Project : Data cleaning

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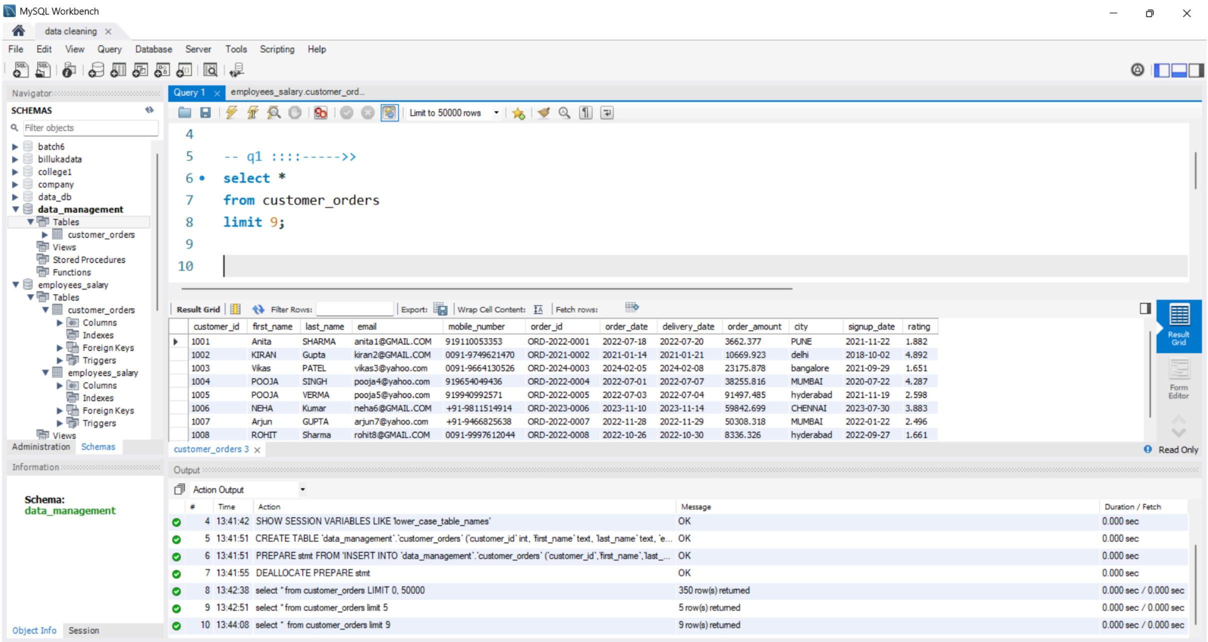
🔹 STEP 0: Inspect Raw Data

```
SELECT *
FROM customer_orders
LIMIT 10;
```



```
-- q1 ::::----->>
select *
from customer_orders
limit 9;
```

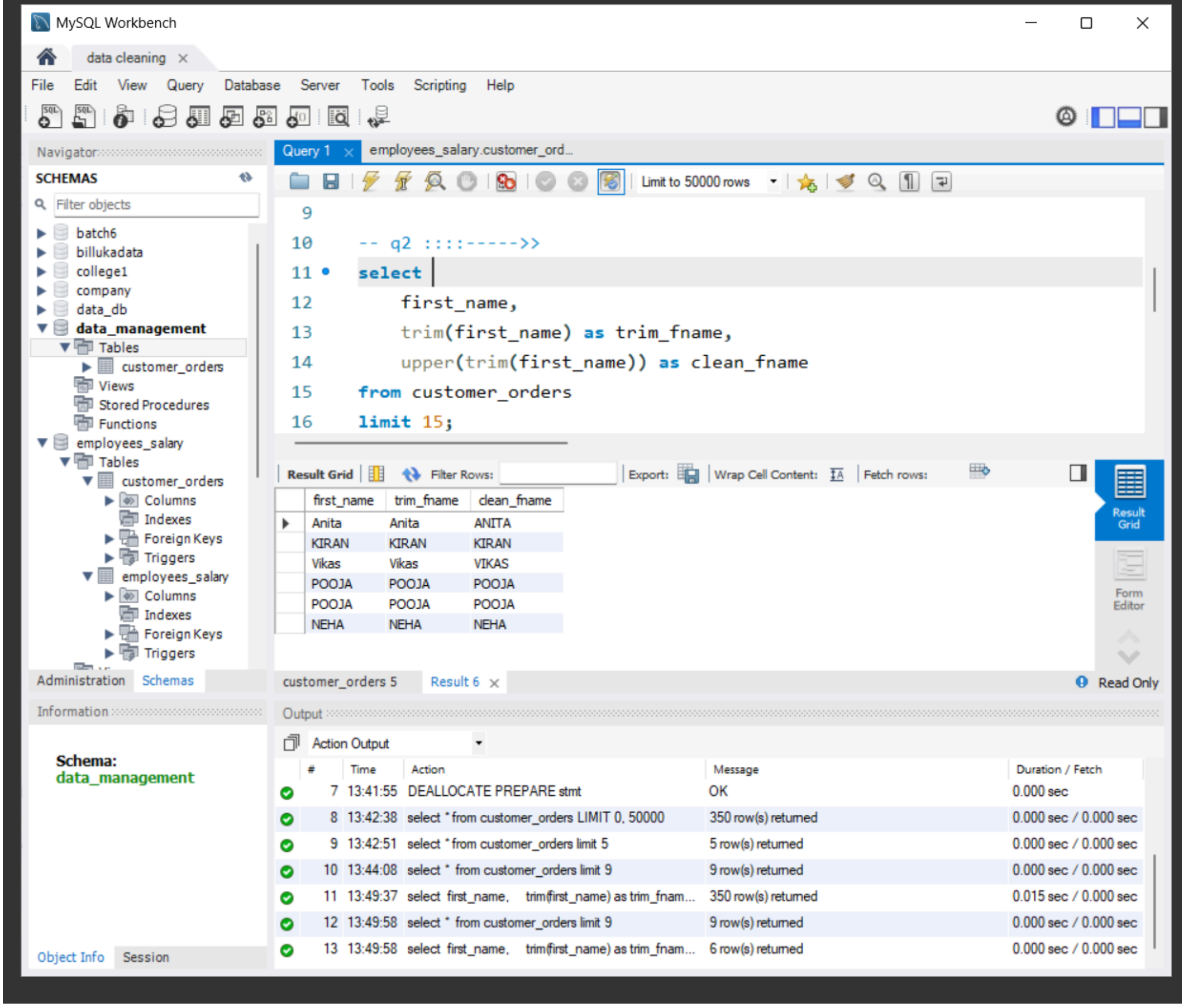
	customer_id	first_name	last_name	email	mobile_number	order_id	order_date	delivery_date	order_amount	city	signup_date	rating
▶	1001	Anita	SHARMA	anita1@GMAIL.COM	919110053353	ORD-2022-0001	2022-07-18	2022-07-20	3662.377	PUNE	2021-11-22	1.882
	1002	KIRAN	Gupta	kiran2@GMAIL.COM	0091-9749621470	ORD-2021-0002	2021-01-14	2021-01-21	10669.923	delhi	2018-10-02	4.892
	1003	Vikas	PATEL	vikas3@yahoo.com	0091-9664130526	ORD-2024-0003	2024-02-05	2024-02-08	23175.878	bangalore	2021-09-29	1.651
	1004	POOJA	SINGH	pooja4@yahoo.com	919654049436	ORD-2022-0004	2022-07-01	2022-07-07	38255.816	MUMBAI	2020-07-22	4.287
	1005	POOJA	VERMA	pooja5@yahoo.com	919940992571	ORD-2022-0005	2022-07-03	2022-07-04	91497.485	hyderabad	2021-11-19	2.598
	1006	NEHA	Kumar	neha6@GMAIL.COM	+91-9811514914	ORD-2023-0006	2023-11-10	2023-11-14	59842.699	CHENNAI	2023-07-30	3.883
	1007	Arjun	GUPTA	arjun7@yahoo.com	+91-9466825638	ORD-2022-0007	2022-11-28	2022-11-29	50308.318	MUMBAI	2022-01-22	2.496
	1008	ROHIT	Sharma	rohit8@GMAIL.COM	0091-9997612044	ORD-2022-0008	2022-10-26	2022-10-30	8336.326	hyderabad	2022-09-27	1.661

```
#   Time      Action                                                                                              Message              Duration / Fetch
4   13:41:42  SHOW SESSION VARIABLES LIKE 'lower_case_table_names'                                                OK                   0.000 sec
5   13:41:51  CREATE TABLE `data_management`.`customer_orders` (`customer_id` int, `first_name` text, `last_name` text, `e...  OK   0.000 sec
6   13:41:51  PREPARE stmt FROM 'INSERT INTO `data_management`.`customer_orders` (`customer_id`,`first_name`,`last_...  OK     0.000 sec
7   13:41:55  DEALLOCATE PREPARE stmt                                                                             OK                   0.000 sec
8   13:42:38  select * from customer_orders LIMIT 0, 50000                                                        350 row(s) returned  0.000 sec / 0.000 sec
9   13:42:51  select * from customer_orders limit 5                                                               5 row(s) returned    0.000 sec / 0.000 sec
10  13:44:08  select *  from customer_orders limit 9                                                              9 row(s) returned    0.000 sec / 0.000 sec
```

