

SED command solution:

1- Display the lines that contain the word “lp” in /etc/passwd file.

```
kareem@kareem-Inspiron-5559: ~  
kareem@kareem-Inspiron-5559:~$ sed -n '/lp/p' /etc/passwd  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
cups-pk-helper:x:112:114:user for cups-pk-helper service,,,:/nonexistent:/usr/sbin/nologin  
kareem@kareem-Inspiron-5559:~$
```

2- Display /etc/passwd file except the third line.

```
kareem@kareem-Inspiron-5559: ~  
kareem@kareem-Inspiron-5559:~$ sed -n '3!p' /etc/passwd  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin  
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin  
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin  
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false  
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin  
syslog:x:102:102::/nonexistent:/usr/sbin/nologin  
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin  
uidd:x:103:103:/:run/uidd:/usr/sbin/nologin  
usbmux:x:104:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
tss:x:105:105:TPM software stack,,,:/var/lib/tpm:/bin/false  
systemd-oom:x:990:990:systemd Userspace OOM Killer:/:/usr/sbin/nologin
```

3- Display /etc/passwd file except the last line.

```
kareem@kareem-Inspiron-5559: ~  
kareem@kareem-Inspiron-5559:~$ sed -n '$!p' /etc/passwd  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
```

4- Display /etc/passwd file except the lines that contain the word “lp”.

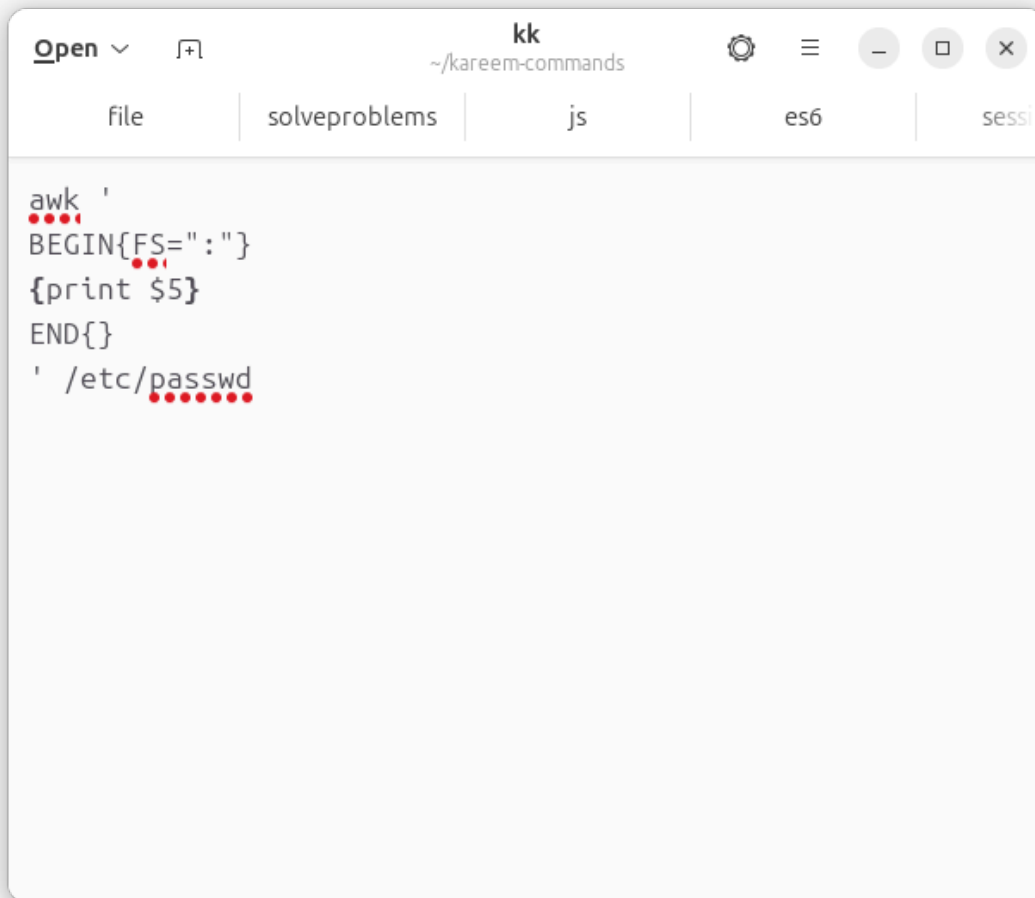
```
kareem@kareem-Inspiron-5559:~$ sed -n '/lp/!p' /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
```

