

1. Output the number of rows in the account relation. Call the result column OPEN.

The screenshot shows the Oracle SQL Developer interface. The left sidebar displays the schema tree under 'BankingDB', including 'Tables' like 'account', 'account_type', 'address', 'branch', 'customer', 'employee', and 'transaction'. The main pane shows a query editor with the following SQL:

```
1 •  SELECT COUNT(*) as OPEN
2   FROM account
```

The results grid shows a single row with the value '1998' under the column 'OPEN'. A context help message on the right says: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help." The bottom status bar indicates the query was completed successfully.

2. Output the first and last name of the customers' whose address resides in the state of Utah (UT).

The screenshot shows the MySQL Workbench interface with the following details:

- Project:** CS425Project
- Schemas:** BankingDB
- Tables:** account, account_type, address, branch, customer, employee, transaction, Views, Stored Procedures, Functions.
- Query Editor:** Contains the following SQL code:

```
1 •  SELECT fname, sname
2   FROM customer
3  JOIN address ON customer.address_id=address.address_id
4  WHERE address.state LIKE 'UT'
```
- Result Grid:** Displays the results of the query, showing columns fname and sname. The data is as follows:

fname	sname
Allison	Sanders
Timothy	Parker
Evelyn	Bailey
Charlotte	Cooper
Kaitlyn	Richardson
Sofia	Bell
Grace	Hayes
James	Watson
Sofia	Gonzales
Aiden	Jenkins
Christina	Murphy

- Object Info:** Shows the schema and data types for the employee table.
- Session:** Shows the current session information.
- Right Panel:** Contains a sidebar with links to Result Grid, Form Editor, Field Types, Query Stats, and Execution Plan.
- Status Bar:** Shows "Query Completed" and "Result 2".
- Help:** A note states: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."

3. Output the amount of workers at branch_id 778 and call the resulting column “WORKERS.”

The screenshot shows the Oracle SQL Developer interface. The SQL worksheet contains the following query:

```

1 • SELECT COUNT(*) AS WORKERS
2   FROM employee
3  WHERE branch_id=778
4  GROUP BY branch_id
    
```

The Result Grid shows the output:

WORKERS
10

The History pane shows the following log of actions:

Action Output	Time	Action	Response	Duration / Fetch Time
Object Info				
Session				
Columns:				
employee_id	int UN PK	15 18:09:40	SELECT fname, sname FROM customer JOIN address ON customer.address_id=address...	11 row(s) returned 0.0012 sec / 0.0002...
fname	varchar(30)	16 18:15:37	SELECT COUNT(*) AS WORKERS, ssn AS SOCIAL_SECURITY_NUMBER FROM employee...	Error Code: 1064. You have an error in your SQL... 0.00039 sec
sname	varchar(30)	17 18:15:42	SELECT COUNT(*) AS WORKERS, ssn AS SOCIAL_SECURITY_NUMBER FROM employee...	Error Code: 1140. In aggregated query without G... 0.00049 sec
salary	varchar(10)	18 18:16:15	SELECT COUNT(*) AS WORKERS, ssn AS SOCIAL_SECURITY_NUMBER FROM employee...	Error Code: 1055. Expression #2 of SELECT list i... 0.00054 sec
position	varchar(40)	19 18:16:21	SELECT COUNT(*) AS WORKERS FROM employee GROUP BY branch_id LIMIT 0, 50000	25 row(s) returned 0.00055 sec / 0.0000...
ssn	int UN	20 18:16:41	SELECT COUNT(*) AS WORKERS FROM employee GROUP BY branch_id WHERE branch...	Error Code: 1064. You have an error in your SQL... 0.00039 sec
address_id	int UN	21 18:16:49	SELECT COUNT(*) AS WORKERS FROM employee WHERE branch_id=778 GROUP BY br...	Error Code: 1064. You have an error in your SQL... 0.00052 sec / 0.0000...
branch_id	int UN	22 18:16:54	SELECT COUNT(*) AS WORKERS, ssn FROM employee WHERE branch_id=778 GROUP...	Error Code: 1055. Expression #2 of SELECT list i... 0.00047 sec
		23 18:17:04	SELECT COUNT(*) AS WORKERS FROM employee WHERE branch_id=778 GROUP BY br...	1 row(s) returned 0.00056 sec / 0.000...

At the bottom, it says "Query Completed".

