BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CSE 208 (Data Structures and Algorithms II Sessional)
January 2023

Hashing Online (B2)
Duration: 35 minutes

Specification:

You need to implement a two-layered hash table. On the first layer, there will be only one hash table with size *N*. This table contains pointers/references to *N* more hash tables on the second layer, each having size *N*.
For the tables on the second layer, you may choose any of the hash table types you have already implemented (might need modifications).

You need to implement the insert and search operations for this table.

During insertion, this table takes two keys and one value *(key1, key2, value)* as arguments. *Key1* determines the index on the first layer hash table. *Key2* does the same on the appropriate hash table on the second layer.

The search function can take either both keys or just the first key as an argument. If given both keys, the table returns the corresponding value (if found).
If given only the first key, the table returns all the *(key2, value)* pairs corresponding to the first key (if found). You can use any data structure of your choice to return all the pairs.

Write an appropriate main function to demonstrate all functionalities of your new hash table.

The value of *N* can be around 100-200.

Example:
table.insert(“bd”, “dhaka”, 500);
table.insert(“bd”, “ctg”, 300);
table.insert(“uk”, “london”, 800);

table.find(“bd”, “dhaka”); -> returns 500
table.find(“bd”, “syl”); -> returns null/empty
table.find(“bd”); -> returns [(“dhaka”, 500), (“ctg”, 300)]
table.find(“china”); -> returns null/empty