:01
1	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	30	1 (0)	00:00:01
* 2	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
3	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	22	1 (0)	00:00:01
* 4	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
5	NESTED LOOPS		1	73	2 (0)	00:00:01
6	NESTED LOOPS		7	73	2 (0)	00:00:01
7	INDEX FULL SCAN	SYS_C00516536	7	182	1 (0)	00:00:01
* 8	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 9	FILTER					
10	NESTED LOOPS		1	35	2 (0)	00:00:01
11	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	22	1 (0)	00:00:01
* 12	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 13	INDEX FULL SCAN	SYS_C00516536	1	13	1 (0)	00:00:01
14	SORT AGGREGATE		1	61		
* 15	FILTER					
16	NESTED LOOPS		1	61	2 (0)	00:00:01
17	NESTED LOOPS		1	61	2 (0)	00:00:01
* 18	INDEX RANGE SCAN	SYS_C00516536	1	26	1 (0)	00:00:01
* 19	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 20	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	35	1 (0)	00:00:01
21	SORT AGGREGATE		1	52		
22	NESTED LOOPS		1	52	2 (0)	00:00:01
23	NESTED LOOPS		1	52	2 (0)	00:00:01
* 24	INDEX RANGE SCAN	SYS_C00516536	1	26	1 (0)	00:00:01
* 25	INDEX UNIQUE SCAN	SYS_C00516534	1		1 (0)	00:00:01
* 26	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	26	1 (0)	00:00:01
27	TABLE ACCESS BY INDEX ROWID	PERSONNES	1	47	1 (0)	00:00:01