

Part A

A1
SELECT rental_id
FROM rental
JOIN inventory USING(inventory_id)
JOIN film using(film_id)
WHERE rental_date + INTERVAL rental_duration DAY < return_date

A2 (Output is 7740)
SELECT COUNT(rental_id)
FROM rental
JOIN inventory USING(inventory_id)
JOIN film using(film_id)
WHERE rental_date + INTERVAL rental_duration DAY >= return_date

A3
SELECT category_id, name, (COUNT(film_id)) AS numflims
FROM category
JOIN sakila.film_category USING (category_id)
GROUP BY category_id;

A4 (Out put 162 records)

SELECT First_name, last_name, actor_id, name AS category, (COUNT(film_id)) AS num_dramamovie_in
FROM sakila.film_actor
JOIN actor USING (actor_id)
JOIN film_category USING (film_id)
JOIN category USING (category_id)
WHERE name = "Drama"
GROUP BY actor_id

A5
SELECT city_id, city, (COUNT(address_id)) AS numofcustomer
FROM city
JOIN address USING (city_id)
GROUP BY (city)
ORDER BY COUNT(address_id) DESC

A6
SELECT customer_id, first_name, last_name, (COUNT(rental_id)) AS nums_rent
FROM sakila.rental
JOIN sakila.customer USING (customer_id)
GROUP BY customer_id
ORDER BY nums_rent DESC
LIMIT 20;

Results:

First row and last row only

customer_id	first_name	last_name	nums_rent
148	ELEANOR	HUNT	46
267	MARGIE	WADE	36

A7

```
SELECT (COUNT(rental_id)) AS times_rent,title  
FROM rental  
JOIN inventory USING (inventory_id)  
JOIN film USING (film_id)  
GROUP BY film_id  
ORDER BY times_rent DESC  
LIMIT 5;
```

Results:

times_rent	title
34	BUCKET BROTHERHOOD
33	ROCKETEER MOTHER
32	RIDGEMONT SUBMARINE
32	GRIT CLOCKWORK
32	SCALAWAG DUCK

A8

```
SELECT CONCAT(first_name,',',last_name) AS actor,title  
FROM film_actor  
JOIN actor USING (actor_id)  
JOIN film USING (film_id)  
ORDER BY actor
```

A9

```
SELECT name, (SUM(count)) AS total_count  
FROM (  
SELECT actor_id,(CONCAT(last_name,' ',first_name)) AS name,film_id  
FROM actor  
JOIN film_actor USING(actor_id)) S1  
JOIN (  
SELECT (COUNT(rental_id)) as count,film_id  
FROM rental  
JOIN inventory USING(inventory_id)  
JOIN film USING (film_id)  
GROUP BY film_id) S2  
ON S1.film_id = S2.film_id  
GROUP BY name  
ORDER BY total_count DESC  
LIMIT 5
```

Results:

name	total_count
DAVIS SUSAN	825
DEGENERES GINA	753
CARREY MATTHEW	678
KEITEL MARY	674
WITHERSPOON ANGELA	654

A10

```
SELECT (SUM(amount)) AS revenue,film_id,title
FROM payment
JOIN rental USING(rental_id)
JOIN inventory USING(inventory_id)
JOIN film USING(film_id)
GROUP BY film_id
ORDER BY revenue DESC
LIMIT 5
```

Results:

revenue	film_id	title
231.73	879	TELEGRAPH VOYAGE
223.69	973	WIFE TURN
214.69	1000	ZORRO ARK
209.69	369	GOODFELLAS SALUTE
204.72	764	SATURDAY LAMBS

A11

```
SELECT rental_id,title
FROM rental
LEFT JOIN inventory
ON rental.inventory_id = inventory.inventory_id
JOIN film USING(film_id)
```

A12

```
SELECT customer_id,rental_id
FROM payment
WHERE rental_id IN(SELECT rental_id FROM rental JOIN inventory USING(inventory_id) JOIN film
using(film_id) WHERE rental_date + INTERVAL rental_duration DAY < return_date);
```

PART B

Output for timestamps, hided other columns

first_name	last_name	date_entered	student_id
Ada	Lang	2019-11-11 12:07:32	1
Juan	Garcia	2019-11-11 12:42:53	2
Juan	Garcia	2019-11-11 12:46:25	3
Shelly	Johnson	2019-11-11 12:46:25	4
Bobby	Briggs	2019-11-11 12:46:25	5
Donna	Hayward	2019-11-11 12:46:25	6
Audrey	Horne	2019-11-11 12:46:25	7
James	Hurley	2019-11-11 12:46:25	8
Lucy	Moran	2019-11-11 12:46:25	9
Moonna	Kim	2019-11-11 12:46:25	10
Tommy	Hill	2019-11-11 12:46:25	11
Andy	Brennan	2019-11-11 12:46:25	12
Wenbo	Pan	2019-11-11 12:46:25	13

Two non-trivial queries, each retrieve data from multiple tables

```
SELECT test_id,class_id,class_name
FROM tests
JOIN classes USING(class_id)
```

```
SELECT student_id,(CONCAT(first_name,last_name)) AS name,score
FROM scores
JOIN students USING(student_id)
```