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Lab 1

Using awk utility
1- Print full name (comment) of all users in the system.
Answer:

awk -F: '{print $5}' /etc/passwd

```
[seif@localhost ~]$ awk -F: '{print $5}' /etc/passwd
root
bin
daemon
adm
lp
sync
shutdown
halt
mail
operator
games
FTP User
Nobody
```

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

awk -F: '{print
NR ". Login: " $1 ",
Full Name: " $5 ",
Home Directory: " $6}' /etc/passwd

```
[seif@localhost ~]$ awk -F: '{print NR ". Login: " $1 ", Full Name: " $5 ", Home Directory: " $6}' /etc/passwd
1. Login: root, Full Name: root, Home Directory: /root
2. Login: bin, Full Name: bin, Home Directory: /bin
3. Login: daemon, Full Name: daemon, Home Directory: /sbin
4. Login: adm, Full Name: adm, Home Directory: /var/adm
5. Login: lp, Full Name: lp, Home Directory: /var/spool/lpd
6. Login: sync, Full Name: sync, Home Directory: /sbin
7. Login: shutdown, Full Name: shutdown, Home Directory: /sbin
8. Login: halt, Full Name: halt, Home Directory: /sbin
```

3- Print login, uid and full name (comment) of those uid is greater than 500.
Answer:
awk -F: '$3 > 500 {
print "Login: " $1 ",
UID: " $3 ",
Full Name: " $5
}' /etc/passwd

```
[seif@localhost ~]$ awk -F: '$3 > 500 {print "Login: " $1 ", UID: " $3 ", Full Name: " $5}' /etc/passwd
Login: polkitd, UID: 999, Full Name: User for polkitd
Login: libstoragemgmt, UID: 998, Full Name: daemon account for libstoragemgmt
Login: colord, UID: 997, Full Name: User for colord
Login: saned, UID: 996, Full Name: SANE scanner daemon user
Login: gluster, UID: 995, Full Name: GlusterFS daemons
Login: saslauth, UID: 994, Full Name: Saslauthd user
Login: chrony, UID: 993, Full Name:
Login: unbound, UID: 992, Full Name: Unbound DNS resolver
Login: geoclue, UID: 991, Full Name: User for geoclue
Login: sssd, UID: 990, Full Name: User for sssd
Login: setroubleshoot, UID: 989, Full Name:
Login: nfsnobody, UID: 65534, Full Name: Anonymous NFS User
Login: gnome-initial-setup, UID: 988, Full Name:
Login: seif, UID: 1000, Full Name: Seif Hendawy
```

4- Print login, uid and full name (comment) of those uid is exactly 500.
Answer:
wk -F: '$3 == 500 {
print "Login: " $1 ",
UID: " $3 ",
Full Name: " $5
}' /etc/passwd

```
[seif@localhost ~]$ awk -F: '$3 = 500 {print "Login: " $1 ", UID: " $3 ", Full Name: " $5}' /etc/passwd
Login: root, UID: 500, Full Name: root
Login: bin, UID: 500, Full Name: bin
Login: daemon, UID: 500, Full Name: daemon
Login: adm, UID: 500, Full Name: adm
Login: lp, UID: 500, Full Name: lp
Login: sync, UID: 500, Full Name: sync
Login: shutdown, UID: 500, Full Name: shutdown
```

5- Print line from 5 to 15 from /etc/passwd.
Answer:

awk 'NR>=5 && NR<=15' /etc/passwd

```
[seif@localhost ~]$ awk 'NR>=5 && NR<=15' /etc/passwd
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
[seif@localhost ~]$ 
```

6- Change lp to mylp.
Answer:

awk -F: '{
for (i=1; i<=NF; i++)
        if ($i == "lp") {
                $i = "mylp";
                print $0;
                }
        }' /etc/passwd

```
[seif@localhost ~]$ awk -F: '{for (i=1; i<=NF; i++) if ($i == "lp"){ $i = "mylp";print $0;}}' /etc/passwd
mylp x 4 7 lp /var/spool/lpd /sbin/nologin
mylp x 4 7 mylp /var/spool/lpd /sbin/nologin
```

7- Print all information about greatest uid..
Answer:

awk -F: '{
if ($3 > max_uid) {
max_uid = $3;
user_info = $0
}
} END
{
print user_info
}' /etc/passwd

```
[seif@localhost Downloads]$ awk -F: '{if ($3 > max_uid) {max_uid = $3; user_info = $0}} END {print user_info}' /etc
/passwd
nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin
[seif@localhost Downloads]$ ▮
```

8- Get the sum of all accounts id's..
Answer:
awk -F: 'BEGIN{sum=0}{sum += $3} END {print "Sum of UIDs: " sum}' /etc/passwd

```
[seif@localhost Downloads]$ awk -F: 'BEGIN{sum=0}{sum += $3} END {print "Sum of UIDs: " sum
}' /etc/passwd
Sum of UIDs: 80217
[seif@localhost Downloads]$ ▮
```

Lab 2

2. Create a script called s1 that calls another script s2 where:
a. In s1 there is a variable called x, it's value 5
Answer:
vi s1

#!/bin/bash
export x=5
./s2 $x

b. Try to print the value of x in s2 by two different ways.
Answer:
Vi s2
#!/bin/bash

echo "Method 1: The value of x is $1"

echo "Method 2: The value of x is $x"

chmod +x s1
chmod +x s2

```
[seif@localhost Downloads]$ ./s1
Method 1: The value of x is 5
Method 2: The value of x is 5
[seif@localhost Downloads]$ ▮
```

Bonus

1. Get the sum of accounts id's that has the same group.
Answer:

awk -F: '{
 array[$4] += $3
} END {
 for (group in array)
print "Group: " group ", Sum_Of_UIDs: " array[group]
}' /etc/passwd

```
[seif@localhost Downloads]$ awk -F: '{ array[$4] += $3 } END { for (group in array) print "
Group: " group ", Sum_Of_UIDs: " array[group] }' /etc/passwd
Group: 992, Sum_Of_UIDs: 995
Group: 993, Sum_Of_UIDs: 996
Group: 994, Sum_Of_UIDs: 997
Group: 65534, Sum_Of_UIDs: 65534
Group: 113, Sum_Of_UIDs: 113
Group: 995, Sum_Of_UIDs: 998
Group: 998, Sum_Of_UIDs: 999
Group: 171, Sum_Of_UIDs: 171
Group: 172, Sum_Of_UIDs: 172
Group: 173, Sum_Of_UIDs: 173
Group: 12, Sum_Of_UIDs: 8
Group: 1000, Sum_Of_UIDs: 1000
Group: 192, Sum_Of_UIDs: 192
Group: 32, Sum_Of_UIDs: 32
Group: 50, Sum_Of_UIDs: 14
```