《Introduction to Database System A》 report2

contents: (DML) simple query over a single relation	lab: 10-409	Time: 2024/10/18 10:00-12:30
	Instructor:liuli	studentID:2023337621159 studentName:代翔

Software Environment :

OS(Windows,linux,macOS)+DBMS(postgresql,openGauss,Mysql)

Purpose:

to have a little taste on simple query by algebra and select statement in SQL

To understand database view; to practice on constructing/query on the view

notation:

- **to query from a relation:**

  Select [distinct] exp_1 *as* a_1,…exp_n *as* a_n

  From *tablename*

  [Where *Condition];*

  Key word in condition :is null,<,<=,>,>=,<>, between…and…,like,and,not,or

  Example tasks and answers:

  Find all movies which is produced by studio 'MGM'

  SQL ANSWER:

```
Select *
from movies
where studioname='MGM'
```

- to add a set of tuples from query result to a new table with a single comman;

  Insert Into <*table_name*>

  Select-Statement

  Example tasks and answers:

  Writhe a command to Find all sience movies and to add them to a new table MGMMovies as well.

  SQL ANSWER:

```
Insert into MGMMovies
    Select * from movies
    Where studioname='MGM'
```

Experiment background:

we have set up a database "my_movies_database" to store the information about stars, movies,studios and presidents of studios etc.

Experiment Requirements:

1. delete data from each tables;
2. load data from the given new sql file(mydata.sql) for the database;

part1: Write SQL statements and execute each statement for the following queries(questions);

(After you have successfully execute each SQL statement, copy this SQL statement to this document in text format (not copy in picture format); paste the snapshot picture for each execution **result** of the SQL statement in the document if necessary;for some questions,algebrea expressions are necessary(either picture or text format are accepted));

1). Find the address of the movie star "Jane Fonda"

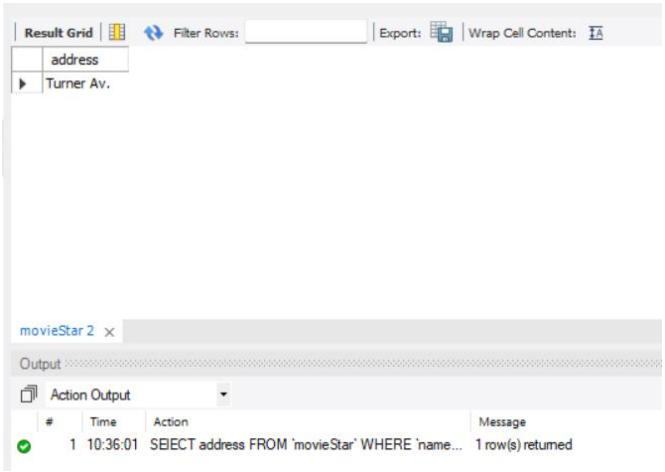
Algebra answer:$\pi address(\sigma name='JaneFonda'(\text{movieStar}))$

SQL ANSWER: **SEIECT address**

FROM `movieStar`

WHERE `name`= 'Jane fonda';

RESULTING PICTURE:



2). Find the studio(name) who issued the movie "Star Wars"

