

AWK

1. Print all the First Names.

- In this question I want to find the first name of which is the start of every line, to do this I use `awk '{print $1}' AwkLab.data` \$1 is the first name in every line so that's what I want printed and then you want to have `AwkLab.data` at the end as it's the file we want to use.

```
miles@ubuntu:~$ awk '{ print $1 }' AwkLab.data
Samuel
Ponder
Angua
Susan
Tiffany
Sacharissa
Adora
Frodo
Tom
Peregrin
Samwise
A.A.
Antoine
Adalgrim
Bandobras
Belladonna
Eglantine
Mirabella
Ferumbas
Gerontius
miles@ubuntu:~$ _
```

2. Print phone numbers for Tom and Frodo after their names

- In this question I used `awk -v FS=: '/(Tom|Frodo)/{print $1 "\t" $2}' AwkLab.data` we are telling awk to use -v to assign a variable and FS: to find Tom and Frodo and then we use Tom|Frodo to tell it to print Tom and Frodo

```
miles@ubuntu:~$ awk -v FS=: '/(Tom|Frodo)/{print $1 "\t" $2}' AwkLab.data
Frodo Baggins (206) 548-1278
Tom Bombadil (916) 348-4278
miles@ubuntu:~$
```

3. Print Peregrin's full name and phone number area code only.

- For this question I used `awk '/Peregrin/{print $1,$2}' AwkLab.data` we want to use `/Peregrin/` for it to specifically be him then use `($1, $2)` to print the first name and then the phone numbers area code.

```
miles@ubuntu:~$ awk '/Peregrin/{print $1,$2}' AwkLab.data
Peregrin Took:(510)
miles@ubuntu:~$
```

4. Print all phone numbers (full number) in the 123 area code along with the names
 - In this question I used `awk -F: '/^(123\)/{print $1, $2}' AwkLab.data` we use `F:` to give a better search and then use `^(123\)/` to search for the 123 area code then have it print `$1` and `$2` which will print the name and then the rest of the phone number after (123).

```
miles@ubuntu:~$ awk -F: '/^(123\)/{print $1, $2}' AwkLab.data
Antoine de Saint-Exupery (123) 978-6432
Belladonna Took (123) 978-5754
Eglantine Took (123) 978-3574
miles@ubuntu:~$
```

5. Print all Last names beginning with either a T or D (careful of middle names!)
 - In this question I used `awk -F: '{print $1}' AwkLab.data | awk '{print $NF}' | awk -e '$1 ~ /[T] | [D]/ {print $1}'` we only want to print the last name so we have to use `print $1` so it can search every name in the file then we use `$NF` to grab the last sections of the lines we want instead of first names, then we can use `awk -e` and a regular expression `~` with `/[T] | [D]/` to print last names in that section that start with T and D.

```
miles@ubuntu:~$ awk -F: '{print $1}' AwkLab.data | awk '{print $NF}' | awk -e '$1 ~ /[T] | [D]/ {print $1}'
Dearheart
Took
Took
Took
Took
Took
Took
Took
Took
Took
Took
miles@ubuntu:~$
```

6. Print all first names containing four or less characters.
 - In this question I used `awk '/^[1,4].*{print $1}' AwkLab.data` I used `/^[1,4].*` and then `print $1` which will search for first names that are of the length of 1 through 4 the period at the end will search for names that have any character so it can print A.A.

```
miles@ubuntu:~$ awk '/^.{1,4} .*/{print $1}' AwkLab.data
Tom
A.A.
miles@ubuntu:~$
```

7. Print the first names and area codes of all those in the 916 area code.

- In this question I used `awk -F[:] ' /(916)/ {print $1, $3}' AwkLab.data` we want the area code of 916 and the corresponding first names so we want to use -F with brackets and a colon and then use `/ (916) /` to look at lines with 916 then we print \$1 and \$3 to print the first name and the area code.

```
miles@ubuntu:~$ awk -F[:] ' /(916)/ {print $1, $3}' AwkLab.data
Sacharissa (916)
Tom (916)
A.A. (916)
miles@ubuntu:~$ _
```

8. Print Sacharissa's campaign contributions following her name. Each value should be printed with a leading dollar sign; e.g., \$250 \$100 \$175.

- In this question I used `awk -F:` to make the search easier and then have the search be for Sacharissa with `/Sacharissa/` and then print her name and her contributions with \$1, \$3, \$4, \$5 and I used the "\$" to print a \$ before each section that is a contribution.

```
miles@ubuntu:~$ awk -F: '/Sacharissa/{print $1, "$"$3, "$"$4, "$"$5}' AwkLab.data
Sacharissa Cripslock $250 $100 $175
miles@ubuntu:~$
```

