DVD rental data processing using SQL

Tools: PostgreSQL and Dbeaver

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TABLE - CUSTOMER DVD RENTAL

599 ROW

	cu	st	first_name	last_name	email	address_id	activebool	cr
1	524	1	Jared	Ely	jared.ely@sakilacustomer.org	530	[v]	
2	1	1	Mary	Smith	mary.smith@sakilacustomer.org	5	[v]	
3	2	1	Patricia	Johnson	patricia.johnson@sakilacustomer.org	6	[v]	
4	3	1	Linda	Williams	linda.williams@sakilacustomer.org	7	[v]	
5	4	2	Barbara	Jones	barbara.jones@sakilacustomer.org	8	[v]	
6	5	1	Elizabeth	Brown	elizabeth.brown@sakilacustomer.org	9	[v]	
7	6	2	Jennifer	Davis	jennifer.davis@sakilacustomer.org	10	[v]	
8	7	1	Maria	Miller	maria.miller@sakilacustomer.org	11	[v]	
9	8	2	Susan	Wilson	susan.wilson@sakilacustomer.org	12	[v]	
10	9	2	Margaret	Moore	margaret.moore@sakilacustomer.org	13	[v]	
11	10	1	Dorothy	Taylor	dorothy.taylor@sakilacustomer.org	14	[v]	
12	11	2	Lisa	Anderson	lisa.anderson@sakilacustomer.org	15	[v]	
13	12	1	Nancy	Thomas	nancy.thomas@sakilacustomer.org	16	[v]	
14	13	2	Karen	Jackson	karen.jackson@sakilacustomer.org	17	[v]	
15	14	2	Betty	White	betty.white@sakilacustomer.org	18	[v]	
16	15	1	Helen	Harris	helen.harris@sakilacustomer.org	19	[v]	
17	16	2	Sandra	Martin	sandra.martin@sakilacustomer.org	20	[v]	
18	17	1	Donna	Thompson	donna.thompson@sakilacustomer.org	21	[v]	
19	18	2	Carol	Garcia	carol.garcia@sakilacustomer.org	22	[v]	
20	19	1	Ruth	Martinez	ruth.martinez@sakilacustomer.org	23	[v]	

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- **Show the first_name and last_name of actors whose first_name is Jennifer, Nick, or Ed.**

Queries

```
select
first_name,
last_name
from
    actor
where
    first_name in ('Jennifer','Nick', 'Ed')
order by
first_name desc;
```

Result

first_name	last_name
Nick	Stallone
Nick	Wahlberg
Nick	Degeneres
Jennifer	Davis
Ed	Guiness
Ed	Mansfield
Ed	Chase

- **Calculate the Total Amount for each payment_id where the Total Amount is greater than 5.99**

Queries

```sql
select
    payment_id,
    sum(amount)total_amount
from
    payment
group by
    payment_id
having
    sum(amount)>5.99
order by
    payment_id desc;
```

Result

	payment_id	total_amount
1	32,062	7.98
2	32,059	7.98
3	32,038	8.97
4	32,033	9.98
5	32,029	7.98
6	31,941	7.98
7	31,917	7.98
8	31,912	6.99
9	31,899	6.99
10	31,895	9.99
11	31,893	7.99
12	31,885	8.99
13	31,881	8.99
14	31,878	6.99
15	31,864	6.99
16	31,862	6.99
17	31,861	7.99
18	31,859	7.99
19	31,841	7.99
20	31,836	6.99
21	31,833	7.99
22	31,832	6.99
23	31,831	6.99
24	31,829	7.99

- **Show film.id, film.title, film.description, and film_length. Group film_length into 4 categories (over 100, 87-100, 72-86, and under 72).**

Queries

```sql
select
film_id,
title,
description,
length,
case
    when length > 100 then 'movies'
    when length >= 87 and length <= 100 then 'Short-movies'
    when length >= 72 and length <= 86 then 'Series'
    when length <72 then 'Mini-series'
end Movie_Type
from
    film
order by
title asc;
```