5- Substitute all the words that contain “lp” with “mylp” in /etc/passwd file.

```
kareem@kareem-Inspiron-5559:~$ sed 's/lp/mylp/g' /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
mylp:x:7:7:mylp:/var/spool/mylpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103:/:run/uuidd:/usr/sbin/nologin
usbmux:x:104:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
tss:x:105:105:TPM software stack,,,:/var/lib/tpm:/bin/false
```

AWK Command

1- Print full name (comment) of all users in the system.

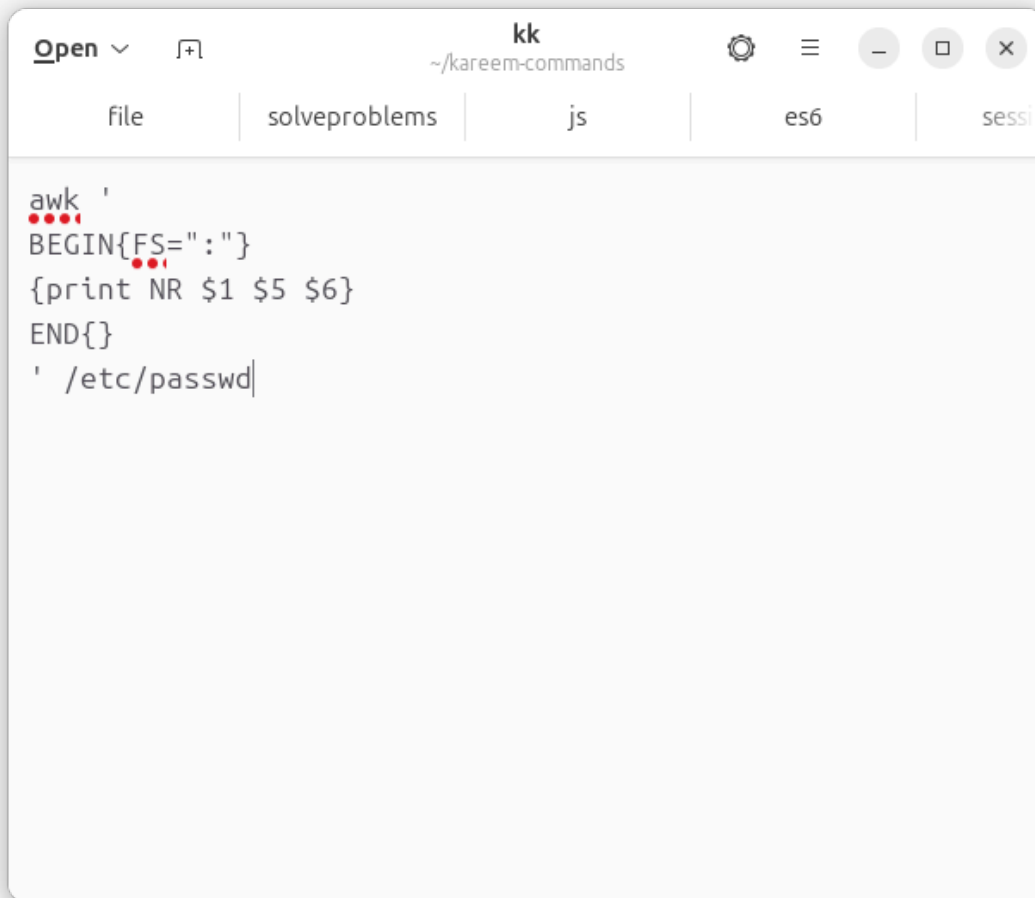
A screenshot of a code editor window. The title bar shows the name 'kk' and the path '~ /kareem-commands'. Below the title bar is a tab bar with five tabs: 'file', 'solveproblems', 'js', 'es6', and 'sessi'. The main editing area contains the following text:

```
awk '
BEGIN{FS=":"}
{print $5}
END{}
' /etc/passwd
```

