

# Bash Scripting Day 1 Assignment

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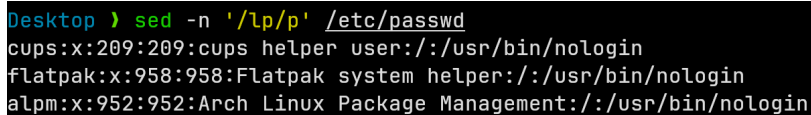
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## 1 Using sed utility

### 1.1 Question 1

Display the lines that contain the word lp in passwd file.

```
sed -n '/lp/p' /etc/passwd
```



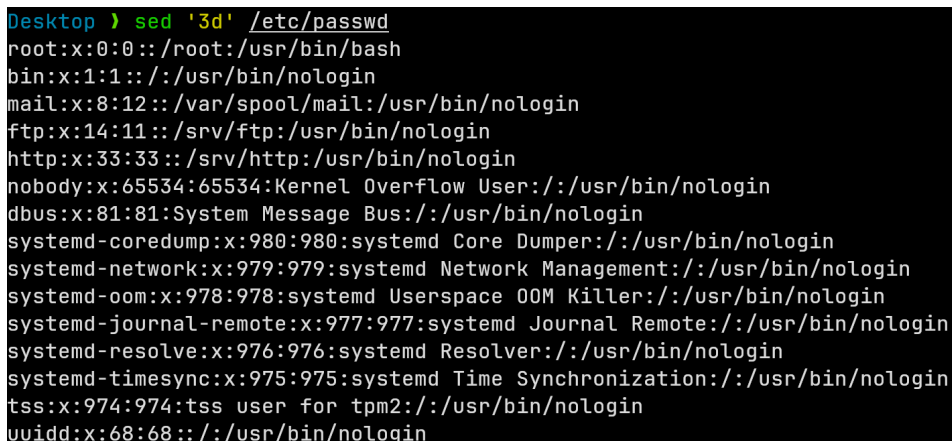
```
Desktop > sed -n '/lp/p' /etc/passwd
cups:x:209:209:cups helper user:/:usr/bin/nologin
flatpak:x:958:958:Flatpak system helper:/:usr/bin/nologin
alpm:x:952:952:Arch Linux Package Management:/:usr/bin/nologin
```

Figure 1: Command Output

### 1.2 Question 2

Display passwd file except the third line.

```
sed '3d' /etc/passwd
```



```
Desktop > sed '3d' /etc/passwd
root:x:0:0::/root:/usr/bin/bash
bin:x:1:1::/usr/bin/nologin
mail:x:8:12::/var/spool/mail:/usr/bin/nologin
ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:usr/bin/nologin
dbus:x:81:81:System Message Bus:/:usr/bin/nologin
systemd-coredump:x:980:980:systemd Core Dumper:/:usr/bin/nologin
systemd-network:x:979:979:systemd Network Management:/:usr/bin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer:/:usr/bin/nologin
systemd-journal-remote:x:977:977:systemd Journal Remote:/:usr/bin/nologin
systemd-resolve:x:976:976:systemd Resolver:/:usr/bin/nologin
systemd-timesync:x:975:975:systemd Time Synchronization:/:usr/bin/nologin
tss:x:974:974:tss user for tpm2:/:usr/bin/nologin
uuidd:x:68:68::/usr/bin/nologin
```

Figure 2: Command Output

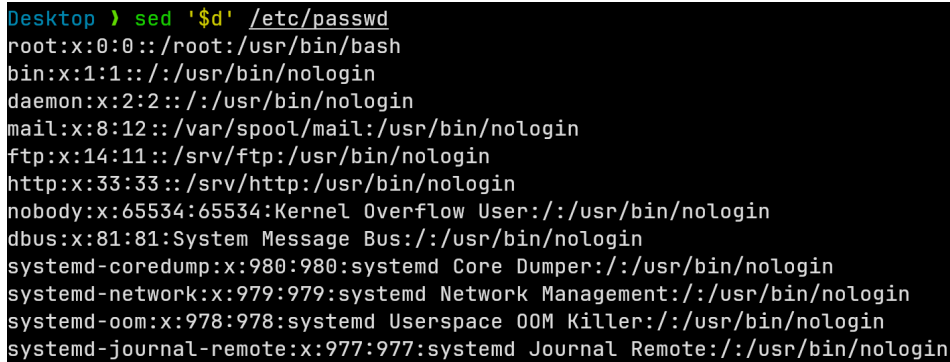
### 1.3 Question 3

Display passwd file except the last line.

