

Day 2



WHERE

✓ Used to **FILTER** the data in the output

✓ Always after FROM

SYNTAX

```
SELECT  
column_name1,  
column_name2  
FROM table_name  
WHERE condition
```

SYNTAX

SELECT

*




FROM payment

WHERE amount = 10.99

Data Output		Explain	Messages	Notifications		
	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	16073	276	1	860	10.99	2020-01-30 02:13:42.996577+01
2	16125	304	1	135	10.99	2020-01-25 21:27:24.996577+01
3	16358	433	1	691	10.99	2020-01-29 00:29:52.996577+01

SYNTAX

```
SELECT  
first_name,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
		first_name text 	last_name text 			
1		ADAM	GOOCH			

SYNTAX

```
SELECT  
first_name,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	first_name text	last_name text				
1	ADAM	GOOCH				



Challenge

Challenge

How many payment were made by the customer with customer_id = 100?

What is the last name of our customer with first name 'ERICA'?

Write a SQL query to get the answers

Result

Data Output		Explain
	count bigint	
1	24	

Data Output		Explain	Message
	first_name text	last_name text	
1	ERICA	MATTHEWS	

SYNTAX

SELECT

*

FROM payment

WHERE amount > 10.99

Data Output							Explain	Messages	Notifications
	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone			
1	17055	196	2	106	11.99	2020-01-25 17:46:45.996577+01			
2	17354	305	1	2166	11.99	2020-02-17 23:19:47.996577+01			
3	20403	362	1	14759	11.99	2020-03-21 22:57:24.996577+01			








SYNTAX

SELECT

*

FROM payment

WHERE amount < 10.99

Data Output		Explain	Messages	Notifications		
	 payment_id integer 	customer_id smallint 	staff_id smallint 	rental_id integer 	amount numeric (5,2) 	payment_date timestamp with time zone 
1	16050	269	2	7	1.99	2020-01-24 22:40:19.996577+01
2	16051	269	1	98	0.99	2020-01-25 16:16:50.996577+01
3	16052	269	2	678	6.99	2020-01-28 22:44:14.996577+01

SYNTAX








SELECT

*

FROM payment

WHERE amount < 10.99

ORDER BY amount DESC

Data Output		Explain	Messages	Notifications		
	payment_id integer 	customer_id smallint 	staff_id smallint 	rental_id integer 	amount numeric (5,2) 	payment_date timestamp with time zone 
1	22124	542	2	14982	9.99	2020-03-22 06:49:21.996577+01
2	22127	543	2	11241	9.99	2020-03-02 12:57:50.996577+01
3	29567	51	1	3525	9.99	2020-04-06 00:31:05.996577+02

SYNTAX

SELECT

*

FROM payment

WHERE amount <= 10.99

ORDER BY amount DESC

Data Output		Explain	Messages	Notifications		
	<div>payment_id<div>integer</div></div>	<div>customer_id<div>smallint</div></div>	<div>staff_id<div>smallint</div></div>	<div>rental_id<div>integer</div></div>	<div>amount<div>numeric (5,2)</div></div>	<div>payment_date<div>timestamp with time zone</div></div>
1	23952	136	2	11992	10.99	2020-03-17 17:55:48.996577+01
2	31310	212	2	4708	10.99	2020-04-08 11:27:45.996577+02
3	20817	404	2	15290	10.99	2020-03-22 18:56:28.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE amount >= 10.99

ORDER BY amount DESC

Data Output Explain Messages Notifications

	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	20403	362	1	14759	11.99	2020-03-21 22:57:24.996577+01
2	24866	237	2	11479	11.99	2020-03-02 21:46:39.996577+01
3	17055	196	2	106	11.99	2020-01-25 17:46:45.996577+01








SYNTAX

SELECT

*

FROM payment

WHERE amount != 10.99

Data Output		Explain	Messages	Notifications		
	 payment_id  integer	customer_id  smallint	staff_id  smallint	rental_id  integer	amount  numeric (5,2)	payment_date  timestamp with time zone
1	16050	269	2	7	1.99	2020-01-24 22:40:19.996577+01
2	16051	269	1	98	0.99	2020-01-25 16:16:50.996577+01
3	16052	269	2	678	6.99	2020-01-28 22:44:14.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE amount <> 10.99

