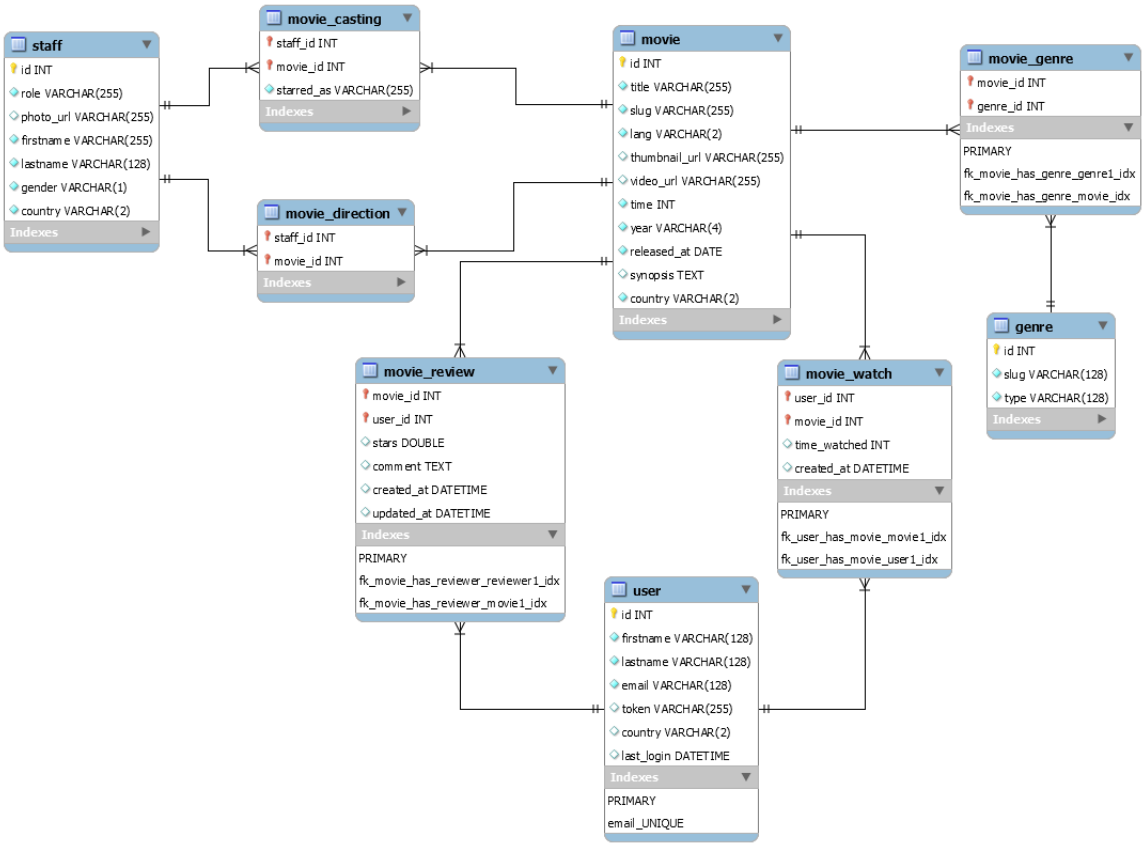
Administration Project

Soit le schéma suivant :



This project is to administer Oracle 19c properly, by creating many objects based on the novel Architecture provided by pluggable database and also user management.

Environment Setup

1. Verify services

```
[root@Oracle ~]#
[root@Oracle ~]# su oracle
[oracle@Oracle root]$ lsnrctl start

LSNRCTL for Linux: Version 21.0.0.0.0 - Production on 16-OCT-2023 10:52:24

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Starting /opt/oracle/product/21c/dbhomeXE/bin/tnslsnr: please wait...

TNSLSNR for Linux: Version 21.0.0.0.0 - Production
System parameter file is /opt/oracle/homes/OraDBHome21cXE/network/admin/listener.ora
Log messages written to /opt/oracle/diag/tnslsnr/Oracle/listener/alert/log.xml
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=Oracle)(PORT=1521)))
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC1521)))

Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=Oracle)(PORT=1521)))
STATUS of the LISTENER
------------------------
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 21.0.0.0.0 - Production
Start Date                16-OCT-2023 10:52:25
Uptime                    0 days 0 hr. 0 min. 0 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Default Service           XE
Listener Parameter File   /opt/oracle/homes/OraDBHome21cXE/network/admin/listener.ora
Listener Log File         /opt/oracle/diag/tnslsnr/Oracle/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=Oracle)(PORT=1521)))
  (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC1521)))
The listener supports no services
The command completed successfully
[oracle@Oracle root]$
```

```
[oracle@Oracle ~]$ sqlplus / as sysdba

SQL*Plus: Release 21.0.0.0.0 - Production on Mon Oct 16 11:06:21 2023
Version 21.3.0.0.0

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Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area 1610612080 bytes
Fixed Size                  9686384 bytes
Variable Size             419430400 bytes
Database Buffers         1174405120 bytes
Redo Buffers                7090176 bytes
Database mounted.
Database opened.
SQL>
```