## Question 1

---

```
sed '$d' /etc/passwd
```



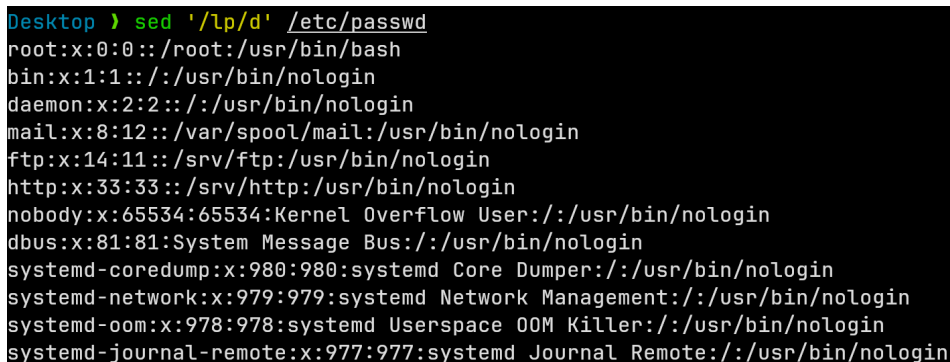
```
Desktop > sed '$d' /etc/passwd
root:x:0:0::/root:/usr/bin/bash
bin:x:1:1::/usr/bin/nologin
daemon:x:2:2::/usr/bin/nologin
mail:x:8:12::/var/spool/mail:/usr/bin/nologin
ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
nobody:x:65534:65534:Kernel Overflow User:/usr/bin/nologin
dbus:x:81:81:System Message Bus:/usr/bin/nologin
systemd-coredump:x:980:980:systemd Core Dumper:/usr/bin/nologin
systemd-network:x:979:979:systemd Network Management:/usr/bin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer:/usr/bin/nologin
systemd-journal-remote:x:977:977:systemd Journal Remote:/usr/bin/nologin
```

Figure 3: Command Output

## 1.4 Question 4

Display passwd file except the lines that contain the word lp.

```
sed '/lp/d' /etc/passwd
```



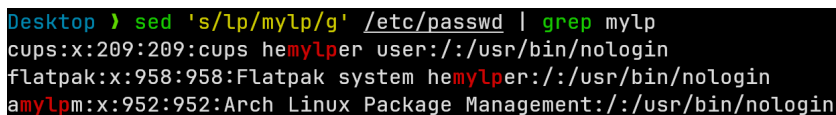
```
Desktop > sed '/lp/d' /etc/passwd
root:x:0:0::/root:/usr/bin/bash
bin:x:1:1::/usr/bin/nologin
daemon:x:2:2::/usr/bin/nologin
mail:x:8:12::/var/spool/mail:/usr/bin/nologin
ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
nobody:x:65534:65534:Kernel Overflow User:/usr/bin/nologin
dbus:x:81:81:System Message Bus:/usr/bin/nologin
systemd-coredump:x:980:980:systemd Core Dumper:/usr/bin/nologin
systemd-network:x:979:979:systemd Network Management:/usr/bin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer:/usr/bin/nologin
systemd-journal-remote:x:977:977:systemd Journal Remote:/usr/bin/nologin
```

Figure 4: Command Output

## 1.5 Question 5

Substitute all the words that contain lp with mylp in passwd file.

```
sed 's/lp/mylp/g' /etc/passwd
```



```
Desktop > sed 's/lp/mylp/g' /etc/passwd | grep mylp
cups:x:209:209:cups hemyler user:/usr/bin/nologin
flatpak:x:958:958:Flatpak system hemyler:/usr/bin/nologin
amylm:x:952:952:Arch Linux Package Management:/usr/bin/nologin
```

Figure 5: Command Output

# 2 Using awk utility

## 2.1 Question 1

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

## Question 3

---

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

*The empty lines are the users that do not have a comment field.*



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


```
Kernel Overflow User
System Message Bus
systemd Core Dumper
systemd Network Management
systemd Userspace OOM Killer
systemd Journal Remote
systemd Resolver
```

Figure 6: Command Output

## 2.2 Question 2

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

```
awk -F: '{print NR " " $1 " " $5 " " $6}' /etc/passwd
```



```
Desktop > awk -F: '{print NR " " $1 " " $5 " " $6}' /etc/passwd
```

