Lab 5

EXERCISES Start a fresh terminal for this Lab.

(1) Look for the pattern ‘Meningoma’ in the data file. Redirect the output to a new file called ’LinesWithMeningoma.out’. Show the command used and the contents of this new file in your screenshot.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Meningioma BrainCancer.csv > LinesWithMeningoma.out
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat LinesWithMeningoma.out
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
19,Male,Meningioma,Supratentorial,80,13.49,SRS,1,6.92
20,Female,Meningioma,Supratentorial,90,2.5,SRT,0,30.16
21,Female,Meningioma,Supratentorial,80,2.82,SRS,0,24.39
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
25,Female,Meningioma,Supratentorial,70,6.48,SRT,1,33.41
29,Male,Meningioma,Supratentorial,60,3.81,SRT,0,36.1
30,Female,Meningioma,Supratentorial,90,4.72,SRS,0,65.02
32,Male,Meningioma,Supratentorial,90,2.56,SRS,0,44.39
```

(2) How many males and females were present in this study? How will you create a grep filter to find this out?

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c Male BrainCancer.csv
43
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c Female BrainCancer.csv
45
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c -e Male -c -e Female BrainCancer.csv
88
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

.

So in total there were ***88*** people present in the study out of which ***43 were Males and 45 were Females.***

(3) How many males have supratentorial brain cancer and how many females have infratentorial cancer? Which option in grep makes you ignore the case while searching? Make use of this in this exercise.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Supratentorial Males_with_supratentorial
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
10,Male,HG glioma,Supratentorial,100,2.53,SRT,0,11.48
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
14,Male,NA,Supratentorial,90,6.38,SRT,0,50.85
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c Supratentorial Males_with_supratentorial
34
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There are ***34 Males with Supratentorial Brain Cancer***

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Infratentorial Females_with_infratentorial
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
33,Female,Other,Infratentorial,70,13.45,SRT,1,10.82
52,Female,Meningioma,Infratentorial,90,9.24,SRT,0,26.85
80,Female,Meningioma,Infratentorial,70,2.94,SRS,0,1.54
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c Infratentorial Females_with_infratentoria
10
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There are ***10 Females with Infratentorial Brain Cancer***

-i is used to search without case sensitivity

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -i "inFraTenTorial" Females_with_infratentorial
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
33,Female,Other,Infratentorial,70,13.45,SRT,1,10.82
52,Female,Meningioma,Infratentorial,90,9.24,SRT,0,26.85
80,Female,Meningioma,Infratentorial,70,2.94,SRS,0,1.54
```

(4) Find out which patient has the lowest ki value. (Hint: Use sort for this, it's easier)

