NATIONAL UNIVERSITY OF MODERN LANGUAGES

ISLAMABAD

OPERATING SYSTEM (LAB)

Lab Report: 08

Submitted to
Mr.Meesum Raza

Submitted By

Adeel Naeem

(BSAI-146)

Junaid Asif

(BSAI-144)

Syed Qasim Ali

(BSAI-161)

Question # 01

- Use grep to find information about the HTTP protocol in the file/etc/services.

```
junaidasifdev@Joni:~$ grep -i "http" /etc/services
# Updated from https://www.iana.org/assignments/service-names-port-numbers/service-names-port-numbers.xhtml .
http            80/tcp          www             # WorldWideWeb HTTP
https           443/tcp                         # http protocol over TLS/SSL
http-alt        8080/tcp        webcache        # WWW caching service
hkp             11371/tcp                       # OpenPGP HTTP Keyserver
```

- Usually this file contains some comments, starting with the '#' symbol. Use grep with the -v option to ignore lines starting with '#' and look at the rest of the file in less.

```
junaidasifdev@Joni:~$ grep -v "^#" /etc/services | less
junaidasifdev@Joni:~$
qmqp            628/tcp
ipp             631/tcp                         # Internet Printing Protocol
exec            512/tcp
biff            512/udp         comsat
login           513/tcp
who             513/udp         whod
shell           514/tcp         cmd syslog      # no passwords used
syslog          514/udp
printer         515/tcp         spooler         # line printer spooler
talk            517/udp
ntalk           518/udp
route           520/udp         router routed   # RIP
gdomap          538/tcp                         # GNUstep distributed objects
gdomap          538/udp
uucp            540/tcp         uucpd           # uucp daemon
klogin          543/tcp                         # Kerberized `rlogin' (v5)
kshell          544/tcp         krcmd           # Kerberized `rsh' (v5)
dhcpv6-client   546/udp
dhcpv6-server   547/udp
afpovertcp      548/tcp                         # AFP over TCP
nntps           563/tcp         snntp           # NNTP over SSL
submission      587/tcp                         # Submission [RFC4409]
ldaps           636/tcp                         # LDAP over SSL
ldaps           636/udp
tinc            655/tcp                         # tinc control port
tinc            655/udp
silc            706/tcp
kerberos-adm    749/tcp                         # Kerberos `kadmin' (v5)
domain-s        853/tcp                         # DNS over TLS [RFC7858]
domain-s        853/udp                         # DNS over DTLS [RFC8094]
rsync           873/tcp
ftps-data       989/tcp                         # FTP over SSL (data)
ftps            990/tcp
telnets         992/tcp                         # Telnet over SSL
imaps           993/tcp                         # IMAP over SSL
pop3s           995/tcp                         # POP-3 over SSL
socks           1080/tcp                        # socks proxy server
proofd          1093/tcp
rootd           1094/tcp
openvpn         1194/tcp
openvpn         1194/udp
rmiregistry     1099/tcp                        # Java RMI Registry
lotusnote       1352/tcp        lotusnotes      # Lotus Note
:
```

- Add another use of grep -v to your pipeline to remove blank lines (which match the pattern ^$).

```
junaidasifdev@Joni:~$ grep -v "^#" /etc/services | grep -v "^$" | less
junaidasifdev@Joni:~$
```

```
hostmon         5355/tcp                        # hostmon uses TCP (nocol)
hostmon         5355/udp                        # hostmon uses UDP (nocol)
rplay           5555/udp                        # RPlay audio service
nrpe            5666/tcp                        # Nagios Remote Plugin Executor
nsca            5667/tcp                        # Nagios Agent - NSCA
mrtd            5674/tcp                        # MRT Routing Daemon
bgpsim          5675/tcp                        # MRT Routing Simulator
canna           5680/tcp                        # cannaserver
syslog-tls      6514/tcp                        # Syslog over TLS [RFC5425]
sane-port       6566/tcp        sane saned      # SANE network scanner daemon
ircd            6667/tcp                        # Internet Relay Chat
zope-ftp        8021/tcp                        # zope management by ftp
tproxy          8081/tcp                        # Transparent Proxy
omniorb         8088/tcp                        # OmniORB
omniorb         8088/udp
clc-build-daemon 8990/tcp                       # Common lisp build daemon
xinetd          9098/tcp
mandelspawn     9359/udp        mandelbrot      # network mandelbrot
git             9418/tcp                        # Git Version Control System
zope            9673/tcp                        # zope server
webmin          10000/tcp
kamanda         10081/tcp                       # amanda backup services (Kerberos)
amandaidx       10082/tcp                       # amanda backup services
amidxtape       10083/tcp                       # amanda backup services
smsqp           11201/tcp                       # Alamin SMS gateway
smsqp           11201/udp
xpilot          15345/tcp                       # XPilot Contact Port
xpilot          15345/udp
sgi-cmsd        17001/udp               # Cluster membership services daemon
sgi-crsd        17002/udp
sgi-gcd         17003/udp                       # SGI Group membership daemon
sgi-cad         17004/tcp                       # Cluster Admin daemon
isdnlog         20011/tcp                       # isdn logging system
isdnlog         20011/udp
vboxd           20012/tcp                       # voice box system
vboxd           20012/udp
binkp           24554/tcp                       # binkp fidonet protocol
asp             27374/tcp                       # Address Search Protocol
asp             27374/udp
csync2          30865/tcp                       # cluster synchronization tool
dircproxy       57000/tcp                       # Detachable IRC Proxy
tfido           60177/tcp                       # fidonet EMSI over telnet
fido            60179/tcp                       # fidonet EMSI over TCP
(END)
```

- Use sed (also in the same pipeline) to remove the information after the '/' symbol on each line, leaving just the names of the protocols and their port numbers.

```
junaidasifdev@Joni:~$ grep -v "^#" /etc/services | grep -v "^$" | sed 's:/.*::' | less
junaidasifdev@Joni:~$
```

```
hostmon            5355
hostmon            5355
rplay              5555
nrpe               5666
nsca               5667
mrtd               5674
bgpsim             5675
canna              5680
syslog-tls         6514
sane-port          6566
ircd               6667
zope-ftp           8021
tproxy             8081
omniorb            8088
omniorb            8088
clc-build-daemon 8990
xinetd             9098
mandelspawn        9359
git                9418
zope               9673
webmin             10000
kamanda            10081
amandaidx          10082
amidxtape          10083
smsqp              11201
smsqp              11201
xpilot             15345
xpilot             15345
sgi-cmsd           17001
sgi-crsd           17002
sgi-gcd            17003
sgi-cad            17004
isdnlog            20011
isdnlog            20011
vboxd              20012
vboxd              20012
binkp              24554
asp                27374
asp                27374
csync2             30865
dircproxy          57000
tfido              60177
fido               60179
(END)
```