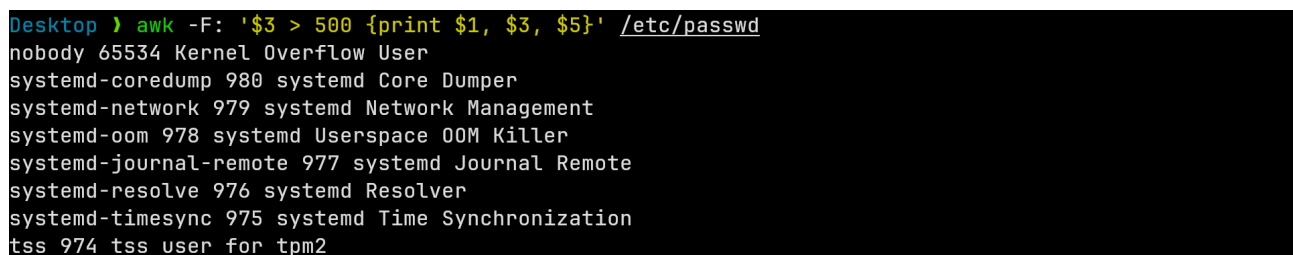
```
1) root /root
2) bin /
3) daemon /
4) mail /var/spool/mail
5) ftp /srv/ftp
6) http /srv/http
7) nobody Kernel Overflow User /
8) dbus System Message Bus /
```

Figure 7: Command Output

## 2.3 Question 3

Print login, UID and full name (comment) of those UID is greater than 500.

```
awk -F: '$3 > 500 {print $1, $3, $5}' /etc/passwd
```



```
Desktop > awk -F: '$3 > 500 {print $1, $3, $5}' /etc/passwd
```

```
nobody 65534 Kernel Overflow User
systemd-coredump 980 systemd Core Dumper
systemd-network 979 systemd Network Management
systemd-oom 978 systemd Userspace OOM Killer
systemd-journal-remote 977 systemd Journal Remote
systemd-resolve 976 systemd Resolver
systemd-timesync 975 systemd Time Synchronization
tss 974 tss user for tpm2
```

Figure 8: Command Output

## Question 7

### 2.4 Question 4

Print login, UID and full name (comment) of those UID is exactly 500.

```
awk -F: '$3 == 500 {print $1, $3, $5}' /etc/passwd
```

```
Desktop > awk -F: '$3 == 500 {print $1, $3, $5}' /etc/passwd
```

```
Desktop > cat /etc/passwd | grep 500
```

```
Desktop > |
```

x 0/1

Figure 9: Command Output

### 2.5 Question 5

Print line from 5 to 15 from passwd.

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

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

```
ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
nobody:x:65534:65534:Kernel Overflow User:/usr/bin/nologin
dbus:x:81:81:System Message Bus:/usr/bin/nologin
systemd-coredump:x:980:980:systemd Core Dumper:/usr/bin/nologin
systemd-network:x:979:979:systemd Network Management:/usr/bin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer:/usr/bin/nologin
systemd-journal-remote:x:977:977:systemd Journal Remote:/usr/bin/nologin
systemd-resolve:x:976:976:systemd Resolver:/usr/bin/nologin
systemd-timesync:x:975:975:systemd Time Synchronization:/usr/bin/nologin
tss:x:974:974:tss user for tpm2:/usr/bin/nologin
```

Figure 10: Command Output

### 2.6 Question 6

Change lp to mylp.

```
awk '{gsub(/lp/, "mylp"); print}' /etc/passwd
```

```
Desktop > awk '{gsub(/lp/, "mylp"); print}' /etc/passwd | grep mylp
```

```
cups:x:209:209:cups hemylper user:/usr/bin/nologin
flatpak:x:958:958:Flatpak system hemylper:/usr/bin/nologin
amylpm:x:952:952:Arch Linux Package Management:/usr/bin/nologin
```

Figure 11: Command Output

### 2.7 Question 7

Print all information about greatest UID.

```
awk -F: 'BEGIN{max=0} {if($3>max){max=$3; line=$0}} END{print line}'
↪ /etc/passwd
```

```
Desktop > awk -F: 'BEGIN{max=0} {if($3>max){max=$3; line=$0}} END{print line}' /etc/passwd
nobody:x:65534:65534:Kernel Overflow User:/usr/bin/nologin
```

Figure 12: Command Output

### 2.8 Question 8

Get the sum of all accounts id's.

```
awk -F: '{sum+=$3} END{print "Total UID sum:", sum}' /etc/passwd
```

```
Desktop > awk -F: '{sum+=$3} END{print "Total UID sum:", sum}' /etc/passwd
Total UID sum: 98349
```

Figure 13: Command Output

## 3 Bonus Questions

### 3.1 Question 1

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

```
awk -F: '{sum[$4]+=$3} END{for(i in sum) print "Group ID:",i,"Sum:",sum[i]}'  
↪ /etc/passwd
```

```
Desktop > awk -F: '{sum[$4]+=$3} END{for(i in sum) print "Group ID:",i,"Sum:",sum[i]}' /etc/passwd
Group ID: 0 Sum: 0
Group ID: 1 Sum: 1
Group ID: 2 Sum: 2
Group ID: 11 Sum: 14
Group ID: 12 Sum: 8
Group ID: 32 Sum: 32
Group ID: 33 Sum: 33
Group ID: 34 Sum: 34
```

Figure 14: Command Output