2. Connect as sys and create a pluggable database dev

```
SQL> create PLUGGABLE DATABASE dev
  2  ADMIN USER pdb_adm IDENTIFIED BY Password1
  3  FILE_NAME_CONVERT=('/opt/oracle/oradata/XE/pdbseed','/opt/oracle/oradata/XE/dev/');

Pluggable database created.

SQL> alter session set container=dev ;

Session altered.

SQL> alter database open ;

Database altered.

SQL>
```

3. Create user developer and give privileges

```
SQL> create user developer IDENTIFIED by test CONTAINER=current  ;

User created.

SQL> grant all privileges to developer CONTAINER=current ;

Grant succeeded.

SQL> host
[oracle@Oracle ~]$ cd /opt/oracle/homes/OraDBHome21cXE/network/admin
[oracle@Oracle admin]$ ls
listener.ora  sqlnet.ora  tnsnames.ora
[oracle@Oracle admin]$
```

4. Setup Oracle network and listners

```
[oracle@Oracle admin]$ cd /opt/oracle/homes/OraDBHome21cXE/network/admin
[oracle@Oracle admin]$ pwd
/opt/oracle/homes/OraDBHome21cXE/network/admin
[oracle@Oracle admin]$ ls
listener.ora  sqlnet.ora  tnsnames.ora
[oracle@Oracle admin]$
```

5. Modify tnsnames.ora file

```
# tnsnames.ora Network Configuration File: /opt/oracle/homes/OraDBHome21cXE/network/admin/tnsnames.ora
# Generated by Oracle configuration tools.

XE =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = Oracle)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = XE)
    )
  )

XEPDB1 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = Oracle)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = XEPDB1)
    )
  )


dev =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = Oracle)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = dev)
    )
  )

EXTPROC_CONNECTION_DATA =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC_FOR_XE))
    )
    (CONNECT_DATA =
      (SID = PLSExtProc)
      (PRESENTATION = RO)
    )
  )
-- INSERT --
```

6. Restart listner and check connection

```
[oracle@Oracle admin]$ lsnrctl reload

LSNRCTL for Linux: Version 21.0.0.0.0 - Production on 16-OCT-2023 11:13:07

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Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=Oracle)(PORT=1521)))
The command completed successfully
[oracle@Oracle admin]$ lsnrctl status | grep dev
Service "dev" has 1 instance(s).
[oracle@Oracle admin]$ tnsping dev 3

TNS Ping Utility for Linux: Version 21.0.0.0.0 - Production on 16-OCT-2023 11:13:37

Copyright (c) 1997, 2021, Oracle.  All rights reserved.

Used parameter files:
/opt/oracle/homes/OraDBHome21cXE/network/admin/sqlnet.ora


Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = Oracle)(PORT = 1521)) (CONNECT_DATA
OK (0 msec)
OK (0 msec)
OK (0 msec)
[oracle@Oracle admin]$ exit
exit

SQL>
```

7. Connect to the newest database

```
[oracle@Oracle ~]$ sqlplus / as sysdba

SQL*Plus: Release 21.0.0.0.0 - Production on Mon Oct 16 11:35:37 2023
Version 21.3.0.0.0

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Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> alter session set container=dev;

Session altered.

SQL> alter database open ;
alter database open
*
ERROR at line 1:
ORA-65019: pluggable database DEV already open


SQL>
```

8. Create a tablespace (where all data will be placed)

```
SQL> create tablespace dev
  2  datafile '/opt/oracle/oradata/XE/dev/dev01.dbf' SIZE 200M
  3  autoextend on next 10M maxsize unlimited ;

Tablespace created.

SQL> show user
USER is "SYS"
SQL> conn developer/test@dev
Connected.
SQL>
```

9. Transfert all scripts to VM using scp (Secure copy)

```
>scp *.sql root@192.168.133.132:/home/oracle
root@192.168.133.132's password:
1-creation.sql                                100% 3187     1.1MB/s   00:00
2-insertion.sql                               100%   26KB   9.7MB/s   00:00
```

