

Experiments:

I conducted experiments on the D184MB files.

1. Generating the indexes, adding files and generating the CSP database screenshot:

```
[!] Enter a password: password
[+] Keys generated.
[?] Is this the first time running the script? (y/n) y
[+] Enter folder name: D184MB
[*] Generating the indexes and adding files.
[*] Ellapsed time: 411.8613591194153 seconds
[+] Indexes outsourced to the TA.
[*] Generating CSP database.
[*] Ellapsed time: 76.37310004234314 seconds
[+] Data outsourced to the CSP.
[+] Browse Network
[H] Enter s to search, d to delete or m to modify.
[SID]@shell:~$
```

Size	Type	Date Modified
20.0 KiB	Folder	Today
12.0 KiB	Folder	Today
4.0 KiB	Folder	Today
4.2 MiB	plain text document	Today
4.2 MiB	unknown	Today
1.8 MiB	plain text document	Today
1.8 MiB	unknown	Today
2.1 MiB	plain text document	Today
2.1 MiB	unknown	Today
468.5 KiB	plain text document	Today
468.6 KiB	unknown	Today
4.9 MiB	plain text document	Today
4.9 MiB	unknown	Today
1.1 MiB	plain text document	Today
1.3 MiB	unknown	Today
829.9 KiB	plain text document	Today
829.9 KiB	unknown	Today
2.3 MiB	plain text document	Today
2.3 MiB	unknown	Today
1.1 MiB	plain text document	Today
1.1 MiB	unknown	Today
2.4 MiB	plain text document	Today
2.4 MiB	unknown	Today
837.3 KiB	plain text document	Today
837.3 KiB	unknown	Today
783.2 KiB	plain text document	Today
783.2 KiB	unknown	Today
367.0 KiB	plain text document	Today
367.0 KiB	unknown	Today
786.1 KiB	plain text document	Today
786.1 KiB	unknown	Today
804.6 KiB	plain text document	Today
804.6 KiB	unknown	Today
2.6 MiB	plain text document	Today
2.6 MiB	unknown	Today

Generating the indexes, adding files: 412 seconds = 6 Minutes and 51 Seconds

Generating the CSP database: 76 seconds = 1 Minute 16 Seconds

2. Search for word:

```
[H] Enter s to search, d to delete or m to modify.
[SID]@shell:~$ s
Enter a word to search: Palestine
[+] Word found in 153.txt. File downloaded and decrypted.
[+] Word found in 333.txt. File downloaded and decrypted.
[+] Word found in 392.txt. File downloaded and decrypted.
[+] Word found in 392.txt. File downloaded and decrypted.
[+] Word found in 14.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 44.txt. File downloaded and decrypted.
[+] Word found in 25.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 122.txt. File downloaded and decrypted.
[+] Word found in 30.txt. File downloaded and decrypted.
[+] Word found in 110.txt. File downloaded and decrypted.
[+] Word found in 110.txt. File downloaded and decrypted.
[+] Word found in 258.txt. File downloaded and decrypted.
[+] Word found in 458.txt. File downloaded and decrypted.
[+] Word found in 130.txt. File downloaded and decrypted.
[+] Word found in 180.txt. File downloaded and decrypted.
[+] Word found in 48.txt. File downloaded and decrypted.
[+] Word found in 351.txt. File downloaded and decrypted.
[+] Word found in 204.txt. File downloaded and decrypted.
[+] Word found in 38.txt. File downloaded and decrypted.
[+] Word found in 368.txt. File downloaded and decrypted.
[+] Word found in 144.txt. File downloaded and decrypted.
[+] Word found in 10.txt. File downloaded and decrypted.
[+] Word found in 87.txt. File downloaded and decrypted.
[*] Ellapsed time: 8.386962413787842 seconds
[SID]@shell:~$
```

Size	Type	Date Modified
20.0 KiB	Folder	Today
12.0 KiB	Folder	Today
4.0 KiB	Folder	Today
4.2 MiB	plain text document	Today
4.2 MiB	unknown	Today
1.8 MiB	plain text document	Today
1.8 MiB	unknown	Today
2.1 MiB	plain text document	Today
2.1 MiB	unknown	Today
468.5 KiB	plain text document	Today
468.6 KiB	unknown	Today
4.9 MiB	plain text document	Today
4.9 MiB	unknown	Today
1.1 MiB	plain text document	Today
1.3 MiB	unknown	Today
829.9 KiB	plain text document	Today
829.9 KiB	unknown	Today
2.3 MiB	plain text document	Today
2.3 MiB	unknown	Today
1.1 MiB	plain text document	Today
1.1 MiB	unknown	Today
2.4 MiB	plain text document	Today
2.4 MiB	unknown	Today
837.3 KiB	plain text document	Today
837.3 KiB	unknown	Today
783.2 KiB	plain text document	Today
783.2 KiB	unknown	Today
367.0 KiB	plain text document	Today
367.0 KiB	unknown	Today
786.1 KiB	plain text document	Today
786.1 KiB	unknown	Today
804.6 KiB	plain text document	Today
804.6 KiB	unknown	Today
2.6 MiB	plain text document	Today
2.6 MiB	unknown	Today

