# Writeup Lab 5

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## Describe any design decisions you made.

I add a `PageLock` class to store the lock information of a page. Each page will record (at most) one exclusive lock and a set of shared lock. Basic function as `addLock`, `releaseLock`, `isHolding`, `isExclusive`, and `relatedTid` is implemented for use.

For deadlock detection, I created a dependency graph within the `BufferPool` class to form the dependency of the pages and transactions, and use a `DFS` to detect the deadlocks.

Locking granularity follows the instruction in the document which locking at page granularity.

## Discuss and justify any changes you made to the API.

None to my knowledge.

## Describe any missing or incomplete elements of your code.

None to my knowledge.

## Describe how long you spent on the lab, and whether there was anything you found particularly difficult or confusing.

3 Days. Nothing particularly difficult. The debugging process takes quite a long time. I have to print out some of the info from test to finally find the mistakes. I suggest that it could be better if we could have the expected time to finish one test since sometimes no deadlock is caused but the program is still stuck to an infinite loop.