2- Print login, full name (comment) and home directory of all users.(Print each line preceded by a line number)

kareem@kareem-Inspiron-5559:~/kareem-commands\$./kk

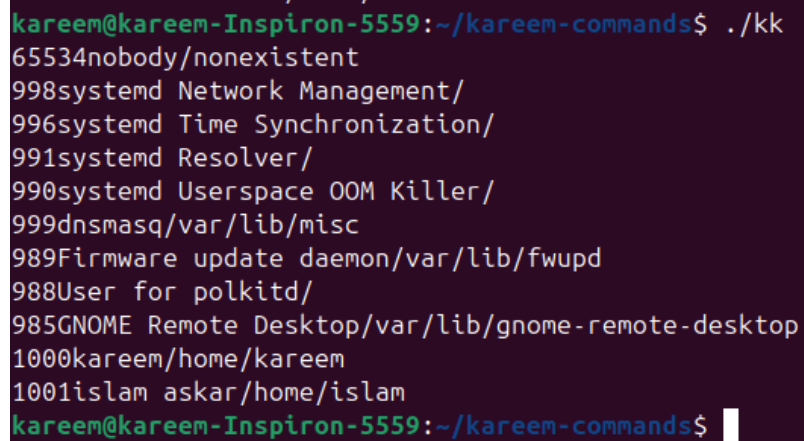
```
1rootroot/root
2daemondaemon/usr/sbin
3binbin/bin
4sysdev/dev
5syncsync/bin
6gamesgames/usr/games
7manman/var/cache/man
8lpplp/var/spool/lpd
9mailmail/var/mail
10newsnews/var/spool/news
11uucpuucp/var/spool/uucp
12proxyproxy/bin
13www-datawww-data/var/www
14backupbackup/var/backups
15listMailing List Manager/var/list
16ircircd/run/ircd
17_apt/nonexistent
18nobodynobody/nonexistent
19systemd-networksystemd Network Management/
20systemd-timesyncsystemd Time Synchronization/
21dhcpcdDHCP Client Daemon,,/usr/lib/dhcpcd
22messagebus/nonexistent
23syslog/nonexistent
24systemd-resolvesystemd Resolver/
25uidd/run/uidd
26usbmuxusbmux daemon,,/var/lib/usbmux
27tssTPM software stack,,/var/lib/tpm
```



The screenshot shows a code editor window with the title 'kk' and a path '~/.kareem-commands'. The editor has tabs for 'file', 'solveproblems', 'js', 'es6', and 'sessi'. The main text area contains an awk script with red squiggly lines under the first few lines:

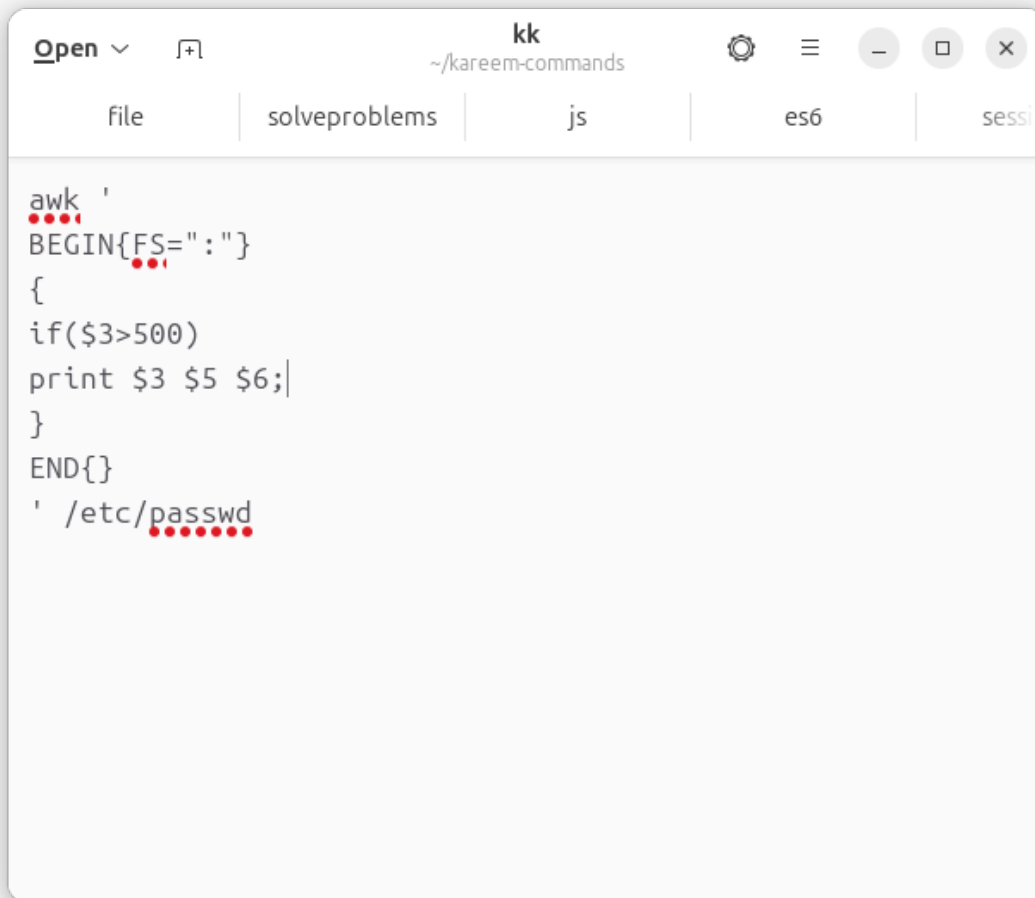
```
awk '
BEGIN{FS=":"}
{print NR $1 $5 $6}
END{}
' /etc/passwd|
```

