Pa2

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1. INTRODUCTION

In this week, we will learn about transaction management in the SQLite database engine.

2. METHODS

A. Performance evaluation: system transaction vs. user transaction

B. Understanding deadlock in SQLite

C. Performance evaluation: journal mode

3. Performance Evaluation

3.1 Experimental Setup

Type	Specification
OS	Ubuntu 18.04.65 LTS
CPU	Intel(R) Core(TM) i5-10400F CPU @ 2.90GHz
Memory	3994720 kB
Kernel	Linux ubuntu 5.4.0-144-genericcat /proc

3.2 Experimental Results

A

	System_trx.sql	User_trx.sql
Real	0.621	0.0102
User	0.010	0.017
sys	0.292	0.029

B

```
nicholasbear@ubuntu:~/Desktop/SWE3033-F2021/week-12$ sqlite3 deadlock.db
SQLite version 3.36.0 2021-06-18 18:36:39
Enter ".help" for usage hints.
sqlite> BEGIN;
sqlite> SELECT * FROM TEST;
1
2
sqlite> INSERT INTO TEST VALUES (4);
Error: database is locked
sqlite>
```

```
nicholasbear@ubuntu:~/Desktop/SWE3033-F2021/week-12$ sqlite3 deadlock.db
SQLite version 3.36.0 2021-06-18 18:36:39
Enter ".help" for usage hints.
sqlite> BEGIN;
sqlite> INSERT INTO TEST VALUES (3);
sqlite> COMMIT;
Error: database is locked
sqlite>
```

해결

```
nicholasbear@ubuntu:~/Desktop/SWE3033-F2021/week-12$ sqlite3 deadlock.db
SQLite version 3.36.0 2021-06-18 18:36:39
Enter ".help" for usage hints.
sqlite> BEGIN;
sqlite> SELECT * FROM TEST;
1
2
sqlite> INSERT INTO TEST VALUES (4);
Error: database is locked
sqlite> ROLLBACK;
sqlite> ^C
sqlite> SELECT * FROM TEST;
Error: database is locked
sqlite> SELECT * FROM TEST;
1
2
```

```
nicholasbear@ubuntu:~/Desktop/SWE3033-F2021/week-12$ sqlite3 deadlock.db
SQLite version 3.36.0 2021-06-18 18:36:39
Enter ".help" for usage hints.
sqlite> BEGIN;
sqlite> INSERT INTO TEST VALUES (3);
sqlite> COMMIT;
Error: database is locked
sqlite> ROLLBACK;
sqlite>
```

둘다 ROLLBACK 해주면 된다

C

	real	user	sys
Sync1_delete	0.716	0.011	0.346
Sync10_delete	0.116	0.003	0.056
Sync20_delete20	0.115	0	0.047
Sync1_persist	0.586	0	0.376
Sync10_persist	0.126	0.002	0.060
Sync20_persist	0.103	0	0.043
Sync1_truncate	0.804	0	0.308
Sync10_truncate	0.143	0	0.061

Sync20_truncate	0.103	0.012	0.034

4. Conclusion

A user_trx 속도가 더 빠르다는 것을 알수 있었다.

B. 두 터미널에서 모두 ROLLBACK 을 해줘야 된다는 것을 알수 있었다.

C. user 에서 0 초가 나오는 현상들이 있었으며 숫자가 낮을수록 초가 증가하였다.