# Joins Exercise 5-2

## Using sakila database - Checkpoint Lab

1. Get a list of all film titles and their inventory number – even those we don't have.
   - You might like to limit the output to 200 to check you have everything looking like this

| title | inventory_id |
|---|---|
| ACADEMY DINOSAUR | 1 |
| ACADEMY DINOSAUR | 2 |
| ACADEMY DINOSAUR | 3 |
| ACADEMY DINOSAUR | 4 |
| ACADEMY DINOSAUR | 5 |
| ACADEMY DINOSAUR | 6 |
| ACADEMY DINOSAUR | 7 |
| ACADEMY DINOSAUR | 8 |

2. Which films do we ***not*** have in stock?
   - There are 42 records beginning with:

| title |
|---|
| ALICE FANTASIA |
| APOLLO TEEN |
| ARGONAUTS TOWN |
| ARK RIDGEMONT |
| ARSENIC INDEPENDENCE |
| BOONDOCK BALLROOM |
| BUTCH PANTHER |
| CATCH AMISTAD |

3. List the number of films in which each actor has featured (sort the output in descending order of the number of films)

| first_name | last_name | film_count |
|---|---|---|
| GINA | DEGENERES | 42 |
| WALTER | TORN | 41 |
| MARY | KEITEL | 40 |
| MATTHEW | CARREY | 39 |
| SANDRA | KILMER | 37 |
| SCARLETT | DAMON | 36 |
| VAL | BOLGER | 35 |

### *Techniques from this week*

4. The store uses a formula to calculate the return-on-investment (or ROI) which is (rental_rate / replacement_cost * 100). List the films, rental replacement cost and ROI which have an ROI more than 10. Order by ROI. ***Only have the formula once in the query***

| title | rental_rate | replacement_cost | roi |
|---|---|---|---|
| ARIZONA BANG | 2.99 | 28.99 | 10.313901 |
| MONSTER SPARTACUS | 2.99 | 28.99 | 10.313901 |
| ICE CROSSING | 2.99 | 28.99 | 10.313901 |
| FOREVER CANDIDATE | 2.99 | 28.99 | 10.313901 |
| SEABISCUIT PUNK | 2.99 | 28.99 | 10.313901 |
| RIDER CADDYSHACK | 2.99 | 28.99 | 10.313901 |
| ZOOLANDER FICTION | 2.99 | 28.99 | 10.313901 |

5. List the maximum, minimum and average film replacement cost using subselects in the select clause only (do not use a FROM clause in the main query) – yes this is silly.

| Max | Min | avg |
|---|---|---|
| 29.99 | 9.99 | 19.984000 |

## Student Database on SQLite

### *Techniques from earlier this week*

Not trivial, you'll have to work on these.

6. List the students as pairs who come from the same sized high school. Order by school size.
   - Only list one pair of each student e.g. if you have Alice and Bob in a record don't also list Bob and Alice (unless they are different students – we have two different AMY's).
   - Work through this in stages – removing redundant pairs is the last step. You might like to display more information while developing the query (e.g. sid)

| Student1 | Student2 | School Size |
|---|---|---|
| Gary | Helen | 800 |
| Amy | Doris | 1000 |
| Amy | Amy | 1000 |
| Doris | Amy | 1000 |
| Bob | Jay | 1500 |
| Craig | Edward | 2000 |

7. List each student that has made an application and the number of ITP's they have applied to.
   - This is a simple inner join but I did use something introduced in passing today to get this.

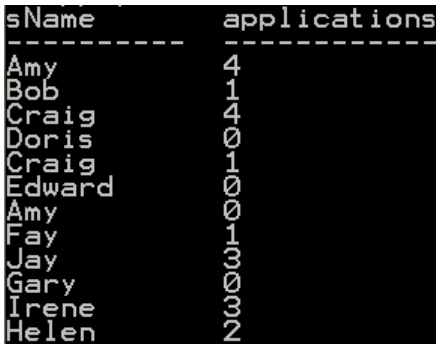
| sName | ITP_Count |
|---|---|
| Amy | 3 |
| Bob | 1 |
| Craig | 2 |
| Fay | 1 |
| Helen | 2 |
| Irene | 2 |
| Jay | 2 |

### *Subqueries and Outer Joins*

8. Which students have not applied anywhere?

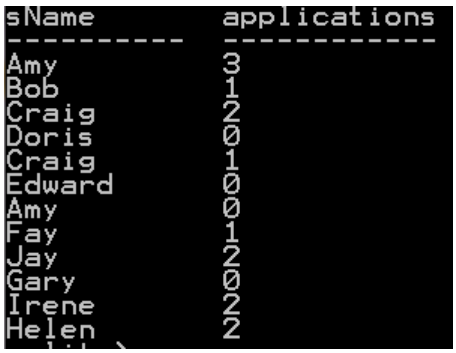
| sName |
|---|
| Doris |
| Edward |
| Gary |
| Amy |

9. List a count of the number of applications made by each student



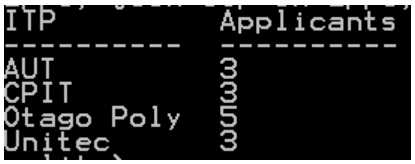
| sName | applications |
|---|---|
| Amy | 4 |
| Bob | 1 |
| Craig | 4 |
| Doris | 0 |
| Craig | 1 |
| Edward | 0 |
| Amy | 0 |
| Fay | 1 |
| Jay | 3 |
| Gary | 0 |
| Irene | 3 |
| Helen | 2 |

10. List the number of institutions that each student has applied to:



| sName | applications |
|---|---|
| Amy | 3 |
| Bob | 1 |
| Craig | 2 |
| Doris | 0 |
| Craig | 1 |
| Edward | 0 |
| Amy | 0 |
| Fay | 1 |
| Jay | 2 |
| Gary | 0 |
| Irene | 2 |
| Helen | 2 |

11. How many students have applied to each institution?



| ITP | Applicants |
|---|---|
| AUT | 3 |
| CPIT | 3 |
| Otago Poly | 5 |
| Unitec | 3 |