Result

	film_id	title	description	length	movie_type
1	1	Academy Dinosaur	A Epic Drama of a Feminist And	86	Series
2	2	Ace Goldfinger	A Astounding Epistle of a Databa	48	Mini-series
3	3	Adaptation Holes	A Astounding Reflection of a Lur	50	Mini-series
4	4	Affair Prejudice	A Fanciful Documentary of a Fris	117	movies
5	5	African Egg	A Fast-Paced Documentary of a I	130	movies
6	6	Agent Truman	A Intrepid Panorama of a Robot	169	movies
7	7	Airplane Sierra	A Touching Saga of a Hunter An	62	Mini-series
8	8	Airport Pollock	A Epic Tale of a Moose And a Gir	54	Mini-series
9	9	Alabama Devil	A Thoughtful Panorama of a Dat	114	movies
10	10	Aladdin Calendar	A Action-Packed Tale of a Man A	63	Mini-series
11	11	Alamo Videotape	A Boring Epistle of a Butler And a	126	movies
12	12	Alaska Phantom	A Fanciful Saga of a Hunter And	136	movies
13	13	Ali Forever	A Action-Packed Drama of a Der	150	movies
14	14	Alice Fantasia	A Emotional Drama of a A Shark	94	Short-movies
15	15	Alien Center	A Brilliant Drama of a Cat And a I	46	Mini-series
16	16	Alley Evolution	A Fast-Paced Drama of a Robot A	180	movies
17	17	Alone Trip	A Fast-Paced Character Study of	82	Series
18	18	Alter Victory	A Thoughtful Drama of a Compc	57	Mini-series
19	19	Amadeus Holy	A Emotional Display of a Pioneer	113	movies
20	20	Amelie Hellfighters	A Boring Drama of a Woman An	79	Series
21	21	American Circus	A Insightful Drama of a Girl And	129	movies
22	22	Amistad Midsumme	A Emotional Character Study of a	85	Series
23	23	Anaconda Confessic	A Lacklusture Display of a Dentis	92	Short-movies

- **From the rental and payment tables, show 10 rows of rental_id, rental_date, payment_id, and amount, ordered by amount in ascending order.**

Queries

```
select
    rental.rental_id,
    rental.rental_date,
    payment.payment_id,
    payment.amount
from
    rental
join
    payment
        on rental.rental_id = payment.rental_id
order by
payment.amount asc
limit 10;
```

Result

	rental_id	rental_date	payment_id	amount
1	13,577	2006-02-14 15:16:03.000	31,966	0
2	14,425	2006-02-14 15:16:03.000	31,996	0
3	12,959	2006-02-14 15:16:03.000	31,925	0
4	14,769	2006-02-14 15:16:03.000	31,946	0
5	14,516	2006-02-14 15:16:03.000	31,970	0
6	12,915	2006-02-14 15:16:03.000	31,983	0
7	13,713	2006-02-14 15:16:03.000	31,918	0
8	12,610	2006-02-14 15:16:03.000	31,920	0
9	11,782	2006-02-14 15:16:03.000	31,942	0
10	13,464	2006-02-14 15:16:03.000	32,001	0

- **Displaying the names of customers with return times exceeding the return deadline (7 days).**

```sql
SELECT
    CONCAT(customer.first_name, ' ', customer.last_name) AS name,
    rental.return_date,
    (rental.return_date - rental.rental_date) AS rental_duration
FROM
    customer
JOIN
    rental ON customer.customer_id = rental.customer_id
WHERE
    (rental.return_date - rental.rental_date) > INTERVAL '7 days'
ORDER BY
   rental_duration desc;
```

Result

	name	return_date	rental_duration
1	Martin Bales	2005-08-31 02:11:43.000	9 days 05:59:00
2	Elaine Stevens	2005-06-27 22:57:58.000	9 days 05:59:00
3	Vera Mccoy	2005-08-29 23:44:06.000	9 days 05:58:00
4	James Gannon	2005-08-26 10:25:24.000	9 days 05:58:00
5	Jacqueline Long	2005-08-06 16:19:52.000	9 days 05:58:00
6	Pearl Garza	2005-08-30 19:05:10.000	9 days 05:58:00
7	Ashley Richardson	2005-08-09 21:24:47.000	9 days 05:56:00
8	Brittany Riley	2005-07-19 17:46:51.000	9 days 05:56:00
9	Chris Brothers	2005-07-15 23:58:16.000	9 days 05:55:00
10	Connie Wallace	2005-08-27 06:31:09.000	9 days 05:55:00
11	Reginald Kinder	2005-06-28 06:57:07.000	9 days 05:54:00
12	Andrew Purdy	2005-08-08 23:57:13.000	9 days 05:54:00
13	Edith Mcdonald	2005-07-20 11:45:50.000	9 days 05:53:00
14	William Satterfield	2005-06-27 09:19:03.000	9 days 05:52:00
15	Cory Meehan	2005-09-01 10:25:23.000	9 days 05:52:00
16	Todd Tan	2005-08-07 10:33:44.000	9 days 05:52:00
17	Darren Windham	2005-08-31 11:43:39.000	9 days 05:51:00
18	Karen Jackson	2005-08-08 04:28:41.000	9 days 05:51:00
19	Stacey Montgomer	2005-07-01 01:09:17.000	9 days 05:49:00
20	Stella Moreno	2005-08-06 19:37:38.000	9 days 05:49:00
21	Willie Howell	2005-07-19 17:40:50.000	9 days 05:49:00
22	Rafael Abney	2005-06-28 23:52:18.000	9 days 05:48:00
23	Wendy Harrison	2005-08-10 15:50:17.000	9 days 05:47:00
24	Jeanne Lawson	2005-08-11 23:29:40.000	9 days 05:47:00

