

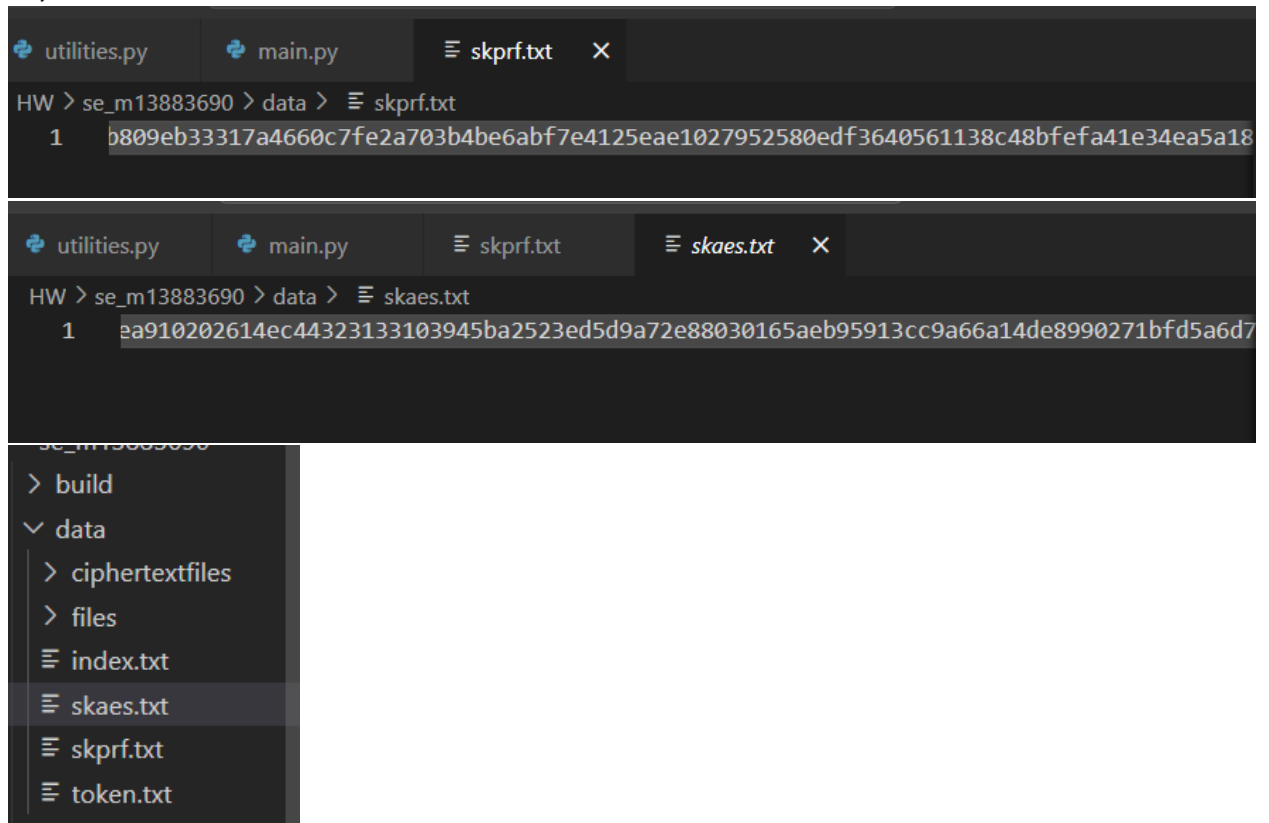
# CS 5158/6058 Data Security and Privacy, Fall 2023

## Project 3: Searchable Encryption

A report by Mabon Ninan

Prof: Boyang Wang

### 1. Key Generation Function:



The screenshot shows a code editor with three tabs: `utilities.py`, `main.py`, and `skprf.txt`. The `skprf.txt` tab is active, displaying a hexadecimal string: `b809eb33317a4660c7fe2a703b4be6abf7e4125eae1027952580edf3640561138c48bfefa41e34ea5a18`. Below this, another tab `skaes.txt` is visible, showing a hexadecimal string: `ea910202614ec44323133103945ba2523ed5d9a72e88030165aeb95913cc9a66a14de8990271bfd5a6d7`. A file explorer on the left shows a directory structure with `data` expanded, listing `ciphertextfiles`, `files`, `index.txt`, `skaes.txt`, `skprf.txt`, and `token.txt`.

```
HW > se_m13883690 > data > skprf.txt
1 b809eb33317a4660c7fe2a703b4be6abf7e4125eae1027952580edf3640561138c48bfefa41e34ea5a18

HW > se_m13883690 > data > skaes.txt
1 ea910202614ec44323133103945ba2523ed5d9a72e88030165aeb95913cc9a66a14de8990271bfd5a6d7

> build
< data
  > ciphertextfiles
  > files
  ≡ index.txt
  ≡ skaes.txt
  ≡ skprf.txt
  ≡ token.txt
```

### 2. Encryption Function

```
sk1=readKeys(filename_aes)
sk2=readKeys(filename_prf_aes)
```

```

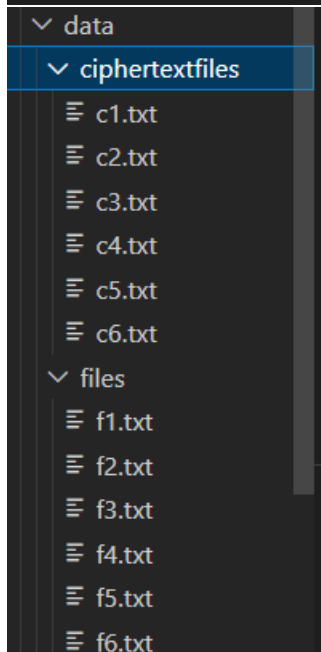
Failed to read or decrypt the index.
(tensorflow) mabon@titan-i9:~/HW/se_m13883690$ python src/main.py
Word: 32f45fbd1c32cf70efc8b1700929f3083f15076ef0200c4bb1a25f4cb6caa34b
Files it appears in: f2.txt, f5.txt, f1.txt, f3.txt

Word: 0c18af8489e55e5df027c8235e83812a281badba5023428a2a77949b0da5bc32
Files it appears in: f2.txt

Word: 4b81bef2848426dae80f7b0078b4f3b69e91d7eb83b002bd7c866df0bee9fdb0
Files it appears in: f5.txt, f1.txt, f4.txt

Word: 5ae4f78cf0683c56c2c5d51c9aeb331089b03b32fd63549a3736f2957bf5d080
Files it appears in: f1.txt, f6.txt, f4.txt

```



### 3. Token Generation Function:

```

TOKENIZER : steelers
Generated Token: 9c57545c2b892500df9e2233f73fe163e2918411e1f8cb81d0ab0a27f4d51175
Token saved to 'data/token.txt'.

```

### 4. Search Function:

```

TOKEN LOADED
Word: patriots
Files it appears in: f2.txt

Word: packers
Files it appears in: f2.txt, f5.txt, f1.txt, f3.txt

Word: steelers
Files it appears in: f5.txt, f1.txt, f4.txt

Word: bengals
Files it appears in: f1.txt, f6.txt, f4.txt

```