Knowledge Points after Midterm Exam

1. Form Normalization
   1. Concept of functional dependency
   2. Harms of redundancy
   3. Armstrong’s Axioms
   4. Closures of FD and attributes
   5. Normal forms: 3NF and BCNF. Given tables and a group of FDs, you should be able to figure out whether or not they are 3NF/BCNF. If we conduct some decomposition, you need to figure out whether or not the results satisfy the requirements.
   6. Lossless join decomposition of tables
   7. Dependency preserving decomposition
2. Indexing
   1. Hash table based indexing. The advantages and disadvantages
   2. ISAM static tree: search, insert, deletion, why ISAM can pre-allocate big chunk of continuous memory
   3. B+ tree: how can B+ tree maintain 50% occupancy
   4. Equality and range search in B+ tree
   5. Insertion and deletion of items from B+tree: with and without the “borrowing” technique
3. Data warehouse
   1. Need for data warehouse
   2. Dimension tables and fact tables, Data cubes
   3. Star and snowflake schemas