上課小考

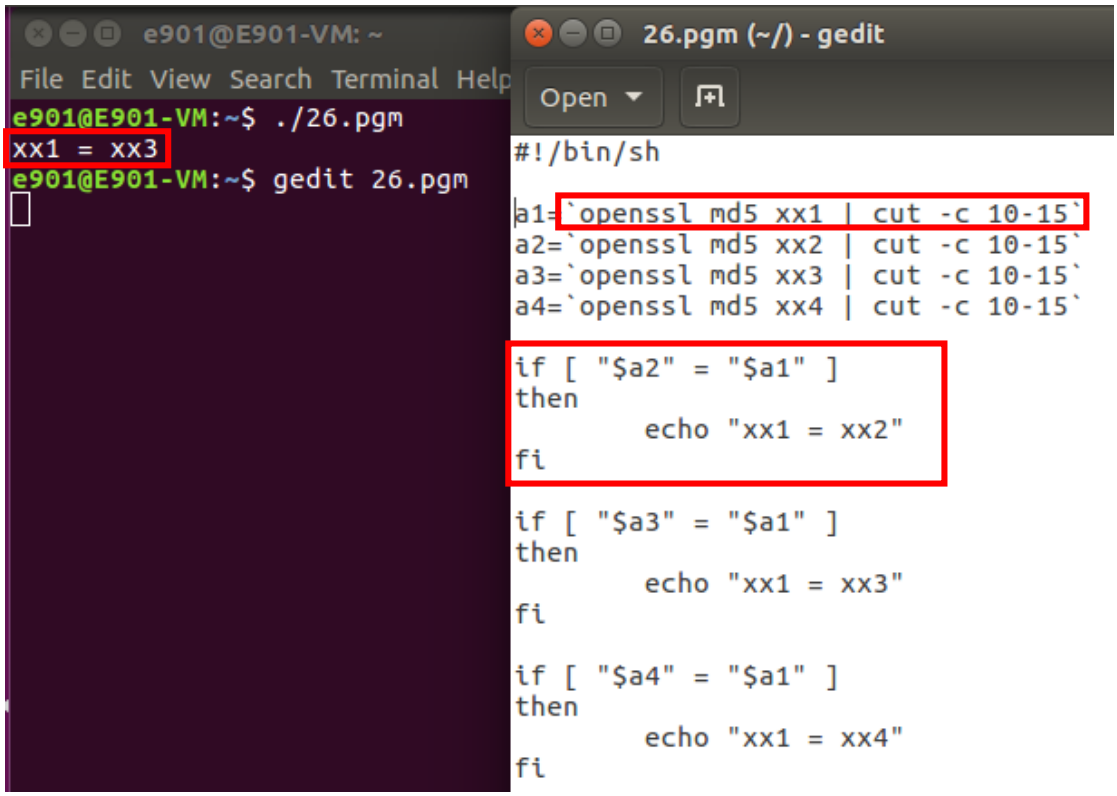
創四個檔案

1. echo 11 > xx1　　2. echo 11>xx2
3. echo 11 >xx3　　4. echo 11> xx4

並寫一個程式(.pgm)找出一樣的檔案

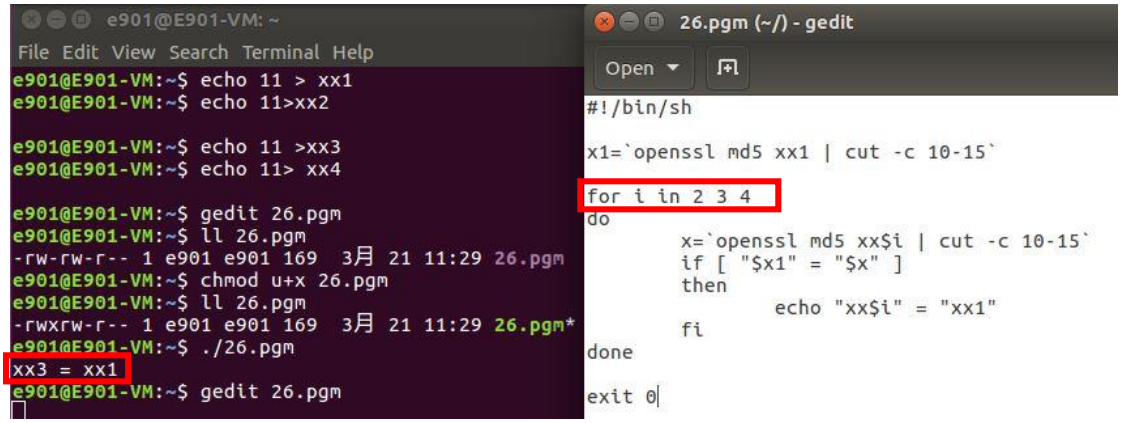
方法一：用 if 來判斷

1. 先將 4 個檔案變成數位指紋，並用 cut 擷取部分，分別存入 a1,a2,a3,a4 中
2. 並用 if 判斷是否為一樣的數位指紋



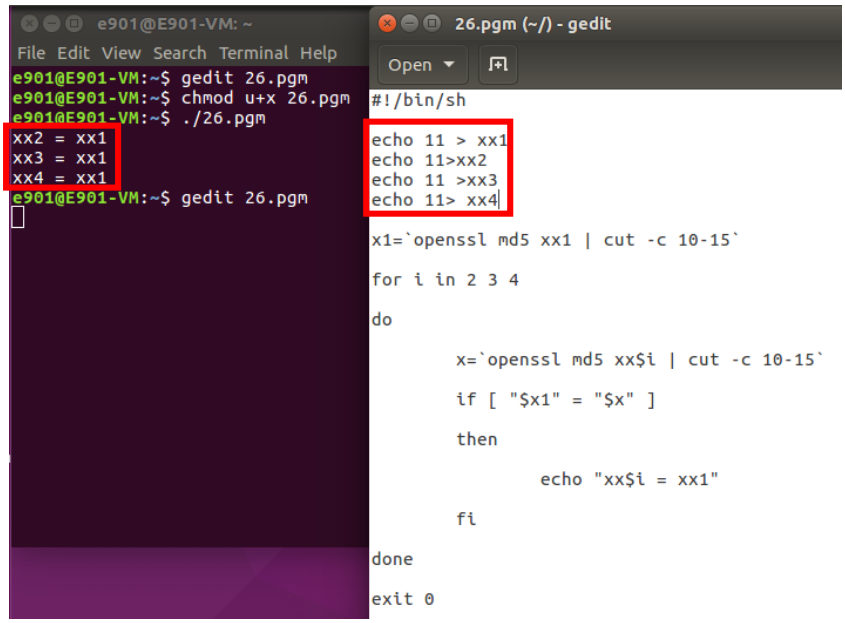
方法二：使用 if 判斷加上 for 迴圈

1. i 的範圍設 2、3、4
2. 用 for 迴圈跑，比對一樣的印出



補充：

1. 在 if 判斷中[]要空格，並且變數最好用""，使用比較安全
2. ">"前有沒有空格的差異，是根據不同版本的系統與不同的 shell 有所差異，Ubuntu 的/bin/sh 對">"前後有沒有空格的解讀都一樣，但/bin/bash 對">"前若沒有空格，會有問題，不會將資料寫入，也就是只會產生一個空檔



上課內容

openssl md5 xx1 | cut -d “ ” -f 2

欄位之間用空格當作區隔，-f 2 是指取第二個欄位的內容

```
e901@E901-VM: ~
e901@E901-VM:~$ openssl md5 xx1
MD5(xx1)= 166d77ac1b46a1ec38aa35ab7e628ab5
e901@E901-VM:~$ openssl md5 xx1 | cut -d " " -f 2
166d77ac1b46a1ec38aa35ab7e628ab5
```