- **Displaying the names of customers who borrowed more than once on Mondays**

```sql
with monday_customer as (
SELECT
    customer_id
FROM
    rental
WHERE
    EXTRACT(DOW FROM rental_date) = 1
GROUP BY
    customer_id
HAVING
    COUNT(EXTRACT(DOW FROM rental_date) = 1) > 1
)
select
    concat(customer.first_name,' ',customer.last_name) as name
from
    customer
inner join
    monday_customer on monday_customer.customer_id = customer.customer_id
order by
    name asc;
```

Result

- **Checking whether those customers actually rented on Mondays and more than once.**

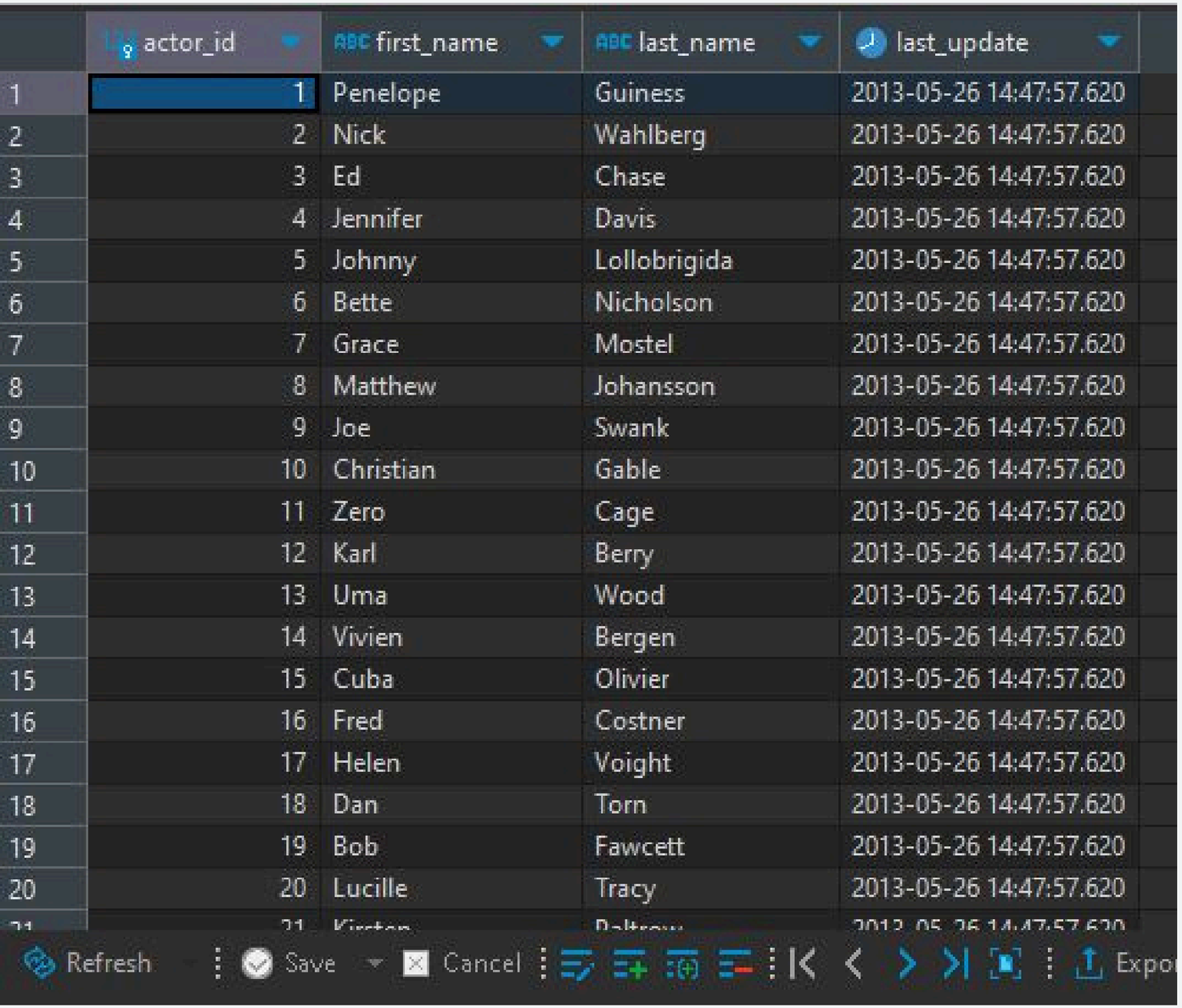
Queries

```sql
select
    concat(customer.first_name,' ',customer.last_name) as name,
    rental.rental_date
from
    rental
inner join
    customer on rental.customer_id = customer.customer_id
where
     EXTRACT(DOW FROM rental_date)=1
order by
    customer.first_name asc;
```

