## Chapter 4.4 Two - Pass Algorithm Based On Sort

***Emphasis:***

For Two – Pass Algorithm, the data that come from Operating Object, are read into the main memory and dealt with some kinds of method and re-write to the disk, and re – read the disk and finish the Operation.

***Reasons Why in Two – Pass:***

1. Two – Pass Algorithm is enough even for the large Relation.
2. Multi – Pass Algorithm is not difficult after getting the Two – Pass Algorithm.

***Principle:***

Using the *Sort Operator T* to realize Two – Pass Algorithm. For Relation R that satisfies *B(R) > M*, divide them into M chunk and sort. After that sort the Sorted Chunk by using the method which makes the random chunk occupies only one memory block.

### Chapter 4.4.1 Two - Stage Multi - Road Merge Sort

### Chapter 4.4.2 Deduplication Through Sort

### Chapter 4.4.3 Grouping and Clustering Based on Sort

### Chapter 4.4.4 Union Algorithm Based on Sort

### Chapter 4.4.5 Intersection and Difference Based on Sort

### Chapter 4.4.6 One Simple Join Algorithm Based on Sort

### Chapter 4.4.7 Analysis of Simple Sort Join

### Chapter 4.4.8 One More Easy Join Algorithm Based on Sort

### Chapter 4.4.9 Conclusion about Algorithm Based on Sort