3- Print login, uid and full name (comment) of those uid is greater than 500



The terminal shows the command `./kk` being executed in a shell. The output lists system users and their details, including UID, login name, and full name (comment).

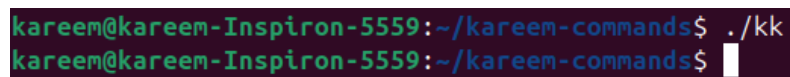
```
kareem@kareem-Inspiron-5559:~/kareem-commands$ ./kk
65534nobody/nonexistent
998systemd Network Management/
996systemd Time Synchronization/
991systemd Resolver/
990systemd Userspace OOM Killer/
999dnsmasq/var/lib/misc
989Firmware update daemon/var/lib/fwupd
988User for polkitd/
985GNOME Remote Desktop/var/lib/gnome-remote-desktop
1000kareem/home/kareem
1001islam askar/home/islam
kareem@kareem-Inspiron-5559:~/kareem-commands$
```



The screenshot shows a code editor window with the title 'kk' and a path '~/.kareem-commands'. The editor has tabs for 'file', 'solveproblems', 'js', 'es6', and 'sessi'. The main content area contains an awk script with the following text:

```
awk '
BEGIN{FS=":"}
{
if($3>500)
print $3 $5 $6;|
}
END{}
' /etc/passwd
```

4- Print login, uid and full name (comment) of those uid is exactly 500



The terminal shows the command `./kk` being executed in a shell. The prompt is `kareem@kareem-Inspiron-5559:~/kareem-commands$`.

