

Lab 1 Writeup

- **Describe any design decisions you made. These may be minimal for Lab 1.**

For the TupleDesc class, I decided to use a vector of TDItems since I could initially set the vector size and I could easily access specified indexes of the vector. This made searching for a TDItem at an index i very easy to look up.

Along with for the TupleDesc class, I used a vector of Fields in my Tuple class. I could quickly initialize the vector with a specified size and access elements at a specified index.

For the Catalog class, I made a private class called TableInfo that contained information regarding the DbFile, primary key, and name of the table. Along with this class, I used a hashmap that used an id as the key and a TableInfo as a value. This allowed me to quickly look up information from the TableInfo relating to the specified id. I also made a hashmap with a name as a key and the id as a value for the quick checking and getting of a specific key.

For the BufferPool class, I used a hashmap with a PageId as a key and a Page as a value. This allowed me to quickly search up a Page using its PageId for wherever it was helpful to do so.

For my HeapFile class, I made a private helper class called HeapFileTuperIter that used DbFileIterator as its super class. It is a Tuple iterator that iterates through a list of tuples retrieved from a certain page. To get the list of tuples, I used an ArrayList since its own iterator method made going through the list of tuples very easy.

- **Discuss and justify any changes you made to the API.**

I did not make any changes to the API. I tried my best to stick with the skeleton code that was given and was able to pass the 'ant test' and 'ant systemtest' without having to modify the API.

- **Describe any missing or incomplete elements of your code.**

The only missing elements of my code were the methods that were not required to be implemented for lab 1.

- **Describe how long you spend on the project, and whether there was anything you found particularly difficult or confusing.**

I spent at least ten hours on this project. This was mainly because I was not familiar with Java to begin with, so I had to learn how to properly and efficiently code with Java. Also, some of the classes and methods that were required gave vague descriptions, resulting in me having to check and post on Piazza to see if I could get clarification on how I should be

implementing a certain class or method. Overall, the difficulty was primarily due to my inexperience with Java. After having a better understanding of how Java works, I feel that this lab was quite doable and about average in terms of difficulty.