Algebra answer:$\pi studioname(\sigma title='Star\ Wars'(Movies))$

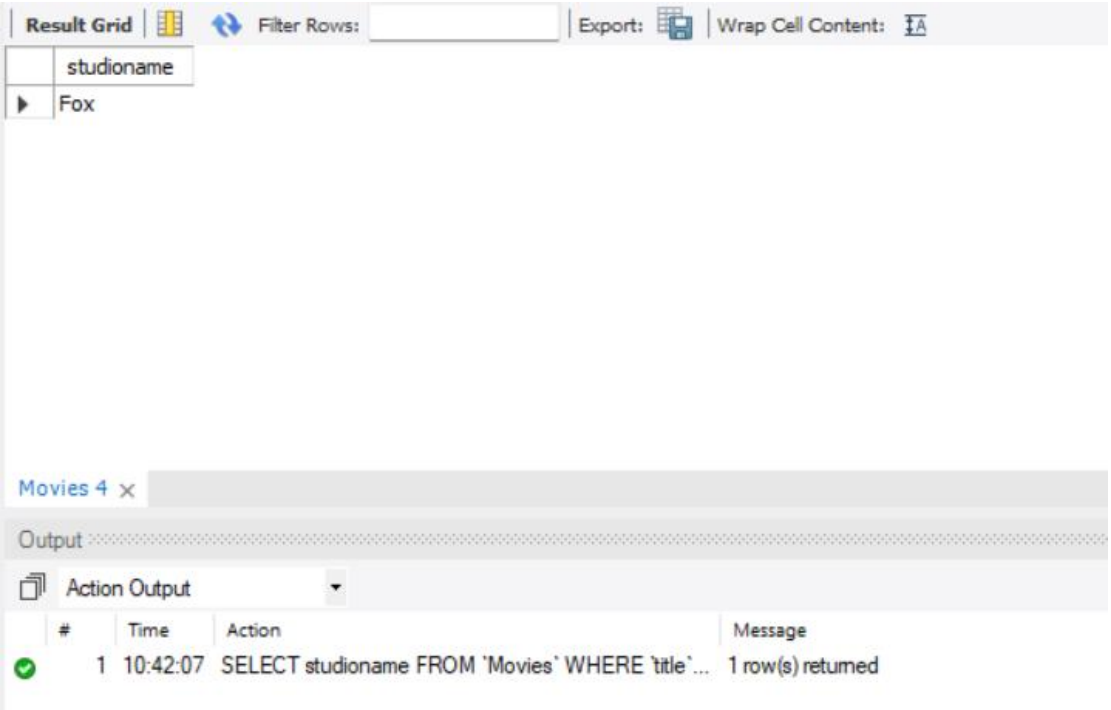
SQL ANSWER: **SELECT studioname**

FROM `Movies`

WHERE `title`='Star Wars';

RESULTING

PICTURE:



3). Find the movies with length less than 120 or as null value, return title, year and length

Algebra answer: $\pi_{title,year,length}(\sigma_{length<120\ OR\ length=null}(Movies))$

SQL ANSWER: **SELECT title,year,length**

FROM `Movies`

WHERE `length`<120 OR `length`IS null;

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

title	year	length
Empire Strikes Back	1980	111
Pretty Woman	1990	119
Star Trek	1979	NULL
Star Trek: Nemesis	2002	116
The Man Who Wasn't There	2001	116
The Usual Suspects	1995	106

Movies 9

Output

Action Output

#	Time	Action	Message
1	10:49:58	SELECT title,year,length FROM `Movies` WHERE 1...	6 row(s) returned

4). Find movies by returning the title, year, length **in hours** with a new name as duration for the column. Then produce another new column with value as 'hrs' and column name as inhours

SQL ANSWER: SELECT title,year,CAST(length/60 AS DECIMAL(10,2)) AS duration,'hrs' AS inhours

FROM `Movies`

RESULTING PICTURE:

title	year	duration	inhours
Empire Strikes Back	1980	1.85	hrs
My people,My country	2019	2.63	hrs
Gone With the Wind	1938	3.97	hrs
Logan's run	1977	2.00	hrs
Pretty Woman	1990	1.98	hrs
Star Trek	1979	NULL	hrs
Star Trek: Nemesis	2002	1.93	hrs
Star Wars	1977	2.07	hrs
Terms of Endearment	1983	2.20	hrs
The Man Who Wasn't There	2001	1.93	hrs
The Usual Suspects	1995	1.77	hrs

Result 11

Output

Action Output

#	Time	Action	Message
1	10:57:09	SELECT title,year,CAST(length/60 AS DECIMAL(10...	11 row(s) returned

5). Find all executives worth at least $100,000,000(return values on all attributes).

SQL ANSWER: **SELECT ***

FROM `Movieexec`

WHERE `networth`>= 100000000;

RESULTING

PICTURE:

Result Grid | Filter Rows: | Edit: | Export/Import:

name	address	cert	networth
Merv Griffin	Riot Rd.	199	112000000
Stephen Spielberg	123 ET road	222	100000000
Ted Turner	Turner Av.	333	125000000
George Lucas	Oak Rd.	555	200000000
Jane Fonda	Turner Av.	567	200000000
NULL	NULL	NULL	NULL

Movieexec 13

Output

Action Output

#	Time	Action	Message
1	10:59:57	SELECT * FROM `Movieexec` WHERE `networth`>...	5 row(s) returned

6). Find name and birthdate of movie star whose birthdate is in July.