🔹 STEP 1: Clean `first_name` (Spaces + Case)

```
SELECT
  first_name,
  TRIM(first_name) AS step1_trimmed,
  UPPER(TRIM(first_name)) AS cleaned_first_name
```

```
FROM customer_orders;
```



Schema: data_management

```
-- q2 ::::----->>
select
    first_name,
    trim(first_name) as trim_fname,
    upper(trim(first_name)) as clean_fname
from customer_orders
limit 15;
```

first_name	trim_fname	clean_fname
Anita	Anita	ANITA
KIRAN	KIRAN	KIRAN
Vikas	Vikas	VIKAS
POOJA	POOJA	POOJA
POOJA	POOJA	POOJA
NEHA	NEHA	NEHA

#	Time	Action	Message	Duration / Fetch
7	13:41:55	DEALLOCATE PREPARE stmt	OK	0.000 sec
8	13:42:38	select * from customer_orders LIMIT 0, 50000	350 row(s) returned	0.000 sec / 0.000 sec
9	13:42:51	select * from customer_orders limit 5	5 row(s) returned	0.000 sec / 0.000 sec
10	13:44:08	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
11	13:49:37	select first_name, trim(first_name) as trim_fnam...	350 row(s) returned	0.015 sec / 0.000 sec
12	13:49:58	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
13	13:49:58	select first_name, trim(first_name) as trim_fnam...	6 row(s) returned	0.000 sec / 0.000 sec

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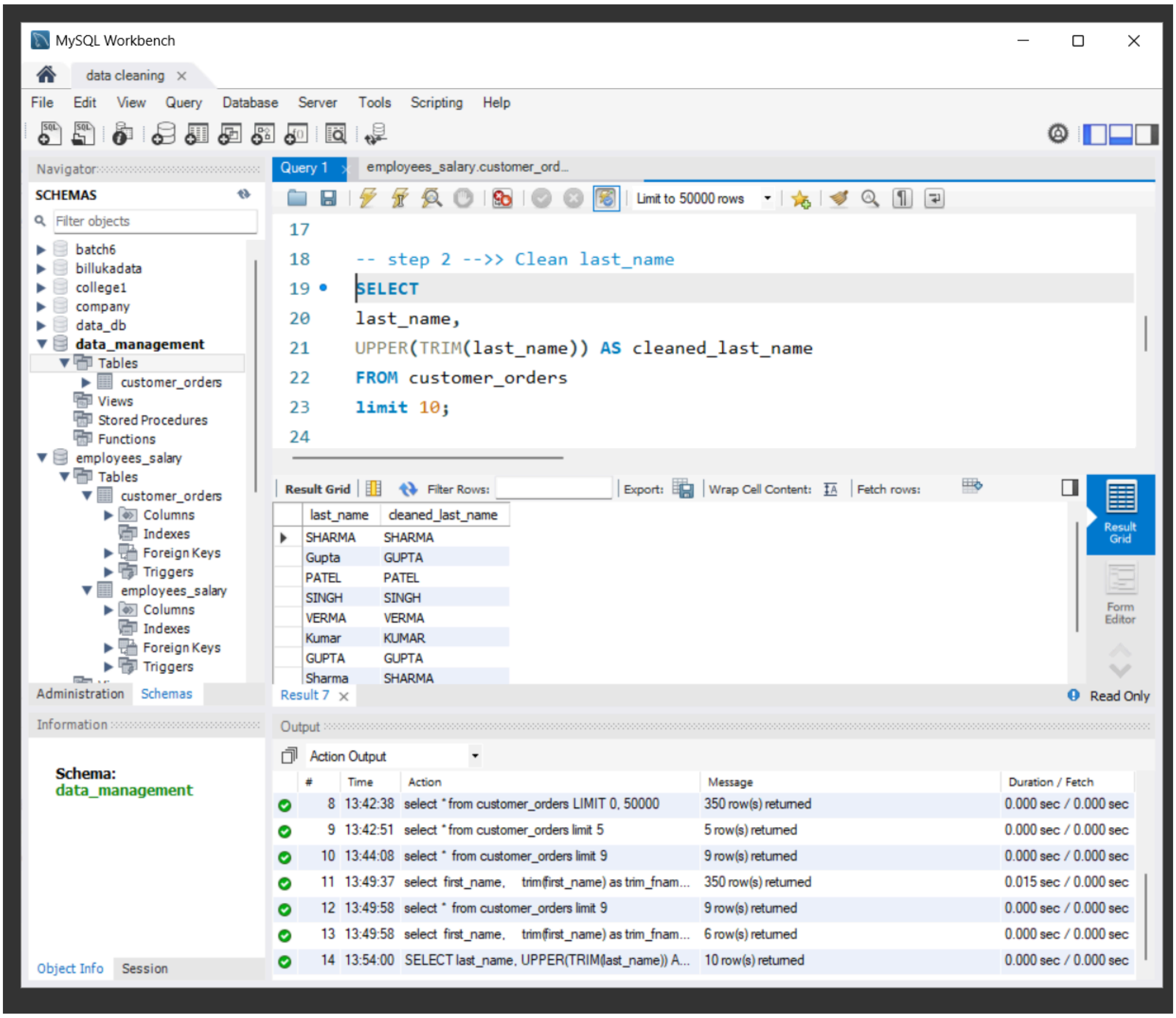
🔹 STEP 2: Clean `last_name`

```
SELECT
  last_name,
  UPPER(TRIM(last_name)) AS cleaned_last_name
FROM customer_orders;
```



Schema: data_management

```
-- step 2 -->> Clean last_name
SELECT
last_name,
UPPER(TRIM(last_name)) AS cleaned_last_name
FROM customer_orders
limit 10;
```

last_name	cleaned_last_name
SHARMA	SHARMA
Gupta	GUPTA
PATEL	PATEL
SINGH	SINGH
VERMA	VERMA
Kumar	KUMAR
GUPTA	GUPTA
Sharma	SHARMA

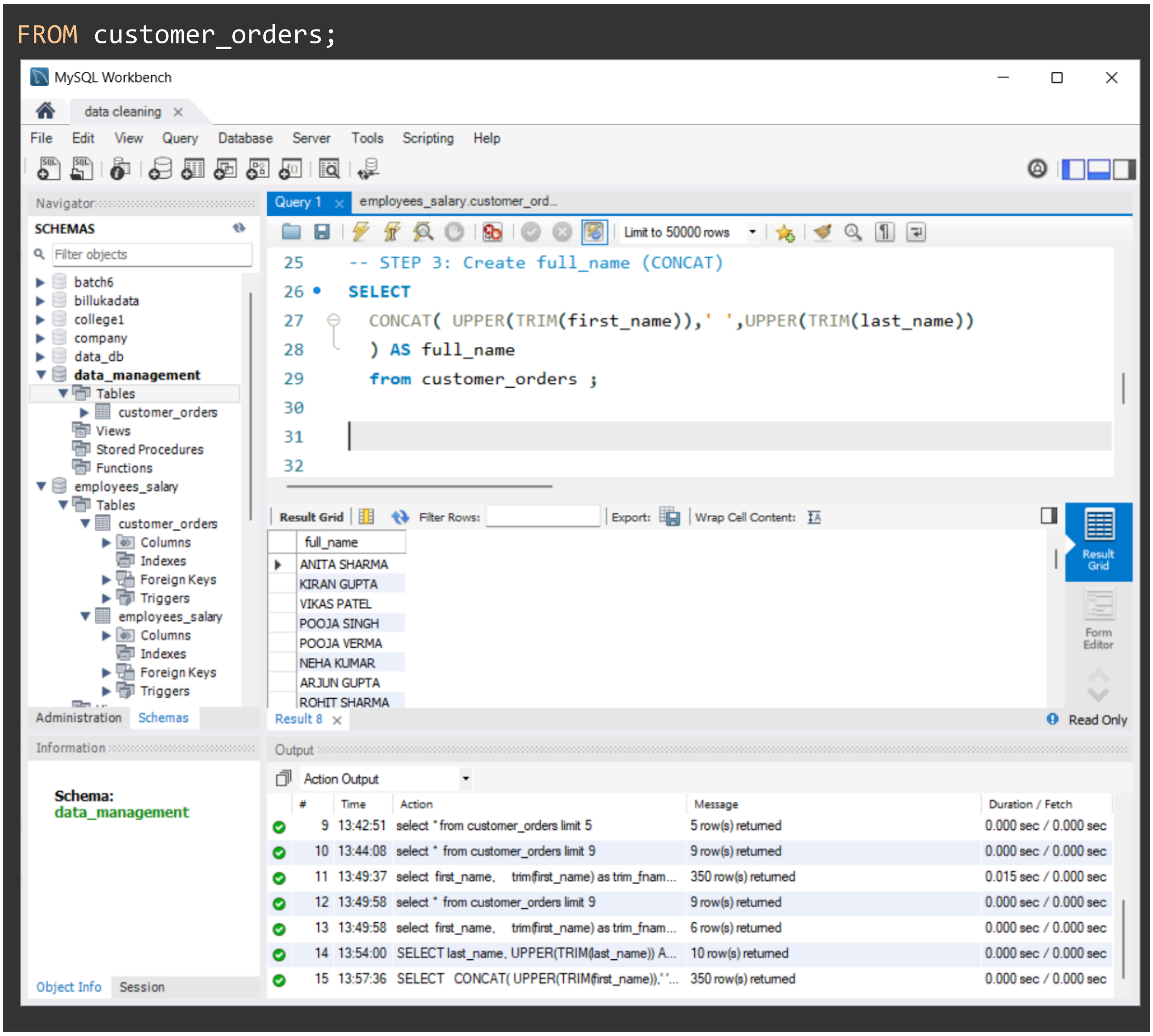
#	Time	Action	Message	Duration / Fetch
8	13:42:38	select * from customer_orders LIMIT 0, 50000	350 row(s) returned	0.000 sec / 0.000 sec
9	13:42:51	select * from customer_orders limit 5	5 row(s) returned	0.000 sec / 0.000 sec
10	13:44:08	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
11	13:49:37	select first_name, trim(first_name) as trim_fnam...	350 row(s) returned	0.015 sec / 0.000 sec
12	13:49:58	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
13	13:49:58	select first_name, trim(first_name) as trim_fnam...	6 row(s) returned	0.000 sec / 0.000 sec
14	13:54:00	SELECT last_name, UPPER(TRIM(last_name)) A...	10 row(s) returned	0.000 sec / 0.000 sec

