

Data Structures PA2

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1 Usage

Use `python ./hash.py <password file>` to create `./Dictionary.txt`. Then, use `python ./search.py` to search the hash values in `./list_pa2.txt` and write the results in `./results_pa2.txt`. Alternatively, use `python ./manual_search.py` to search one by one.

2 Code Structure

The code generating the dictionary is written in `./hash.py`, and the code to search for a given hash value is defined in `./search.py`. `./manual_search.py` imports the function defined in `./search.py` to perform the same functionality.

3 Data Structures and Algorithms

The algorithm used in this program is straightforward. In `./hash.py`, passwords are read one by one, the hash value is calculated for each salt and written to the output file. In `./search.py`, the aforementioned output file is read and a table consist of password, salt and hash values is created (in the form of Python lists). For each hash values, linear search is performed on the table and the output is written. In `./manual_search.py`, the same procedure is performed, but on the input read from commandline instead of a file.