

9 (a)  $10 + 10^2 + 10^3 + \dots + 10^{10}$

10  $\frac{1}{10} \text{ (مقدار)} = \frac{1}{10} \Rightarrow \text{مقدار} = 10$

11

12  $\Rightarrow \text{مقدار} = \sum_{i=2}^{10} 10^i = 1111111100$

13  $\text{مقدار} = (15000)^{10} \times 1111111100 = 740740.740 \text{ s} \approx 8 \text{ days}$

14 (b)

15  $\text{مقدار} = (15000)^{10} \times (\sum_{i=1}^{10} 36^i - 10)$

16

17 (c) (a)  $\text{مقدار} = (15000)^{10} \times (\sum_{i=1}^{10} 10^i + 10 \times 2^{12} - 10)$

18 (b) (c)  $\text{مقدار} = (15000)^{10} \times (\sum_{i=1}^{10} 36^i + 10 \times 2^{12} - 10)$

ولادت حضرت امام موسی کاظم (ع) (۱۲۸ هـ) - روز دوشنبه، گاه شوال، ۱۱

2- برای یک هکر، دستیابی به فایل توصیف شده اثر انگشتی یوزرهای سیستم مثل دسترسی به پسوندها ارزشمند است و میتواند با استفاده از اطلاعات به دست آمده خود را جای یوزرها بگذارد.

همچنین به علت خطای زیاد این روش از آن استفاده نمیشود؛ میدانیم در این روش از مشابه بودن گراف استفاده میشود که الگوریتم کارا ندارد و از الگوریتمهای تقریبی استفاده میکند. در نتیجه با خطا داشتن هم میتواند به سیستم دسترسی داشته باشد. نکته اصلی حمله در این روش، وجود نداشتن یک دیکشنری برای اثر انگشتها مثل پسوندهاست.

3- در صورت وجود هرگونه الگویی برای salt در صورتی که برای اتر قابل شناسایی باشد فضای جست و جو را برای اتر کاهش میدهد.

مثلا اگر salt جایگشتی از کاراکترهای یوزرنیم باشد، فضای حالت برای آن محدود به کاراکترهای یوزرنیم میشود.

Access Control Matrix	X	Y	Z
A	Read	Append	Write
B	Append	Write	No Access

- i) Access is permitted. S-Property is satisfied. Discretionary access is premitted.
- ii) Access is not permitted. S-Property is not satisfied. Discretionary access is not premitted.
- iii) Access is not permitted. \*Property is not satisfied. Discretionary access is premitted.
- iv) Access is not permitted. \*-Property is satisfied. Discretionary access is not premitted.

## Practical Exercises:

1)

```
mahya@DESKTOP-CBVD4UM:/mnt/c/Users/Mahya/Downloads$ john --wordlist=./password-list.txt ../Documents/University\ Courses
/Cyber\ Security/CS-HW3/passwords.txt
Loaded 11 password hashes with 10 different salts (crypt, generic crypt(3) [?/64])
Remaining 8 password hashes with 8 different salts
Press 'q' or Ctrl-C to abort, almost any other key for status
```

```
root:11041104:0:0:root:/root:/bin/bash
richard:11041104:1000:1000:./home/richard:/bin/bash
famille:10060425:1002:1002:./home/famille:/bin/bash
ali:jen070291:1003:1003:./home/ali:/bin/bash
mauryvero:lacaunea:1004:1004:./home/mauryvero:/bin/bash
biarritz:tuwqvrt0:1005:1005:./home/biarritz:/bin/bash
cocalola:eaxlnfmy:1006:1006:./home/cocalola:/bin/bash
snowball:64846511:1007:1007:./home/snowball:/bin/bash
carfire:UVIFHGTF:1008:1008:./home/carfire:/bin/bash
amir:cybersecurity:1009:1009:./home/amir:/bin/bash
```

