

Week11-Transactions

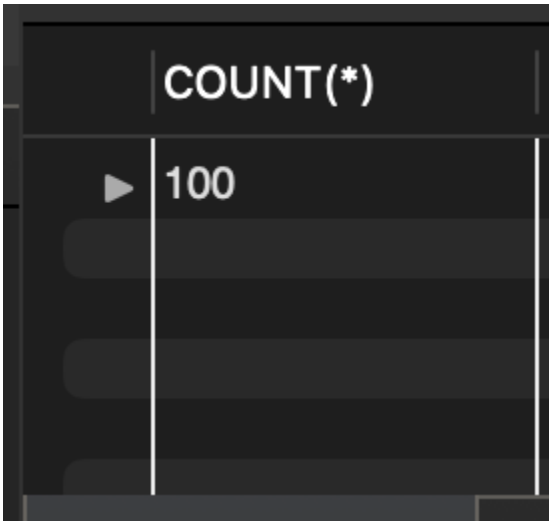
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1. Start two connections to your database server (note that both connections can be made with the same user i.e. root). On the first instance/connection, execute the following. Red text will indicate the first instance; blue text will indicate the second.
2. Write a query that calculates the number of records in the example1 table and provide this query. (1 mark)

```
29 • SELECT COUNT(*) FROM example1;
```

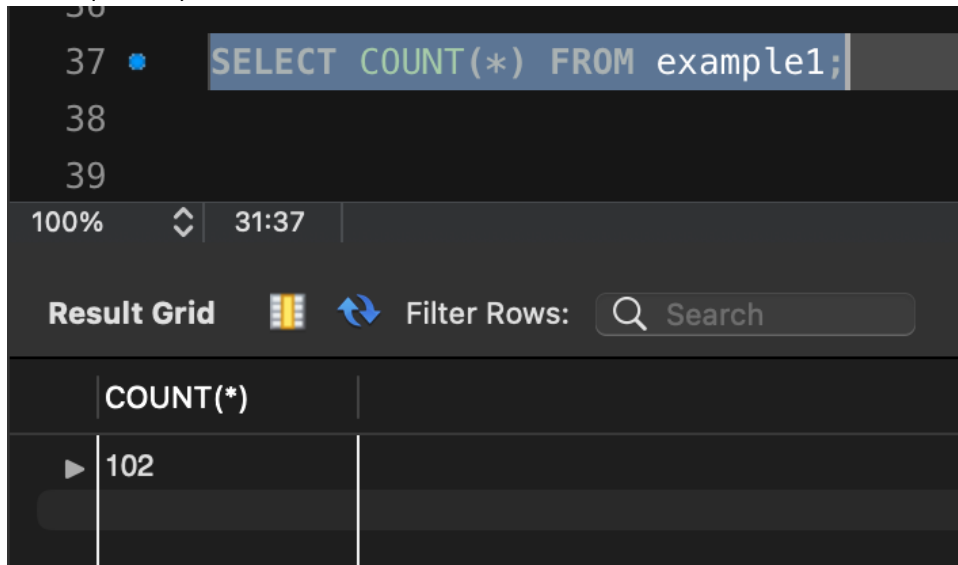
3. Execute the query from 1. How many records are stored in the example1 table? (1 mark)



| COUNT(*) |
|----------|
| 100 |

4. Execute the query below.

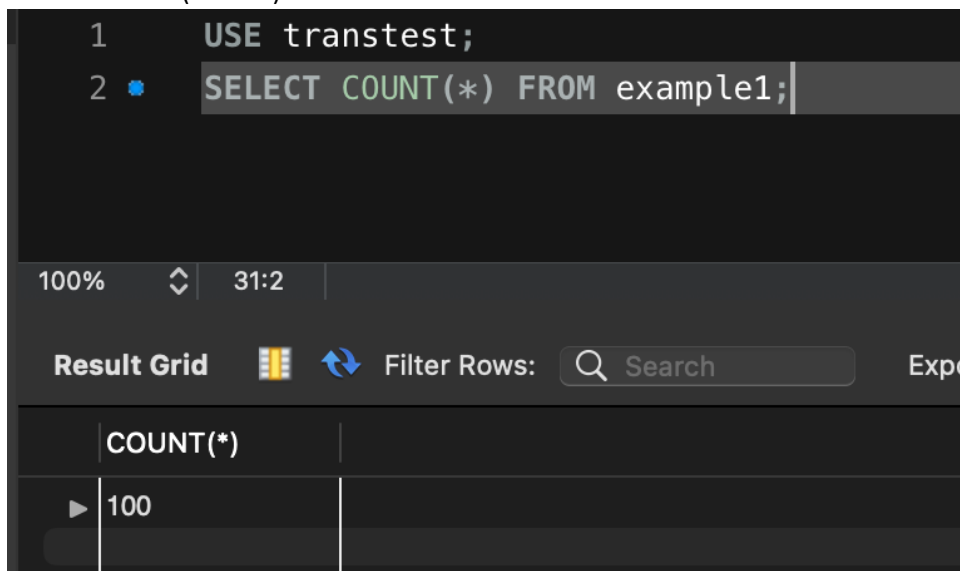
5. Execute the insert statements from 1 again. How many records are stored in the example1 table? (1 mark)



