

## Lab 8 - Hash Table

**Problem 1.** A shop wants to manage a list of  $n$  products by using a computer program. Each product is identified by three fields: code (5 numeric characters), name (40 characters maximum) and price (float).

For example, there are 4 products in the list.

code	name	price
10001	Sugar	50000
10002	Salt	7500
10003	Rice	15000
10004	Fish sauce	30000

Write a program which has the following operations using fixed size array ( $n$ ) hash table and division function ( $h(k) = k \% n$ ):

- Add a product to the list. Once a collision takes place, you should use linear or quadratic technique to solve it.
- Print out the product list.
- Search for a given product code.
- Remove a product from the list.

**Problem 2.** Write a program to store  $n$  integers in a chained hash table of 9 memory locations. Use hash function  $h(k) = k \% n$ . The program should do the tasks as follows:

- Add a number to the table.
- Print out the hash table.
- Search for a given value.
- Remove a number from the hash table.