

Week 5

Hash Table

Preliminary: Class lecture

Workshop:

Write a program that takes a sequence of dictionary operations. Output for each operation is defined as follows.

Given that an item is a pair (s,v) such that s is a string and v is an integer

Operation	Output
insert s v	the hash table
search s	v
delete s	the hash table

- 1) Develop a hash table data structure in Python 3. Resolve the collision with “Separate Chaining” technique. Use the provided hash.py program as template to start.
Note: for Python 3, the ascii code of a character c is given by ord(c)
- 2) Test your program with the provided test case.
- 3) What is the table size that you use for the provided test case. Why?
- 4) Try solving this problem. <https://www.hackerearth.com/practice/data-structures/hash-tables/basics-of-hash-tables/practice-problems/algorithm/t-rex-and-the-pairs-0a045ce2/> . Create a user account and submit your program for judging. A correct program will result in the following submission result.

My Submissions

#	Problem	Result	Time (Sec)	Memory (kb)	Language	Detail	Date
1	Pairs of elements	✓	2.90000009536743	12928	Python 3	View	4 hours ago

Obviously, solving this problem efficiently requires the use of hash table.

NOTE Python 3 has a built-in data structure for searching called “Dictionary” which utilizes the hash-table approach. For this online problem, you may use your own hash table or use the built-in dictionary for convenience. Learning about the built-in dictionary here [Python Dictionaries \(w3schools.com\)](https://www.w3schools.com/python/python_dictionaries.asp)