The screenshot shows a SQL IDE interface. The top panel contains the SQL query: `SELECT COUNT(*) FROM example1;`. Below the query editor, the 'Result Grid' is displayed. It shows a single row with the value '102' under the column header 'COUNT(*)'. The interface includes a search bar and a 'Filter Rows' button.

| COUNT(*) |
|----------|
| 102 |

6. Switch to the second instance/connection. Set the default database to transtest.
7. How many records are stored in the example1 table? Why? Which letter of ACID does it demonstrate? (1 mark)



The screenshot shows a SQL IDE interface. The top panel contains the SQL query: `USE transtest;` followed by `SELECT COUNT(*) FROM example1;`. Below the query editor, the 'Result Grid' is displayed. It shows a single row with the value '100' under the column header 'COUNT(*)'. The interface includes a search bar and a 'Filter Rows' button.

| COUNT(*) |
|----------|
| 100 |

Because connection 1 starts transaction then not commit yet, connection 2 cannot see any change. Atomicity and Isolation are applied.

8. Switch to the first instance/connection and ensure safe updates is disabled.
Or go to Edit --> Preferences --> SQL Editor and uncheck "Safe Updates" at the bottom of the window. If you did not have this setting set, you will have to restart your connection to the first instance for this change to take effect.
9. Run the following command:

10. How many records are stored in the example1 table in the first instance? (1 mark)

```
41  DELETE FROM example1 WHERE value1 <50;
42
43  SELECT COUNT(*) FROM example1;
44
```

100% 31:43

Result Grid Filter Rows: Search Export:

| COUNT(*) |
|----------|
| 92 |

11. Commit the transaction from the first instance then switch to the second instance/connection.

12. How many records are stored in the example1 table in the second instance? Explain. (1 mark)

```
1  USE transtest;
2  SELECT COUNT(*) FROM example1;
```

100% 31:2

Result Grid Filter Rows: Search Export:

| COUNT(*) |
|----------|
| 92 |

Since connection 1 commits its transaction, the change is set to the database permanently. Durability is applied.

13. Switch back to the first instance/connection and run the following:

14. How many records are stored in the example1 table in the first instance? (1 mark)

```
56
57 SELECT COUNT(*) FROM example1;
58
```

100% 31:57

Result Grid Filter Rows: Search Export

| COUNT(*) |
|----------|
| 94 |

Because the first and second insert statement are applied, only two rows are added.

15. Switch to the second instance/connection.
16. What is the number of records in the example1 table in the second instance? (1 mark)

```
1 USE transtest;
2 SELECT COUNT(*) FROM example1;
```

100% 31:2

Result Grid Filter Rows: Search

| COUNT(*) |
|----------|
| 92 |

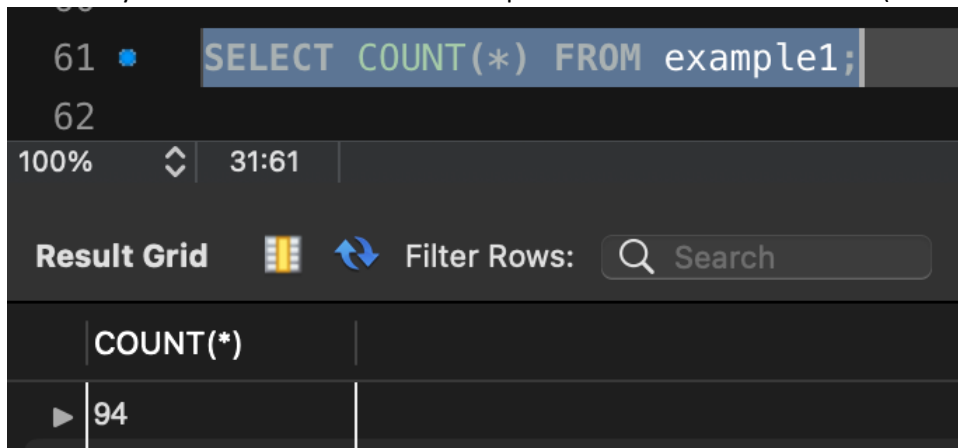
Because transaction in connection 1 isn't committed yet, the changes have not affected the table.