---

🔷 STEP 3: Create `full_name` (CONCAT)

```
SELECT
  CONCAT(
    UPPER(TRIM(first_name)),
    ' ',
    UPPER(TRIM(last_name))
  ) AS full_name
```

```
FROM customer_orders;
```



Schema: data_management

```
-- STEP 3: Create full_name (CONCAT)
SELECT
  CONCAT( UPPER(TRIM(first_name)),' ',UPPER(TRIM(last_name))
  ) AS full_name
  from customer_orders ;
```

full_name
ANITA SHARMA
KIRAN GUPTA
VIKAS PATEL
POOJA SINGH
POOJA VERMA
NEHA KUMAR
ARJUN GUPTA
ROHIT SHARMA

	#	Time	Action	Message	Duration / Fetch
✓	9	13:42:51	select * from customer_orders limit 5	5 row(s) returned	0.000 sec / 0.000 sec
✓	10	13:44:08	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
✓	11	13:49:37	select first_name, trim(first_name) as trim_fnam...	350 row(s) returned	0.015 sec / 0.000 sec
✓	12	13:49:58	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
✓	13	13:49:58	select first_name, trim(first_name) as trim_fnam...	6 row(s) returned	0.000 sec / 0.000 sec
✓	14	13:54:00	SELECT last_name, UPPER(TRIM(last_name)) A...	10 row(s) returned	0.000 sec / 0.000 sec
✓	15	13:57:36	SELECT CONCAT(UPPER(TRIM(first_name)),' '...	350 row(s) returned	0.000 sec / 0.000 sec

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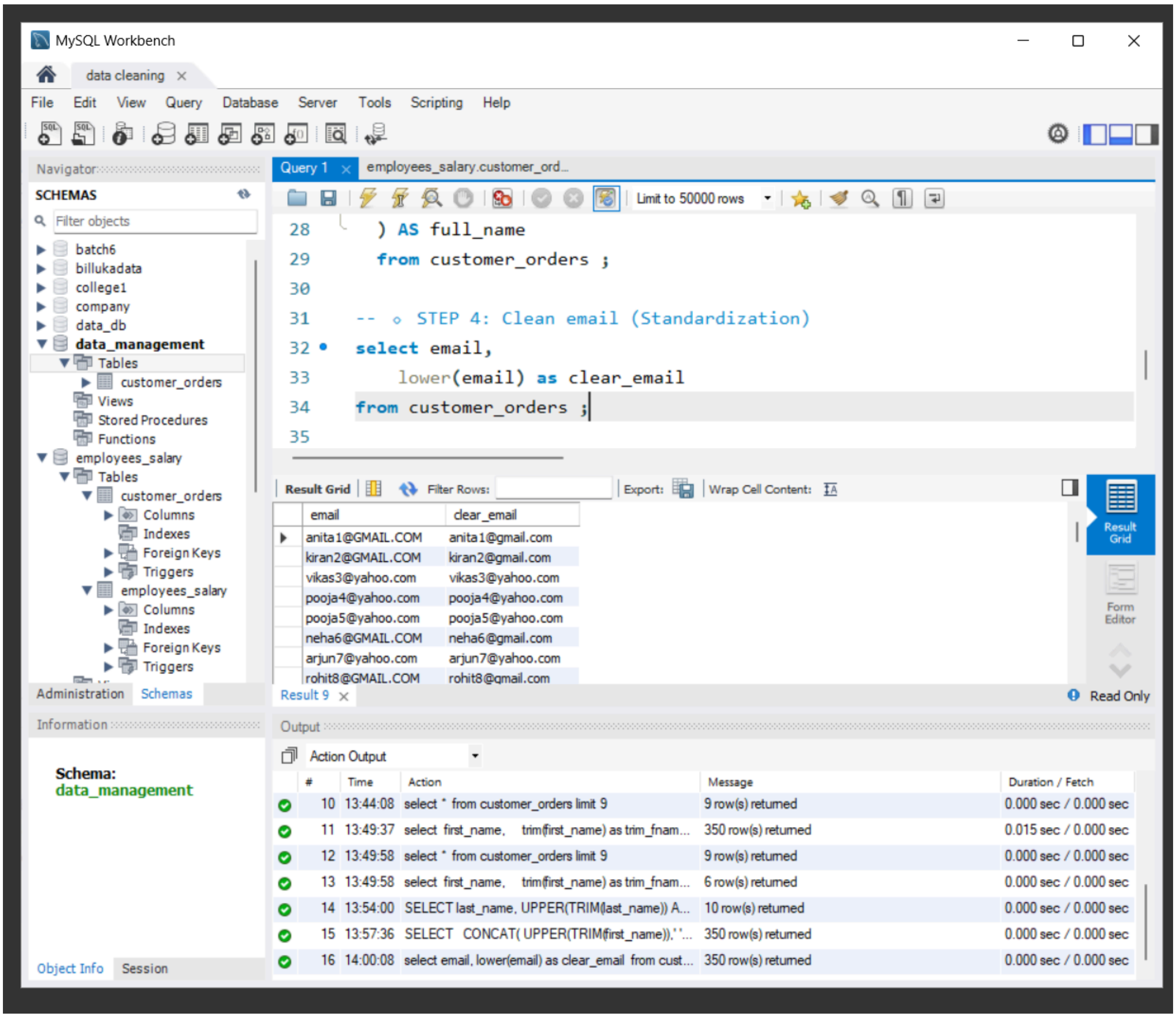
🔷 STEP 4: Clean `email` (Standardization)

```
SELECT
  email,
  LOWER(email) AS cleaned_email
FROM customer_orders;
```



```
    ) AS full_name
  from customer_orders ;

-- ⬦ STEP 4: Clean email (Standardization)
select email,
      lower(email) as clear_email
from customer_orders ;
```

email	clear_email
anita1@GMAIL.COM	anita1@gmail.com
kiran2@GMAIL.COM	kiran2@gmail.com
vikas3@yahoo.com	vikas3@yahoo.com
pooja4@yahoo.com	pooja4@yahoo.com
pooja5@yahoo.com	pooja5@yahoo.com
neha6@GMAIL.COM	neha6@gmail.com
arjun7@yahoo.com	arjun7@yahoo.com
rohit8@GMAIL.COM	rohit8@gmail.com

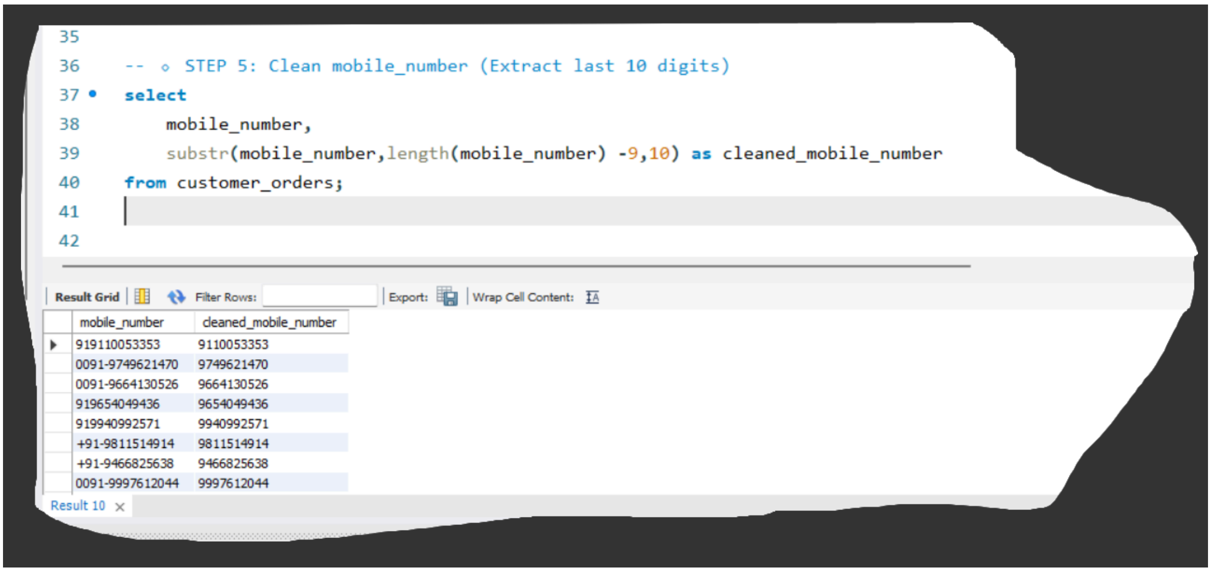
Schema:
data_management

	#	Time	Action	Message	Duration / Fetch
✓	10	13:44:08	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
✓	11	13:49:37	select first_name, trim(first_name) as trim_fnam...	350 row(s) returned	0.015 sec / 0.000 sec
✓	12	13:49:58	select * from customer_orders limit 9	9 row(s) returned	0.000 sec / 0.000 sec
✓	13	13:49:58	select first_name, trim(first_name) as trim_fnam...	6 row(s) returned	0.000 sec / 0.000 sec
✓	14	13:54:00	SELECT last_name, UPPER(TRIM(last_name)) A...	10 row(s) returned	0.000 sec / 0.000 sec
✓	15	13:57:36	SELECT CONCAT(UPPER(TRIM(first_name)),' '...	350 row(s) returned	0.000 sec / 0.000 sec
✓	16	14:00:08	select email, lower(email) as clear_email from cust...	350 row(s) returned	0.000 sec / 0.000 sec