用 rc4 加密解密

加密：openssl rc4 -e -in xx1 -out xx1.rc4 -k 123

解密：openssl rc4 -d -in xx1.rc4 -out xx1.ans -k 123

-e 加密(最好要加上)　-d 解密

-k 後面加密碼，就不會出現輸入密碼

```
e901@E901-VM: ~
File Edit View Search Terminal Help
e901@E901-VM:~$ openssl rc4 -e -in xx1 -out xx1.rc4 -k 123
e901@E901-VM:~$ openssl rc4 -d -in xx1.rc4 -out xx1.ans -k 123
e901@E901-VM:~$ openssl md5 xx1
MD5(xx1)= 166d77ac1b46a1ec38aa35ab7e628ab5
e901@E901-VM:~$ openssl md5 xx1.ans
MD5(xx1.ans)= 166d77ac1b46a1ec38aa35ab7e628ab5
```

產生私鑰及公鑰

私鑰：openssl genrsa -out 26.pri

公鑰：openssl rsa -in 26.pri -pubout -out 26.pub

```
e901@E901-VM: ~
e901@E901-VM:~$ openssl genrsa -out 26.pri
Generating RSA private key, 2048 bit long modulus
.........................+++
.....................................................+++
e is 65537 (0x10001)
e901@E901-VM:~$ openssl rsa -in 26.pri -pubout -out 26.pub
writing RSA key
```

私鑰

```
e901@E901-VM:~$ cat 26.pri
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEAuu9FBjIqmiwEfumEDLTfqJsprwv9PDbCFFCkjMwdYhJA10kv
x3AIhU4Uffoist5EEQgrJU4GvIJXNl4E+QvA6Bkuj6p8ocgytF4sqMKbiEw1FJGI
35mZNNgHNLoQPjwM2gFEKJrvWHC/j2y3DN4KrpagJ2FbVlgwkbOKyPDj6KezKsA3
bvbxXErMqlhF33rQucTWQNXZpRB/YjlAHRT1foCDSMf9lROSgJd7R0/h+bjX8WZq
/ik//+a+i2ESJ0diuPTbap+nzGU7EUvslpyxOhsxnbPkBx1svvL0TOIJgsQGG7B4
/b2OH+C+fGqM5OExiwKw/B4Epc9u3H8s3hbMRQIDAQABAoIBAEqA4nm9tM0Njh0m
5MJLtHh2nv5tQNim2mNOYMbc8zkLHVywhqJuPHckz3YGI542h9ph7xBHMNgg+rFo
J4Lq9E+M+cm4oUO5jrvkbNg199cyyFUSTAsKxM0S7IxPO/oR5O1eY9PrLEmLZk27
iplaRdefoOURIF4hd/oaHM5JdAxdW1TdfntrKNoKtrS0246S6L/ecT5lyIxkjfXe
39fF3XOHQo/BAjuaFzqoTzf2VSdW8F84d7TN5GGDT3lW4Pu4Zhx3B+XO+8wOlo7k
/jr2pIVOyczLtkiipUULRSQ33XjVEYEn3a2CaLDqUoiBxCwPKgEA5pmppBkXVoOf
5W7IOWECgYEA7OrcON+51Wh+ZIW7eHnGq/yoWPjter4yOk2i46nqFtItBZ/JLLUb
fVHd0KTFKbeKeuMT+iTNTGG/uHA+hb2vasDIeb5Vt1YFjqMWwvE6qYuiT6cHJRXt
dJia7h7S5Rkav+FY1I3NjN4Eivk45ntm9C4vApg7+8TQI25szzwwIMCgYEAyf3I
/UvK0+xkqqNcva6jNtLWigOLyC57iCxiUjM1o4pUXz9skRWiv2/O0XGjwo19jsjE
0FwpSfM6OVa9nY7m6Clw8fk3p5eYViDxrqC1ifSxWD7BakxJn9EJzuqFnitZd5vh
//7l3HpL8TT1gLL3IdcJMjvUyClVPGRZTUODlZcCgYAMDW6ing8QIj670mnVGSzY
WWRBcnhyVBauDKEKv+weuRZ9QMG1OolpeK62HIvDMYkj80Vi5lhjWF2ufldP6nRw
E9qfBuXJa+Dgfr97r1Xyph3du3uLkXABHHDRVhM/pw7suo8InHgek8O5+O2t/niu
ApJDTqvbyOfL0until4dDQKBgA3KD4CLPgt9pdmoUVp5o5bIifDeERrXYYOIVCX8
0Pr/JIdkEwtMiNG81keiFGXhtuKafhrC3+a2fhEQBN3OtaC/w4AhXVVJmhK3KQic
3AfQ9pJpplaVYqlQYfUIOZr0pqTttVNYQWTtzGVpEiF5FjnvLieJwhrwB2uaBiaq
Jz99AoGAfjCx3dBRxFJyrP7H2WnMniHa1HVHqH8vkR40lPUm7S3rzL0IqE2CKxzB
0Ibl47sa/ZFBA0VWcROCspOegPR4d9dkjCnjdVpE36yxJkNDDkTwdQSh7SCfgq9/
YGv5ta0tDsrWajEjdPf8JVBwl+Z1HbyufHGzwddeHOW3t8sJYk=
-----END RSA PRIVATE KEY-----
```