17. Which letter of ACID does it demonstrate? (1 mark)

A(Atomicity) and I(Isolation) are applied

18. Switch back to the first instance and run

19. How many records are stored in the example1 table in the first instance? (1 mark)

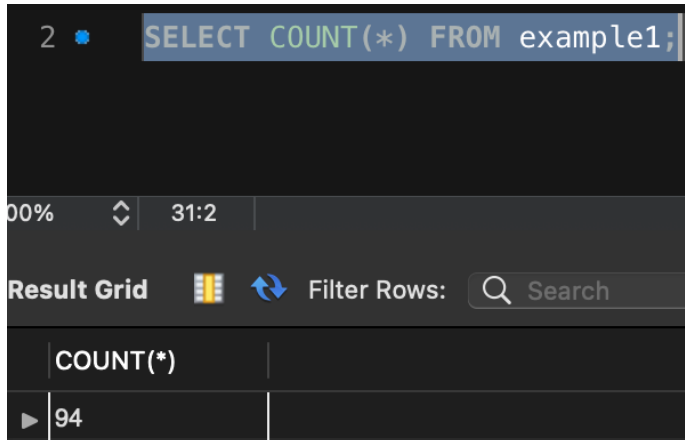


The screenshot shows a SQL client window with a dark theme. At the top, a SQL query is entered in a text area: `SELECT COUNT(*) FROM example1;`. Below the query area, there is a progress bar at 100% and a timer showing 31:61. A toolbar contains icons for 'Result Grid', a grid icon, a refresh icon, and a 'Filter Rows' button with a search input field. Below the toolbar, a table displays the query results. The table has one column labeled 'COUNT(*)' and one row with the value '94'.

| COUNT(*) |
|----------|
| 94 |

20. Switch to the second instance/connection.

21. How many records are stored in the example1 table in the second instance? Explain. (1 mark)



The screenshot shows a SQL client window with a dark theme. At the top, a SQL query is entered in a text area: `SELECT COUNT(*) FROM example1;`. Below the query area, there is a progress bar at 100% and a timer showing 31:2. A toolbar contains icons for 'Result Grid', a grid icon, a refresh icon, and a 'Filter Rows' button with a search input field. Below the toolbar, a table displays the query results. The table has one column labeled 'COUNT(*)' and one row with the value '94'.

| COUNT(*) |
|----------|
| 94 |

Since connection 1 committed its transaction, the permanent changes applied to the table then connection 2 can see the results.

22. Switch to the first instance/connection. Execute the entire transaction below:

23. How many records are stored in the example1 table in the first instance? (1 mark)

```
63 • start transaction;
64
65 • insert into example1(value1) values(701);
66
67 • insert into example1(value1) values(703);
68
69 • insert into example1(value1) values(704);
70
71 • rollback;
72
73 • SELECT COUNT(*) FROM example1;
74
75
```

100% 31:73

Result Grid Filter Rows: Search Export:

| COUNT(*) |
|----------|
| 94 |

24. Switch to the second instance/connection.

25. How many records are stored in the example1 table in the second instance? Explain. (1 mark)

```
1 USE transtest;
2 • SELECT COUNT(*) FROM example1;
```

100% 31:2

Result Grid Filter Rows: Search

| COUNT(*) |
|----------|
| 94 |

Since connection 1 starts transaction and rollback it instead of commit, the changes connection 1 made are canceled. connection 2 can see the results which looks like

nothing happened.

26. Switch to the first instance/connection and run:

27. How many records are stored in the example1 table in the first instance? (1 mark)

```
77 • insert into example1(value1) values(800);
78
79 • savepoint i15;
80
81 • insert into example1(value1) values(801);
82
83 • savepoint i16;
84
85 • insert into example1(value1) values(802);
86
87 • savepoint i17;
88
89 • rollback to savepoint i15;
90
91 • SELECT COUNT(*) FROM example1;
```

100% 31:91

Result Grid Filter Rows: Search Export:

| | COUNT(*) |
|------|----------|
| ▶ 95 | |

28. Switch to the second instance/connection.

29. How many records are stored in the example1 table in the second instance? (1 mark)

```
1  USE transtest;
2  SELECT COUNT(*) FROM example1;
```

100% 31:2

Result Grid Filter Rows: Search

| COUNT(*) |
|----------|
| 94 |

30. Switch to the first instance/connection and run the following:

31. How many records are stored in the example1 table in the first instance? (1 mark)

```
93  commit;
94
95  SELECT COUNT(*) FROM example1;
```

100% 31:95

Result Grid Filter Rows: Search

| COUNT(*) |
|----------|
| 95 |

32. Switch to the second instance/connection.

33. How many records are stored in the example1 table in the second instance? Explain (1 mark)

```
1  USE transtest;
2  SELECT COUNT(*) FROM example1;
```

100% 31:2

Result Grid Filter Rows: Search

| COUNT(*) |
|----------|
| 95 |

Since connection 1 starts transaction and committed it, the changes connection 1 made are set to the table. connection 2 can see the results.