4. Output the account number and corresponding account type for account's owned by customers name Benjamin Allen.

The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Standard MySQL Workbench icons for file operations, schema navigation, and database connections.
- Left Panel (Schemas):**
 - BankingDB:** Contains tables like account, account_type, address, branch, customer, employee, transaction.
 - BasketballDB:**
 - sys:**
- Central Panel (Query Editor):**
 - Query 1:** A SELECT statement joined three tables: account, customer, and account_type.
 - Result Grid:** Displays the output of the query, showing 5 rows of account numbers and types.
 - Context Help:** A tooltip on the right says "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Action Output:** Shows the history of actions taken during the session, including the successful execution of the query.
- Status Bar:** Shows "Query Completed".

```

1 •  SELECT account.account_num, account_type.type
2   FROM account
3   JOIN customer ON account.customer_id=customer.customer_id
4   JOIN account_type ON account.type=account_type.type
5   WHERE customer.fname LIKE 'Benjamin' AND customer.sname LIKE 'ALLEN'

```

account_num	type
517472400	savings
591951960	checking
730218844	checking
144570782	savings
509364123	checking

Action Output

Time	Action	Response	Duration / Fetch Time
20 19:44:11	SELECT account_num FROM account	1 row(s) returned	0.0002 sec / 0.000000...
24 19:44:33	SELECT account_num FROM account JOIN acc...	Error Code: 1066. Not unique table/alias: 'account'	0.00040 sec
25 19:45:02	SELECT account.account_num FROM account...	Error Code: 1066. Not unique table/alias: 'account'	0.00036 sec
26 19:46:04	SELECT a.account_num FROM account a JOIN...	Error Code: 1066. Not unique table/alias: 'a'	0.00037 sec
27 19:46:38	SELECT account.account_num FROM account...	Error Code: 1066. Not unique table/alias: 'account'	0.00039 sec
28 19:46:44	SELECT account.account_num FROM account...	Error Code: 1066. Not unique table/alias: 'account'	0.00041 sec
29 19:47:18	SELECT account.account_num FROM account...	31 row(s) returned	0.0011 sec / 0.00002...
30 19:47:32	SELECT account.account_num FROM account...	5 row(s) returned	0.0016 sec / 0.00001...
31 19:50:08	SELECT account.account_num, account_type.t...	5 row(s) returned	0.0014 sec / 0.00001...

5. Output the account name for deposit transactions less than \$100 and the amount is decreasing order.

The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Standard MySQL Workbench icons for file operations, schema navigation, and query execution.
- Left Panel (Schemas):** Shows the current schema is "Assignment1.4". It lists the "BankingDB" schema with tables: account, account_type, address, branch, customer, employee, and transaction. Other schemas like BasketballDB and sys are also listed.
- Central Panel (Query Editor):**
 - Query 1 tab is selected.
 - SQL pane contains the following query:

```
1 •  SELECT account.account_name, transaction.amount
2   FROM transaction
3  JOIN account ON transaction.account_num=account.account_num
4 WHERE transaction.trans_type LIKE 'Deposit' AND amount<100
5 ORDER BY transaction.amount DESC
```
 - Result Grid pane displays the output of the query, showing account names and amounts. The results are sorted by amount in descending order. Some rows show warnings or errors:

account_name	amount
bgyorffy27	99.99
jkloisnerkd	99.99
lalwiche7g	99.99
llankesterr4	99.99
stomek11	99.99
cchaundi33	99.99
rmonokmanek	99.99
lsmailid	99.98
adromasaygg	99.95
mdoddielipz	99.95
bdomineyib	99.95
srochetsx	99.95
wradsdalefi	99.95
amassowgu	99.95
dwitham16	99.95
eflemesqm	99
sbocock2o	99
hfransinelli8	99
bbulloughhe4	99
gskerittov	99
 - Message bar indicates "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Bottom Panel (Action Output):** Shows the execution log with 35 entries, detailing each step of the query execution, including time, action, response, and duration.

