

1 Design Decision

In this lab, I implement a set of operators for SimpleDB to implement table modifications (e.g., insert and delete records), selections, joins, and aggregates. These are build on top of the previous two labs.

The design logic for lab3 is quite straight forward. To meet the function for the required operators, I implement **fetchNext()** methods for each of them. I carefully write my code to make it looks compact and succinct.

2 API Adaptations

In lab3 I did not modify any pre-defined functions. The only thing I did in this lab is to add some tool functions to simplify my code.

- **Tuple.merge**(Tuple t1, Tuple t2): Concat two tuples to form a new tuple with merged fields.
- **getField**(Tuple t, int id): get an IntField(-1) if *NO_GROUPING*, else return the id-th field in t.
- **compute**(Tuple t1, Tuple t2, int id): compute the results for SUM, MAX, MIN, AVG Operations.

3 Missing and Incomplete Part

Currently we have not perform a test on heterogeneous and large data. I will do this in the next lab which aims at query optimization.

4 Difficulty and Time Consuming

I spent around 6-7 hours in this lab. The most complicated part is to revise my previous code in BufferPool and HeapFile, which takes me much time to recall what I have written before. Also I takes some time cleaning my project environment.