Annexes: SQL scripts

Create types:

```
create or replace type animal as object(
nom varchar2(30),
espece varchar2(30),
poids number(5,1),
parent ref animal);

create or replace type ville as object(
nom varchar2(30),
pays varchar2(30));

create or replace type visiteur as object(
profession varchar(30),
age number(3),
villevisite ref ville,
lieu number
);

create or replace type gardien as object(
nom varchar2(30),
anim animal);

create or replace type equipe as table of gardien;
```

Create tables:

```
--row type
create table visiteurs of visiteur;
create table animaux of animal;
create table parents of animal;
create table villes of ville;

--column object type
create table environements(
id number(4) primary key,
ville ref ville,
milieu varchar(50),
temperature number(3),
habitant animal);


--collection
create table zoos(
ville ref ville,
equipes_gardiens equipe)
nested table equipes_gardiens store as pets;
```

Create views:

```
--object view
create or replace view animaux_de_la_savane of animal with object id(nom)
as
select a.*
from animaux a, environements b
where a.nom=b.habitant.nom and
b.milieu='savane';


--simple view
create or replace view panneau_de_controle as
select v.nom as ville, e.milieu as milieu, e.habitant.nom as nom,
e.habitant.espece as espece, a.profession as visiteur, value(u).nom as gardien
from villes v, visiteurs a, environements e, zoos z, table(z.equipes_gardiens) u
where a.villevisite.nom=v.nom and
e.ville.nom=v.nom and
a.lieu=e.id and
u.anim.nom=e.habitant.nom
order by v.nom
;
```

Insert data:

Script 1:

```
delete from environements;
delete from animaux;
delete from visiteurs;
delete from parents;
delete from villes;
delete from zoos;

--villes
insert into villes values(ville('Vincennes','France'));
insert into villes values(ville('Blois','France'));

--parents
insert into parents values(animal('alonzoTheFirst','lion','250,0',null));
insert into parents values(animal('gaspartTheFirst','ours','500,0',null));

--animaux
insert into animaux values(animal('alonzo','lion','250,0',null));
insert into animaux values(animal('alonzi','lion','250,0',null));
insert into animaux values(animal('gaspart','ours','500,0',null));
insert into animaux values(animal('koyë','poisson rouge','0,1',null));
insert into animaux values(animal('zouyé','langouste','0,4',null));
insert into animaux values(animal('gyum','moineau','0,6',null));
insert into animaux values(animal('minette','elephant','1200',null));
insert into animaux values(animal('tiger','tigre','100',null));
insert into animaux values(animal('kokoko','crabe','1',null));

--parents 2
declare
par   ref   animal;
begin

select ref(A) into par  from  parents  A  where A.nom = 'alonzoTheFirst';
update  animaux B set B.parent = par  where B.nom ='alonzo';
```

```
select ref(A) into par  from  parents  A  where A.nom = 'gaspartTheFirst';
update  animaux B set B.parent = par  where B.nom ='gaspart';

end;
```

Script 2:

```
declare
  cursor cursor_animaux1 is select * from animaux a where a.espece='lion' or
a.espece='tigre' or a.espece='elephant';
  cursor cursor_animaux2 is select * from animaux a where a.espece='ours' or
a.espece='moineau';
  cursor cursor_animaux3 is select * from animaux a where a.espece='poisson
rouge' or a.espece='langouste' or a.espece='crabe';
  i number default 1;
  refville ref ville;
begin

--environements
select ref(a) into refville from villes a where a.nom='Vincennes';
for anim in cursor_animaux1 loop
  insert into environements values (i,refville, 'savane', 25,
animal(anim.nom,anim.espece,anim.poids,anim.parent));
  i:=i+1;
end loop;

for anim in cursor_animaux2 loop
  insert into environements values (i,refville, 'foret', 14,
animal(anim.nom,anim.espece,anim.poids,anim.parent));
  i:=i+1;
end loop;

select ref(a) into refville from villes a where a.nom='Blois';
for anim in cursor_animaux3 loop
  insert into environements values (i,refville, 'eau', 15,
animal(anim.nom,anim.espece,anim.poids,anim.parent));
  i:=i+1;
end loop;

end;
```

Script 3:

```
declare
  refville ref ville;
  refa1 animal;
  refa2 animal;
  refa3 animal;
  refa4 animal;
  refa5 animal;
  refa6 animal;
begin
--equipes and visiteurs
select ref(a) into refville from villes a where a.nom='Vincennes';
select a.habitant into refa1 from environements a where a.habitant.nom='alonzo';
select a.habitant into refa2 from environements a where a.habitant.nom='alonzi';
select a.habitant into refa3 from environements a where
a.habitant.nom='gaspart';
select a.habitant into refa4 from environements a where
a.habitant.nom='minette';
```

```
select a.habitant into refa5 from environements a where a.habitant.nom='gyum';
select a.habitant into refa6 from environements a where a.habitant.nom='tiger';
insert into zoos values(
refville,
equipe(gardien('paul',refa1),gardien('andre',refa2),gardien('paulette',refa4),ga
rdien('paulette',refa5),gardien('paulette',refa6),gardien('henriette',refa3))
);

insert into visiteurs values(visiteur('boulanger',30,refville,1));
insert into visiteurs values(visiteur('tondeur',18,refville,3));
insert into visiteurs values(visiteur('retraite',75,refville,4));

select a.habitant into refa1 from environements a where a.habitant.nom='koyë';
select a.habitant into refa2 from environements a where a.habitant.nom='zouyé';
select a.habitant into refa3 from environements a where a.habitant.nom='kokoko';

select ref(a) into refville from villes a where a.nom='Blois';
insert into zoos values(
refville,
equipe(gardien('fred',refa1),gardien('jules',refa2),gardien('pauline',refa3))
);

insert into visiteurs values(visiteur('plombier',40,refville,8));
end;
```

Select queries:

```
select * from villes;

select * from zoos;

select a.profession, a.age, a.VILLEVISITE.nom from visiteurs a;

select * from animaux_de_la_savane;

select * from panneau_de_controle;

select a.* from visiteurs a;

select a.* from animaux a;

select a.ville.nom, a.id from environements a;

select a.ville.nom as ville, value(b).nom as gardien, value(b).anim.nom as
animal
from zoos a, table(a.equipes_gardiens) b ;
```