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ sort -t ',' -k 5 -n BrainCancer.csv
,sex,diagnosis,loc,ki,gtv,stereo,status,time
29,Male,Meningioma,Supratentorial,60,3.81,SRT,0,36.1
46,Male,Meningioma,Supratentorial,60,7.09,SRS,1,31.25
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
68,Male,Other,Infratentorial,70,0.01,SRS,0,23.67
49,Male,Meningioma,Supratentorial,70,0.97,SRT,1,1.41
80,Female,Meningioma,Infratentorial,70,2.94,SRS,0,1.54
```

(5) Print out the output by searching for the patterns 'SRS' as well as 'infratentorial'. How many such entries are there?

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Infratentorial BrainCancer.csv> Infratentorial_SRS
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat Infratentorial_SRS
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
33,Female,Other,Infratentorial,70,13.45,SRT,1,10.82
34,Male,Other,Infratentorial,80,6.81,SRS,0,57.11
39,Male,Other,Infratentorial,80,12.51,SRT,1,29.7
45,Male,Other,Infratentorial,90,3.12,SRT,0,18.95
52,Female,Meningioma,Infratentorial,90,9.24,SRT,0,26.85
54,Male,Meningioma,Infratentorial,80,24.41,SRT,0,39.54
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep SRS Infratentorial_SRS
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
34,Male,Other,Infratentorial,80,6.81,SRS,0,57.11
56,Male,Other,Infratentorial,90,0.48,SRS,0,54.43
57,Male,HG glioma,Infratentorial,80,0.22,SRS,0,33.67
68,Male,Other,Infratentorial,70,0.01,SRS,0,23.67
80,Female,Meningioma,Infratentorial,70,2.94,SRS,0,1.54
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -c SRS Infratentorial_SR
11
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There are total of ***11 emtries*** having Infratentorial as well as SRS pattern

(6) List the patients who have survival times more than 50 months.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ sort -t ',' -k 9 -nr BrainCancer.csv -o Survival
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat Survival
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
77,Female,Meningioma,Supratentorial,80,2.39,SRS,0,73.74
64,Male,Meningioma,Supratentorial,80,4.77,SRT,0,67.38
30,Female,Meningioma,Supratentorial,90,4.72,SRS,0,65.02
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
76,Female,Meningioma,Supratentorial,80,31.74,SRT,0,57.25
34,Male,Other,Infratentorial,80,6.81,SRS,0,57.11
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
56,Male,Other,Infratentorial,90,0.48,SRS,0,54.43
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
66,Female,Meningioma,Supratentorial,100,4,SRT,0,52.23
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
14,Male,NA,Supratentorial,90,6.38,SRT,0,50.85
78,Female,Meningioma,Supratentorial,90,7.26,SRT,0,49.05
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ head -n 14 Survival
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
77,Female,Meningioma,Supratentorial,80,2.39,SRS,0,73.74
64,Male,Meningioma,Supratentorial,80,4.77,SRT,0,67.38
30,Female,Meningioma,Supratentorial,90,4.72,SRS,0,65.02
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
76,Female,Meningioma,Supratentorial,80,31.74,SRT,0,57.25
34,Male,Other,Infratentorial,80,6.81,SRS,0,57.11
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
56,Male,Other,Infratentorial,90,0.48,SRS,0,54.43
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
66,Female,Meningioma,Supratentorial,100,4,SRT,0,52.23
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
14,Male,NA,Supratentorial,90,6.38,SRT,0,50.85
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

(7) List the patients who have HG glioma and have survival times more than 50 months. How many are there?

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep "HG glioma" BrainCancer.csv
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
10,Male,HG glioma,Supratentorial,100,2.53,SRT,0,11.48
16,Female,HG glioma,Supratentorial,70,11.38,SRS,1,7.05
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
22,Male,HG glioma,Supratentorial,70,14.44,SRT,1,14
28,Male,HG glioma,Supratentorial,70,33.69,SRT,1,0.07
38,Male,HG glioma,Supratentorial,90,9.95,SRT,1,6.23
42,Male,HG glioma,Supratentorial,90,0.28,SRT,1,16.43
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep "HG glioma" BrainCancer.csv > HG
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat HG
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
10,Male,HG glioma,Supratentorial,100,2.53,SRT,0,11.48
16,Female,HG glioma,Supratentorial,70,11.38,SRS,1,7.05
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
22,Male,HG glioma,Supratentorial,70,14.44,SRT,1,14
28,Male,HG glioma,Supratentorial,70,33.69,SRT,1,0.07
38,Male,HG glioma,Supratentorial,90,9.95,SRT,1,6.23
42,Male,HG glioma,Supratentorial,90,0.28,SRT,1,16.43
47,Male,HG glioma,Supratentorial,80,29.27,SRT,0,5.15
51,Female,HG glioma,Supratentorial,90,0.04,SRT,0,31.67
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ sort -t ',' -k 9 -nr HG -o Time
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ head -n 1 Time
18,Male,HG glioma,Supratentorial,90,10.8,SRT,0,82.56
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There is only ***1 patient*** who has HG Glioma and has survived more than 50 months.

(8) List the patients who have LG glioma with location supratentorial and survial times less than 30 months. How many are there?

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep "LG glioma" BrainCancer.csv > LG
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat LG
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
31,Female,LG glioma,Supratentorial,80,0.85,SRS,1,6.1
50,Female,LG glioma,Supratentorial,80,0.19,SRS,0,11.51
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
73,Male,LG glioma,Supratentorial,90,2.64,SRT,0,20.13
83,Male,LG glioma,Infratentorial,90,30.41,SRT,0,1.18
```

