

Problem 1

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```
cassidy@cassidydeMacBook-Air Quiz02 % /usr/local/bin/python3.12 /Users/cassidy/Desktop/2_密碼工程/Quiz02/problem1.py
Hash: ef0ebbb77298e1fbd81f756a4efc35b977c93dae
Password: orange
Took 123 attempts to crack input hash. Time Taken: 0.00022292137145996094

Hash: 0bc2f4f2e1f8944866c2e952a5b59acabd1cebf2
Password: starfish
Took 2680 attempts to crack input hash. Time Taken: 0.0030062198638916016

Hash: 9d6b628c1f81b4795c0266c0f12123c1e09a7ad3
Password: redbullpuppy
Took 2853 attempts to crack input hash. Time Taken: 0.13650012016296387
```

a) orange b) starfish c) redbullpuppy

① 先讀取 txt 檔, 並以 list 的形式儲存

② findMatch → 直接設定接受 SHA-1 的雜湊值當參數,
(a) (b) 從 ① 的 list —— 去找, 找到即停止

③ findSalt → 先用 salt term 去做一次 findMatch, 找到對應的單字 (redbull),
findMatch 2 → 拿 findSalt 找出的文字 (redbull) 串聯 leet + hacker hash,
再運用 findMatch 去找答案 #

Problem 2

```
cassidy@cassidydeMacBook-Air Quiz02 % /usr/local/bin/python3.12 /Users/cassidy/Desktop/2_密碼工程/Quiz02/problem2.py
The fastest algorithm is: SHA-1
Ranking of hash functions by speed:
1. SHA-1: 0.1679980754852295 seconds
2. SHA-512: 0.252640962600708 seconds
3. MD5: 0.30956196784973145 seconds
4. SHA-256: 0.34999775886535645 seconds
5. SHA-224: 0.3684821128845215 seconds
6. SHA-3-256: 0.425368070602417 seconds
7. SHA-3-224: 0.47763776779174805 seconds
8. SHA-3-512: 0.9562239646911621 seconds
```

① 讀取 mp4 檔, 用二進位的模式打開 ('rb')

② 用 hashlib 依序計算每種 hash 的速度

③ 比較 #

Problem 3

共 90 個數字 → 49×2 , 14×7
 2×49 7×14 較有可能 ∴ 先試這 2 個, 不能的話再試 49×2 2×49

① 7×14

difference

U	I	H	I	S	T	E	X	T	D	E	N	D	S
O	H	I	E	W	I	F	T	T	Y	O	I	N	G
N	G	G	C	P	E	D	R	A	F	E	O	A	N
C	E	I	S	N	D	S	R	S	C	D	E	O	
S	P	R	T	I	O	W	R	T	O	A	L	P	
V	A	L	E	T	I	E	X	L	V	H	A	A	T
A	A	B	C	E	E	C	S	O	N	E	R	F	E

0.6

0.4

0.6

0.6

0.6

0.4

1.4

Average difference: 0.66

② 14x7

difference

V	H	S	E	T	E	Q	0.2
O	I	W	F	T	O	N	0.2
N	G	P	D	A	E	A	0.2
C	I	N	O	R	C	E	0.2
S	R	I	W	T	O	L	0.8
V	L	T	E	L	H	A	0.8
A	B	E	C	O	E	F	1.2
I	I	T	X	D	N	S	0.8
H	E	I	T	Y	I	G	0.2
G	C	E	R	F	O	N	0.8
E	S	N	S	S	D	O	0.8
P	T	O	R	D	A	P	0.2
A	E	I	X	V	A	T	1.2
A	C	E	S	N	R	E	0.2

Average difference: 0.56 ①

⇒ 用這16矩陣下去猜,
開頭為 "TH"

⇒ the question of wage and price controls will
have to be faced in sixty eight if congress
does not approve a tax increase #