Search time for word “Palestine”: 8 seconds

```
[SID]@shell:~$ s
Enter a word to search: whirlwinds
[+] Word found in 444.txt. File downloaded and decrypted.
[+] Word found in 392.txt. File downloaded and decrypted.
[+] Word found in 55.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 19.txt. File downloaded and decrypted.
[+] Word found in 30.txt. File downloaded and decrypted.
[+] Word found in 409.txt. File downloaded and decrypted.
[+] Word found in 17.txt. File downloaded and decrypted.
[+] Word found in 17.txt. File downloaded and decrypted.
[+] Word found in 17.txt. File downloaded and decrypted.
[+] Word found in 164.txt. File downloaded and decrypted.
[+] Word found in 228.txt. File downloaded and decrypted.
[+] Word found in 22.txt. File downloaded and decrypted.
[+] Word found in 20.txt. File downloaded and decrypted.
[+] Word found in 10.txt. File downloaded and decrypted.
[*] Ellapsed time: 2.5951650142669678 seconds
```

Size	Type	Date Modified
38.3 KiB	plain text document	Today
595.0 KiB	unknown	Today
638.1 KiB	plain text document	Today
638.1 KiB	unknown	Today
742.0 KiB	plain text document	Today
742.0 KiB	unknown	Today
105.9 KiB	plain text document	Today
105.9 KiB	unknown	Today
848.0 KiB	plain text document	Today
848.0 KiB	unknown	Today
75.9 KiB	Microsoft Word Document	Today
17.5 KiB	Python script	Today
44.1 MiB	SQLite3 database	Today

Search time for word “Palestine”: 2.5 seconds

```
[SID]@shell:~$ s
Enter a word to search: Conqueror
[+] Word found in 377.txt. File downloaded and decrypted.
[+] Word found in 206.txt. File downloaded and decrypted.
[+] Word found in 307.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 82.txt. File downloaded and decrypted.
[+] Word found in 174.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 200.txt. File downloaded and decrypted.
[+] Word found in 11.txt. File downloaded and decrypted.
[+] Word found in 11.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 26.txt. File downloaded and decrypted.
[+] Word found in 122.txt. File downloaded and decrypted.
[+] Word found in 110.txt. File downloaded and decrypted.
[+] Word found in 110.txt. File downloaded and decrypted.
[+] Word found in 110.txt. File downloaded and decrypted.
[+] Word found in 458.txt. File downloaded and decrypted.
[+] Word found in 476.txt. File downloaded and decrypted.
[+] Word found in 314.txt. File downloaded and decrypted.
[+] Word found in 408.txt. File downloaded and decrypted.
[+] Word found in 448.txt. File downloaded and decrypted.
[+] Word found in 157.txt. File downloaded and decrypted.
[+] Word found in 169.txt. File downloaded and decrypted.
[+] Word found in 378.txt. File downloaded and decrypted.
[*] Ellapsed time: 5.204015016555786 seconds
```

837.3 KiB	unknown	Today
783.2 KiB	plain text document	Today
783.2 KiB	unknown	Today
229.9 KiB	plain text document	Today
229.9 KiB	unknown	Today
1.1 MiB	plain text document	Today
1.1 MiB	unknown	Today
442.6 KiB	plain text document	Today
442.6 KiB	unknown	Today
7.6 MiB	plain text document	Today
7.6 MiB	unknown	Today
785.4 KiB	plain text document	Today
785.4 KiB	unknown	Today
199.7 KiB	plain text document	Today
199.7 KiB	unknown	Today
342.2 KiB	plain text document	Today
342.2 KiB	unknown	Today
59.9 KiB	plain text document	Today
59.9 KiB	unknown	Today
866.3 KiB	plain text document	Today
866.3 KiB	unknown	Today
411.5 KiB	plain text document	Today
411.5 KiB	unknown	Today
488.9 KiB	plain text document	Today
488.9 KiB	unknown	Today

Search time for word “Conqueror”: 5 seconds

The Search time is taken as the time it takes to generate the search token and the actual searching from the CSP database. For getting the average search time of a word I would probably need to search for every word in the words.db database. This would however take a lot of time probably and require more computational resources than my machine has. A CSP would have a large pool of resources and computational power as mentioned in the paper, however my code is designed to work on the same machine since I do not have another one.