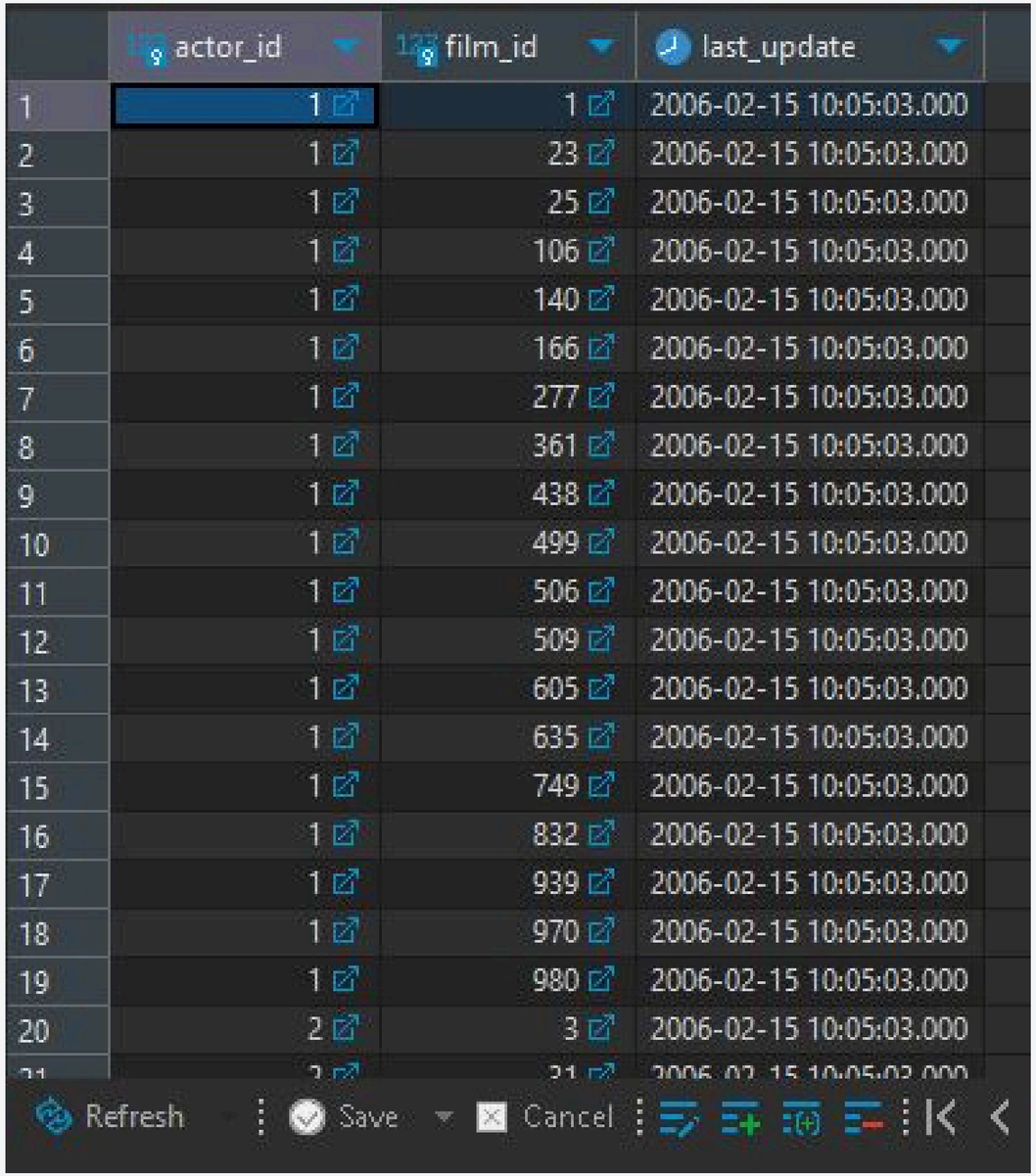
Result

	name	rental_date
1	Aaron Selby	2005-08-01 17:10:54.000
2	Aaron Selby	2005-08-01 15:44:51.000
3	Aaron Selby	2005-08-22 08:15:21.000
4	Aaron Selby	2005-08-01 14:11:09.000
5	Aaron Selby	2005-05-30 05:15:20.000
6	Aaron Selby	2005-08-01 03:16:51.000
7	Adam Gooch	2005-08-01 05:18:23.000
8	Adam Gooch	2005-05-30 14:49:34.000
9	Adam Gooch	2005-07-11 13:58:36.000
10	Adam Gooch	2005-06-20 15:09:48.000
11	Adrian Clary	2005-08-01 10:53:16.000
12	Adrian Clary	2005-07-11 06:23:28.000
13	Adrian Clary	2005-07-11 22:17:16.000
14	Adrian Clary	2005-08-22 14:32:25.000
15	Agnes Bishop	2005-08-22 19:02:48.000
16	Agnes Bishop	2005-08-01 23:29:58.000
17	Agnes Bishop	2005-08-22 12:35:40.000
18	Agnes Bishop	2005-08-01 13:52:30.000
19	Alan Kahn	2005-07-11 07:01:35.000
20	Alan Kahn	2005-08-01 01:07:27.000
21	Albert Crouse	2005-08-22 02:25:53.000
22	Albert Crouse	2005-07-11 19:10:38.000
23	Alberto Henning	2005-08-01 18:04:18.000
24	Alberto Henning	2005-08-22 10:55:42.000

