

1 Data Cleaning

1.1 Check for nulls

The screenshot shows the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar contains icons for SQL, Commit, Rollback, and other database operations. The Database Navigator on the left shows a tree structure with 'localhost:3307' expanded, listing databases like hdnb, pizzahut, retail company's customer database, supermarket, sys, and university. The 'supermarket' database is selected. The SQL Editor in the center contains the following script:

```
-- Check for nulls
select * from supermarket_sales ss
where ss.`Unit price` is null or ss.Quantity is null or ss.Rating is null;
```

Below the SQL Editor, the 'supermarket_sales 1' table is displayed in a grid view. The columns are: A-Z Invoice ID, A-Z Branch, A-Z City, A-Z customer_type, and A-Z Gender. The grid is currently empty. The bottom status bar shows 'No data- 0.002s, on 2025-04-14 at 16:12:20'.

1.2 Check Data Type

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations and database actions. The Database Navigator on the left shows a tree structure with 'localhost' selected, containing databases like 'hdbn', 'pizzahut', 'retail company's customer database', 'supermarket', 'sys', and 'university'. The SQL Editor in the center contains a script for checking nulls in the 'supermarket_sales' table:

```
-- Check for nulls
select * from supermarket_sales ss
where ss.`Unit price` is null or ss.Quantity is null or ss.Rating is null;
```

The bottom panel shows a data grid for 'supermarket_sales 1'. The grid has columns: Invoice ID, Branch, City, customer_type, and Gender. The grid is currently empty. The bottom status bar shows 'No data- 0.002s, on 2025-04-14 at 16:12:20'.

Invoice ID	Branch	City	customer_type	Gender
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2 Data analysis

2.1 Overall Sales Performance

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations and database actions. The Database Navigator on the left shows a tree structure with 'localhost:3307' expanded, listing databases like 'supermarket' and 'sys'. The SQL Editor in the center contains a query titled '-- Overall Sales Performance'.

```
-- Overall Sales Performance
select
  SUM(total) as total_revenue,
  AVG(total) as avg_transaction_value
from supermarket_sales ss;
```

The Results 1 tab at the bottom shows the query results in a grid view. The first row contains the following data:

	123 total_revenue	123 avg_transaction_value
1	322,966.7490000001	322.966749

The status bar at the bottom indicates '1 row(s) fetched - 0.002s (0.001s fetch), on 2025-04-14 at 16:16:27'. The bottom right corner shows 'BDT en Writable' and 'Smart Insert'.

2.2 Branch Performance

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations, SQL execution, and database management. The Database Navigator on the left shows a tree structure with 'localhost' expanded, revealing several databases including 'supermarket'. The SQL Editor in the center contains a query titled 'Branch Performance'.

```
-- Branch Performance
select branch, sum(total) as total_revenue, avg(total) as avg_sales
from supermarket_sales ss
group by ss.Branch ;
```

Below the SQL Editor, the results are displayed in a table grid titled 'supermarket_sales 1'. The grid shows three columns: 'branch', 'total_revenue', and 'avg_sales'. The data is as follows:

	branch	total_revenue	avg_sales
1	A	106,200.3705000001	312.3540308824
2	C	110,568.7064999999	337.099714939
3	B	106,197.672	319.8725060241

The bottom status bar indicates that 3 rows were fetched in 0.002s on 2025-04-14 at 16:22:58. The interface also includes a 'Project - General' tab and a 'DataSource' tab on the left, and a 'Panels' tab on the right.

2.3 Customer Type Analysis

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations and database actions. The Database Navigator on the left shows a tree structure with 'localhost' expanded, containing several databases, with 'supermarket' selected. The SQL Editor in the center contains a script titled 'Customer Type Analysis' with the following SQL query:

```
-- Customer Type Analysis
select
    ss.customer_type,
    SUM(total) as total_spent,
    avg(total) as avg_sales
from supermarket_sales ss
group by ss.customer_type;
```

Below the SQL Editor, the results are displayed in a table grid titled 'supermarket_sales 1'. The table has four columns: 'customer_type', 'total_spent', and 'avg_sales'. The results show two rows:

	customer_type	total_spent	avg_sales
1	Member	164,223.444	327.7913053892
2	Normal	158,743.305	318.1228557114

The bottom status bar indicates '2 row(s) fetched - 0.002s, on 2025-04-14 at 16:27:17'. The interface also shows a 'Project - General' tab on the left and a 'DataSource' tab on the right.