Data Output		Explain	Messages	Notifications		
	<div><div><div>payment_id</div><div>integer</div></div><div></div></div>	<div><div><div>customer_id</div><div>smallint</div></div><div></div></div>	<div><div><div>staff_id</div><div>smallint</div></div><div></div></div>	<div><div><div>rental_id</div><div>integer</div></div><div></div></div>	<div><div><div>amount</div><div>numeric (5,2)</div></div><div></div></div>	<div><div><div>payment_date</div><div>timestamp with time zone</div></div><div></div></div>
1	16050	269	2	7	1.99	2020-01-24 22:40:19.996577+01
2	16051	269	1	98	0.99	2020-01-25 16:16:50.996577+01
3	16052	269	2	678	6.99	2020-01-28 22:44:14.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE amount <= 10.99

ORDER BY amount DESC

SYNTAX

```
SELECT  
  first_name,  
  last_name  
FROM customer  
WHERE first_name is null
```

Side note!

Case sensitive or not?

SYNTAX

```
SELECT  
first_name,  
last_name  
FROM customer  
WHERE first_name is not null
```

Side note!

Case sensitive or not?

SYNTAX

```
select  
first_name,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	first_name text	last_name text				
1	ADAM	GOOCH				

Side note!

Case sensitive or not?

SYNTAX

```
seLEcT  
first_name,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	first_name text	last_name text				
1	ADAM	GOOCH				

Side note!

Case sensitive or not?

SYNTAX

```
select  
FIRst_nAme,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	first_name text	last_name text				
1	ADAM	GOOCH				

Side note!

Case sensitive or not?

SYNTAX

```
select  
  "first_name",  
  last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	first_name text	last_name text				
1	ADAM	GOOCH				

SYNTAX

```
select  
  "First_name",  
  last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output Explain Messages Notifications

ERROR: column "First_name" does not exist

LINE 3: "First_name",
 ^

HINT: Perhaps you meant to reference the column "customer.first_name".

SQL state: 42703

Character: 10



Challenge

Challenge

The inventory manager asks you how rentals have not been returned yet (return_date is null).

The sales manager asks you how for a list of all the payment_ids with an amount less than or equal to \$2. Include payment_id and the amount.

Write a SQL query to get the answers!

Result

Data Output		Explain
	count bigint	
1	183	

Data Output		Explain	Message
	payment_id integer	amount numeric (5,2)	
1	16050	1.99	
2	16051	0.99	
3	16053	0.99	
4	16056	1.99	
5	16059	0.99	

AND / OR

✓ Used to **connect** two conditions

SYNTAX

```
SELECT  
column_name1,  
column_name2  
FROM table_name  
WHERE condition1  
AND condition2  
AND condition3
```

Note!

ALL conditions must be
true!

SYNTAX








SELECT

*

FROM payment

WHERE amount = 10.99

AND customer_id = 426

Data Output		Explain	Messages	Notifications		
	payment_id integer 	customer_id smallint 	staff_id smallint 	rental_id integer 	amount numeric (5,2) 	payment_date timestamp with time zone 
1	26978	426	1	7527	10.99	2020-04-27 20:42:54.996577+02
2	26983	426	2	10172	10.99	2020-04-30 22:58:17.996577+02

SYNTAX

SELECT

*

FROM payment

WHERE amount = 10.99

OR amount = 9.99

Data Output Explain Messages Notifications

	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	16073	276	1	860	10.99	2020-01-30 02:13:42.996577+01
2	16125	304	1	135	10.99	2020-01-25 21:27:24.996577+01
3	16160	318	1	224	9.99	2020-01-26 09:46:53.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE amount = 10.99 OR 9.99

Data Output

Explain

Messages

Notifications

ERROR: argument of OR must be type boolean, not type numeric

LINE 6: OR 9.99

^

SQL state: 42804

Character: 53

SYNTAX

SELECT

*

FROM payment

WHERE amount = 10.99

OR amount = 9.99

AND customer_id = 426

Data Output Explain Messages Notifications

	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	16073	276	1	860	10.99	2020-01-30 02:13:42.996577+01
2	16125	304	1	135	10.99	2020-01-25 21:27:24.996577+01
3	16358	433	1	691	10.99	2020-01-29 00:29:52.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE amount = 10.99

OR (amount = 9.99

AND customer_id = 426)

Data Output

Explain

Messages

Notifications

	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	16073	276	1	860	10.99	2020-01-30 02:13:42.996577+01
2	16125	304	1	135	10.99	2020-01-25 21:27:24.996577+01
3	16358	433	1	691	10.99	2020-01-29 00:29:52.996577+01

SYNTAX

SELECT

*

FROM payment

WHERE (amount = 10.99

OR amount = 9.99)




AND customer_id = 426

Data Output Explain Messages Notifications

	payment_id integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp with time zone
1	26978	426	1	7527	10.99	2020-04-27 20:42:54.996577+02
2	26983	426	2	10172	10.99	2020-04-30 22:58:17.996577+02

SYNTAX

