CZ2001

Lab 2 Report

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(more)

Scenario Description & Data Set

Searching for product information on different shelves in a warehouse. There are n products with serial number (key) ranging from 1 to n. In this case, the number of shelves is the hash table size.

Description of Algorithm

Mod Table Size

```
int h(int x) {
     return(x % tableSize);
  }
```

This is a relatively straight-forward hashing function. (x % tableSize) gives the index of the key in the hash table. However, this algorithm could result in frequent clashing especially if *tableSize* is not a prime number.

Closed Address Hashing (an implementation to avoid clashing):

Closed Addressing Hashing is implemented to minimize the chance of clashing. It maintains the original hashed address. Records hashed to the same slot maintained in a linked list. Therefore, this is also known as chained hashing. In other words, a hash table with such implementation is effectively an array of head pointers, each pointing to a linked list.

Demonstration

Statistics: Average CPU time & Average Number of Key Comparisons

Explanation on Results

Conclusion: Time Complexity