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CS-260 Data Structures and Algorithms

5-1 Programming Journal

What were the **strengths** of the pair in solving the problem? In other words, why do you think the provided data structure and algorithm made sense as a pair for the given task? Support your claims with specific evidence from the course materials.

* Hash tables are generally effective in instances of unordered lists, meaning nearly every list generated from every survey, form, questionnaire, anything that is requiring a response by individuals at work on in your personal life. A hash table is a data structure that stores unordered items by mapping (or hashing) each item to a location in an array (or vector). Ex: Given an array with indices 0..9 to store integers from 0..500, the modulo (remainder) operator can be used to map 25 to index 5 (25 % 10 = 5), and 149 to index 9 (149 % 10 = 9). A hash table's main advantage is that searching (or inserting / removing) an item may require only O(1), in contrast to O(N) for searching a list or to O(log N) for binary search.

What were the **weaknesses** in the pair for solving the given problem? In other words, what was it about either the data structure or the algorithm that might make you consider alternatives?

* The only weakness in using a hash table is the fact that databases can degrade if they go through many collisions. The probability that a collision will occur increases with the amount of data. The large number of hash functions do not hae the ability to move to the next or previous data set.