



Managing & Programming Database MCDA5540

**Master of Science in Computing and Data Analytics
Team Project Bonus**

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Bonus Part: PERFORMANCE COMPARISONS

Query 1-a: Running a full scan on MySQL local server

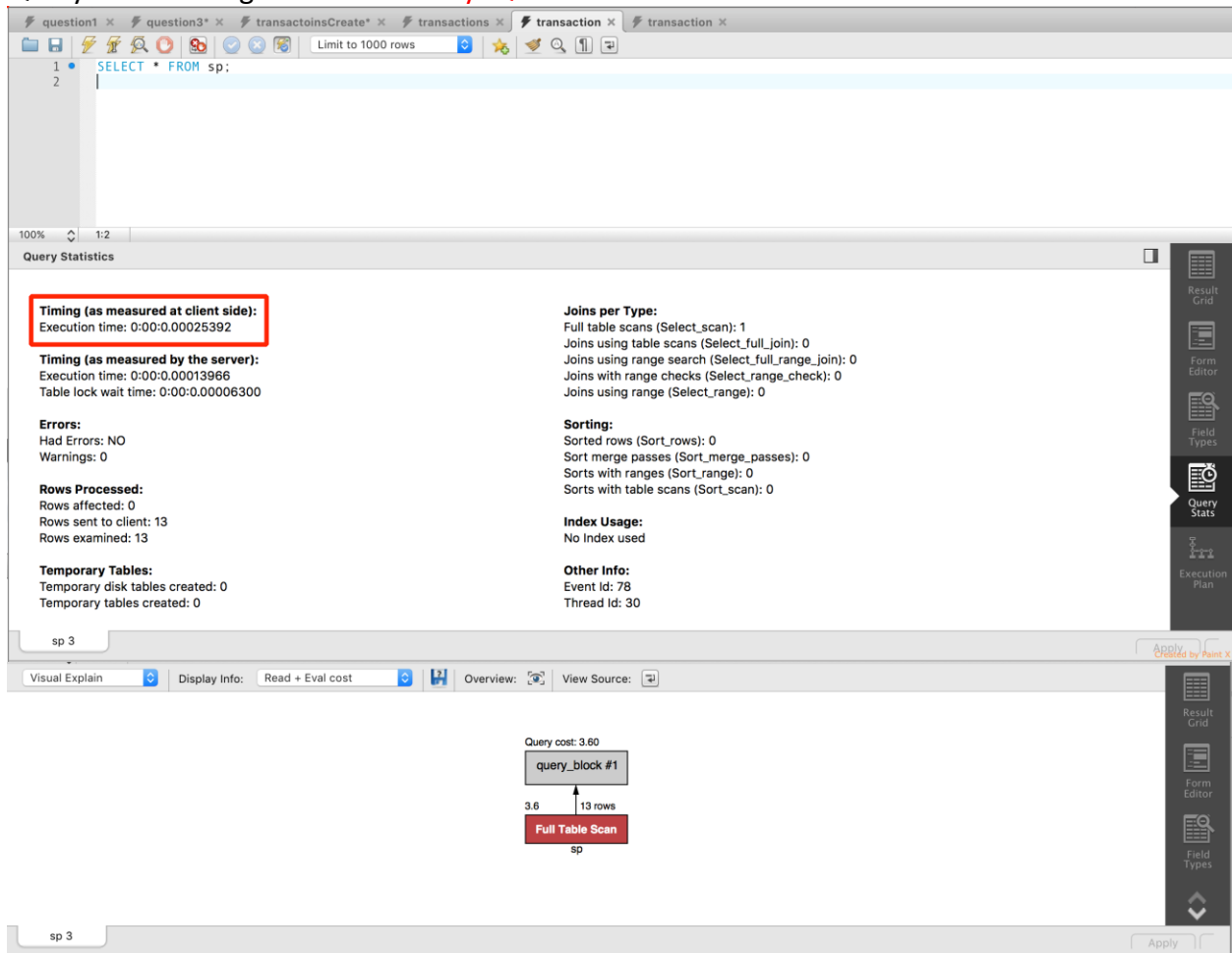


Figure 1 MySQL Full table scan performance

Query 1-b: Running a full scan on IBM Db2 on Cloud

IBM Db2 on Cloud

Storage: 2%

Discover

RUN SQL

Run

Script

Edit

Favorites

New tab

1 SELECT * FROM sp;

2

Saved scripts

Result

Filter by status: All

Delete All

▼ All(1), Failed(0)

●

SELECT * FROM sp

Result set

Log

The statement ran successfully.