SQL ANSWER: **SELECT name,birthdate**

FROM `moviestar`

WHERE EXTRACT(month from `birthdate`) = 7;

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	birthdate
Jane Fonda	1977-07-07

moviestar 1

Output

Action Output

#	Time	Action	Message
1	11:04:48	USE `my_movies_database`	0 row(s) affected
2	11:08:06	SELECT name,birthdate FROM `moviestar` WHER...	1 row(s) returned

7). Return the title year ,length and studioname of movies being produced by studio Paramount and with length not null

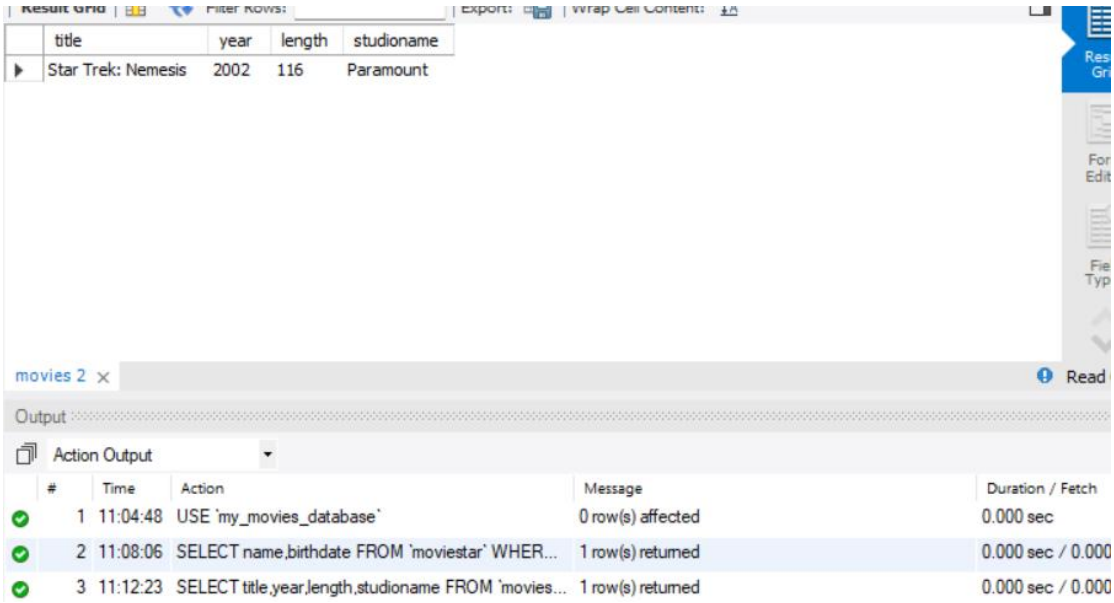
SQL ANSWER: **SELECT title,year,length,studioname**

FROM `movies`

WHERE `studioname`='Paramount' AND length IS not null;

RESULTING

PICTURE:



title	year	length	studioname
Star Trek: Nemesis	2002	116	Paramount

movies 2

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	11:04:48	USE `my_movies_database`	0 row(s) affected	0.000 sec
2	11:08:06	SELECT name,birthdate FROM `moviestar` WHER...	1 row(s) returned	0.000 sec / 0.000
3	11:12:23	SELECT title,year,length,studioname FROM `movies...	1 row(s) returned	0.000 sec / 0.000

8). A movie "Star something" , what could this movie be?

SQL ANSWER: **SELECT ***

FROM `movies`

WHERE `title` LIKE 'Star %';

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

title	year	length	movietype	studioname	producerC
Star Trek	1979	NULL	sciFic	Paramount	444
Star Trek: Nemesis	2002	116	sciFic	Paramount	321
Star Wars	1977	124	sciFic	Fox	555

movies 3

Output

Action Output

#	Time	Action	Message
1	11:15:53	SELECT * FROM `movies` WHERE `title` LIKE 'Star...	3 row(s) returned

9). Return those movies with ' s in the title

SQL ANSWER: **SELECT ***

FROM `movies`

WHERE `title` LIKE '%\'s%';

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

title	year	length	movietype	studioname	producerC
Logan's run	1977	120	drama	MGM	888

movies 4

Output

Action Output

#	Time	Action	Message
1	11:15:53	SELECT * FROM `movies` WHERE `title` LIKE 'Star...	3 row(s) returned
2	11:19:18	SELECT * FROM `movies` WHERE `title` LIKE '%\'s...	1 row(s) returned

