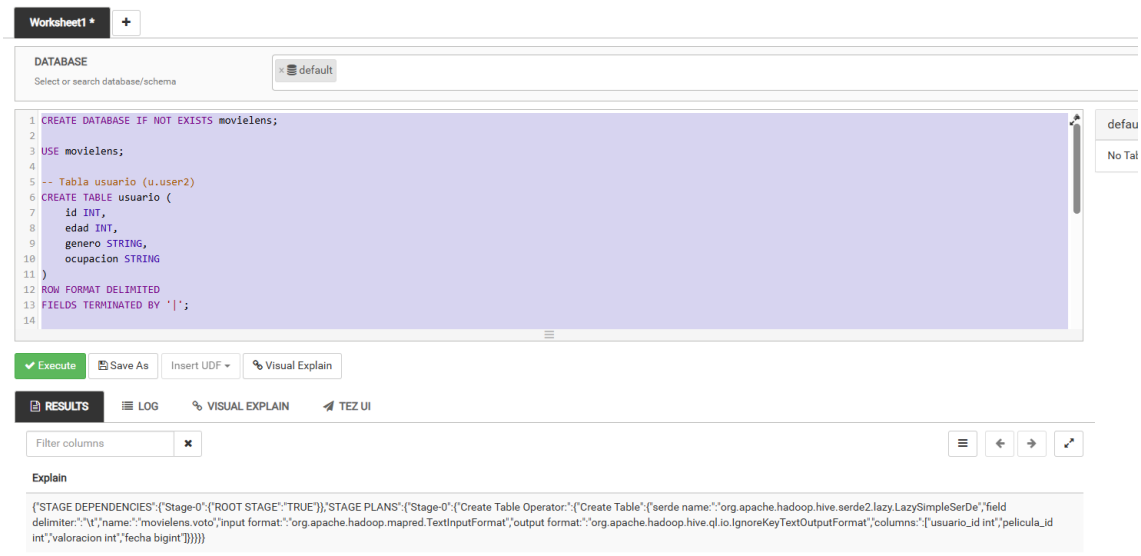
Práctica con HIVE

1) Apartado A

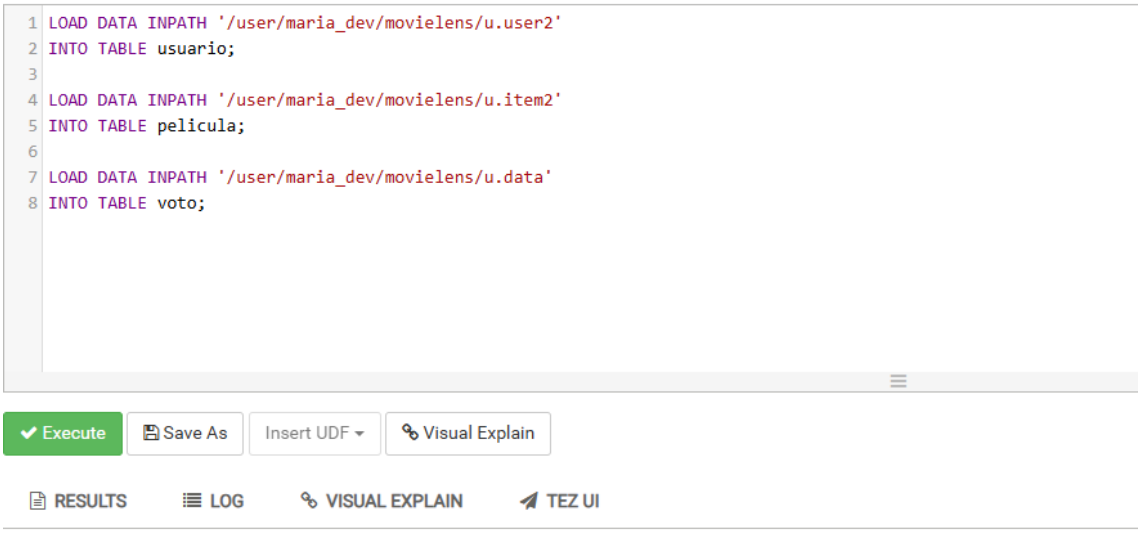
1) Crea una base de datos que llamaremos movielens para almacenar las tablas necesarias. Para cada una de las consultas deberás crear previamente las tablas y cargar los datos necesarios para poder realizarlas.