SQL statement

SELECT * FROM sp

Execution log

Run time: 0.001 s

Status: SUCCEEDED

Database: BLUDB

Rows affected: 0

Figure 2 DB2 Full table scan performance

Query 2-a: Running a full scan + unique key look up on MySQL local server

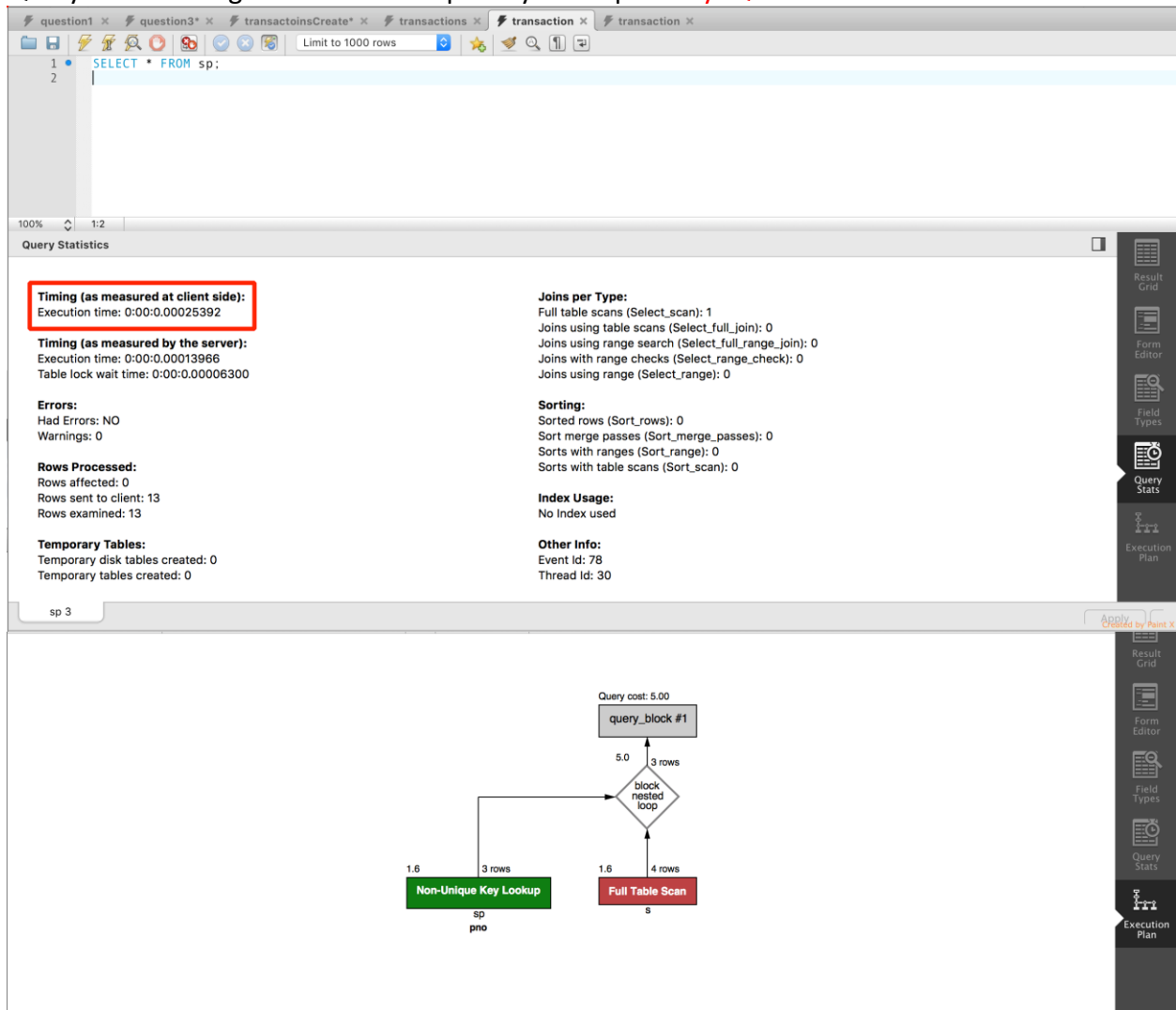


Figure 3 MySql Full table scan + unique key lookup performance

Query 2-b: Running a full scan + unique key look up on IBM Db2 on Cloud

RUN SQL

Run Script Edit Favorites New tab

```
1 SELECT s."sname", s."city"
2 FROM s
3 INNER JOIN sp
4 ON s."sno" = sp."sno"
5 WHERE sp."pno" = 3;
```

Saved scripts **Result**

Filter by status: All Delete All

- ✓ All(1), Failed(0)
- ✓ All(1), Failed(0)
- ✓ All(1), Failed(0)
- ✓ All(1), Failed(0)

Result set **Log**

SQL statement

```
SELECT s."sname", s."city"
FROM s
INNER JOIN sp
ON s."sno" = sp."sno"
WHERE sp."pno" = 3
```

Execution log

Run time: 0.001 s
Status: SUCCEEDED
Database: BLUDB
Rows affected: 0

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Figure 4 DB2 Full table scan + unique key lookup performance

Query 3-a: Running full scan + unique key look up + non-unique key look up on MySQL local server