10). Return those female stars with ’er’ at the end of name

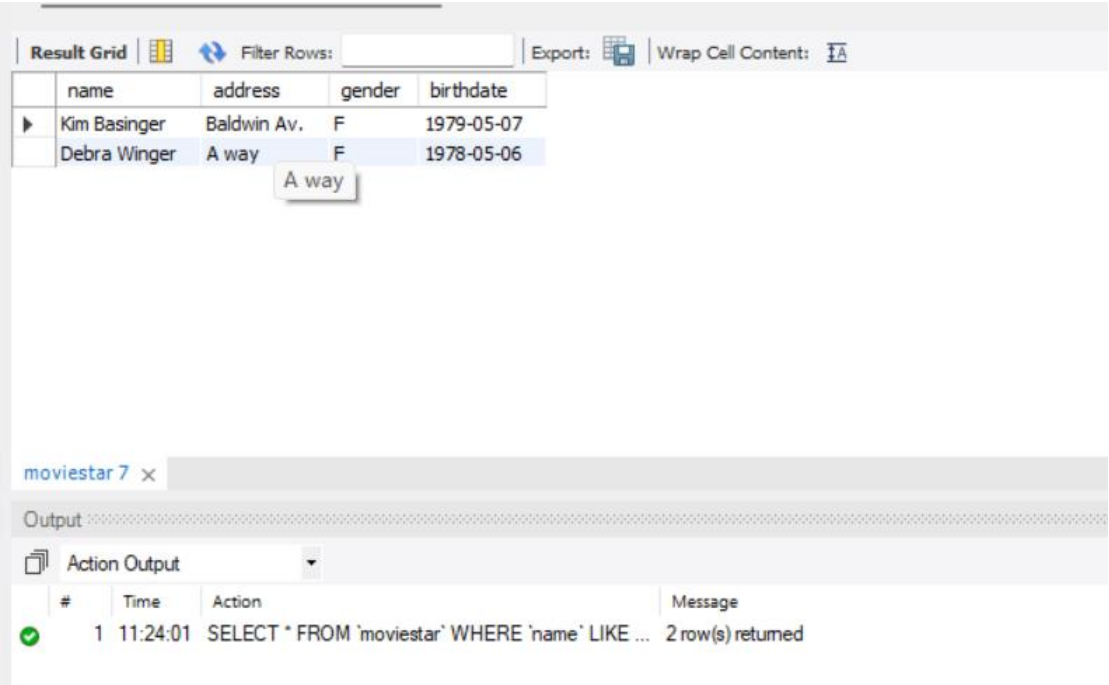
SQL ANSWER: **SELECT ***

FROM `moviestar`

WHERE `name` LIKE '%er' AND `gender`='F';

RESULTING

PICTURE:



11). Find all the movies that were either made in 1977 or by ‘MGM’

SQL ANSWER: **SELECT ***

FROM `movies`

WHERE `year` = 1977 OR `studioname`='MGM';

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

title	year	length	movietype	studioname	producerC
Gone With the Wind	1938	238	drama	MGM	123
Logan's run	1977	120	drama	MGM	888
Star Wars	1977	124	sciFic	Fox	555
Terms of Endearment	1983	132	drama	MGM	123
The Usual Suspects	1995	106	drama	MGM	999

movies 8

Output

Action Output

#	Time	Action	Message
1	11:24:01	SELECT * FROM `moviestar` WHERE `name` LIKE ...	2 row(s) returned
2	11:27:32	SELECT * FROM `movies` WHERE `year` = 1977 O...	5 row(s) returned

12). Find movies stars who acted in the movie "Star something" ,this something has 4 characters,return all columns.