---

🔷 STEP 5: Clean `mobile_number` (Extract last 10 digits)

```
SELECT
  mobile_number,
  SUBSTR(mobile_number, LENGTH(mobile_number) - 9, 10) AS cleaned_mobile
FROM customer_orders;
```

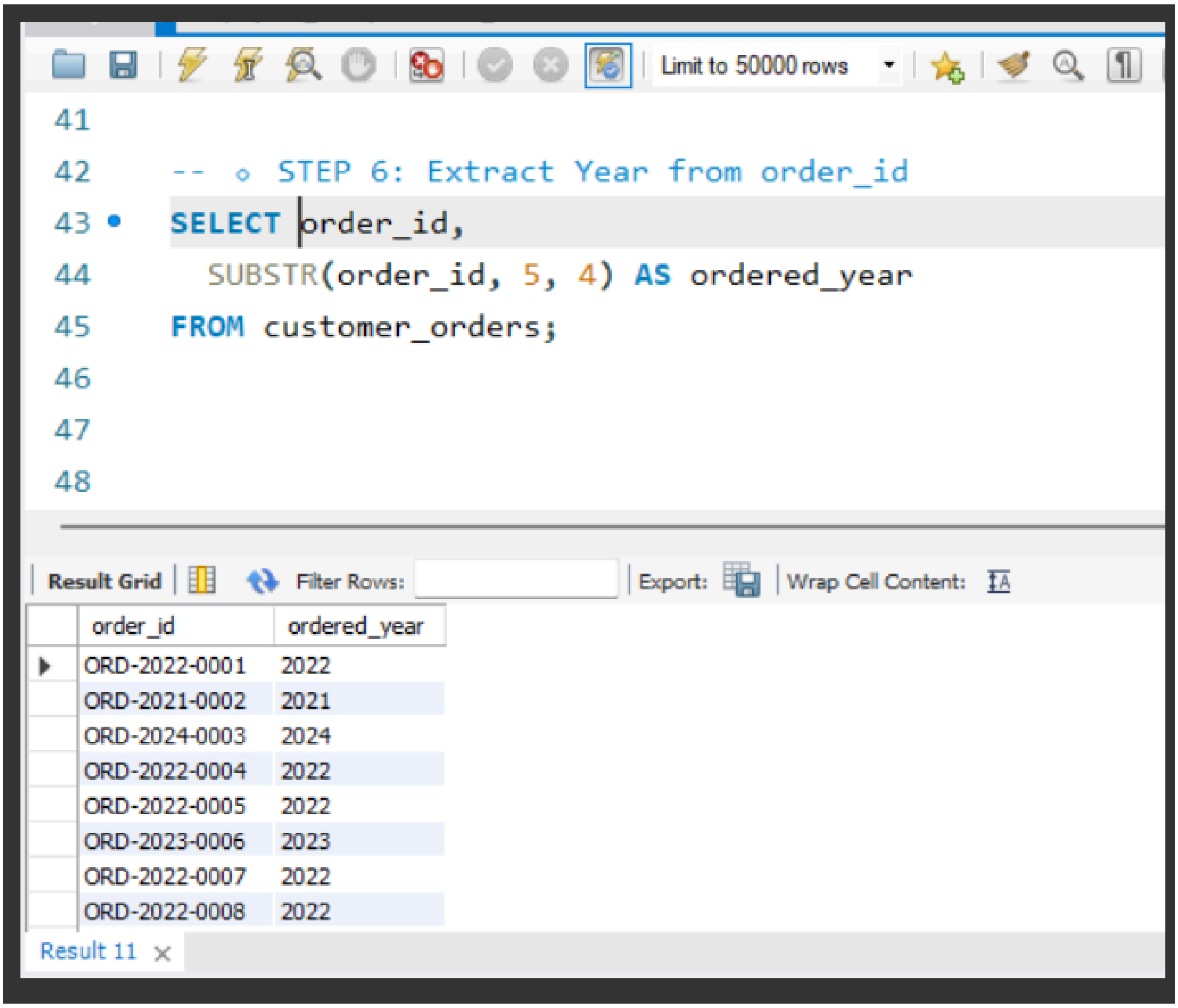


```sql
-- 🔹 STEP 5: Clean mobile_number (Extract last 10 digits)
select
    mobile_number,
    substr(mobile_number,length(mobile_number) -9,10) as cleaned_mobile_number
from customer_orders;
```

mobile_number	cleaned_mobile_number
919110053353	9110053353
0091-9749621470	9749621470
0091-9664130526	9664130526
919654049436	9654049436
919940992571	9940992571
+91-9811514914	9811514914
+91-9466825638	9466825638
0091-9997612044	9997612044

🔹 STEP 6: Extract Year from `order_id`

```sql
SELECT
  order_id,
  SUBSTR(order_id, 5, 4) AS order_year
FROM customer_orders;
```

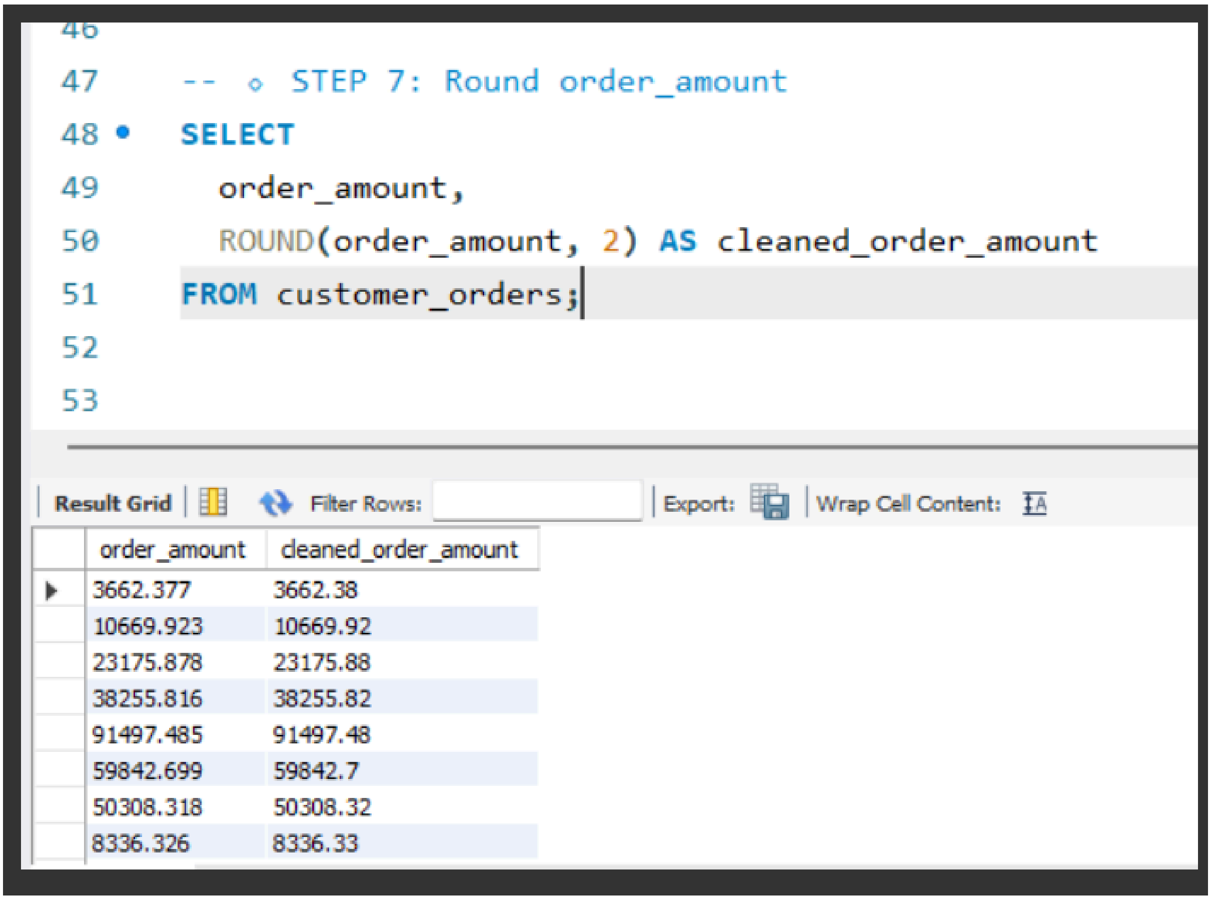


```
-- ◦ STEP 6: Extract Year from order_id
SELECT order_id,
  SUBSTR(order_id, 5, 4) AS ordered_year
FROM customer_orders;
```

```
order_id        ordered_year
ORD-2022-0001   2022
ORD-2021-0002   2021
ORD-2024-0003   2024
ORD-2022-0004   2022
ORD-2022-0005   2022
ORD-2023-0006   2023
ORD-2022-0007   2022
ORD-2022-0008   2022
```