2)

```
C:\Users\Mahya\Downloads\hashcat-5.1.0>hashcat64.exe -m 2500 9753_1563555456.hccapx password-list.txt
hashcat (v5.1.0) starting...
```

```
* Device #1: WARNING! Kernel exec timeout is not disabled.
    This may cause "CL_OUT_OF_RESOURCES" or related errors.
    To disable the timeout, see: https://hashcat.net/q/timeoutpatch
* Device #2: Intel's OpenCL runtime (GPU only) is currently broken.
    We are waiting for updated OpenCL drivers from Intel.
    You can use --force to override, but do not report related errors.
nvmiDeviceGetFanSpeed(): Not Supported
```

```
OpenCL Platform #1: NVIDIA Corporation
=====
```

```
* Device #1: GeForce 940MX, 512/2048 MB allocatable, 3MCU
```

```
OpenCL Platform #2: Intel(R) Corporation
=====
```

```
* Device #2: Intel(R) HD Graphics 520, skipped.
* Device #3: Intel(R) Core(TM) i7-6500U CPU @ 2.50GHz, skipped.
```

```
Hashes: 2 digests; 1 unique digests, 1 unique salts
Bitmaps: 16 bits, 65536 entries, 0x0000ffff mask, 262144 bytes, 5/13 rotates
Rules: 1
```

```
Applicable optimizers:
```

```
* Zero-Byte
* Single-Hash
* Single-Salt
* Slow-Hash-SIMD-LOOP
```

```
Minimum password length supported by kernel: 8
Maximum password length supported by kernel: 63
```

```
Watchdog: Temperature abort trigger set to 90c
```

```
Minimum password length supported by kernel: 8
Maximum password length supported by kernel: 63
```

```
Watchdog: Temperature abort trigger set to 90c
```

```
Dictionary cache hit:
```

```
* Filename..: password-list.txt
* Passwords.: 1000020
* Bytes.....: 8529317
* Keyspace...: 1000020
```

```
ed80487fc407360931a97dc1c77413e8:c412f556e7cd:a8db035b4515:Victim-WPA2:w2q6yvxo
```

```
Session.....: hashcat
Status.....: Cracked
Hash.Type.....: WPA-EAPOL-PBKDF2
Hash.Target....: Victim-WPA2 (AP:c4:12:f5:56:e7:cd STA:a8:db:03:5b:45:15)
Time.Started....: Sat Jul 20 07:17:24 2019 (3 secs)
Time.Estimated...: Sat Jul 20 07:17:27 2019 (0 secs)
Guess.Base.....: File (password-list.txt)
Guess.Queue.....: 1/1 (100.00%)
Speed.#1.....: 35163 H/s (10.38ms) @ Accel:128 Loops:64 Thr:64 Vec:1
Recovered.....: 1/1 (100.00%) Digests, 1/1 (100.00%) Salts
Progress.....: 306808/1000020 (30.68%)
Rejected.....: 183928/306808 (59.95%)
Restore.Point....: 252730/1000020 (25.27%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:0-1
Candidates.#1...: warlock2 -> golf2005
Hardware.Mon.#1..: Temp: 65c Util: 97% Core:1176MHz Mem: 900MHz Bus:4
```

3)