公鑰

```
e901@E901-VM: ~
File  Edit  View  Search  Terminal  Help
e901@E901-VM:~$ cat 26.pub
-----BEGIN PUBLIC KEY-----
MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAuu9FBjIqmiwEfumEDLTf
qJsprwv9PDbCFFCkjMwdYhJA10kvx3AIhU4Uffoist5EEQgrJU4GvIJXNl4E+QvA
6Bkuj6p8ocgytF4sqMKbiEw1FJGI85mZNNgHNLoQPjwM2gFEKJrvWHC/j2y3DN4K
rpagJ2FbVlgwkbOKyPDj6KezKsA3bvbxXErMqlhF33rQucTWQNXZpRB/YjlAHRT1
foCDSMf9lROSgJd7R0/h+bjX8WZq7ik//+a+i2ESJ0diuPTbap+nzGU7EUvslpyx
OhsxnbPkBx1svvL0TOIJgsQGG7B4Vb2OH+C+fGqM5OExiwKw/B4Epc9u3H8s3hbM
RQIDAQAB
-----END PUBLIC KEY-----
```

補充：

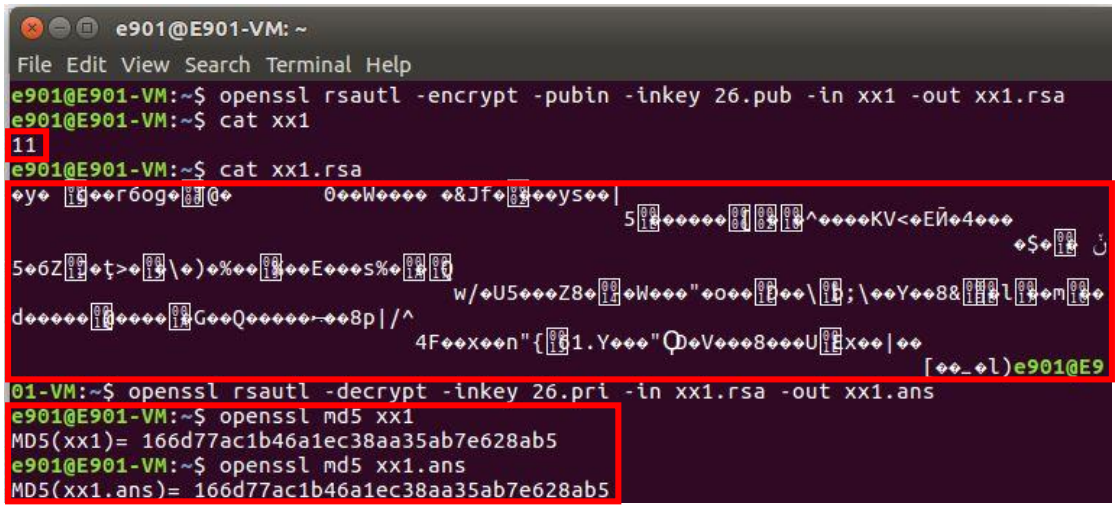
因為沒有使用-out 參數，所以產生出來的私鑰會出現在螢幕，不會寫入檔案，本案例，因為沒有用-out，系統把 26.pri，當成是另一個參數 26，所以產生了 26 個 bit 的私鑰到螢幕上(預設是產生 512bit 私鑰)

```
e901@E901-VM: ~
File  Edit  View  Search  Terminal  Help
e901@E901-VM:~$ openssl genrsa 26.pri
Generating RSA private key, 26 bit long modulus
.++++++++++++++++++++++++++
.++++++++++++++++++++++++++.++++++++++++++++++++++++++.++++++++++++++++++++++++
++++140207023728280:error:04081078:rsa routines:RSA_BUILTIN_KEYGEN:key size too
small:rsa_gen.c:175:
e901@E901-VM:~$ cat 26.pri
cat: 26.pri: No such file or directory
```

