

## Investigation Report

The following table displays the performance of the single-core, two-core, and four-core versions of the table generator program. On a single machine.

Passwords Generated: 5399020

| Processes            | One core      | Two core      | Four core     |
|----------------------|---------------|---------------|---------------|
| Time for first run   | 25.01 seconds | 23.04 seconds | 21.13 seconds |
| Time for second run  | 23.99 seconds | 21.79 seconds | 22.20 seconds |
| Time for third run   | 22.64 seconds | 21.85 seconds | 21.60 seconds |
| Time for fourth run  | 23.19 seconds | 22.35 seconds | 21.41 seconds |
| Time for fifth run   | 22.06 seconds | 21.91 seconds | 20.67 seconds |
| Average time         | 23.37 seconds | 22.18 seconds | 21.40 seconds |
| Passwords per second | 231,023.5     | 243,418.3     | 252,290.6     |
|                      |               |               |               |

The following are the specifications of the test machine.

Processor: Intel(R) Core (TM) i3-8130U CPU @ 2.20GHz 2.21 GHz

Amount of RAM: 8.00 GB

Operating system: 64-bit

Disk type: Hard disk drive (HDD)

The test machine has 8GB RAM, which is better than 4GB, but the performance would have been better if it had 16GB or more. The test machine has HDD which has slower speed than SSD. It has an operating system of 64 bit which can handle more data at once than a 32 bit. It has an i3 processor but i5 or i7 will have better performance. Therefore, when it comes to performance based on the specifications of the test machine, the performance could be improved when the tests are run on a machine which has 16GB or more memory, SSD disk type and i5 or i7 processor.

The following are the results of cracking the passwords with crackfile.py using the hashes in shadow.txt

```
C:\Users\Anjum Shams\Desktop\Project>py crackfile.py -f shadow.txt
Username = plato
Password = baa
Username = descartes
Password = caLL
Username = kant
Password = dG0!b
Hash not found: 8fe5f8d32fc026347ec0c2c0acdadc6604d166293054feed74aec7ba82521067
Hash not found: 28fe2c008d32f0d905b84dlbelcce0efb07583df218897227462ef82c5195dc8
Elapsed Time: 5.697368621826172 Seconds
C:\Users\Anjum Shams\Desktop\Project>
```