

CSCI 6708 Assignment-3

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Exercise 1:

a)

```
access-list 101 deny ip 170.16.10.5 0.0.0.0 170.16.80.16 0.0.0.0
```

```
access-list 101 permit ip any any
```

```
R1#interface E1
```

```
ip access-group 101 in
```

b)

```
access-list 1 deny 170.16.40.0 0.0.0.255
```

```
access-list 1 permit 170.16.0.0 0.0.255.255
```

```
R2#interface E0
```

```
ip access-group 1 out
```

c)

```
access-list 102 deny tcp 170.16.50.75 0.0.0.0 170.16.70.2 0.0.0.0 eq 80
```

```
access-list 102 deny tcp 170.16.50.7 0.0.0.0 170.16.70.2 0.0.0.0 eq 80
```

```
access-list 102 permit ip any any
```

```
R2#interface E0
```

```
ip access-group 102 in
```

d)

```
access-list 103 permit tcp 170.16.80.16 0.0.0.0 170.16.40.89 0.0.0.0 eq 23
```

```
access-list 103 deny tcp 170.16.80.0 0.0.0.255 170.16.40.89 0.0.0.0 eq 23
```

```
access-list 103 permit ip 170.16.0.0 0.0.255.255 any
```

```
R2#interface E1
```

```
ip access-group 103 out
```

e)

```
access-list 104 permit tcp 170.16.10.5 0.0.0.0 170.16.70.0 0.0.0.255 range 20-21
```

```
access-list 104 deny tcp any 170.16.70.0 0.0.0.255 range 20-21
```

```
access-list 104 permit ip 170.16.0.0 0.0.255.255 any
```

```
R3#interface E1
```

```
ip access-group 104 out
```

f)

```
access-list 2 deny 170.16.20.0 0.0.0.255
```

```
access-list 2 permit any
```

```
R3#interface E1
```

```
ip access-group 2 out
```

g)

```
access-list 3 deny 170.16.70.2 0.0.0.0
```

```
access-list 3 permit any
```

```
R1#interface S0
```

```
ip access-group 3 out
```

Exercise 2

standard ACL program:

Input 1:

```
172.16.4.1
```

```
172.16.3.5
```

```
201.15.3.4
```

```
access-list 3 deny 172.16.4.0 0.0.0.255
```

```
access-list 3 permit 172.16.0.0 0.0.255.255
```

```
interface E0
```

```
ip access-group 3 out|
```

Output 1:

```

→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/acl.py"
Packet from 172.16.4.1 denied
Packet from 172.16.3.5 permitted
Packet from 201.15.3.4 denied
→ acl █

```

Input 2:

```

input > ≡ acl2.txt
1      172.16.4.0
2      172.16.3.21
3      201.15.5.4
4
5      access-list 1 deny any
6      interface E0
7      ip access-group 1 out
8      █

```

Output 2:

```

Packet from 172.16.4.0 denied
→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/acl.py"
Packet from 172.16.4.0 denied
Packet from 172.16.3.21 denied
Packet from 201.15.5.4 denied
→ acl █

```

Input 3:

```

input > ≡ acl2.txt
1      172.16.4.0
2      172.16.3.21
3      201.15.5.8
4
5      access-list 3 permit 172.16.4.0 0.0.0.255
6      access-list 3 deny 172.16.4.0 0.0.0.255
7      access-list 3 permit 172.16.0.0 0.0.255.255
8      interface E0
9      ip access-group 3 out|

```

Output 3:

```

→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/acl.py"
Packet from 172.16.4.0 permitted
Packet from 172.16.3.21 permitted
Packet from 201.15.5.8 denied
→ acl █

```

extended ACL program:

Input 1:

```

input > ≡ ext-acl2.txt
1      172.16.4.4 172.16.3.1 20
2      172.16.4.4 172.16.3.5 22
3      172.25.3.1 172.16.3.4 22
4
5      access-list 101 deny tcp 172.16.0.0 0.0.255.255 172.16.3.0 0.0.0.255 range 20-21
6      access-list 101 permit ip 172.16.0.0 0.0.255.255 172.16.3.0 0.0.0.255
7      interface E0
8      ip access-group 101 out|

```

Output 1:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/ext-acl.py"
Packet from 172.16.4.4 to 172.16.3.1 on port 20 denied
Packet from 172.16.4.4 to 172.16.3.5 on port 22 permitted
Packet from 172.25.3.1 to 172.16.3.4 on port 22 denied
→ acl █

```

Input 2:

```

input > ≡ ext-acl2.txt
1 172.16.4.4 172.16.3.1 20
2 172.16.4.4 172.16.3.5 22
3 172.25.3.1 172.16.3.4 22
4
5 access-list 101 deny tcp 172.16.0.0 0.0.255.255 172.16.3.0 0.0.0.255 range 20-21
6 access-list 101 permit ip any any
7 interface E0
8 ip access-group 101 out

```

Output 2:

```

→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/ext-acl.py"
Packet from 172.16.4.4 to 172.16.3.1 on port 20 denied
Packet from 172.16.4.4 to 172.16.3.5 on port 22 permitted
Packet from 172.25.3.1 to 172.16.3.4 on port 22 permitted
→ acl █

```

Input 3:

```

input > ≡ ext-acl2.txt
1 172.16.4.4 172.16.3.1 20
2 172.16.4.4 172.16.3.5 22
3 172.25.3.1 172.16.3.4 22
4
5 access-list 101 permit tcp 172.16.0.0 0.0.255.255 172.16.3.0 0.0.0.255 range 20-21
6 access-list 101 deny ip any any
7 interface E0
8 ip access-group 101 out

```

Output 3:

```

Packet from 172.25.3.1 to 172.16.3.4 on port 22 permitted
→ acl /opt/homebrew/bin/python3 "/Users/manan/Documents/2 Sec/ass/acl/ext-acl.py"
Packet from 172.16.4.4 to 172.16.3.1 on port 20 permitted
Packet from 172.16.4.4 to 172.16.3.5 on port 22 denied
Packet from 172.25.3.1 to 172.16.3.4 on port 22 denied
→ acl █

```

References:

- [1] "Configuring IP access lists," Cisco, 09-Jul-2021. [Online]. Available:
<https://www.cisco.com/c/en/us/support/docs/security/ios-firewall/23602-confaccesslists.html>.
 [Accessed: 05-Mar-2022].
- [2] "Python 3.10.2 documentation," *3.10.2 Documentation*. [Online]. Available:
<https://docs.python.org/3/>. [Accessed: 05-Mar-2022].