```
SELECT  
first_name,  
last_name  
FROM customer  
WHERE first_name = 'ADAM'
```

Data Output				Explain	Messages	Notifications
	 first_name text 	last_name text 				
1	ADAM	GOOCH				



Challenge








Challenge

The suppcity manager asks you about a list of all the payment of the customer 322, 346 and 354 where the amount is either less than \$2 or greater than \$10.

It should be ordered by the customer first (ascending) and then as second condition order by amount in a descending order.

Write a SQL query to get the answers!

Result

Data Output		Explain	Messages	Notifications		
	payment_id  integer	customer_id  smallint	staff_id  smallint	rental_id  integer	amount  numeric (5,2)	payment_date  timestamp with time zone
1	25784	322	2	3627	1.99	2020-04-06 05:47:51.996577+02
2	25794	322	1	9252	1.99	2020-04-30 13:48:25.996577+02
3	16167	322	2	166	0.99	2020-01-26 02:17:37.996577+01

BETWEEN ... AND ...

✓ Used to filter a range of values

SYNTAX

```
SELECT  
payment_id,  
amount  
FROM payment  
WHERE amount NOT BETWEEN 1.99 AND 6.99
```

	Data Output	Explain	Messages
	payment_id integer	amount numeric (5,2)	
1	16051	0.99	
2	16053	0.99	
3	16058	8.99	
4	16059	0.99	

SYNTAX

```
SELECT  
payment_id,  
amount  
FROM payment  
WHERE amount BETWEEN '2020-01-24' AND '2020-01-26'
```

	Data Output	Explain	Messages	Notifications
	payment_id integer	payment_date timestamp with time zone		
1	16050	2020-01-24 22:40:19.996577+01		
2	16051	2020-01-25 16:16:50.996577+01		
3	16059	2020-01-25 03:47:17.996577+01		
4	16063	2020-01-25 19:14:47.996577+01		

SYNTAX

```
SELECT  
payment_id,  
amount  
FROM payment  
WHERE amount BETWEEN '2020-01-24 0:00' AND '2020-01-26 0:00'
```

	Data Output	Explain	Messages	Notifications
	payment_id integer	payment_date timestamp with time zone		
1	16050	2020-01-24 22:40:19.996577+01		
2	16051	2020-01-25 16:16:50.996577+01		
3	16059	2020-01-25 03:47:17.996577+01		
4	16063	2020-01-25 19:14:47.996577+01		

SYNTAX

```
SELECT  
payment_id,  
amount  
FROM payment  
WHERE amount BETWEEN '2020-01-24 0:00' AND '2020-01-26 12:00'
```

	Data Output	Explain	Messages	Notifications
	payment_id integer	payment_date timestamp with time zone		
1	16050	2020-01-24 22:40:19.996577+01		
2	16051	2020-01-25 16:16:50.996577+01		
3	16059	2020-01-25 03:47:17.996577+01		
4	16063	2020-01-25 19:14:47.996577+01		



Challenge

Challenge

There have been 6 complaints of customers about their payments.

customer_id: 12,25,67,93,124,234

The concerned payments are all the payments of these customers with amounts 4.99, 7.99 and 9.99 in January 2020.

Write a SQL query to get a list of the concerned payments!

Result

It should be 7 payments!



Challenge

Challenge

There have been some faulty payments and you need to help to find out how many payments have been affected.

How many payments have been made on **January 26th and 27th 2020** (including entire 27th) with an amount **between 1.99 and 3.99**?

Write a SQL query to get the answers!

Result

Data Output		Explain	M
	count bigint		
1	45		

LIKE

✓ Used to filter by matching against a pattern

✓ Use wildcards:

_

any single character

✓ Use wildcards:

%

any sequence of characters

SYNTAX