🔹 STEP 7: Round `order_amount`

```
SELECT
  order_amount,
  ROUND(order_amount, 2) AS cleaned_order_amount
FROM customer_orders;
```

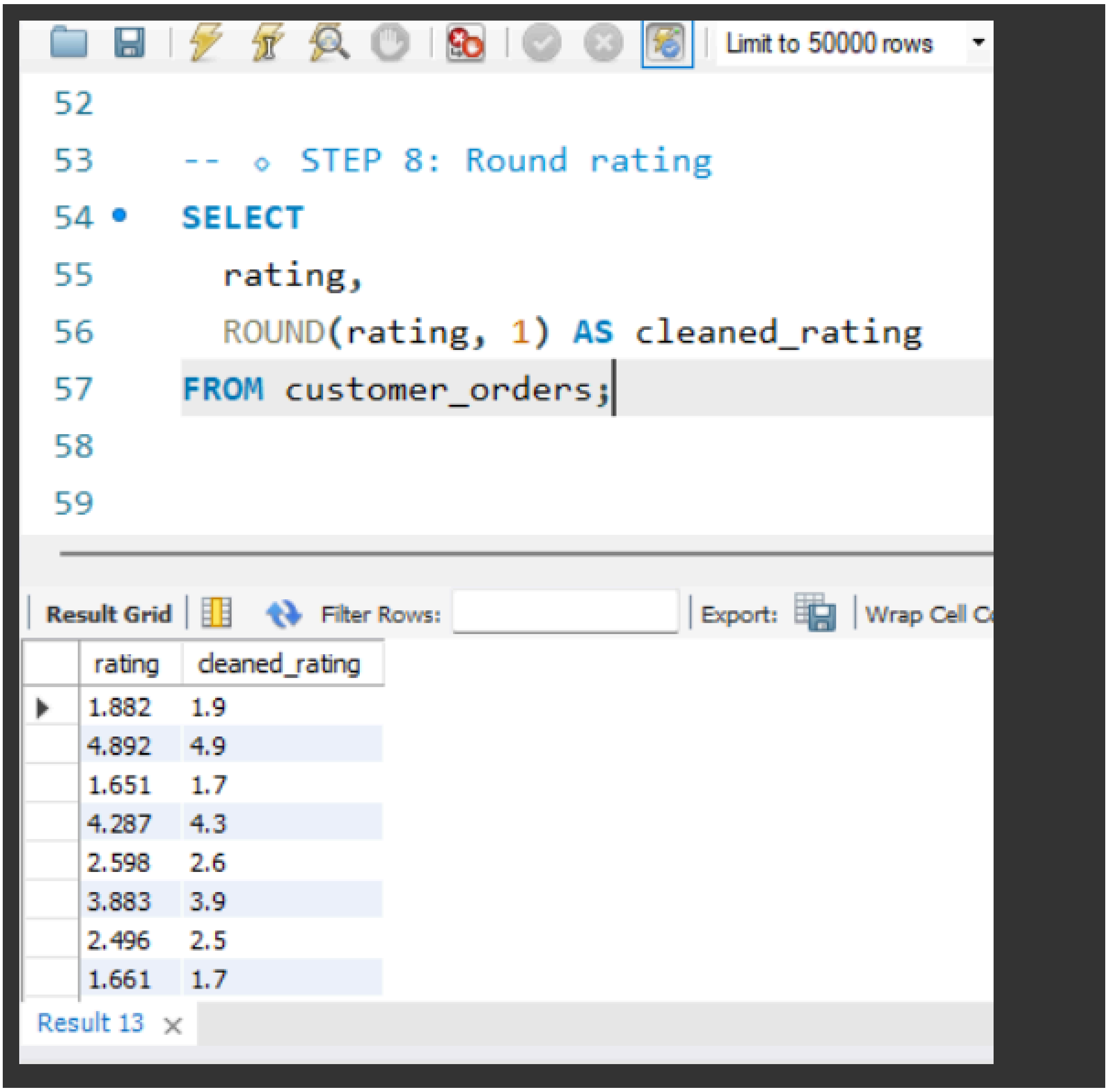


```sql
-- ◦ STEP 7: Round order_amount
SELECT
  order_amount,
  ROUND(order_amount, 2) AS cleaned_order_amount
FROM customer_orders;
```

order_amount	cleaned_order_amount
3662.377	3662.38
10669.923	10669.92
23175.878	23175.88
38255.816	38255.82
91497.485	91497.48
59842.699	59842.7
50308.318	50308.32
8336.326	8336.33

🔹 STEP 8: Round `rating`

```sql
SELECT
  rating,
  ROUND(rating, 1) AS cleaned_rating
FROM customer_orders;
```

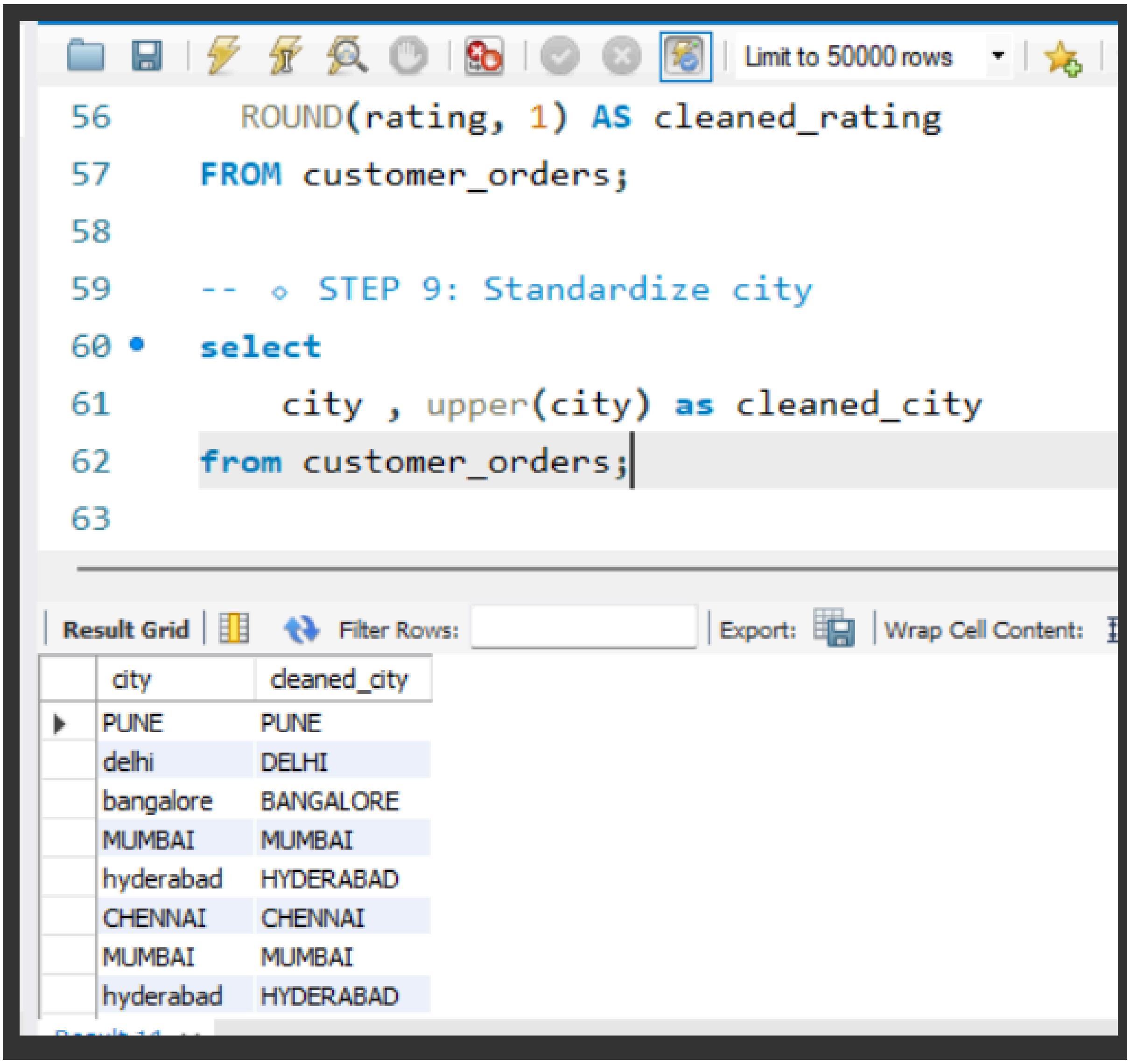


```
-- ◦ STEP 8: Round rating
SELECT
  rating,
  ROUND(rating, 1) AS cleaned_rating
FROM customer_orders;
```

rating	cleaned_rating
1.882	1.9
4.892	4.9
1.651	1.7
4.287	4.3
2.598	2.6
3.883	3.9
2.496	2.5
1.661	1.7

