ACM-DB Lab1

This is the answer document for lab1.

Design Choices

1. Exercise 1:
   - TupleDesc.java:
   - Tuple.java

     ArrayList to maintain `fieldType`s and `fieldName`s

2. Exercise 2:
   - Catalog.java

     Similar to TDItem in Tuple.java, a helper class `CatalogItem` to aggregate the information for a table.

     Two HashMap for quick table indexing.

3. Exercise 3:
   - BufferPool.java

     A HashMap for quick Page indexing.

4. Exercise 4:
   - HeapPageId.java

     `str(tableid) + str(pgNo)` as hashcode.
   - RecordID.java

     `str(pid.hashcode())+str(tupleno)` as hashcode.
   - HeapPage.java

     `PageIterator` implements `Iterator<Tuple>` as the iterator for heappage.

5. Exercise 5:
   - HeapFile.java

     `f.getAbsoluteFile().hascode()` as the unique id for heapfile.

     `HeapFileIterator` implements `DbFileIterator` as the iterator for heapfile.

6. Exercise 6:
   - SeqScan.java

     A `DbFileIterater` object to iterate through the table.
   - test.java result

```
/usr/lib/jvm/java-8-openjdk/bin/java ...
INT_TYPE(field0),INT_TYPE(field1),INT_TYPE(field2)
1   1   1
2   2   2
3   4   4


Process finished with exit code 0
```

Changes to API

None.

Missing or Incomplete elements

I believe None.

Time Spent

1 week. Nothing special to report.