10. Change Ownership for files

```
[root@Oracle oracle]# whoami
root
[root@Oracle oracle]# pwd
/home/oracle
[root@Oracle oracle]# ls -lh *.sql
-rw-r--r-- 1 root root 3.2K Oct 16 11:22 1-creation.sql
-rw-r--r-- 1 root root  26K Oct 16 11:22 2-insertion.sql
[root@Oracle oracle]# chown oracle *.sql
[root@Oracle oracle]# su oracle
[oracle@Oracle ~]$
```

11. create relational database

```
CREATE TABLE staff (
    sid       NUMBER,
    role      VARCHAR2(255),
    photo     VARCHAR2(255),
    fistname  VARCHAR2(255),
    lastname  VARCHAR2(255),
    gender    VARCHAR2(20),
    country   VARCHAR2(255)
) tablespace dev;

ALTER TABLE stuff ADD CONSTRAINT spk1 PRIMARY KEY ( sid );
```

```
CREATE TABLE movie (
    mid            NUMBER,
    title          VARCHAR2(255),
    slug           VARCHAR2(255),
    lang           VARCHAR2(255),
    th_url         VARCHAR2(255),
    video_url      VARCHAR2(255),
    mtime          NUMBER,
    year           VARCHAR2(255),
    released_data  DATE,
    synopsis       VARCHAR2(255),
    country        VARCHAR2(255)
)tablespace dev;

ALTER TABLE movie ADD CONSTRAINT mpk1 PRIMARY KEY ( mid );
```

```
CREATE TABLE movie_casting (
    stuff_id  NUMBER,
    movie_id  NUMBER,
    stared_as VARCHAR2(255)
)tablespace dev;

ALTER TABLE movie_casting
    ADD CONSTRAINT mc_fk1 FOREIGN KEY ( stuff_id )
        REFERENCES stuff ( sid );

ALTER TABLE movie_casting
    ADD CONSTRAINT mc_fk2 FOREIGN KEY ( movie_id )
        REFERENCES movie ( mid );
```

```
CREATE TABLE movie_direction (
    stuff_id NUMBER,
    movie_id NUMBER
)tablespace dev;

ALTER TABLE movie_direction
    ADD CONSTRAINT md_fk1 FOREIGN KEY ( stuff_id )
        REFERENCES stuff ( sid );

ALTER TABLE movie_direction
    ADD CONSTRAINT md_fk2 FOREIGN KEY ( movie_id )
        REFERENCES movie ( mid );
```

```
CREATE TABLE genre (
    gid  NUMBER,
    slug VARCHAR2(255),
    type VARCHAR2(255)
)tablespace dev;

ALTER TABLE genre ADD CONSTRAINT gpk1 PRIMARY KEY ( gid );

CREATE TABLE movie_genre (
    genre_id NUMBER,
    movie_id NUMBER
)tablespace dev;
```

```
ALTER TABLE movie_genre
    ADD CONSTRAINT mg_fk1 FOREIGN KEY ( movie_id )
        REFERENCES movie ( mid );

ALTER TABLE movie_genre
    ADD CONSTRAINT mg_fk2 FOREIGN KEY ( genre_id )
        REFERENCES genre ( gid );
```

```
CREATE TABLE utilisateur (
    userid    NUMBER,
    firstname VARCHAR2(255),
    lastname  VARCHAR2(255),
    email     VARCHAR2(255),
    token     VARCHAR2(255),
    country   VARCHAR2(2),
    lastlogin VARCHAR2(255)
)tablespace dev;

ALTER TABLE utilisateur ADD CONSTRAINT uk1 PRIMARY KEY ( userid );

CREATE TABLE movie_review (
    movie_id    NUMBER,
    user_id     NUMBER,
    starts      NUMBER(6, 2),
    commentaire VARCHAR2(255),
    created_at  TIMESTAMP,
    updated_at  TIMESTAMP
)tablespace dev;

ALTER TABLE movie_review
    ADD CONSTRAINT mr_fk1 FOREIGN KEY ( movie_id )
        REFERENCES movie ( mid );

ALTER TABLE movie_review
    ADD CONSTRAINT mr_fk2 FOREIGN KEY ( user_id )
        REFERENCES utilisateur ( userid );

CREATE TABLE movie_watch (
    movie_id     NUMBER,
    user_id      NUMBER,
    time_watched NUMBER,
    created_at   TIMESTAMP
)tablespace dev;

ALTER TABLE movie_watch
    ADD CONSTRAINT mw_fk1 FOREIGN KEY ( movie_id )
        REFERENCES movie ( mid );

ALTER TABLE movie_watch
    ADD CONSTRAINT mw_fk2 FOREIGN KEY ( user_id )
        REFERENCES utilisateur ( userid );
```