2.4 Product line Evaluation

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various SQL-related icons and a dropdown menu with 'localhost' and 'supermarket'. The left sidebar contains the Database Navigator, Projects, and a search bar. The main SQL Editor window shows a query titled 'Product Line Evaluation'.

```
-- Product Line Evaluation
select
    ss.`Product line` ,
    SUM(total) as total_revenue,
    avg(total) as avg_sales
from supermarket_sales ss
group by ss.`Product line`
order by total_revenue desc;
```

The bottom panel shows the results of the query in a table grid. The table has three columns: 'Product line', 'total_revenue', and 'avg_sales'. The results are sorted by total_revenue in descending order.

	Product line	total_revenue	avg_sales
1	Food and beverages	56,144.844	322.6715172414
2	Sports and travel	55,122.8265	332.0652198795
3	Electronic accessories	54,337.5315	319.6325382353
4	Fashion accessories	54,305.895	305.0892977528
5	Home and lifestyle	53,861.913	336.63695625
6	Health and beauty	49,193.739	323.6430197368

The bottom status bar indicates that 6 rows were fetched in 0.003s on 2025-04-14 at 16:30:19. The interface also shows a 'Project - General' tab and a 'DataSource' tab.

2.5 Sales By Day

DBeaver 24.3.5 - <localhost> Script-7

File Edit Navigate Search SQL Editor Database Window Help

SQL Commit Rollback Auto localhost supermarket

Database Navigator Projects

Enter a part of object name here

- > DBeaver Sample Database (SQLite)
- > localhost localhost:3307
 - > Databases
 - > hdnb
 - > pizzahut
 - > retail company's customer database
 - > supermarket
 - > sys
 - > university
 - > Users
 - > Administer
 - > System Info

```
-- Sales by day
select date, sum(total) as total_sales
from supermarket_sales ss
group by date
order by date;
```

supermarket_sales 1 X

select date, sum(total) as t Enter a SQL expression to filter results (use Ctrl+Shift+P)

	A-Z date	123 total_sales
1	1/1/2019	4,745.181
2	1/10/2019	3,560.949
3	1/11/2019	2,114.9625
4	1/12/2019	5,184.7635
5	1/13/2019	2,451.204
6	1/14/2019	3,966.6165
7	1/15/2019	5,944.26
8	1/16/2019	4,289.082
9	1/17/2019	3,142.755

Project - General

Name DataSource

- > Bookmarks
- > Dashboards
- > Diagrams
- > Scripts

2.6 Sales by time

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations, SQL execution, and database management. The left sidebar contains the Database Navigator, Projects, and a Project - General tab. The Database Navigator shows a tree structure of databases, with 'supermarket' selected. The SQL Editor window shows a query titled 'Script-6' with the following SQL code:

```
-- Sales by
select time, sum(total) as total_sales
from supermarket_sales ss
group by time
order by total_sales | desc;
```

The results of the query are displayed in a table view at the bottom. The table is titled 'supermarket_sales 1' and has two columns: 'time' and 'total_sales'. The results are sorted by 'total_sales' in descending order. The table contains 11 rows of data.

	time	total_sales
1	14:42	2,534.637
2	13:48	2,513.07
3	17:16	2,324.3745
4	13:00	2,322.81
5	15:42	2,266.4985
6	10:33	2,156.994
7	16:19	2,142.714
8	19:48	2,033.1255
9	11:23	1,953.9975
10	11:40	1,906.233
11	15:01	1,899.513

The bottom status bar shows the following information: 200 row(s) fetched - 0.004s (0.001s fetch), on 2025-04-14 at 16:34:31. The interface also includes a 'Panes' sidebar on the right and a 'Project - General' tab at the bottom left.

2.7 Peak Time

DBeaver 24.3.5 - <localhost> Script-7

File Edit Navigate Search SQL Editor Database Window Help

SQL Commit Rollback Auto localhost supermarket

Database Navigator Projects

Enter a part of object name here

- > DBeaver Sample Database (SQLite)
- > localhost localhost:3307
 - > Databases
 - > hdnb
 - > pizzahut
 - > retail company's customer database
 - > supermarket
 - > sys
 - > university
 - > Users
 - > Administer
 - > System Info

```
-- Peak times
SELECT
    EXTRACT(HOUR FROM time) AS hour,
    SUM(total) AS total_sales
FROM supermarket_sales ss
GROUP BY hour
ORDER BY total_sales DESC;
```

Results 1

SELECT EXTRACT(HOUR FROM time) AS hour, SUM(total) AS total_sales FROM supermarket_sales ss GROUP BY hour ORDER BY total_sales DESC;

	hour	total_sales
1	19	39,699.513
2	13	34,723.227
3	10	31,421.481
4	15	31,179.5085
5	14	30,828.399
6	11	30,377.3295
7	12	26,065.8825
8	18	26,030.34
9	16	25,226.3235
10	17	24,445.218
11	20	22,969.527