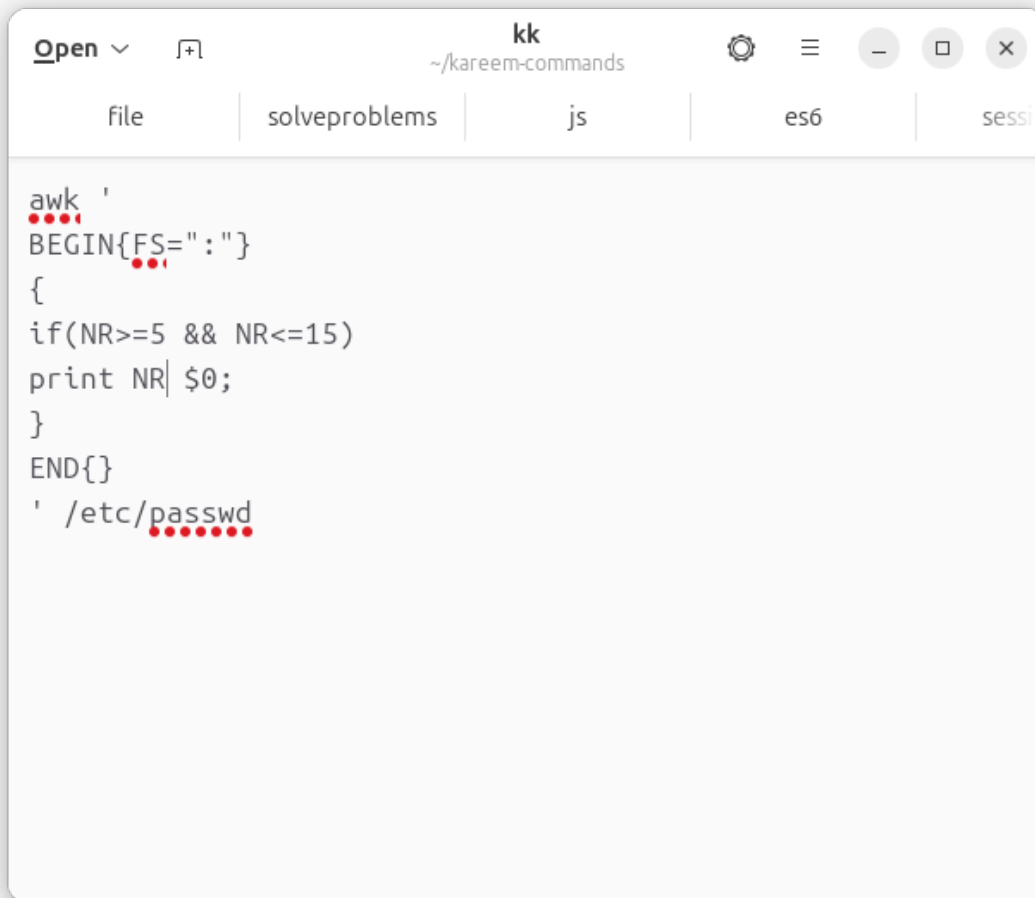
The screenshot shows a code editor window with the title 'kk' and a path '~ /kareem-commands'. The editor has tabs for 'file', 'solveproblems', 'js', 'es6', and 'sessi'. The code in the editor is an awk script designed to print specific fields from the /etc/passwd file. The script uses BEGIN to set the field separator (FS) to ':', and END to specify the input file as /etc/passwd. The main logic is enclosed in curly braces, where it checks if the third field (\$3) is equal to 500. If true, it prints the third, fifth, and sixth fields (\$3, \$5, \$6).

```
awk '
BEGIN{FS=":"}
{
if($3==500)
print $3 $5 $6;
}
END{}
' /etc/passwd
```

5- Print line from 5 to 15 from /etc/passwd

The terminal screenshot shows the user 'kareem' on a machine named 'kareem-Inspiron-5559' at the prompt '~ /kareem-commands'. They have executed the command './kk', which runs the awk script. The output displays lines 5 through 15 of the /etc/passwd file, each on a new line. The output is as follows:

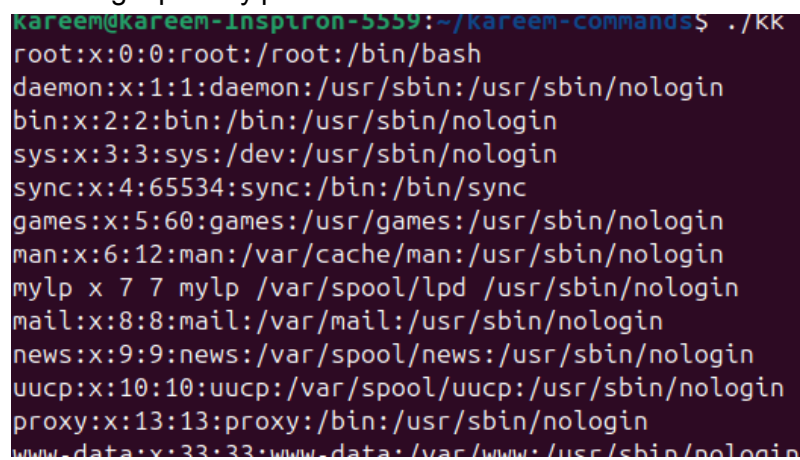
```
kareem@kareem-Inspiron-5559:~/kareem-commands$ ./kk
5sync:x:4:65534:sync:/bin:/bin/sync
6games:x:5:60:games:/usr/games:/usr/sbin/nologin
7man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
8lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
9mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
10news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
11uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
12proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
13www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
14backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
15list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
kareem@kareem-Inspiron-5559:~/kareem-commands$
```



The screenshot shows a code editor window with the title 'kk' and a path '~ /kareem-commands'. The editor has several tabs: 'file', 'solveproblems', 'js', 'es6', and 'sessi'. The active tab is 'file'. The code in the editor is an awk script designed to process the /etc/passwd file. It uses BEGIN to set the field separator (FS) to ':'. A conditional statement 'if(NR>=5 && NR<=15)' filters for lines 5 through 15. The 'print NR | \$0;' statement prints the line number and the entire line. The script ends with 'END{}' and the filename '/etc/passwd'.

