**Week 3 Discussion**

Find a practical article on using hash tables. Why do you think this has become a huge part of tech interviews for data scientists? Your response should be one paragraph and you need to respond to three other student’s posts.

<https://www.geeksforgeeks.org/what-is-hashing/>

In the Geeks for Geeks article, the point is made that the amount of data that exists keeps growing and therefore there is a need for an efficient way to store and then search this data. Searching an array of data can take on the order of log(n), for large data sets this can amount to a very large amount of time. A hashtable enables the search engine to know where to look for the data quickly. The amount of time saved has become important to companies who are handling larger and larger amounts of data and don’t want to take up time looking slowly through the data. [[1]](#endnote-1)

Furthermore, there are applications to encryption and information integrity that make hashing important to companies. Within encryption a hash function can be used to transform passwords, credit card numbers, and other sensitive information to then be stored within the hash table. It proves almost impossible for hackers to use the value produced by the hash function to work backwards to the original input. Hashing can also be used within information integrity by ensuring that files that are stored elsewhere are not manipulated or corrupted. A hash function can be used to assign a value to a file, the file can then be stored and the retrieved file can be reevaluated by the hash function. If the value is not the same then one knows that something has occurred to change the file. This can be done without comparing the file to itself line-by-line.[[2]](#endnote-2)

As technology progresses and data becomes even larger the efficiency and applications are likely to continue to expand, making hashing an important programming technique for data scientists. Since there are other less efficient methods for data searching, encryption and integrity, it is important that companies find employees who are willing to work on newer methods for programming and not rely on slower, older methods.

1. <https://www.geeksforgeeks.org/what-is-hashing/> [↑](#endnote-ref-1)
2. https://www.geeksforgeeks.org/applications-of-hashing/ [↑](#endnote-ref-2)