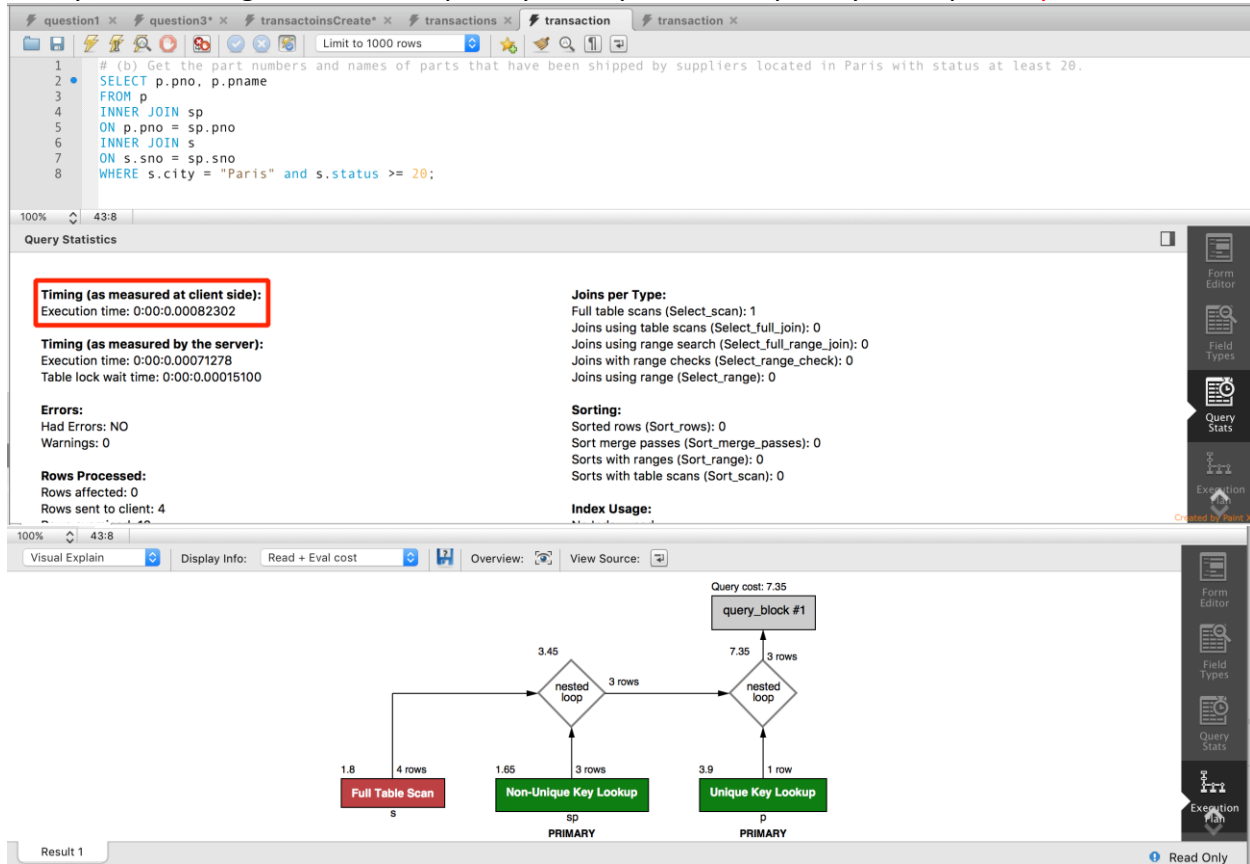


Figure 5 MySQL Full table scan + unique + non unique key lookup performance

Query 3-b: Running full scan + unique key look up + non-unique key look up on IBM Db2 on Cloud

The screenshot displays the IBM Db2 on Cloud interface. At the top, the header shows 'IBM Db2 on Cloud' and 'Storage: 2%'. Below the header, there's a 'RUN SQL' section with buttons for 'Run', 'Script', 'Edit', 'Favorites', and 'New tab'. The main area contains a SQL query:

```
1 SELECT p."pno", p."pname"
2 FROM p
3 INNER JOIN sp
4 ON p."pno" = sp."pno"
5 INNER JOIN s
6 ON s."sno" = sp."sno"
7 WHERE s."city" = 'Paris' and s."status" >= 20;
```

Below the query, there's a 'Result' tab showing the execution log. The log indicates that the query was successful with a run time of 0.003 s and 0 rows affected.

Execution log

- Run time: 0.003 s
- Status: SUCCEEDED
- Database: BLUDB
- Rows affected: 0

Figure 6 DB2 Full table scan + unique + non unique key lookup performance

Conclusion:

For full table scan results are ambiguous since Db2 only using 3 digits after decimal. The difference can be a rounding error.

For full table scan + unique key look up Db2 seems to perform better

For full table scan + unique key look + non-unique key look up MySQL seems to perform better.

Db2 might be performing better with unique key lookups whereas MySQL is superior for non-unique key look ups.

Reference:

1. Data for bonus point is taken from assignment-1.