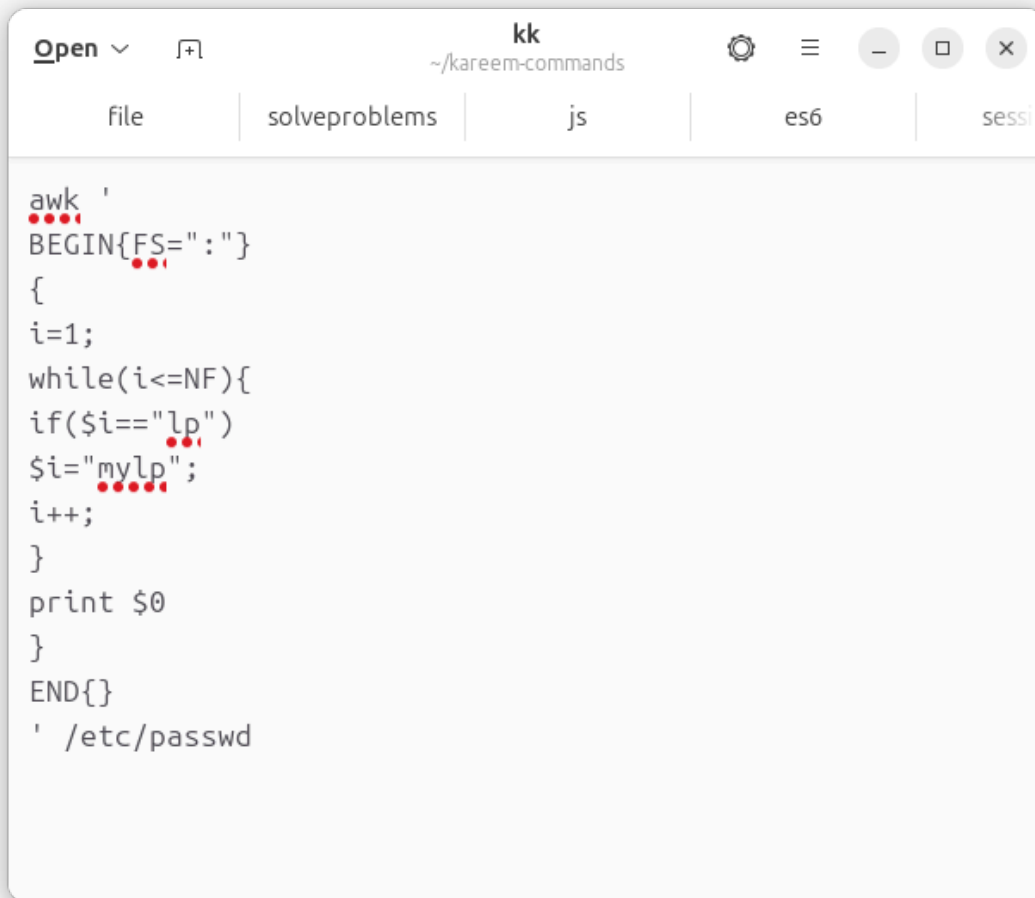
```
awk '
BEGIN{FS=":"}
{
if(NR>=5 && NR<=15)
print NR | $0;
}
END{}
' /etc/passwd
```

6- Change lp to mylp



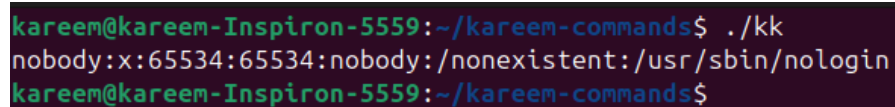
The terminal screenshot shows the command './KK' being executed in a shell. The output lists system users and their configurations, including root, daemon, bin, sys, sync, games, man, mylp, mail, news, uucp, proxy, and www-data. Each entry shows the username, UID, GID, name, home directory, and shell.

```
kareem@kareem-Inspiron-5559:~/kareem-commands$ ./KK
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
mylp x 7 7 mylp /var/spool/lpd /usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
```