12. Verify tables creation

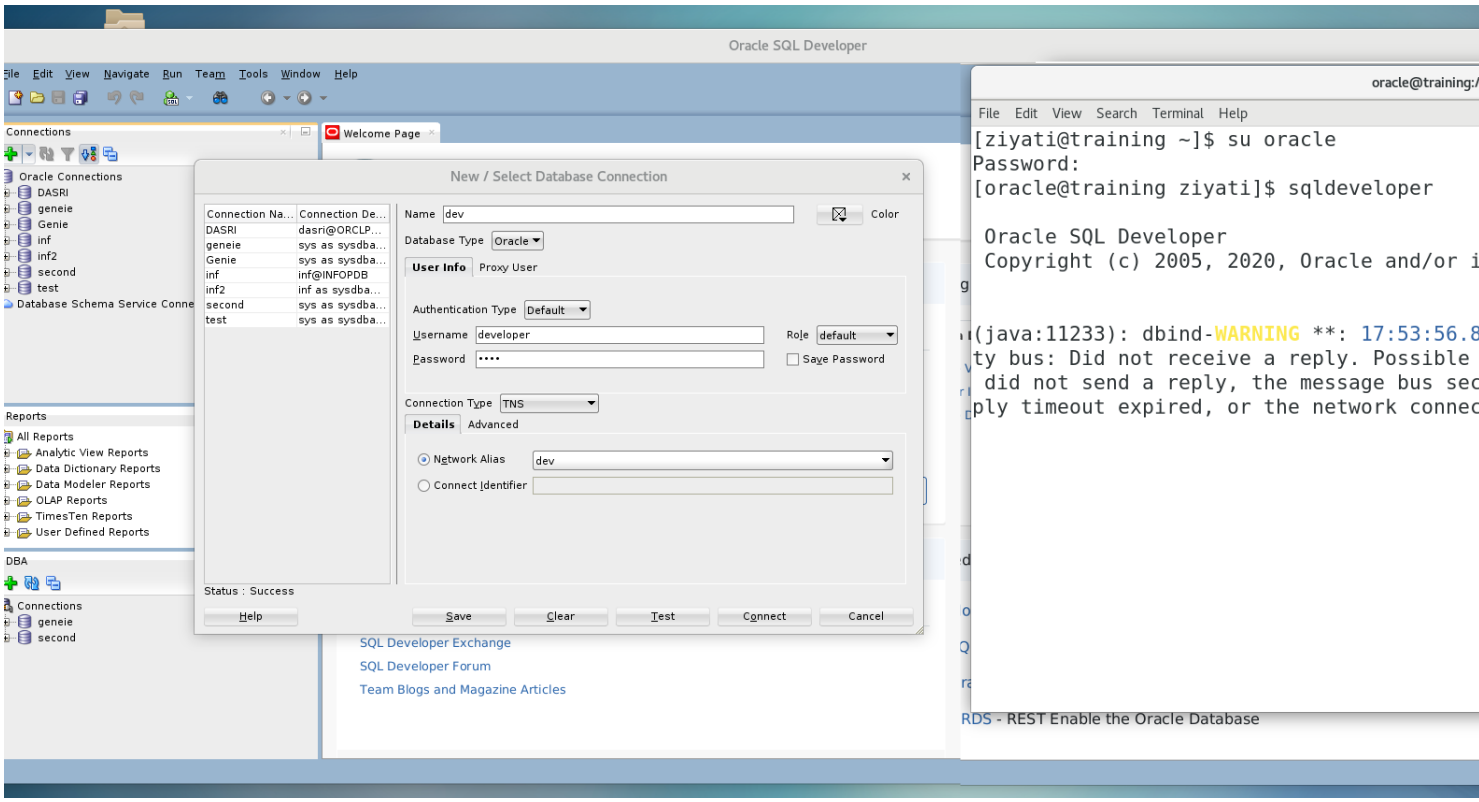
```
SQL> select tname from tab ;

TNAME
------------------------------------------------------------------------------
STAFF
MOVIE
MOVIE_CASTING
MOVIE_DIRECTION
GENRE
MOVIE_GENRE
UTILISATEUR
MOVIE_REVIEW
MOVIE_WATCH

9 rows selected.

SQL> @2-insertion.sql
```

13. Connect as developer in SqlDeveloper Client



Quering database

— Propose a response for each situation

1. Display name and the year for each film
2. Find the release year for film American Beauty
3. List all released movies in 1999.
4. List all appeared films before 1998.
5. List of all users whose commented positively for a movies.
6. All users whose gave 5 star for a film.