9. Print last names followed by a comma and the phone number. Be careful of the last names's format.

- In this question I used `awk -F:` again and then use `print $1` and a comma and then \$2 to print all lines in the file. Then I used pipe and used `awk` again with `NF` to use the end of the line to get the phone numbers, to do this I had subtract from `NF` so I can put the phone numbers in the position they are meant to be in.

```

miles@ubuntu:~$ awk -F: '{print $1 " ", $2}' AwkLab.data | awk '{print $(NF-2), $(NF-1), $NF}'
Vimes, (510) 548-1278
Stibbons, (408) 538-2358
Uberwald, (206) 654-6279
Helit, (206) 548-1348
Aching, (206) 548-1278
Cripslock, (916) 343-6410
Dearheart, (406) 298-7744
Baggins, (206) 548-1278
Bombadil, (916) 348-4278
Took, (510) 548-5258
Gamgee, (408) 926-3456
Milne, (916) 440-1763
Saint-Exupery, (123) 978-6432
Took, (345) 978-7684
Took, (453) 978-3534
Took, (123) 978-5754
Took, (123) 978-3574
Took, (345) 978-2677
Took, (563) 978-753
Took, (574) 978-8535
miles@ubuntu:~$

```

10. Print the first and last names of those who contributed more than \$110 in the last month. Make sure to include their last month contribution amount after the name

- In this question I used awk -F: again and used \$5 as the last month and used \$5 > 110 for it to search for contributions in section \$5 that are greater than 110 and then print all lines with \$1 and then the amount with \$5 with "\$" before the amount.

```

miles@ubuntu:~$ awk -F: '$5 > 110 {print $1, "$" $5}' AwkLab.data
Samuel Vimes $175
Ponder Stibbons $201
Susan Sto Helit $175
Tiffany Aching $150
Sacharissa Cripslock $175
Adora Belle Dearheart $275
Tom Bombadil $175
Peregrin Took $135
Samwise Gamgee $200
A.A. Milne $300
Antoine de Saint-Exupery $175
Adalgrim Took $467
Bandobras "Bullroarer" Took $4673
Belladonna Took $175
Eglantine Took $4367
Mirabella Took $175
Ferumbras III Took $3457
Gerontius Took $4562
miles@ubuntu:~$

```

11. Print the last names, phone numbers, and first month contribution of those who contributed less than \$150 in the first month.

- In this question I used awk -F: again and used \$3 as the first month and used \$3 < 150 for it to search for contributions in section \$3 that are less than 150 the \$1 to print all lines and then the amount with \$3

```
miles@ubuntu:~$ awk -F: '$3 < 150 {print $1, "\"" $3}' AwkLab.data
Tiffany Aching $15
Peregrin Took $50
miles@ubuntu:~$ _
```

12. Print the first names and contribution of those who contributed between \$10 and \$200 in the first month.

- In this question used \$3 which is the first month then <= 200 and \$3 > 10 to search for lines where \$3 is between 10 and 200 and then used NF-2 to get rid of the last name and then added \$3 to just print the first name and contribution.

```
miles@ubuntu:~$ awk -F: '$3 > 10 && $3 <= 200 {print $1, "\"" $3}' AwkLab.data | awk '{print $
(NF-2), ($3) }'
Ponder $155
Tiffany $15
Peregrin $50
A.A. $175
miles@ubuntu:~$
```

13. Print the first name, last names and total contributions of those who contributed less than \$700 over the three-month period.

- In this question I used awk -F: \$3+\$4+\$5 < 700 to search for lines that contributed less than 700 and then printed it out.

```
miles@ubuntu:~$ awk -F: '$3+$4+$5 < 700 {print $1, "\"" $3+$4+$5}' AwkLab.data
Samuel Vimes $525
Ponder Stibbons $446
Angua von Überwald $360
Susan Sto Helit $525
Tiffany Aching $353
Sacharissa Cripslock $525
Frodo Baggins $405
Tom Bombadil $525
Peregrin Took $280
Samwise Gamgee $618
A.A. Milne $550
Antoine de Saint-Exupery $525
miles@ubuntu:~$
```

14. Print the first names and first letter of the last name, and average contribution of those who had an average contribution of more then \$300

- In this question I used $\$3+\$4+\$5/3$ to get the average and search for it and then printed it out.

```
miles@ubuntu:~$ awk -F: '$3+$4+$5/3 > 300 {print $1, " " $3+$4+$5/3}' AwkLab.data
Samuel Vimes $408.333
Ponder Stibbons $312
Angua von Überwald $326.667
Susan Sto Helit $408.333
Sacharissa Cripslock $408.333
Adora Belle Dearheart $841.667
Frodo Baggins $355
Tom Bombadil $408.333
Samwise Gamgee $484.667
A.A. Milne $350
Antoine de Saint-Exupery $408.333
Adalgrim Took $4928.67
Bandobras "Bullroarer" Took $8678.67
Belladonna Took $661.333
Eglantine Took $2403.67
Mirabella Took $1404.33
Ferumbras III Took $1502.33
Gerontius Took $2733.67
miles@ubuntu:~$ _
```