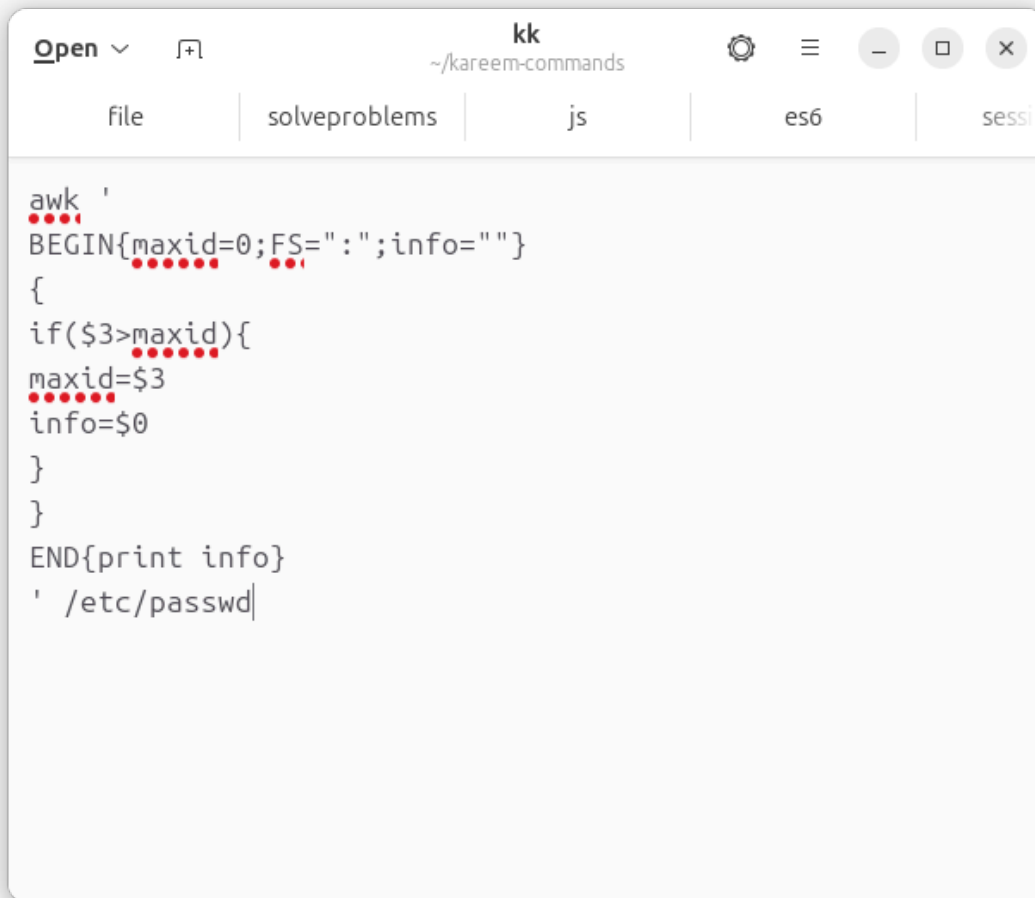



```
awk '
BEGIN{FS=":"}
{
i=1;
while(i<=NF){
if($i=="lp")
$i="mylp";
i++;
}
print $0
}
END{}
' /etc/passwd
```

7- Print all information about greatest uid.

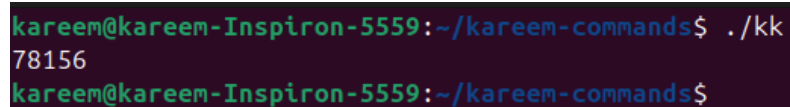


```
kareem@kareem-Inspiron-5559:~/kareem-commands$ ./kk
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
kareem@kareem-Inspiron-5559:~/kareem-commands$
```



```
awk '
BEGIN{maxid=0;FS=":";info=""}
{
if($3>maxid){
maxid=$3
info=$0
}
}
END{print info}
' /etc/passwd|
```

8- Get the sum of all accounts id's.



```
kareem@kareem-Inspiron-5559:~/kareem-commands$ ./kk
78156
kareem@kareem-Inspiron-5559:~/kareem-commands$
```

Open

⌕

kk

~/kareem-commands

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file

solveproblems

js

es6

sessi

```
awk '
BEGIN{total=0;FS=":"}
{
total += $3
}
END{print total}
' /etc/passwd
```