

Report of the SimpleDB Lab1

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1 design decisions

1. In the first exercise, I add "field" and "field_num" to the "TupleDesc" Class, and add "desc", "content" and "recordid" to the "Tuple" Class. The meanings of these variables is obvious.
2. In the second exercise, I use ConcurrentHashMap<Integer, Table> "table_list" in class "catalog". "Table" is a newly designed class which has variables "file", "names" and "pkeyField".
3. In the third exercise, I use ConcurrentHashMap<PageId, Page> "page_list" in class "BufferPool".
4. In the 4th and 5th exercise, all functions are implemented as described and needed variables are added. I'd like to especially talked about the iterator of Tuple in the whole file. I override open, hasNext, next, rewind and close. In the implementation of hasNext and next, I define a new function called findNext. If it returns -1, there is not exist the next iterator. If it returns 0, the next can be find use ".next". If it returns an none-zero integer x, the next iterator is the first tuple of the x-th page in the file.
5. In the 6th exercise, the iterator implemented in the exercise 5 is used.

2 missing or incomplete elements

There is none missing or incomplete elements in my code.

3 time spent and challenges

I use two days to prepare, comprehend and finish this homework.

The points which I find difficult and cost me a lot of time are listed as following:

1. Maybe it seems amazing that setting the environment cost me half of the day. And I end up with using the IntelliJ which we use in compiler class.

2. Recall the definition of iterator and implemented it costs me some effort.
3. In the ScanTest, readcount is always wrong, although I think I have no problem with the concept of caching. In the end, the error was happend because I mistakenly link the page and the page number in HeapFile. For example, in rewind, I already put the first page in the buffer with the numbering 0, but in findNext, I add num_page and put the same page with numbering 1 again. The details are important.