# Report

Hash function has been used to be fast to compute the program. A class that SingleLinkedList used for keeping the values and frequency of values. A method that getNextPrime used for find the next prime number of expand the hash table size. A method that System.nanoTime() used for calculate time of necessary value.

Double hashing method did not work properly because of encountered problem that the index out of bounds.

| Load Factor | Hash Function | Collision Handling | Collision Count | Indexing Time | Avg. Search Time | Min. Search Time | Max. Search Time |
|---|---|---|---|---|---|---|---|
| A = 50% | SSF | LP | 567752 | 54080144300 | 411046 | 11799 | 6003299 |
|  |  | DH |  |  |  |  |  |
|  | PAF | LP | 567752 | 28435364301 | 219173 | 4200 | 3450500 |
|  |  | DH |  |  |  |  |  |
| A = 80% | SSF | LP | 567752 | 69419310799 | 604534 | 22499 | 6790200 |
|  |  | DH |  |  |  |  |  |
|  | PAF | LP | 567752 | 35803952700 | 385124 | 4599 | 6540299 |
|  |  | DH |  |  |  |  |  |

## References

- https://stackoverflow.com/questions/351565/system-currenttimemillis-vs-system-nanotime
- https://stackoverflow.com/questions/5694385/getting-the-filenames-of-all-files-in-a-folder?noredirect=1&lq=1
- https://www.geeksforgeeks.org/program-to-find-the-next-prime-number/