First we found out patients with LG Glioma.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep "Supratentorial" LG
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
31,Female,LG glioma,Supratentorial,80,0.85,SRS,1,6.1
50,Female,LG glioma,Supratentorial,80,0.19,SRS,0,11.51
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
73,Male,LG glioma,Supratentorial,90,2.64,SRT,0,20.13
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ sort -t ',' -k 9 -nr LG
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
```

Then we found out patients who have LG Glioma with location Supratentorial and sorted them in ascending order.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ sort -t ',' -k 9 -n LG_Supra -o LG_Supra_
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat LG_Supra_
31,Female,LG glioma,Supratentorial,80,0.85,SRS,1,6.1
50,Female,LG glioma,Supratentorial,80,0.19,SRS,0,11.51
73,Male,LG glioma,Supratentorial,90,2.64,SRT,0,20.13
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
65,Male,LG glioma,Supratentorial,80,9.58,SRT,0,78.75
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ head -n 4 LG_Supra_
31,Female,LG glioma,Supratentorial,80,0.85,SRS,1,6.1
50,Female,LG glioma,Supratentorial,80,0.19,SRS,0,11.51
73,Male,LG glioma,Supratentorial,90,2.64,SRT,0,20.13
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
```

Thus there are ***4 patients*** with LG glioma at Supratentorial location.

(9) By default does grep ignore or not ignore case? Demonstrate this by using the appropriate option and by running the grep command without this option.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep "supratentorial" BrainCancer.csv
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

.

By default, grep does not ignore case, as in the screenshot attached “Supratentorial” has been written as “supratentorial” where the case of “S” was upper case where as in the example given by me “s” lower case was used and thus the grep command did not give any output.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Supratentorial BrainCancer.csv
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
10,Male,HG glioma,Supratentorial,100,2.53,SRT,0,11.48
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
14,Male,NA,Supratentorial,90,6.38,SRT,0,50.85
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
16,Female,HG glioma,Supratentorial,70,11.38,SRS,1,7.05
```

We can use ‘i’ option of grep command to make the command insensitive to case.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep -i supratentorial BrainCancer.csv
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
10,Male,HG glioma,Supratentorial,100,2.53,SRT,0,11.48
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
14,Male,NA,Supratentorial,90,6.38,SRT,0,50.85
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
16,Female,HG glioma,Supratentorial,70,11.38,SRS,1,7.05
```

(10) List the patients who are dead at the end of the study. How many are there? Find another way to listing this set of patients (look up grep man pages to look for a specific option to select non-matching lines)

So, as the information is given that if the status is 1 that means the patient is alive whereas if the status is 0 that means the patient is dead.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep ",1," BrainCancer.csv
2,Male,HG glioma,Supratentorial,90,19.35,SRT,1,8.98
4,Female,LG glioma,Supratentorial,80,7.61,SRT,1,47.8
5,Male,HG glioma,Supratentorial,90,5.06,SRT,1,6.3
11,Male,LG glioma,Supratentorial,80,0.14,SRT,1,35.93
16,Female,HG glioma,Supratentorial,70,11.38,SRS,1,7.05
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
19,Male,Meningioma,Supratentorial,80,13.49,SRS,1,6.92
22,Male,HG glioma,Supratentorial,70,14.44,SRT,1,14
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
25,Female,Meningioma,Supratentorial,70,6.48,SRT,1,33.41
26,Male,LG glioma,Supratentorial,90,4.23,SRT,1,25.02
27,Male,Other,Supratentorial,60,34.64,SRT,1,11.57
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep ",1," -c BrainCancer.csv
35
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There are ***35 people who are alive***

We use ***"-v"*** option of grep command to select non-matching lines.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep ",1," -v BrainCancer.csv
,sex,diagnosis,loc,ki,gtv,stereo,status,time
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
8,Male,LG glioma,Supratentorial,80,12.37,SRT,0,42.1
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
```

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep ",1," -v -c BrainCancer.csv
54
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

There are 53 people who are dead. Here when we use -v option, it also printed the header. Thats why there are 53 patients and not 54 patients.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep ",0,"  -c BrainCancer.csv
53
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

(11) Let's list the patients who have their cancer in infratentorial location. How many are there? How do I restrict the output to first ten patients?

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ grep Infratentorial BrainCancer.csv > Infra
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat Infra
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
33,Female,Other,Infratentorial,70,13.45,SRT,1,10.82
```

.