公鑰加密，私鑰解密

加密：openssl rsautl -encrypt -pubin -inkey 26.pub -in xx1 -out xx1.rsa

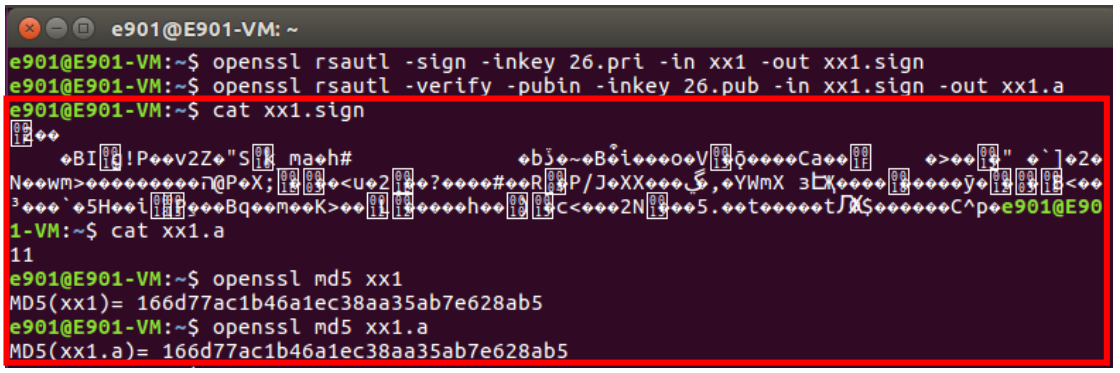
解密：openssl rsautl -decrypt -inkey 26.pri -in xx1.rsa -out xx1.ans



簽章私鑰，公鑰解簽章

簽章：openssl rsautl -sign -inkey 26.pri -in xx1 -out xx1.sign

解簽章：openssl rsautl -verify -pubin -inkey 26.pub -in xx1.sign -out xx1.a



補充指令：

CPU 內容：cat /proc/cpuinfo (cat 後要加空白鍵)

mem：cat /proc/meminfo (cat 後要加空白鍵)

wc：統計指定檔案中的位元組數、字數、行數

抓用幾顆 CPU：cat /proc/cpuinfo | grep processor |wc –l

```
e901@E901-VM: ~
File  Edit  View  Search  Terminal  Help
e901@E901-VM:~$ cat /proc/cpuinfo | grep processor |wc -l
2
```

抓 CPU 的規格：cat /proc/cpuinfo | grep "model name" | head -1 | cut -d " " -f 3-7

```
e901@E901-VM: ~
File  Edit  View  Search  Terminal  Help
e901@E901-VM:~$ cat /proc/cpuinfo | grep "model name" | head -1 | cut -d " " -f 3-7
Intel(R) Core(TM) i7-3770 CPU @
```

增加使用者

新增：useradd -m xx1(使用者名稱)

密碼：echo “xx1:xx1” | chpasswd

```
e901@E901-VM:~$ sudo passwd root
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
e901@E901-VM:~$ su -
Password:
root@E901-VM:~# useradd -m xx1
root@E901-VM:~# useradd -m xx2
root@E901-VM:~# echo "xx1:xx1" | chpasswd
root@E901-VM:~# exit
logout
e901@E901-VM:~$
e901@E901-VM:~$ su - xx1
Password:
xx1@E901-VM:~$ id
uid=1001(xx1) gid=1001(xx1) groups=1001(xx1)
xx1@E901-VM:~$
```