6. Output the row for the highest earning employee in the banking database.

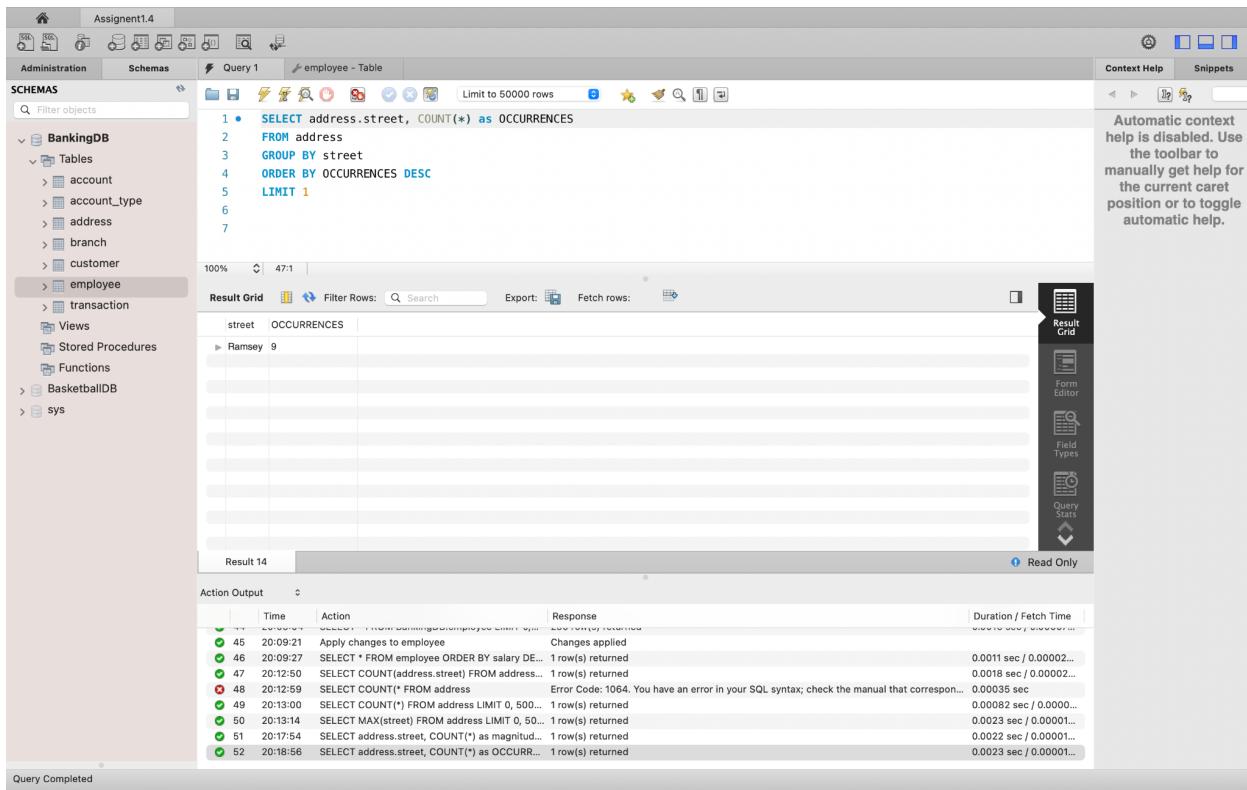
The screenshot shows the MySQL Workbench interface with the following details:

- Query Editor:** Displays the SQL query:

```
1 • SELECT *
2   FROM employee
3  ORDER BY salary DESC
4  LIMIT 1
```
- Result Grid:** Shows the result of the query, which is a single row for Steven Coleman, with columns: employee_id, fname, sname, salary, position, ssn, address_id, branch_id. The values are: 22462778, Steven, Coleman, 285000, Investment Representative, 596546332, 873020830, 949.
- Action Output:** Displays the history of actions taken during the session, including queries and statements. The last few entries are:

Action	Time	Response	Duration / Fetch Time
SHOW SESSION VARIABLES LIKE 'lower_case_l...	20:08:56	OK	0.000 sec
SHOW DATABASES	20:08:55	OK	0.000 sec
SHOW SESSION VARIABLES LIKE 'lower_case_l...	20:08:57	OK	0.000 sec
SHOW COLUMNS FROM 'BankingDB'.`employ...	20:08:57	OK	0.000 sec
PREPARE stmt FROM 'INSERT INTO `BankingD...	20:08:59	OK	0.000 sec
PREPARE stmt FROM 'SELECT * FROM employee ...'	20:08:59	OK	0.000 sec
DEALLOCATE PREPARE stmt	20:08:59	OK	0.000 sec
SELECT * FROM BankingDB.employee LIMIT 0,...	20:09:04	250 row(s) returned	0.0016 sec / 0.00007...
Apply changes to employee	20:09:21	Changes applied	
SELECT * FROM employee ORDER BY salary DE...	20:09:27	1 row(s) returned	0.0011 sec / 0.00002...
- Message Bar:** Shows the message "Query Completed".
- Right Panel:** Contains a note about context help being disabled and instructions to use the toolbar for manual help.

7. Output the most popular street name in the database and the amount of occurrences of that street name, labeling that column as OCCURRENCES.