```
SELECT
```

```
*
```

```
FROM actor
```

```
WHERE first_name LIKE 'A%'
```

	Data Output	Explain	Messages	Notifications
	actor_id [PK] integer	first_name text	last_name text	last_update timestamp with time zone
1	29	ALEC	WAYNE	2020-02-15 10:34:33+01
2	34	AUDREY	OLIVIER	2020-02-15 10:34:33+01
3	49	ANNE	CRONYN	2020-02-15 10:34:33+01

Note!

It's case-sensitive

SYNTAX

```
SELECT  
first_name  
FROM actor  
WHERE first_name LIKE 'a%'
```

Data Output	Explain	Messages	Notifications
<div><div>actor_id</div><div>[PK] integer</div></div>	<div><div>first_name</div><div>text</div></div>	<div><div>last_name</div><div>text</div></div>	<div><div>last_update</div><div>timestamp with time zone</div></div>

Note!

It's case-sensitive

SYNTAX

```
SELECT  
first_name  
FROM actor  
WHERE first_name ILIKE 'a%'
```

	Data Output	Explain	Messages	Notifications
	actor_id [PK] integer	first_name text	last_name text	last_update timestamp with time zone
1	29	ALEC	WAYNE	2020-02-15 10:34:33+01
2	34	AUDREY	OLIVIER	2020-02-15 10:34:33+01
3	49	ANNE	CRONYN	2020-02-15 10:34:33+01

Note!

ILIKE is case-INsensitive

SYNTAX

```
SELECT
```

```
*
```

```
FROM actor
```

```
WHERE first_name LIKE 'A%'
```

	Data Output	Explain	Messages	Notifications
	actor_id [PK] integer	first_name text	last_name text	last_update timestamp with time zone
1	29	ALEC	WAYNE	2020-02-15 10:34:33+01
2	34	AUDREY	OLIVIER	2020-02-15 10:34:33+01
3	49	ANNE	CRONYN	2020-02-15 10:34:33+01

Note!

It's case-sensitive






SYNTAX

SELECT

*

FROM actor

WHERE first_name LIKE '%A%'

	Data Output	Explain	Messages	Notifications
	 actor_id [PK] integer 	first_name text 	last_name text 	last_update timestamp with time zone 
1	7	GRACE	MOSTEL	2020-02-15 10:34:33+01
2	8	MATTHEW	JOHANSSON	2020-02-15 10:34:33+01
3	10	CHRISTIAN	GABLE	2020-02-15 10:34:33+01






SYNTAX

SELECT

*

FROM actor

WHERE first_name LIKE '_A%'

	Data Output	Explain	Messages	Notifications
	 actor_id [PK] integer 	first_name text 	last_name text 	last_update timestamp with time zone 
1	8	MATTHEW	JOHANSSON	2020-02-15 10:34:33+01
2	12	KARL	BERRY	2020-02-15 10:34:33+01
3	18	DAN	TORN	2020-02-15 10:34:33+01
4	23	SANDRA	KILMER	2020-02-15 10:34:33+01






SYNTAX

SELECT

*

FROM actor

WHERE first_name LIKE '___A%'

	Data Output	Explain	Messages	Notifications
	 actor_id [PK] integer 	first_name text 	last_name text 	last_update timestamp with time zone 
1	7	GRACE	MOSTEL	2020-02-15 10:34:33+01
2	13	UMA	WOOD	2020-02-15 10:34:33+01
3	48	FRANCES	DAY-LEWIS	2020-02-15 10:34:33+01

SYNTAX

SELECT

*

FROM actor

WHERE first_name NOT LIKE '%A%'

	Data Output	Explain	Messages	Notifications
	actor_id [PK] integer	first_name text	last_name text	last_update timestamp with time zone
1	1	PENELOPE	GUINNESS	2020-02-15 10:34:33+01
2	2	NICK	WAHLBERG	2020-02-15 10:34:33+01
3	3	ED	CHASE	2020-02-15 10:34:33+01

SYNTAX








SELECT

*

FROM payment

WHERE amount = 10.99

AND customer_id = 426

Data Output		Explain	Messages	Notifications		
	payment_id integer 	customer_id smallint 	staff_id smallint 	rental_id integer 	amount numeric (5,2) 	payment_date timestamp with time zone 
1	26978	426	1	7527	10.99	2020-04-27 20:42:54.996577+02
2	26983	426	2	10172	10.99	2020-04-30 22:58:17.996577+02



Challenge

Challenge

You need to help the inventory manager to find out:

How many movies are there that contain the "Documentary" in the description?

Write a SQL query to get the answers!

Result

Data Output

	count bigint
1	101

Challenge

How many customers are there with a first name that is 3 letters long and either an 'X' or a 'Y' as the last letter in the last name?

Write a SQL query to get the answers!

Result

Data Output		Expl
	count bigint	
1	3	

Commenting & Aliases

✓ **Comment to make code more readable & understandable**

✓ **Use**

--

Single line comment

✓ **Use**

