

**CSCI 5333 DBMS**  
**Fall 2021**  
**Homework #7**

**Views and Stored Subroutines**

This assignment refers to the Sakila database that comes preloaded with MySQL installation. Refer to the documentation at: <http://dev.mysql.com/doc/sakila/en/>. For local development in your computer, download the database at <http://downloads.mysql.com/docs/sakila-db.zip> to review the SQL statements for declaring and populating the database. (Note that XAMPP does not include Sakila and you will need to install it yourself.)

(1) Write a view f21v1 that include the film\_id of every film, together with the number of actors, the number of copies in the inventory and the number of rentals of the film. Note the names of the output columns For example:

```
MariaDB [sakila]> SELECT *
-> FROM f21v1
-> WHERE film_id < 7
-> ORDER BY film_id ASC;
```

film_id	numActors	numCopies	numRentals
1	10	8	23
2	4	3	7
3	5	4	12
4	5	7	23
5	5	3	12
6	7	6	21

6 rows in set (0.005 sec)

(2) Provide the SQL statement to show information about every category in the following manner. For example, the column 'max numCopies' show the number of copies of the film in the category with the greatest number of copies in the inventory. You must use the view f21v1 defined in (1).

category_id	category	max numActors	max numCopies	max numRentals
1	Action	12	8	30
2	Animation	12	8	32
3	Children	11	8	31
4	Classics	13	8	31
5	Comedy	13	8	31
6	Documentary	10	8	31
7	Drama	13	8	31
8	Family	10	8	31
9	Foreign	12	8	33
10	Games	15	8	32
11	Horror	12	8	30
12	Music	10	8	32
13	New	11	8	32
14	Sci-Fi	13	8	31
15	Sports	13	8	29
16	Travel	13	8	34

16 rows in set (0.074 sec)

(3) Write a function f21f1 to return the rental ratio of all films of a category: the total number of rentals of all films in the category divided by the total number of inventory copies of all films in the category.

```
CREATE FUNCTION f21f1 (  
    category_id INT) RETURNS DOUBLE
```

You *must use* the view you defined in question (1). For example:

```
MariaDB [sakila]> SELECT f21f1(1);  
+-----+  
| f21f1(1) |  
+-----+  
| 3.564102564 |  
+-----+  
1 row in set (0.010 sec)
```

```
MariaDB [sakila]> SELECT f21f1(2);  
+-----+  
| f21f1(2) |  
+-----+  
| 3.480597014 |  
+-----+  
1 row in set (0.009 sec)
```

### Submission:

Submit your homework through Blackboard with a sql file <<Yourname>><<YourStudentID>>\_h7.sql containing all SQL statements. You may need to add the extension '.txt' at the end of your final name for successful submission to Blackboard. Your sql file should be executable directly under MySQL/MariaDB.