Writeup for Lab 5

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Design decisions

The locking granularity is page by creating a ***PLock*** for every page. I then maintain a ***pLockMap*** which keep track of all ***pLock*** with ***PageId*** and a ***tLockMap*** which keep track of all the pages that is locked by some ***TransactionId***.

The dead lock is detected by finding if there is a cycle in the dependency graph. Concretely, I maintain a ***dGraph*** where there is an edge from t_1 to t_2 if t_1 request a lock for a page that t_2 already has a lock for. Then every time ***getPage*** is called by some t, the ***dGraph*** will be updated by adding edges and then I will find if there is a cycle in the graph starting at t, if so, a ***TransactionAbortedException*** is thrown.

API changes

No API changes.

Missing or incomplete element

No missing or incomplete element

time spent and difficult/confusing parts

I finish within two days. It is really annoying to debug, especially for BTreeTest.