🔹 STEP 9: Standardize `city`

```
SELECT
  city,
  UPPER(city) AS cleaned_city
FROM customer_orders;
```



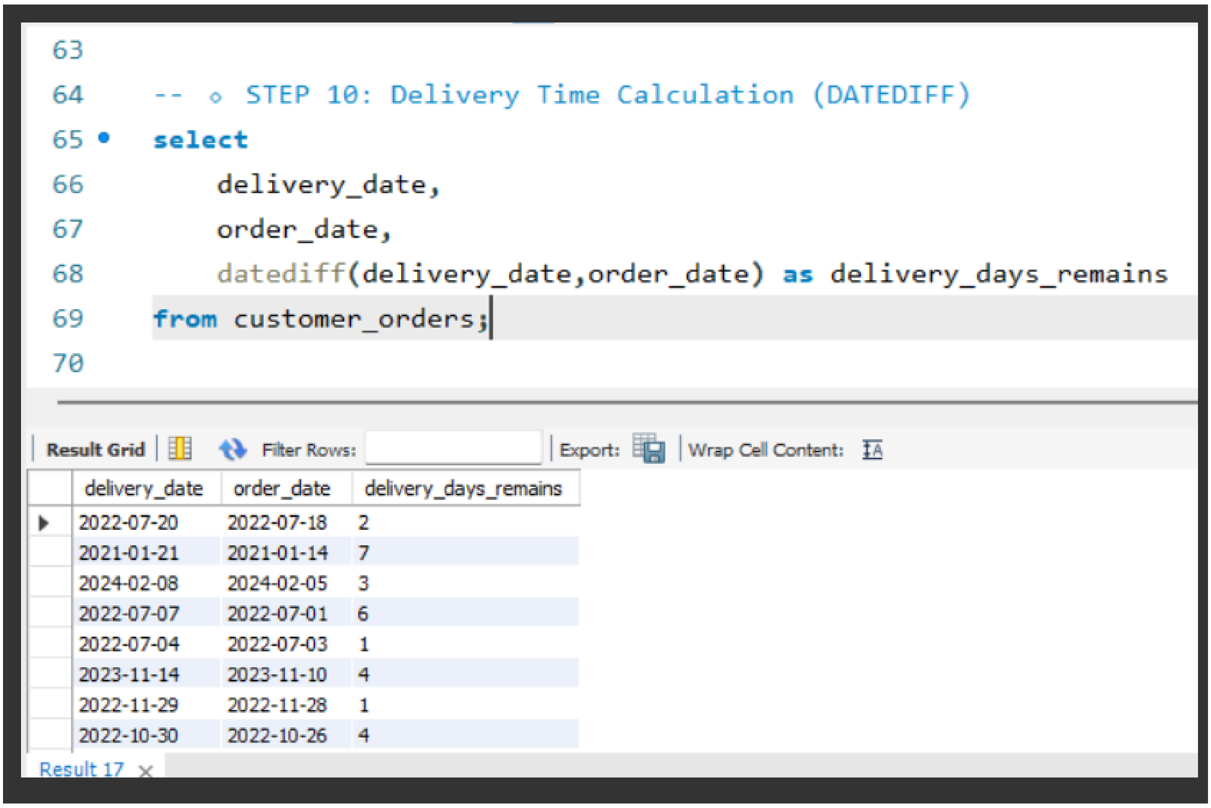
```
    ROUND(rating, 1) AS cleaned_rating
FROM customer_orders;

-- ◦ STEP 9: Standardize city
select
    city , upper(city) as cleaned_city
from customer_orders;
```

city	cleaned_city
PUNE	PUNE
delhi	DELHI
bangalore	BANGALORE
MUMBAI	MUMBAI
hyderabad	HYDERABAD
CHENNAI	CHENNAI
MUMBAI	MUMBAI
hyderabad	HYDERABAD

🔹 STEP 10: Delivery Time Calculation (DATEDIFF)

```
SELECT
  order_date,
  delivery_date,
  DATEDIFF(delivery_date, order_date) AS delivery_days
FROM customer_orders;
```

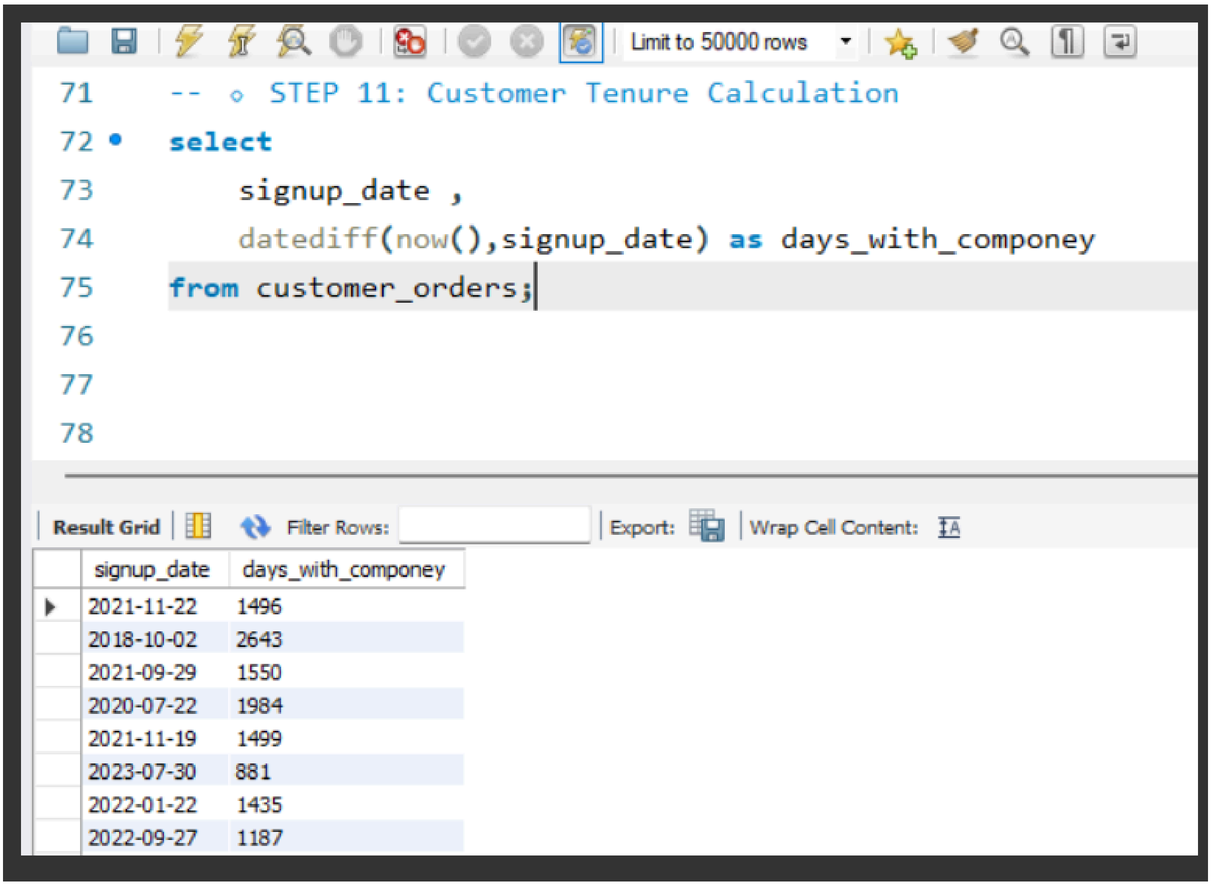


```
-- ⬦ STEP 10: Delivery Time Calculation (DATEDIFF)
select
    delivery_date,
    order_date,
    datediff(delivery_date,order_date) as delivery_days_remains
from customer_orders;
```

delivery_date	order_date	delivery_days_remains
2022-07-20	2022-07-18	2
2021-01-21	2021-01-14	7
2024-02-08	2024-02-05	3
2022-07-07	2022-07-01	6
2022-07-04	2022-07-03	1
2023-11-14	2023-11-10	4
2022-11-29	2022-11-28	1
2022-10-30	2022-10-26	4

🔹 STEP 11: Customer Tenure Calculation

```
SELECT
  signup_date,
  DATEDIFF(NOW(), signup_date) AS days_with_company
FROM customer_orders;
```