Script creación de la base de datos, es el mismo que la práctica anterior pero adaptado a Hive:

```
CREATE DATABASE IF NOT EXISTS movielens;

USE movielens;

-- Tabla usuario (u.user2)
CREATE TABLE usuario (
    id INT,
    edad INT,
    genero STRING,
    ocupacion STRING
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY '\t';

-- Tabla pelicula (u.item2)
CREATE TABLE pelicula (
    id INT,
    titulo STRING,
    anyo INT
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY '|';

-- Tabla voto (u.data)
CREATE TABLE voto (
    usuario_id INT,
    pelicula_id INT,
    valoracion INT,
    fecha BIGINT
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY '\t';
```



Insertamos los datos a la base:



Contenido de película:

```
hive> SELECT * FROM pelicula LIMIT 10;
OK
1       Toy Story       1995
2       GoldenEye       1995
3       Four Rooms      1995
4       Get Shorty      1995
5       Copycat 1995
6       Shanghai Triad (Yao a yao yao dao waipo qiao)   1995
7       Twelve Monkeys  1995
8       Babe    1995
9       Dead Man Walking        1995
10      Richard III     1995
Time taken: 1.266 seconds, Fetched: 10 row(s)
```

Contenido de usuario:

```
hive> SELECT * FROM usuario LIMIT 10;
OK
1       24      M       technician
2       53      F       other
3       23      M       writer
4       24      M       technician
5       33      F       other
6       42      M       executive
7       57      M       administrator
8       36      M       administrator
9       29      M       student
10      53      M       lawyer
Time taken: 0.172 seconds, Fetched: 10 row(s)
```

Contenido de voto:

```
hive> SELECT * FROM voto LIMIT 10;
OK
196     242     3       881250949
186     302     3       891717742
22      377     1       878887116
244     51      2       880606923
166     346     1       886397596
298     474     4       884182806
115     265     2       881171488
253     465     5       891628467
305     451     3       886324817
6       86      3       883603013
```

2) Encontrar las 10 ocupaciones más frecuentes entre los votantes

```
1 SELECT u.ocupacion, COUNT(u.id) as total FROM usuario AS u
2 GROUP BY u.ocupacion
3     ORDER BY total DESC
4 LIMIT 10;
```

u.ocupacion	total
student	196
other	105
educator	95
administrator	79
engineer	67
programmer	66
librarian	51
writer	45
executive	32
scientist	31

3) Y luego el número de hombres y mujeres

```
SELECT u.genero, COUNT(u.id) as total FROM usuario AS u
GROUP BY u.genero
    ORDER BY total DESC;
```

u.genero	total
M	670
F	273

```
hive> SELECT u.genero, COUNT(u.id) as total FROM usuario AS u GROUP BY u.genero ORDER BY total DESC;
Query ID = maria_dev_20251202103629_2926c427-b884-4153-9cab-6bd264124e25
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1764663236812_0016)

--------------------------------------------------------------------------------
        VERTICES      STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 ..........   SUCCEEDED      1          1        0        0       0       0
Reducer 2 ......   SUCCEEDED      1          1        0        0       0       0
Reducer 3 ......   SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 4.81 s
--------------------------------------------------------------------------------
OK
M       670
F       273
Time taken: 8.803 seconds, Fetched: 2 row(s)
```