Sentry MBA 1.4

Site: <https://noohi.org/CS-HW3/>

Switch Site: noohi.org

Progress: 1%

List: /combolist

Bots: 250 Wordlist Position: 1913

Bot #	Proxy	Username	Password	Email	Reply
1	1.198.72.201:9999	admin	oxford		Launching Bot - Until Timeout: 14 seconds
2	119.139.198.28:3128	admin	nylons		Launching Bot - Last Status: 404 - Connection refused [Error #10061] - Until Timeout: 18 seconds
3	118.172.201.59:47381	admin	molly1		Launching Bot - Last Status: Error: Invalid headers received upon CONNECT request -> Proxy banned - Until Timeout: 17 seconds
4	1.20.229.119:8080	admin	irish		Launching Bot - Until Timeout: 14 seconds
5	119.42.93.96:8080	admin	holmes		Launching Bot - Last Status: Error: Invalid headers received upon CONNECT request -> Proxy banned - Until Timeout: 19 seconds
6	1.2.169.40:44238	admin	curious		Launching Bot - Until Timeout: 14 seconds
7	118.175.93.38:39850	admin	asdzxc		Launching Bot - Last Status: 404 - Connection refused [Error #10061] - Until Timeout: 18 seconds
8	118.96.247.230:8080	admin	1999		Launching Bot - Last Status: 404 - Connection refused [Error #10061] - Until Timeout: 18 seconds
9	1.2.171.55:8080	admin	makaveli		Launching Bot - Until Timeout: 14 seconds
10	100.32.167.18:3128	admin	kiki		Getting After Fingerprint -> Logging with wrong combo - So far 1 good reply(ies) - Until Timeout: 20 seconds
11	101.255.64.246:41502	admin	kennedy		Getting After Fingerprint -> Logging with wrong combo - So far 1 good reply(ies) - Until Timeout: 20 seconds
12	1.20.97.204:50496	admin	groovy		Launching Bot - Until Timeout: 14 seconds
13	119.190.193.6:8060	admin	foster		Launching Bot - Last Status: 404 - Connection refused [Error #10061] - Until Timeout: 18 seconds
14	1.2.169.8:49371	admin	dizt		Launching Bot - Until Timeout: 14 seconds
15	119.110.205.66:80	admin	twister		Launching Bot - Last Status: 404 - Connection refused [Error #10061] - Until Timeout: 18 seconds
16	1.10.188.93:34871	admin	snapper		Launching Bot - Until Timeout: 14 seconds
17	1.20.101.121:31946	admin	sebastian		Launching Bot - Until Timeout: 14 seconds
18	101.51.139.156:8080	admin	philly		Launching Bot - Until Timeout: 14 seconds
19	118.99.93.247:8080	admin	pacific		Launching Bot - Last Status: 0 - Header Empty - Until Timeout: 18 seconds
20	1.179.206.201:37928	admin	jersey		Launching Bot - Until Timeout: 14 seconds

Codes: 200: 27, 3xx: 4, 301: 0, 302: 4, 303: 0, 4xx: 59, 401: 0, 403: 14, 404: 92

Timeouts: 0, Not Found: 0, Ssa: 20, Results: Hits: 0, Redo: 4, Fakes: 4, To Check: 0, Users/Combos: 0/0

Performance: Tested: 0, Retries: 85, Combo-min: 0, OCR Rate: NA, Progress: Active: 4502, Disabled: 0, Banned: 42, Count: 4544

Hits: Redirects: Fakes: To Check: Users/Combos

#1 https://admin.muray@noohi.org/CS-HW3/ - Getting After Redirect -> Error: Invalid headers received upon CONNECT request -> Proxy banned - Combo Type: 3 - Proxy: 117.206.150.167:8080  
 #2 https://admin.potato@noohi.org/CS-HW3/ - Getting After Redirect -> Error: Invalid headers received upon CONNECT request -> Proxy banned - Combo Type: 3 - Proxy: 118.173.232.170:44029  
 #3 https://admin.1960@noohi.org/CS-HW3/ - Getting After Fingerprint -> Error: Got 200 with wrong combo - Original Source Length: 3910 -> Proxy banned - Combo Type: 3 - Proxy: 119.18.147.211:58367  
 #4 https://admin.1996@noohi.org/CS-HW3/ - Getting After Fingerprint -> Error: Got 200 with wrong combo - Original Source Length: 3910 -> Proxy banned - Combo Type: 3 - Proxy: 121.33.220.158:808  
 #5 https://admin.marin@noohi.org/CS-HW3/ - Getting After Fingerprint -> Error: Got 200 with wrong combo - Original Source Length: 3910 -> Proxy banned - Combo Type: 3 - Proxy: 120.23.155.59:57778  
 #6 https://admin.78707@noohi.org/CS-HW3/ - Getting After Fingerprint -> Error: Got 200 with wrong combo - Original Source Length: 3910 -> Proxy banned - Combo Type: 3 - Proxy: 121.17.174.121:9599  
 #7 https://admin.condor@noohi.org/CS-HW3/ - Getting After Fingerprint -> Error: Got 200 with wrong combo - Original Source Length: 3910 -> Proxy banned - Combo Type: 3 - Proxy: 122.154.151.202:8080