SQL ANSWER: **SELECT ***

FROM `movies`

WHERE `title` LIKE 'Star ____';

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

title	year	length	movietype	studioname	producerC
Star Trek	1979	NULL	sciFic	Paramount	444
Star Wars	1977	124	sciFic	Fox	555

sciFic

movies 9

Output

Action Output

#	Time	Action	Message
1	11:28:46	SELECT * FROM `movies` WHERE `title` LIKE 'Star...	2 row(s) returned

13). Find movies stars whose name after 'Jane'

SQL ANSWER: **SELECT ***

FROM `moviestar`

WHERE `name` LIKE 'Jane%';

RESULTING

PICTURE:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	address	gender	birthdate
Jane Fonda	Turner Av.	F	1977-07-07

moviestar 10

Output

Action Output

#	Time	Action	Message
1	11:28:46	SELECT * FROM `movies` WHERE `title` LIKE 'Star...	2 row(s) returned
2	11:30:37	SELECT * FROM `moviestar` WHERE `name` LIKE ...	1 row(s) returned

14). Find movies stars who acted in some movies not before 1980, return name uniquely

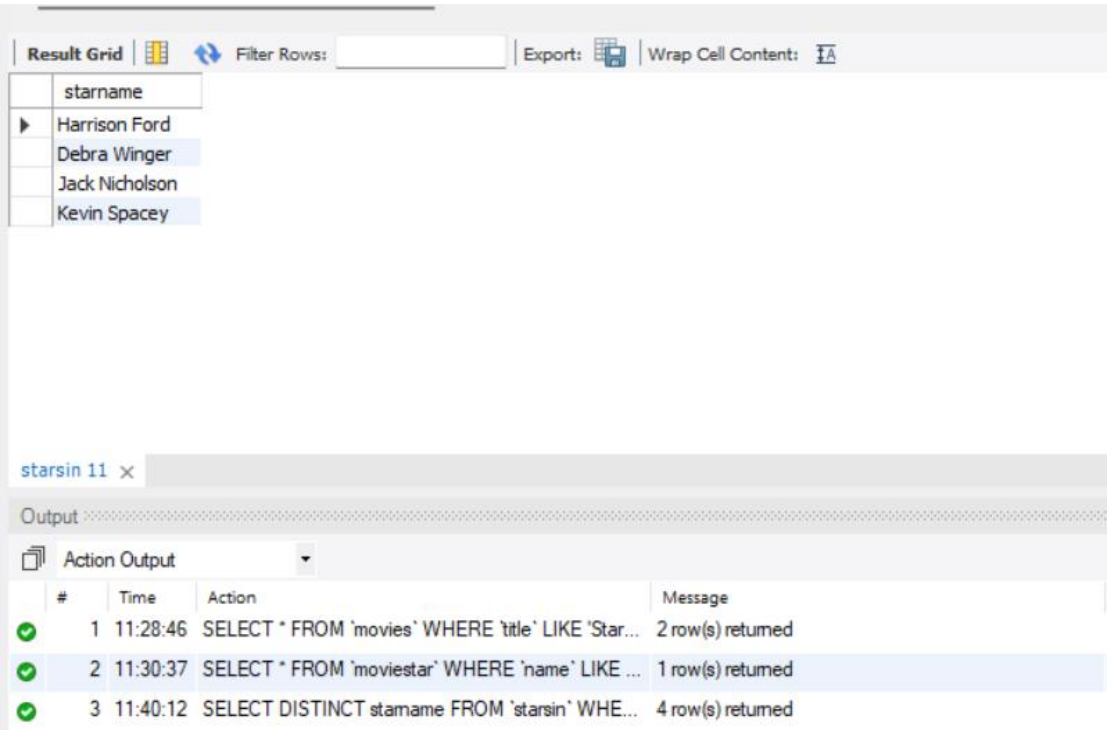
SQL ANSWER: **SELECT DISTINCT starname**

FROM `starsin`

WHERE `movieyear`>=1980;

RESULTING

PICTURE:



Part2: Write SQL command to define the table FoxMovies with the same schema as that in movies tables.;

15). Write one command to add all movies that were produced by Fox studio in the table movies to the new table(FoxMovies);.