4) Muestra la edad media por géneros.

```
SELECT u.genero, avg(u.edad) as total FROM usuario AS u
GROUP BY u.genero;
```

u.genero	total
F	33.81318681318681
M	34.149253731343286

```
hive> SELECT u.genero, avg(u.edad) as total FROM usuario AS u GROUP BY u.genero;
Query ID = maria_dev_20251202103837_3f31ad0c-423b-42c3-815f-3ac1d729db5e
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1764663236812_0016)

--------------------------------------------------------------------------------
        VERTICES      STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 ..........   SUCCEEDED      1          1        0        0       0       0
Reducer 2 ......   SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 3.17 s
--------------------------------------------------------------------------------
OK
F       33.81318681318681
M       34.149253731343286
Time taken: 4.296 seconds, Fetched: 2 row(s)
```

5) Muestra la edad media por ocupaciones.

```
SELECT u.ocupacion, avg(u.edad) as total FROM usuario AS u GROUP BY u.ocupacion;
```

u.ocupacion	total
administrator	38.74683544303797
artist	31.392857142857142
doctor	43.57142857142857
educator	42.01052631578948
engineer	36.38805970149254
entertainment	29.22222222222222
executive	38.71875
healthcare	41.5625
homemaker	32.57142857142857
lawyer	36.75
librarian	40.0
marketing	37.61538461538461
none	26.555555555555557
other	34.523809523809526
programmer	33.121212121212125
retired	63.07142857142857
salesman	35.666666666666664
scientist	35.54838709677419
student	22.081632653061224
technician	33.148148148148145
writer	36.31111111111111

```
hive> SELECT u.ocupacion, avg(u.edad) as total FROM usuario AS u GROUP BY u.ocupacion;
Query ID = maria_dev_20251202103957_a872f1c3-e1fb-4a62-9fcb-e1b0ea561a4c
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1764663236812_0016)

--------------------------------------------------------------------------------
        VERTICES      STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 ..........   SUCCEEDED      1          1        0        0       0       0
Reducer 2 ......   SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 3.69 s
--------------------------------------------------------------------------------
OK
administrator   38.74683544303797
artist  31.392857142857142
doctor  43.57142857142857
educator        42.01052631578948
engineer        36.38805970149254
entertainment   29.22222222222222
executive       38.71875
healthcare      41.5625
homemaker       32.57142857142857
lawyer  36.75
librarian       40.0
marketing       37.61538461538461
none    26.555555555555557
other   34.523809523809526
programmer      33.121212121212125
retired 63.07142857142857
salesman        35.666666666666664
scientist       35.54838709677419
student 22.081632653061224
technician      33.148148148148145
writer  36.31111111111111
Time taken: 5.151 seconds, Fetched: 21 row(s)
```

6) Encontrar las cinco películas (código, título y número de votos) más votadas (recuento de votos, no media)

```
SELECT p.id, p.titulo, count(v.valoracion) AS votos FROM voto AS v
LEFT JOIN pelicula AS p ON v.pelicula_id = p.id
    GROUP BY p.id, p.titulo
    ORDER BY votos DESC
LIMIT 5;
```

p.id	p.titulo	votos
50	Star Wars	583
258	Contact	509
100	Fargo	508
181	Return of the Jedi	507
294	Liar Liar	485

```
hive> SELECT p.id, p.titulo, count(v.valoracion) AS votos FROM voto AS v LEFT JOIN pelicula AS p ON v.pelicula_id = p.id GROUP BY p.id, p.titulo ORDER BY votos DESC LIMIT 5;
Query ID = maria_dev_20251202104601_9c78b150-d48b-4625-98b5-d9b29796d498
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1764663236812_0016)

--------------------------------------------------------------------------------
        VERTICES      STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 ..........   SUCCEEDED      1          1        0        0       0       0
Map 4 ..........   SUCCEEDED      1          1        0        0       0       0
Reducer 2 ......   SUCCEEDED      1          1        0        0       0       0
Reducer 3 ......   SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 04/04  [==========================>>] 100%  ELAPSED TIME: 6.80 s
--------------------------------------------------------------------------------
OK
50      Star Wars       583
258     Contact 509
100     Fargo   508
181     Return of the Jedi      507
294     Liar Liar       485
Time taken: 13.37 seconds, Fetched: 5 row(s)
```