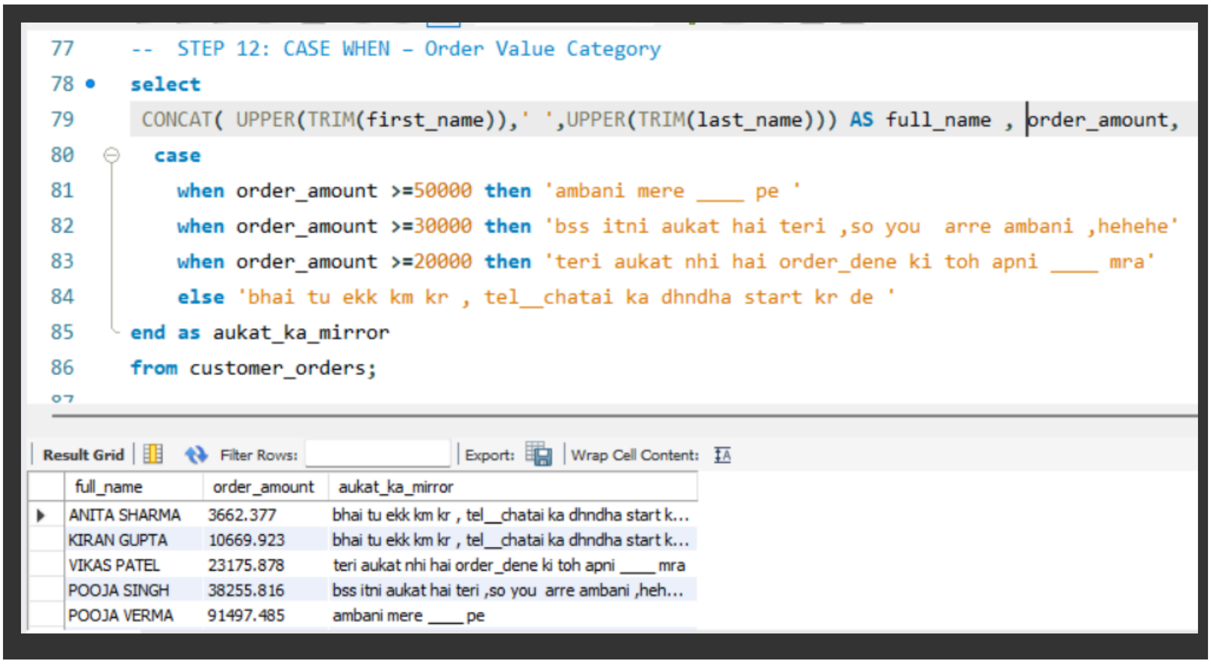


```
-- ◦ STEP 11: Customer Tenure Calculation
select
    signup_date ,
    datediff(now(),signup_date) as days_with_componey
from customer_orders;
```

signup_date	days_with_componey
2021-11-22	1496
2018-10-02	2643
2021-09-29	1550
2020-07-22	1984
2021-11-19	1499
2023-07-30	881
2022-01-22	1435
2022-09-27	1187

🔹 STEP 12: CASE WHEN – Order Value Category

```
SELECT
  order_amount,
  CASE
    WHEN order_amount >= 50000 THEN 'High Value'
    WHEN order_amount >= 20000 THEN 'Medium Value'
    ELSE 'Low Value'
  END AS order_category
FROM customer_orders;
```

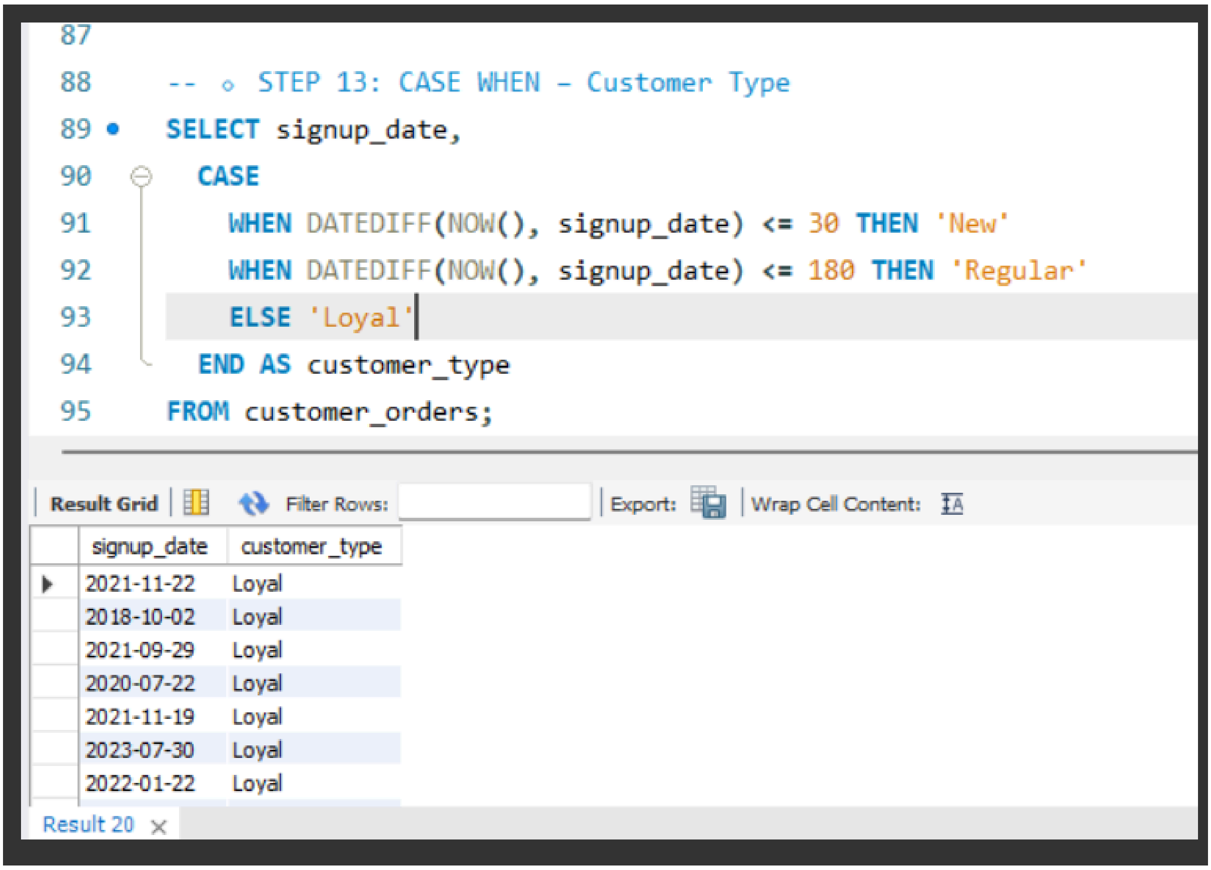


```sql
--  STEP 12: CASE WHEN - Order Value Category
select
 CONCAT( UPPER(TRIM(first_name)),' ',UPPER(TRIM(last_name))) AS full_name , order_amount,
  case
    when order_amount >=50000 then 'ambani mere ____ pe '
    when order_amount >=30000 then 'bss itni aukat hai teri ,so you  arre ambani ,hehehe'
    when order_amount >=20000 then 'teri aukat nhi hai order_dene ki toh apni ____ mra'
    else 'bhai tu ekk km kr , tel__chatai ka dhndha start kr de '
end as aukat_ka_mirror
from customer_orders;
```

full_name	order_amount	aukat_ka_mirror
ANITA SHARMA	3662.377	bhai tu ekk km kr , tel__chatai ka dhndha start k...
KIRAN GUPTA	10669.923	bhai tu ekk km kr , tel__chatai ka dhndha start k...
VIKAS PATEL	23175.878	teri aukat nhi hai order_dene ki toh apni ____ mra
POOJA SINGH	38255.816	bss itni aukat hai teri ,so you arre ambani ,heh...
POOJA VERMA	91497.485	ambani mere ____ pe

🔹 STEP 13: CASE WHEN – Customer Type

```sql
SELECT
  signup_date,
  CASE
    WHEN DATEDIFF(NOW(), signup_date) <= 30 THEN 'New'
    WHEN DATEDIFF(NOW(), signup_date) <= 180 THEN 'Regular'
    ELSE 'Loyal'
  END AS customer_type
FROM customer_orders;
```

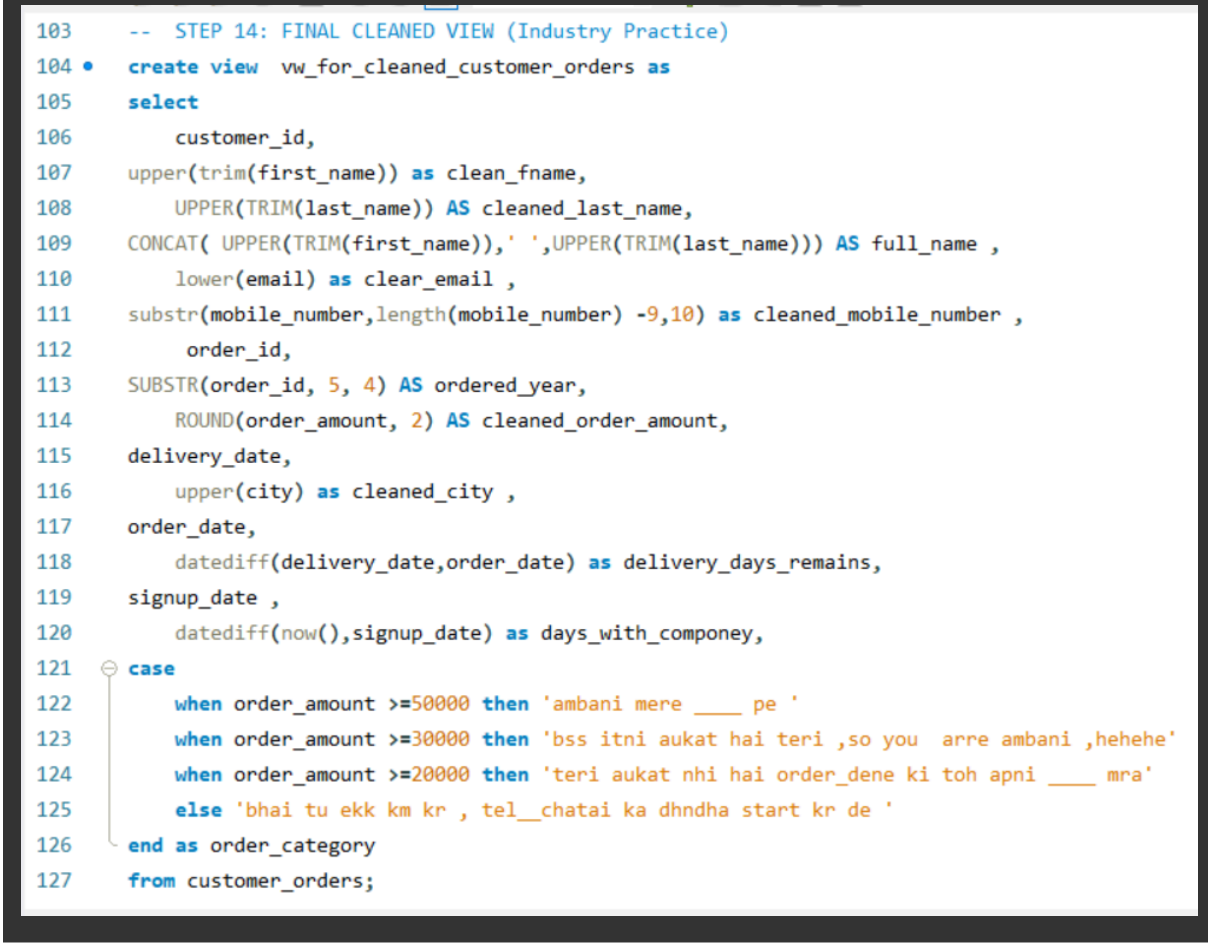


```sql
-- ◦ STEP 13: CASE WHEN – Customer Type
SELECT signup_date,
  CASE
    WHEN DATEDIFF(NOW(), signup_date) <= 30 THEN 'New'
    WHEN DATEDIFF(NOW(), signup_date) <= 180 THEN 'Regular'
    ELSE 'Loyal'
  END AS customer_type
FROM customer_orders;
```