15. Print the last name and area code of those not in the 916 area code.

- In this question I used `!(916)/` to search for lines without 916 and then printed `$1`, and `$2` and then I used `NF` to make it print the last name and the area code.

```
miles@ubuntu:~$ awk -F: '!(916)/ {print $1, $2}' AwkLab.data | awk '{print $(NF-2), $(NF-1)}'
Vimes (510)
Stibbons (408)
Überwald (206)
Helit (206)
Aching (206)
Dearheart (406)
Baggins (206)
Took (510)
Gamgee (408)
Saint-Exupery (123)
Took (345)
Took (453)
Took (123)
Took (123)
Took (345)
Took (563)
Took (574)
miles@ubuntu:~$ _
```

16. Print each record preceded by the number of the record.

- In this question I used `NR` which prints the record and then `$1`, `$2`, `$3`

```
miles@ubuntuuserver:~$ awk '{print NR, $1, $2, $3}' AwkLab.data
1 Samuel Vimes:(510) 548-1278:250:100:175
2 Ponder Stibbons:(408) 538-2358:155:90:201
3 Angua von Überwald:(206)
4 Susan Sto Helit:(206)
5 Tiffany Aching:(206) 548-1278:15:188:150
6 Sacharissa Cripslock:(916) 343-6410:250:100:175
7 Adora Belle Dearheart:(406)
8 Frodo Baggins:(206) 548-1278:250:80:75
9 Tom Bombadil:(916) 348-4278:250:100:175
10 Peregrin Took:(510) 548-5258:50:95:135
11 Samwise Gamgee:(408) 926-3456:250:168:200
12 A.A. Milne:(916) 440-1763:175:75:300
13 Antoine de Saint-Exupery:(123)
14 Adalgrim Took:(345) 978-7684:4673:100:467
15 Bandobras "Bullroarer" Took:(453)
16 Belladonna Took:(123) 978-5754:356:247:175
17 Eglantine Took:(123) 978-3574:473:475:4367
18 Mirabella Took:(345) 978-2677:783:563:175
19 Ferumbas III Took:(563)
20 Gerontius Took:(574) 978-8535:535:678:4562
miles@ubuntuuserver:~$
```

17. Print the name and total contribution of each person.

- In this question I printed the names and then used $\$3+\$4+\$5$ to add up the total.

```
miles@ubuntuuserver:~$ awk -F: '{print $1, "$"($3+$4+$5)}' AwkLab.data
Samuel Vimes $525
Ponder Stibbons $446
Angua von Überwald $360
Susan Sto Helit $525
Tiffany Aching $353
Sacharissa Cripslock $525
Adora Belle Dearheart $1025
Frodo Baggins $405
Tom Bombadil $525
Peregrin Took $280
Samwise Gamgee $618
A.A. Milne $550
Antoine de Saint-Exupery $525
Adalgrim Took $5240
Bandobras "Bullroarer" Took $11794
Belladonna Took $778
Eglantine Took $5315
Mirabella Took $1521
Ferumbas III Took $3807
Gerontius Took $5775
miles@ubuntuuserver:~$ _
```

18. Add \$10 to Tiffany Aching's first contribution and print her full name and first contribution.

- In this question I used `/Tiffany Aching/` to only use lines with her name and then printed the line with `$1` and then used $\$3+10$ to add to 10 to the total

```
miles@ubuntu:~$ awk -F: '/Tiffany Aching/{print $1, "$"($3+10)}' AwkLab.data
Tiffany Aching $25
miles@ubuntu:~$ _
```

19. Change Samwise Gamgee's name to Sean Astin

- In this question I used '/Samwise Gamgee/' to search for lines with that name and then used '\$1="Sean Astin"' to change the name and then printed it out.

```
miles@ubuntu:~$ awk -F: '/Samwise Gamgee/{$1="Sean Astin"; print $0;}' AwkLab.data
Sean Astin (408) 926-3456 250 168 200
miles@ubuntu:~$ _
```

20.

Awk script tested: to use the script make it executable with `chmod +x` and type `./awkscript.sh AwkLab.data`

```
miles@mileserver1:~$ ./awkscript.sh AwkLab.data
Samuel Vimes 175
Angua von Überwald 50
Susan Sto Helit 175
Tiffany Aching 150
Tiffany Aching 253 (Contributed Less Than 300)
Sacharissa Cripslock 175
Frodo Baggins 75
Tom Bombadil 175
Peregrin 280 (Total Contributions)
Peregrin Took 135
Peregrin Took 190 (Contributed Less Than 300)
Antoine de Saint-Exupery 175
Adalgrim 5240 (Total Contributions)
Bandobras 11794 (Total Contributions)
Belladonna 778 (Total Contributions)
Belladonna Took 175
Eglantine 5315 (Total Contributions)
Mirabella 1521 (Total Contributions)
Mirabella Took 175
Ferumbras 3807 (Total Contributions)
Gerontius 5775 (Total Contributions)
miles@mileserver1:~$ _
```

References:

<https://linuxhint.com/awk-command-examples/>

https://www.gnu.org/software/gawk/manual/html_node/String-Functions.html