Execution

Database Administration
Lab Guide 2

2022/2023

Consider the EXPLAIN statement that displays the execution plan and statistics using the following alternatives:

- `EXPLAIN SELECT ...`

- `EXPLAIN ANALYZE SELECT ...`

- `EXPLAIN (ANALYZE,BUFFERS) SELECT ...`

Steps

1. Observe execution plans for each query. (Disregard cost information.)

2. Observe system resource usage of queries with EXPLAIN and with operating system tools while the benchmark is running.

3. Disable operators in configuration file and repeat the observation and benchmark.[1]

Questions

1. What is the impact of the join algorithm in memory usage and I/O?

2. What is the impact of the grouping algorithm in memory usage and I/O?

Learning Outcomes Describe execution plans for abstract relational operations. Relate query plan with resource usage. Relate resource usage with performance.

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[1]List of operator-specific parameters: `https://www.postgresql.org/docs/15/runtime-config-query.html`

Additional Tools

Plan visualizer

- `https://explain.depesz.com/s/dosQ`
- `https://explain.dalibo.com`
- `http://pgbadger.darold.net/`

Hardware usage

- `htop` – `https://linux.die.net/man/1/htop`
- `psutil` – `https://github.com/giampaolo/psutil`