- **The Actor and Film_Actor tables to be used for the next analysis.**



	actor_id	first_name	last_name	last_update
1	1	Penelope	Guiness	2013-05-26 14:47:57.620
2	2	Nick	Wahlberg	2013-05-26 14:47:57.620
3	3	Ed	Chase	2013-05-26 14:47:57.620
4	4	Jennifer	Davis	2013-05-26 14:47:57.620
5	5	Johnny	Lollobrigida	2013-05-26 14:47:57.620
6	6	Bette	Nicholson	2013-05-26 14:47:57.620
7	7	Grace	Mostel	2013-05-26 14:47:57.620
8	8	Matthew	Johansson	2013-05-26 14:47:57.620
9	9	Joe	Swank	2013-05-26 14:47:57.620
10	10	Christian	Gable	2013-05-26 14:47:57.620
11	11	Zero	Cage	2013-05-26 14:47:57.620
12	12	Karl	Berry	2013-05-26 14:47:57.620
13	13	Uma	Wood	2013-05-26 14:47:57.620
14	14	Vivien	Bergen	2013-05-26 14:47:57.620
15	15	Cuba	Olivier	2013-05-26 14:47:57.620
16	16	Fred	Costner	2013-05-26 14:47:57.620
17	17	Helen	Voight	2013-05-26 14:47:57.620
18	18	Dan	Torn	2013-05-26 14:47:57.620
19	19	Bob	Fawcett	2013-05-26 14:47:57.620
20	20	Lucille	Tracy	2013-05-26 14:47:57.620