4)

```

mahya@DESKTOP-CBVD4UM:~/mnt/c:/WINDOWS/system32$ cd
mahya@DESKTOP-CBVD4UM:~$ mkdir CS
mahya@DESKTOP-CBVD4UM:~$ mkdir CS/A
mahya@DESKTOP-CBVD4UM:~$ mkdir CS/B
mahya@DESKTOP-CBVD4UM:~$ mkdir CS/C
mahya@DESKTOP-CBVD4UM:~$ mkdir CS/Shares
mahya@DESKTOP-CBVD4UM:~$ sudo su
[sudo] password for mahya:
root@DESKTOP-CBVD4UM:~/home/mahya# useradd A
root@DESKTOP-CBVD4UM:~/home/mahya# useradd B
root@DESKTOP-CBVD4UM:~/home/mahya# useradd C
root@DESKTOP-CBVD4UM:~/home/mahya# chown -R A CS/A
root@DESKTOP-CBVD4UM:~/home/mahya# chown -R B CS/B
root@DESKTOP-CBVD4UM:~/home/mahya# chown -R C CS/C
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/A/Files
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/B/Files
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/C/Files
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/A/Image
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/B/Image
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/C/Image
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/A/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/B/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# mkdir CS/C/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 711 CS/A/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 711 CS/B/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 711 CS/C/Apps
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/C/Files
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/A/Files/
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/B/Files/
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/A/Image/
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/B/Image/
root@DESKTOP-CBVD4UM:~/home/mahya# chmod 722 CS/C/Image/
root@DESKTOP-CBVD4UM:~/home/mahya# ls -la CS
total 0
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16
drwxr-xr-x 1 mahya mahya 512 Jul 19 21:16
drwxrwxrwx 1 A mahya 512 Jul 19 21:19
drwxrwxrwx 1 B mahya 512 Jul 19 21:19
drwxrwxrwx 1 C mahya 512 Jul 19 21:19
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16 Shares

```



```

root@DESKTOP-CBVD4UM:/home/mahya# chown -R A CS/A
root@DESKTOP-CBVD4UM:/home/mahya# chown -R B CS/B
root@DESKTOP-CBVD4UM:/home/mahya# chown -R C CS/C
root@DESKTOP-CBVD4UM:/home/mahya# ls -la CS/A
total 0
drwxrwxrwx 1 A      mahya 512 Jul 19 21:19 .
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16 ..
drwx--x--x 1 A      root  512 Jul 19 21:19 Apps
drwx-w--w- 1 A      root  512 Jul 19 21:18 Files
drwx-w--w- 1 A      root  512 Jul 19 21:18 Image
root@DESKTOP-CBVD4UM:/home/mahya# ln -s CS/Shares/ CS/A
root@DESKTOP-CBVD4UM:/home/mahya# ln -s CS/Shares/ CS/B
root@DESKTOP-CBVD4UM:/home/mahya# ln -s CS/Shares/ CS/C
root@DESKTOP-CBVD4UM:/home/mahya# ls -la CS/A
total 0
drwxrwxrwx 1 A      mahya 512 Jul 19 21:21 .
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16 ..
drwx--x--x 1 A      root  512 Jul 19 21:19 Apps
drwx-w--w- 1 A      root  512 Jul 19 21:18 Files
drwx-w--w- 1 A      root  512 Jul 19 21:18 Image
lrwxrwxrwx 1 root   root   10 Jul 19 21:21 Shares -> CS/Shares/
root@DESKTOP-CBVD4UM:/home/mahya# ls -la CS/B
total 0
drwxrwxrwx 1 B      mahya 512 Jul 19 21:21 .
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16 ..
drwx--x--x 1 B      root  512 Jul 19 21:19 Apps
drwx-w--w- 1 B      root  512 Jul 19 21:18 Files
drwx-w--w- 1 B      root  512 Jul 19 21:18 Image
lrwxrwxrwx 1 root   root   10 Jul 19 21:21 Shares -> CS/Shares/
root@DESKTOP-CBVD4UM:/home/mahya# ls -la CS/C
total 0
drwxrwxrwx 1 C      mahya 512 Jul 19 21:21 .
drwxrwxrwx 1 mahya mahya 512 Jul 19 21:16 ..
drwx--x--x 1 C      root  512 Jul 19 21:19 Apps
drwx-w--w- 1 C      root  512 Jul 19 21:18 Files
drwx-w--w- 1 C      root  512 Jul 19 21:18 Image
lrwxrwxrwx 1 root   root   10 Jul 19 21:21 Shares -> CS/Shares/
root@DESKTOP-CBVD4UM:/home/mahya#

```