```
/*  
[...] */
```

Multiple lines comment

Note!

Use comments to
explain your code!

SYNTAX

- 2020/07/01 by Nikolai
- Query that filters amount

SELECT

*

FROM payment

WHERE amount = 10.99

Note!

Comments will not be
processed as code!

SYNTAX

```
/* 2020/07/01 by Nikolai  
Query to filter by amount*/
```

```
SELECT
```

```
*
```

```
FROM payment
```

```
WHERE amount = 10.99
```

SYNTAX

SELECT

*

FROM payment

WHERE amount = 10.99

--AND customer_id = 426

SYNTAX

SELECT

*

FROM payment

--WHERE amount = 10.99

--AND customer_id = 426

SYNTAX

```
SELECT
```

```
*
```

```
FROM payment
```

```
/*WHERE amount = 10.99
```




```
AND customer_id = 426*/
```


SYNTAX

SELECT

payment_id AS invoice_no

FROM payment

	Data Output	Explain	Messages
	 invoice_no  integer	amount  numeric (5,2)	
1	16050	1.99	
2	16051	0.99	
3	16052	6.99	

SYNTAX

```
SELECT  
COUNT(*)  
FROM payment  
WHERE amount = 10.99  
AND customer_id = 426
```



Challenge
for today

Challenge

for today


1. **How many movies** are there that contain 'Saga' in the description and where the title starts either with 'A' or ends with 'R'?
Use the alias 'no_of_movies'.
2. **Create a list of all customers** where the first name contains 'ER' and has an 'A' as the second letter.
Order the results by the last name descendingly.
3. **How many payments** are there where the amount is either 0 or is between 3.99 and 7.99 and in the same time has happened on 2020-05-01.

Results

Result 1

Data Output		Explain
	number_of_movie bigint	
1	14	

Result 2

Data Output		Explain	Messages	Notifications	
	customer_id [PK] integer	store_id smallint	first_name text	last_name text	email text
1	61	2	KATHERINE	RIVERA	KATHE
2	339	2	WALTER	PERRYMAN	WALTE
3	535	1	JAVIER	ELROD	JAVIER
4	46	2	CATHERINE	CAMPBELL	CATHE
5	149	1	VALERIE	BLACK	VALER

Result 3

Data Output	
	count bigint
1	27

Solution 1

1. How many movies are there that contain 'Saga' in the description and where the title starts either with 'A' or ends with 'R'?
Use the alias 'no_of_movies'.

```
SELECT  
COUNT(*) AS number_of_movie  
FROM film  
WHERE description LIKE '%Saga%'  
AND (title LIKE 'A%'  
OR title LIKE '%R')
```

Solution 2

2. Create a list of all customers where the first name contains 'ER' and has an 'A' as the second letter. Order the results by the last name descendingly.

```
SELECT
*
FROM customer
WHERE first_name LIKE '%ER%'
AND first_name LIKE '_A%'
ORDER BY last_name DESC
```

Solution 3

3. How many payments are there where the amount is either 0 or between 3.99 and 7.99 and in the same time have happened on 2020-05-01.

```
SELECT  
COUNT(*)  
FROM payment  
WHERE (amount = 0  
OR amount BETWEEN 3.99 AND 7.99)  
AND payment_date BETWEEN '2020-05-01' AND '2020-05-02'
```


Solution 2

4. How many distinct last names of the customers are there?

```
SELECT  
COUNT(DISTINCT last_name)  
FROM customer
```