signup_date	customer_type
2021-11-22	Loyal
2018-10-02	Loyal
2021-09-29	Loyal
2020-07-22	Loyal
2021-11-19	Loyal
2023-07-30	Loyal
2022-01-22	Loyal

🔹 STEP 14: FINAL CLEANED VIEW (Industry Practice)

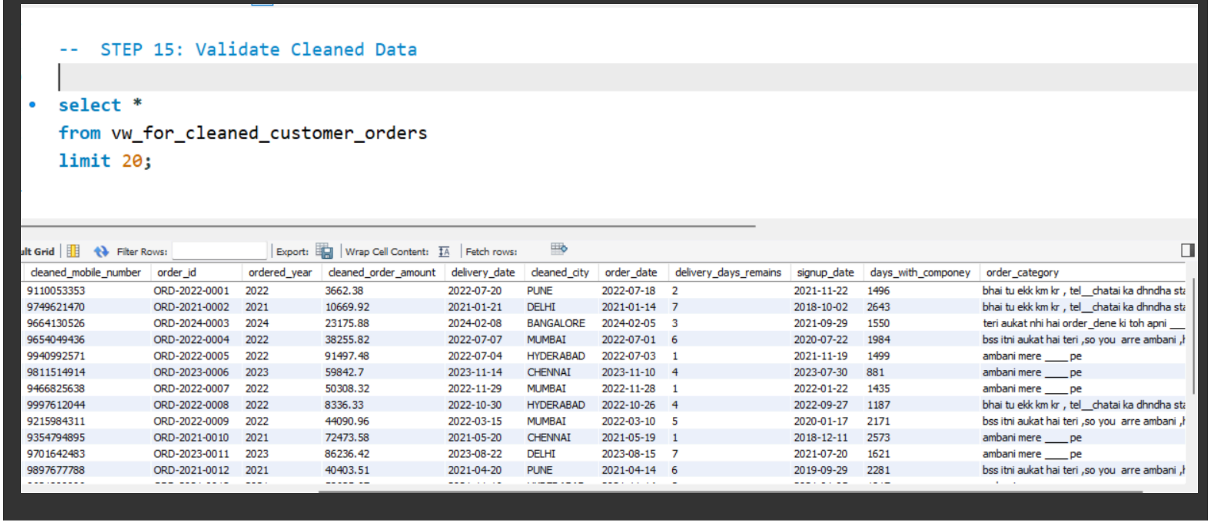
```sql
CREATE VIEW customer_orders_cleaned AS
SELECT
  customer_id,
  UPPER(TRIM(first_name)) AS first_name,
  UPPER(TRIM(last_name)) AS last_name,
  CONCAT(
    UPPER(TRIM(first_name)), ' ',
    UPPER(TRIM(last_name))
  ) AS full_name,
  LOWER(email) AS email,
  SUBSTR(mobile_number, LENGTH(mobile_number) - 9, 10) AS mobile_number,
  order_id,
  SUBSTR(order_id, 5, 4) AS order_year,
  order_date,
  delivery_date,
  DATEDIFF(delivery_date, order_date) AS delivery_days,
  ROUND(order_amount, 2) AS order_amount,
  UPPER(city) AS city,
  signup_date,
  DATEDIFF(NOW(), signup_date) AS customer_tenure_days,
  CASE
    WHEN order_amount >= 50000 THEN 'High Value'
    WHEN order_amount >= 20000 THEN 'Medium Value'
    ELSE 'Low Value'
  END AS order_category,
  ROUND(rating, 1) AS rating
FROM customer_orders;
```



```
--  STEP 14: FINAL CLEANED VIEW (Industry Practice)
create view  vw_for_cleaned_customer_orders as
select
    customer_id,
upper(trim(first_name)) as clean_fname,
    UPPER(TRIM(last_name)) AS cleaned_last_name,
CONCAT( UPPER(TRIM(first_name)),' ',UPPER(TRIM(last_name))) AS full_name ,
    lower(email) as clear_email ,
substr(mobile_number,length(mobile_number) -9,10) as cleaned_mobile_number ,
     order_id,
SUBSTR(order_id, 5, 4) AS ordered_year,
    ROUND(order_amount, 2) AS cleaned_order_amount,
delivery_date,
    upper(city) as cleaned_city ,
order_date,
    datediff(delivery_date,order_date) as delivery_days_remains,
signup_date ,
    datediff(now(),signup_date) as days_with_componey,
case
    when order_amount >=50000 then 'ambani mere ____ pe '
    when order_amount >=30000 then 'bss itni aukat hai teri ,so you  arre ambani ,hehehe'
    when order_amount >=20000 then 'teri aukat nhi hai order_dene ki toh apni ____ mra'
    else 'bhai tu ekk km kr , tel__chatai ka dhndha start kr de '
end as order_category
from customer_orders;
```

🔹 STEP 15: Validate Cleaned Data

```sql
SELECT *
FROM customer_orders_cleaned
LIMIT 10;
```



```sql
-- STEP 15: Validate Cleaned Data

select *
from vw_for_cleaned_customer_orders
limit 20;
```

cleaned_mobile_number	order_id	ordered_year	cleaned_order_amount	delivery_date	cleaned_city	order_date	delivery_days_remains	signup_date	days_with_componey	order_category
9110053353	ORD-2022-0001	2022	3662.38	2022-07-20	PUNE	2022-07-18	2	2021-11-22	1496	bhai tu ekk km kr , tel__chatai ka dhndha sta
9749621470	ORD-2021-0002	2021	10669.92	2021-01-21	DELHI	2021-01-14	7	2018-10-02	2643	bhai tu ekk km kr , tel__chatai ka dhndha sta
9664130526	ORD-2024-0003	2024	23175.88	2024-02-08	BANGALORE	2024-02-05	3	2021-09-29	1550	teri aukat nhi hai order_dene ki toh apni ___
9654049436	ORD-2022-0004	2022	38255.82	2022-07-07	MUMBAI	2022-07-01	6	2020-07-22	1984	bss itni aukat hai teri ,so you arre ambani ,
9940992571	ORD-2022-0005	2022	91497.48	2022-07-04	HYDERABAD	2022-07-03	1	2021-11-19	1499	ambani mere ____ pe
9811514914	ORD-2023-0006	2023	59842.7	2023-11-14	CHENNAI	2023-11-10	4	2023-07-30	881	ambani mere ____ pe
9466825638	ORD-2022-0007	2022	50308.32	2022-11-29	MUMBAI	2022-11-28	1	2022-01-22	1435	ambani mere ____ pe
9997612044	ORD-2022-0008	2022	8336.33	2022-10-30	HYDERABAD	2022-10-26	4	2022-09-27	1187	bhai tu ekk km kr , tel__chatai ka dhndha sta
9215984311	ORD-2022-0009	2022	44090.96	2022-03-15	MUMBAI	2022-03-10	5	2020-01-17	2171	bss itni aukat hai teri ,so you arre ambani ,
9354794895	ORD-2021-0010	2021	72473.58	2021-05-20	CHENNAI	2021-05-19	1	2018-12-11	2573	ambani mere ____ pe
9701642483	ORD-2023-0011	2023	86236.42	2023-08-22	DELHI	2023-08-15	7	2021-07-20	1621	ambani mere ____ pe
9897677788	ORD-2021-0012	2021	40403.51	2021-04-20	PUNE	2021-04-14	6	2019-09-29	2281	bss itni aukat hai teri ,so you arre ambani ,