

# 密碼工程 Quiz2

110550108 施柏江

## Problem 1

Sol:

- a) 

```
Hash: ef0ebbb77298e1fbd81f756a4efc35b977c93dae
Password: orange
Took 124 attempts to crack input hash. Time Taken: 0.000000 seconds
```
- b) 

```
Hash: 0bc2f4f2e1f8944866c2e952a5b59acabd1cebf2
Password: starfish
Took 2681 attempts to crack input hash. Time Taken: 0.002081 seconds
```
- c) 

```
Hash: 9d6b628c1f81b4795c0266c0f12123c1e09a7ad3
Password: puppy
Took 5639 attempts to crack input hash. Time Taken: 0.004016 seconds
```

How to run the code:

```
python problem1.py
```

## Problem 2

Sol:

- a) 

```
MD5: 0.170006 seconds
SHA1: 0.078194 seconds
SHA224: 0.094272 seconds
SHA256: 0.106266 seconds
SHA512: 0.204525 seconds
SHA3-224: 0.306530 seconds
SHA3-256: 0.349710 seconds
SHA3-512: 0.629279 seconds
```

b) SHA1

c) (1) SHA1 (2) SHA224 (3) SHA256 (4) MD5 (5) SHA512  
(6) SHA3-224 (7) SHA3-256 (8) SHA3-512

How to run the code:

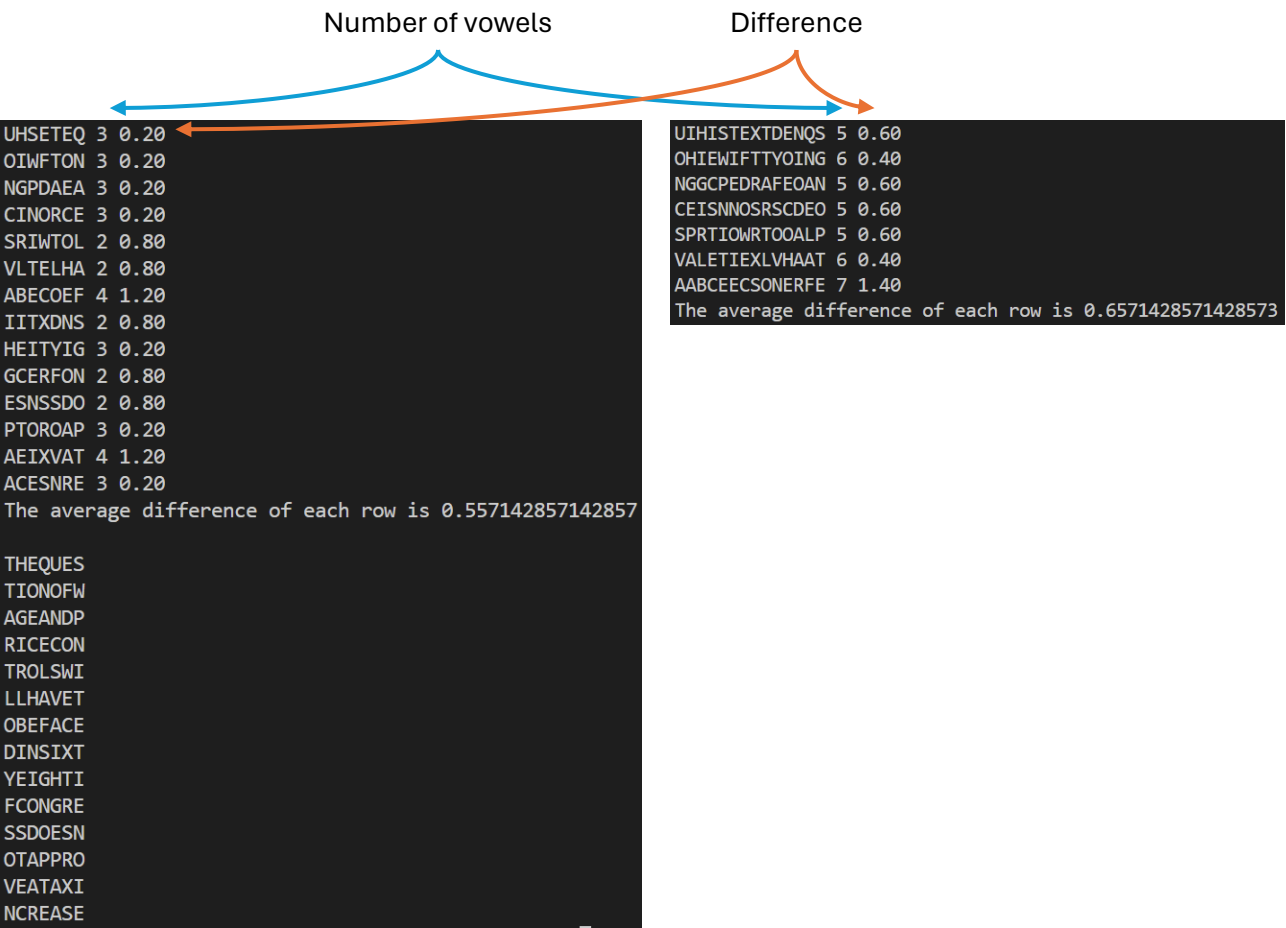
```
python problem2.py
```

# Problem 3

Sol:

密文總共有98個字母，因 $2 \times 49$ 和 $49 \times 2$ 兩維度差距較大較不可能是答案，所以我從 $7 \times 14$ 和 $14 \times 7$ 嘗試。 $14 \times 7$ 的difference只有0.55，低於 $7 \times 14$ 的0.65，因此我猜測維度為 $14 \times 7$ 。發現第一列具有THE和QUES，並且第二列具有TION，推測可能是THE QUESTION，得到5267143的Key。密文經重新排列後，得到：

THE QUESTION OF WAGE AND PRICE CONTROLS WILL  
HAVE TO BE FACED IN SIXTY EIGHT IF CONGRESS DOES  
NOT APPROVE A TAX INCREASE



How to run the code:  
python problem3.py