exercises

introduction

these are light exercises for a 2 hour workshop, "*from zero to query*", using the `sakila` training database with `sqlite` . there is no expectation that the participants finish all of these exercises in the time available. the solutions to these exercises are found in the `solutions/` folder.

the exercises below practice a specific aspect of the `SELECT` statement and are meant to build towards preparing answering the question:

```
"which top 10 actors were rented out the greatest number of times, count
```

01 retrieve table contents

- get a list of tables with `.tables`
- explore all columns of the `category` table, using `SELECT * FROM <tablename>`
- explore the first 5 records of each table
- rename the columns on output with: `SELECT col AS colname FROM table`

02 aggregate functions: COUNT, SUM, AVG, MIN, MAX

- use `COUNT(*)` for a count of records.
- use `COUNT(DISTINCT <colname>)` for a count of distinct values in column.
- out 200 actors how many distinct first names are there?
- out 200 actors how many distinct surnames are there?
- how many pricing tiers are there for a film's replacement cost?
- how much would it cost to buy one copy of all the films?
- what is the average replacement cost of all the films?
- what is the maximum replacement cost of all the films?
- what is the minimum replacement cost of all the films?
- how long are the films, generally?
- what date range does our rental dataset cover?

- what range does the rental rate span?

03 filter by WHERE condition

- only show me the 'G' rated films: use a single '=' for exact match
- what is the name of the country with country_id=97?
- what is the title of the film with film_id=97?
- use <> to exclude matches: how many films are there that don't have an 'R' rating?
- can also use !=: use it to show how many films are there that don't have an '' rating?
- what is the least replacement cost of a film whose price exceeds £12?
- use IN (elem1, elem2, ...) to test membership in a list.
- what is the total length of films that are not rated 'R' nor 'NC-17'?
- use LIKE and '%' wildcard for approximate string matches
- wassisname, that actor... begins with jo... something?
- use BETWEEN ... AND to constrain a quantitative to a range: how many films are between 80 and 90 minutes long, inclusive?
- show me films that are between 80 and 81 minutes long, inclusive?
- how many rentals were made between '2005-12-15' and '2005-12-31'
- you can string together multple conditions using brackets, and logical the operators: AND, OR
- you can string together multple conditions using brackets, and logical the operators: AND, OR ## 04 ORDER BY... LIMIT n
- what are the top 20 longest films?
- which film has the highest price per minute of footage?
- which film has the lowest price per minute of footage?
- which three films have the highest rental rate per minute of feature length?

05 JOINs

- `INNER JOIN` two tables to return rows where key value is matched in both tables.
- show the country name that each city belongs to, using `country_id` as the key
- show a table of `title` and `language` of some 10 'R' rated films
- which `language` are the 15 longest films in?
- you can join multiple tables together in one go: show the title and category of 'G' and 'PG' films between 85 min and 90 min long

06 GROUP BY

- how many films are there of each rating?
- what is the total replacement cost of all
- how many films are there at each price point?

- which are the most/least common?
- how many films have each rental duration allowed?

final challenge:

- which top 10 actors were rented out the greatest number of times, counting only 'R' rated films made in 2006?