SQL ANSWER: **CREATE TABLE `FoxMovie`(**

`title` varchar(30) ,

`year` int ,

`length` int,

`movietype` varchar(30) ,

`studioname` varchar(30) ,

`producerC` int

);

INSERT INTO `FoxMovie`

SELECT *

FROM `movies`

WHERE `studioname`='Fox';

RESULTING PICTURE(list the information from FoxMovies**)**

```
CREATE TABLE `FoxMovie`(
    `title` varchar(30) ,
    `year` int ,
    `length` int,
    `movietype` varchar(30) ,
    `studioname` varchar(30) ,
    `producerC` int
);

INSERT INTO `FoxMovie`
SELECT *
FROM `movies`
WHERE `studioname`='Fox';
```

Action Output

#	Time	Action	Message	Duration / Fetch
2	11:30:37	SELECT * FROM 'moviestar' WHERE 'name' LIK...	1 row(s) returned	0.000 sec / 0.000 se
3	11:40:12	SELECT DISTINCT stamame FROM 'starsin' WH...	4 row(s) returned	0.016 sec / 0.000 se
4	11:43:07	INSERT INTO 'FoxMovie' SELECT * FROM 'mo...	Error Code: 1146. Table 'my_movies_database.fox...	0.000 sec
5	11:46:18	CREATE TABLE 'FoxMovie'('title' varchar(30) , '...	0 row(s) affected	0.000 sec
6	11:46:21	INSERT INTO 'FoxMovie' SELECT * FROM 'mo...	2 row(s) affected Records: 2 Duplicates: 0 Warni...	0.000 sec

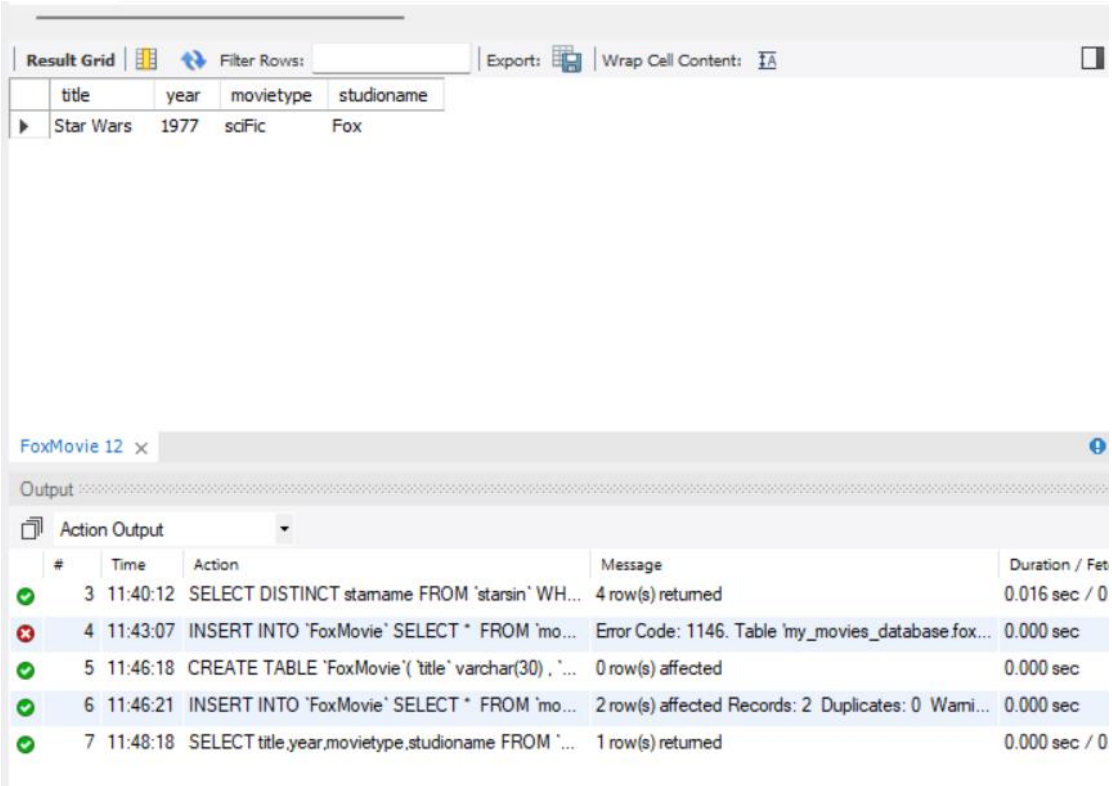
16). Find movies of sciFic type from FoxMovies table, return title, year, movitype and studioname;

SQL ANSWER: **SELECT title,year,movietype,studioname**

FROM `FoxMovie`

WHERE `movietype`='sciFic';

RESULTING PICTURE



notice:

1..Hand in your answer file with the PDF format and name as exp2_ID(ID should be replaced by your own student ID);

2.The electronic version of your document should be handed in before due time in pdf format.