	actor_id	film_id	last_update
1	1	1	2006-02-15 10:05:03.000
2	1	23	2006-02-15 10:05:03.000
3	1	25	2006-02-15 10:05:03.000
4	1	106	2006-02-15 10:05:03.000
5	1	140	2006-02-15 10:05:03.000
6	1	166	2006-02-15 10:05:03.000
7	1	277	2006-02-15 10:05:03.000
8	1	361	2006-02-15 10:05:03.000
9	1	438	2006-02-15 10:05:03.000
10	1	499	2006-02-15 10:05:03.000
11	1	506	2006-02-15 10:05:03.000
12	1	509	2006-02-15 10:05:03.000
13	1	605	2006-02-15 10:05:03.000
14	1	635	2006-02-15 10:05:03.000
15	1	749	2006-02-15 10:05:03.000
16	1	832	2006-02-15 10:05:03.000
17	1	939	2006-02-15 10:05:03.000
18	1	970	2006-02-15 10:05:03.000
19	1	980	2006-02-15 10:05:03.000
20	2	3	2006-02-15 10:05:03.000

- **Rank actors based on the number of films they have acted in**

Queries

```sql
with total_film as (
select
    actor_id,
    count(film_id) as film_count
from
    film_actor
group by
    actor_id
order by
    film_count desc
)
select
    concat(actor.first_name,' ',actor.last_name) as actor_name,
    film_count,
    dense_rank()over (order by film_count asc) as Rank_by_Count
from
    actor
inner join
    total_film on actor.actor_id = total_film.actor_id;
```

Result

	actor_name	film_count	rank_by_count
1	Emily Dee	14	1
2	Julia Fawcett	15	2
3	Judy Dean	15	2
4	Julia Zellweger	16	3
5	Sissy Sobieski	18	4
6	Adam Grant	18	4
7	Russell Close	19	5
8	Penelope Guiness	19	5
9	Sandra Peck	19	5
10	Cameron Wray	19	5
11	Bette Nicholson	20	6
12	Minnie Kilmer	20	6
13	Thora Temple	20	6
14	Chris Depp	20	6
15	Fay Kilmer	20	6
16	Christopher Berry	20	6
17	Kenneth Pesci	20	6
18	Matthew Johansson	20	6
19	Rita Reynolds	20	6
20	Kevin Bloom	21	7
21	Spencer Peck	21	7
22	Christopher West	21	7
23	Kenneth Paltrow	21	7
24	Susan Davis	21	7

- **Additional from Salary table: Displaying data science job titles in companies of size S that are larger than average**

```sql
SELECT *
FROM ds_salaries
WHERE
    salary_in_usd > (SELECT AVG(salary_in_usd) FROM ds_salaries)
    AND company_size = 'S'
ORDER BY job_title;
```

id	work_year			job_title	salary_in_usd	company_size	salary		employe	remote_ratio	company_location
17	2,020	SE	FT	Big Data Engineer	114,047	S	100,000	EUR	PL	100	GB
149	2,021	SE	FT	Cloud Data Engineer	160,000	S	160,000	USD	BR	100	US
510	2,022	EN	FT	Computer Vision Software Engineer	150,000	S	150,000	USD	AU	100	AU
107	2,021	SE	FT	Data Engineer	115,000	S	115,000	USD	US	100	US
150	2,021	SE	FT	Director of Data Science	168,000	S	168,000	USD	JP	0	JP
265	2,021	SE	FT	Lead Data Engineer	160,000	S	160,000	USD	PR	50	US
9	2,020	SE	FT	Lead Data Engineer	125,000	S	125,000	USD	NZ	50	NZ
375	2,022	EX	FT	Lead Data Engineer	118,187	S	150,000	CAD	CA	100	CA
6	2,020	SE	FT	Lead Data Scientist	190,000	S	190,000	USD	US	100	US
39	2,020	EN	FT	Machine Learning Engineer	138,000	S	138,000	USD	US	100	US
159	2,021	EN	FT	Machine Learning Engineer	125,000	S	125,000	USD	US	100	US
453	2,022	MI	FT	Machine Learning Engineer	120,000	S	120,000	USD	US	100	US
480	2,022	SE	FT	Machine Learning Engineer	120,000	S	120,000	USD	AE	100	AE
1	2,020	SE	FT	Machine Learning Scientist	260,000	S	260,000	USD	JP	0	JP
126	2,021	SE	FT	Machine Learning Scientist	120,000	S	120,000	USD	US	50	US
231	2,021	SE	FT	ML Engineer	256,000	S	256,000	USD	US	100	US
225	2,021	EX	CT	Principal Data Scientist	416,000	S	416,000	USD	US	100	US