Project - General

Name DataSource

- > Bookmarks
- > Dashboards
- > Diagrams
- > Scripts

Refresh Save Cancel

200 11 Empty query string

BDT en Writable Smart Insert 10

2.8 Payment Method Distribution

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations, SQL execution, and database management. The left sidebar contains the Database Navigator, Projects, and a Project - General tab. The Database Navigator shows a tree structure of databases, with 'supermarket' selected. The SQL Editor window shows a query titled 'Payment Method Distribution'.

```
-- Payment Method Distribution
SELECT ss.Payment, COUNT(*) as transaction_count, sum(total) as total_sales
from supermarket_sales ss
group by ss.Payment;
```

The results are displayed in a table grid with the following columns: Payment, transaction_count, and total_sales. The data is as follows:

Payment	transaction_count	total_sales
Ewallet	345	109,993.107
Cash	344	112,206.57
Credit card	311	100,767.0720000001

The bottom status bar indicates that 3 row(s) were fetched on 2025-04-14 at 16:38:27. The interface also shows a 'supermarket_sales 1' tab and a 'DataSource' tab.

2.9 Customer Experience (Average rating Overall)

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar contains icons for file operations, SQL execution, and database management. The left sidebar shows the Database Navigator with a tree view of the 'localhost' database, including 'supermarket' and 'sys' databases. The main SQL Editor window shows a script with the following content:

```
-- Customer Experience
-- Average rating overall
select avg(rating) as avg_rating from supermarket_sales ss ;
```

The bottom panel shows the 'Results 1' tab with a table of results. The table has one column, 'avg_rating', and one row with the value 6.9727. The status bar at the bottom indicates '1 row(s) fetched - 0.001s, on 2025-04-14 at 16:48:00'.

avg_rating
6.9727

2.10 Customer Experience (Branch)

DBeaver 24.3.5 - <localhost> Script-7

File Edit Navigate Search SQL Editor Database Window Help

SQL Commit Rollback Auto

Database Navigator Projects

enter a part of object name here

DBeaver Sample Database (SQLite)

localhost localhost:3307

Databases

- hdbn
- pizzahut
- retail company's customer database
- supermarket
- sys
- university

Users

- Administer
- System Info

```
-- Customer Experience
-- branch and product line
select ss.Branch, avg(rating) as avg_rating from supermarket_sales ss group by ss.Branch ;
```

supermarket_sales 1

select ss.Branch, avg(rating) as avg_rating from supermarket_sales ss group by ss.Branch ;

Grid

	A-Z Branch	123 avg_rating
1	A	7.0270588235
2	C	7.0728658537
3	B	6.8180722892

Project - General

name DataSource

Bookmarks

Dashboards

Diagrams

Scripts

2.11 Customer Experience (Product Line)

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations, SQL execution, and database management. The left sidebar contains the Database Navigator, Projects, and a Project - General tab. The Database Navigator shows a tree structure of databases, with 'supermarket' selected. The SQL Editor window shows a query titled 'Script-6' with the following SQL code:

```
-- Customer Experience
-- branch and product line
select ss.`Product line`, avg(rating) as avg_rating from supermarket_sales ss group
```

The results are displayed in a table view titled 'supermarket_sales 1'. The table has two columns: 'Product line' and 'avg_rating'. The data is sorted by 'Product line' in ascending order. The results are as follows:

Product line	avg_rating
Health and beauty	7.0032894737
Electronic accessories	6.9247058824
Home and lifestyle	6.8375
Sports and travel	6.9162650602
Food and beverages	7.1132183908
Fashion accessories	7.0292134831

The bottom status bar shows the number of rows fetched (6 row(s) fetched - 0.003s (0.001s fetch), on 2025-04-14 at 16:52:47) and the current page (3).

2.12 Customer Experience (Correlaton with transaction value)

The screenshot displays the DBeaver 24.3.5 interface. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar shows various icons for file operations, SQL execution, and database management. The left sidebar contains the Database Navigator, Projects, and a search bar. The main SQL Editor window shows a script with the following content:

```
-- Customer Experience
-- Correlation with transaction value
select total, rating from supermarket_sales ss ;
```

The results of the query are displayed in a table with 11 rows. The columns are 'total' and 'rating'. The data is as follows:

	total	rating
1	548.9715	9.1
2	80.22	9.6
3	340.5255	7.4
4	489.048	8.4
5	634.3785	5.3
6	627.6165	4.1
7	433.692	5.8
8	772.38	8
9	76.146	7.2
10	172.746	5.9
11	60.816	4.5

The bottom status bar indicates that 200 row(s) were fetched in 0.002s on 2025-04-14 at 16:54:15. The interface also shows a 'Project - General' tab with options for Name, DataSource, Bookmarks, Dashboards, Diagrams, and Scripts.

3 Power Bi Data Visualiazation