3. Delete file:

```
[SID]@shell:~$ d
Enter file to delete: 408.txt
[*] Ellapsed time: 8.329373598098755 seconds
[*] File 408.txt deleted.
[SID]@shell:~$
```

Delete time of File 408.txt (420 KiB): 8.3 seconds

```
[SID]@shell:~$ d
Enter file to delete: 30.txt
[*] Ellapsed time: 11.05744481086731 seconds
[*] File 30.txt deleted
```

188.0 KiB	plain text document	07/01/2019
197.2 KiB	plain text document	07/01/2019
50.1 KiB	plain text document	07/01/2019

Delete time of File 30.txt (5 MiB): 11 seconds

```
Enter file to delete: 25.txt
[*] Ellapsed time: 8.628788232803345 seconds
[*] File 25.txt deleted.
```

197.2 KiB	plain text document	07/01/2019
361.3 KiB	plain text document	07/01/2019

Delete time of File 25.txt (2.1 MiB): 8.6 seconds

For getting an average of the delete time I would need to delete all the files and map the delete time to the size of the file. I did not have time to do that as I was troubleshooting the code for days.

4. Modify File:

I have modified file 2.txt

```
[SID]@shell:~$ m
Enter file to modify: 2.txt
[*] Ellapsed time: 7.203144073486328 seconds
[*] File 2.txt deleted.
[*] Generating new indexes.
[*] Ellapsed time: 106.595782995224 seconds
```

Size	Type	Date Modified
315.1 KiB	plain text document	07/01/2019
504.6 KiB	plain text document	07/01/2019
180.0 KiB	plain text document	07/01/2019
197.2 KiB	plain text document	07/01/2019
361.3 KiB	plain text document	07/01/2019

By adding the word “asdasd” to it:

```
**Welcome To The World of Free Plain Vanilla Electronic Texts**
**Etexts Readable By Both Humans and By Computers, Since 1971**

*These Etexts Prepared By Hundreds of Volunteers and Donations*
asdasd

December, 1972 [Etext #2]

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[ Wrote 264 lines ]

^G Get Help      ^O Write Out     ^W Where Is      ^K Cut Text      ^J Justify       ^C Cur Pos       M-U Undo         M-A Mark Text    M-] To Bracket
^X Exit          ^R Read File     ^N Replace       ^U Uncut Text    ^I To Spell     ^G Go To Line   M-E Redo         M-6 Copy Text    ^_ Where Was
```

Size	Type	Date Modified
10.8 KiB	plain text document	07/01/2019
16.0 KiB	plain text document	07/01/2019
9.7 KiB	plain text document	07/01/2019
42.8 KiB	plain text document	07/01/2019
14.8 KiB	plain text document	07/01/2019
10.1 KiB	plain text document	07/01/2019
23.7 KiB	plain text document	07/01/2019
40.8 KiB	plain text document	07/01/2019
4.2 MiB	plain text document	07/01/2019
143.6 KiB	plain text document	07/01/2019
181.6 KiB	plain text document	07/01/2019
52.3 KiB	plain text document	07/01/2019
1.9 MiB	plain text document	07/01/2019
31.4 KiB	plain text document	07/01/2019
278.1 KiB	plain text document	07/01/2019
1.5 MiB	plain text document	07/01/2019
1.2 MiB	plain text document	07/01/2019
209.3 KiB	plain text document	07/01/2019
495.2 KiB	plain text document	07/01/2019
241.1 KiB	plain text document	07/01/2019
1.5 MiB	plain text document	07/01/2019
242.6 KiB	plain text document	07/01/2019
316.7 KiB	plain text document	07/01/2019
2.1 MiB	plain text document	07/01/2019
479.4 KiB	plain text document	07/01/2019
782.7 KiB	plain text document	07/01/2019
84.4 KiB	plain text document	07/01/2019
351.4 KiB	plain text document	07/01/2019
5.0 MiB	plain text document	07/01/2019
236.0 KiB	plain text document	07/01/2019
315.1 KiB	plain text document	07/01/2019
504.6 KiB	plain text document	07/01/2019
180.0 KiB	plain text document	07/01/2019
197.2 KiB	plain text document	07/01/2019

And then searched for it:

```
[SID]@shell:~$ s
Enter a word to search: asdasd
[+] Word found in 2.txt. File downloaded and decrypted.
[*] Ellapsed time: 0.415926456451416 seconds
```

And it found the added word in 2.txt where I added it.