The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Standard MySQL Workbench tools for file operations, schema navigation, and query execution.
- Left Panel (Schemas):** Shows the current schema is "Assignment1.4". It lists the "BankingDB" schema, which contains tables like account, account_type, address, branch, customer, employee, transaction, and views. Other schemas listed are "BasketballDB" and "sys".
- Central Panel (Query Editor):**
 - Query 1: SELECT address.street, COUNT(*) as OCCURRENCES FROM address GROUP BY street ORDER BY OCCURRENCES DESC LIMIT 1
 - Result Grid: Shows the result for the query, with one row: Ramsey 9.
 - Action Output: A log of actions taken during the session, including changes applied to the employee table and various SQL queries executed.
- Right Panel (Help):** A note stating: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Status Bar:** Shows "Query Completed".

```

1 •  SELECT address.street, COUNT(*) as OCCURRENCES
2   FROM address
3   GROUP BY street
4   ORDER BY OCCURRENCES DESC
5   LIMIT 1
6
7
100% 47:1
Result Grid Filter Rows: Search Export: Fetch rows:
street OCCURRENCES
Ramsey 9
Action Output
Time Action Response Duration / Fetch Time
44 20:09:17 SELECT * FROM BankingDB.employee LIMIT 500 200 row(s) returned 0.0001 sec / 0.0000...
45 20:09:21 Apply changes to employee Changes applied
46 20:09:27 SELECT * FROM employee ORDER BY salary DESC 1 row(s) returned 0.0011 sec / 0.00002...
47 20:12:50 SELECT COUNT(address.street) FROM address... 1 row(s) returned 0.0018 sec / 0.00002...
48 20:12:59 SELECT COUNT(*) FROM address Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'COUNT(*)' at line 1 0.00035 sec
49 20:13:00 SELECT COUNT(*) FROM address LIMIT 0, 500... 1 row(s) returned 0.00082 sec / 0.0000...
50 20:13:14 SELECT MAX(street) FROM address LIMIT 0, 500... 1 row(s) returned 0.0023 sec / 0.00001...
51 20:17:54 SELECT address.street, COUNT(*) as magnitud... 1 row(s) returned 0.0022 sec / 0.0000...
52 20:18:56 SELECT address.street, COUNT(*) as OCCURRENCES 1 row(s) returned 0.0023 sec / 0.0000...

```

8. Output the state with the most branches in the database.

The screenshot shows the Oracle SQL Developer interface with the following details:

- Toolbar:** Standard SQL Developer toolbar with icons for file operations, schema navigation, and search.
- Navigation:** Shows the schema tree under "BankingDB" containing tables like account, account_type, address, branch, customer, employee, transaction, and views like BasketballDB.
- Query Editor:** The current query is:

```
1 •  SELECT address.state
2   FROM address
3  JOIN branch ON branch.address_id=address.address_id
4  GROUP BY state
5  ORDER BY COUNT(*) DESC
6  LIMIT 1
7
8
```
- Result Grid:** The result of the query is displayed in a grid, showing a single row for California (CA).
- Right Panel:** A note states: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Action Output:** A table showing the history of actions taken during the session, including the error at step 48.

Action	Time	Response	Duration / Fetch Time
46 20:09:27	SELECT * FROM employee ORDER BY salary DE...	1 row(s) returned	0.0011 sec / 0.00002...
47 20:12:50	SELECT COUNT(address.street) FROM address...	1 row(s) returned	0.0018 sec / 0.00002...
48 20:12:59	SELECT COUNT(*) FROM address	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'COUNT(*)' at line 1	0.00036 sec
49 20:13:00	SELECT COUNT(*) FROM address LIMIT 0, 500...	1 row(s) returned	0.00082 sec / 0.0000...
50 20:13:14	SELECT MAX(street) FROM address LIMIT 0, 50...	1 row(s) returned	0.0023 sec / 0.00001...
51 20:17:54	SELECT address.street, COUNT(*) as magnitud...	1 row(s) returned	0.0022 sec / 0.00001...
52 20:18:56	SELECT address.street, COUNT(*) as OCCURR...	1 row(s) returned	0.0023 sec / 0.00001...
53 20:51:51	SELECT address.state FROM address JOIN bra...	1 row(s) returned	0.0011 sec / 0.00001...

Query Completed

9. Output the balance of Maria Garcia's money market account.

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** BankingDB
- Tables:** account, account_type, address, branch, customer, employee, transaction
- Query Editor:** Contains the following SQL code:

```
1 •  SELECT account.balance
2   FROM account
3   JOIN customer ON customer.customer_id=account.customer_id
4   WHERE customer.fname LIKE 'Maria' AND customer.sname LIKE 'Garcia' AND account.type LIKE 'money market'
```
- Result Grid:** Shows the result of the query: balance | 928487.13
- Action Output:** Displays the history of actions taken by the system, including log entries for each query execution from step 55 to 62.
- Message Bar:** "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."
- Status Bar:** "Query Completed"

10. Output the 3 most common transaction dates.

The screenshot shows the MySQL Workbench interface with the following details:

- Query Editor:** Displays the SQL query:

```
1 •  SELECT transaction.date
2   FROM transaction
3   GROUP BY date
4   ORDER BY COUNT(*) DESC
5   LIMIT 3
```
- Result Grid:** Shows the results of the query, which are three dates: 2011-06-20, 2018-04-01, and 2012-05-02.
- Action Output:** Shows the history of actions taken during the session, including various SELECT statements and their responses, along with their execution times.
- Message Bar:** At the bottom, it says "Query Completed".
- Help Message:** A message in the top right corner states: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."