The output can be restricted by using the head command to print the first 10 lines of the patients having Infratentorial Brain Cancer.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ head -n 10 Infra
1,Female,Meningioma,Infratentorial,90,6.11,SRS,0,57.64
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
17,Female,Other,Infratentorial,60,24,SRT,1,6.82
23,Female,Other,Infratentorial,80,2.11,SRS,0,10.49
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
33,Female,Other,Infratentorial,70,13.45,SRT,1,10.82
34,Male,Other,Infratentorial,80,6.81,SRS,0,57.11
39,Male,Other,Infratentorial,80,12.51,SRT,1,29.7
```

.

(12) Create an archive file by combining the outputs of questions 1-5.

The function tar was used with -cvf to archive the outputs into the file Archive .

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ tar -cvf Archive.tar LinesWithMeningoma.out Males_with_supratentorial Fe
ntorial_SRS Male Female Female_Male Sort_ki SRS_Infra
LinesWithMeningoma.out
Males_with_supratentorial
Females_with_infratentorial
Infratentorial_SRS
Male
Female
Female_Male
Sort_ki
SRS_Infra
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat Archive.tar
LinesWithMeningoma.out0000664000175200017520000000044631504311242001373l 0ustar  ibabibab1,Female,Meningioma,Infraten
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
```

.

(13) Create a zipped and archived file by combining the outputs of questions 6-11.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ tar -czvf All.tar Survival HG Time LG LG_Supra_ Infra Alive Dead
Survival
HG
Time
LG
LG_Supra_
Infra
Alive
Dead
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cat All.tar
```

(binary gzip data omitted)

(14) List and extract the contents of the archive file created in (12) to a new directory and list the contents of the new directory.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ tar -xvf All.tar
Survival
HG
Time
LG
LG_Supra_
Infra
Alive
Dead
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

After extracting the contents, move the file to the directory named ***New_dir***

```
Sort_ki
SRS_Infra
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ mv Archive.tar New_dir
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cd New_dir
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5/New_dir$ ls
All.tar  Archive.tar
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5/New_dir$ cat Archive.tar
LinesWithMeningoma.out000066400017520001752000000044631504311242001373
3,Female,Meningioma,Infratentorial,70,7.95,SRS,0,26.46
6,Female,Meningioma,Supratentorial,80,4.82,SRS,0,52.75
7,Male,Meningioma,Supratentorial,80,3.19,SRT,0,55.8
9,Female,Meningioma,Supratentorial,70,12.16,SRT,0,34.66
12,Female,Meningioma,Infratentorial,90,6.54,SRS,0,34.26
13,Female,Meningioma,Infratentorial,90,0.63,SRS,0,32.98
15,Female,Meningioma,Supratentorial,60,9.18,SRT,0,41.44
19,Male,Meningioma,Supratentorial,80,13.49,SRS,1,6.92
20,Female,Meningioma,Supratentorial,90,2.5,SRT,0,30.16
21,Female,Meningioma,Supratentorial,80,2.82,SRS,0,24.39
24,Female,Meningioma,Infratentorial,100,2.13,SRS,1,51.02
25,Female,Meningioma,Supratentorial,70,6.48,SRT,1,33.41
```

.

(15) List and extract the contents of the archived-zipped file in (13) to a new directory and list the contents of the new directory.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ tar -xvf All.tar
Survival
HG
Time
LG
LG_Supra_
Infra
Alive
Dead
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$
```

The contents of the archived-zipped file were extracted and listed

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ mv All.tar Directory_1
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ ls Directory_1
All.tar
```

.

```
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5$ cd Directory_1
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5/Directory_1$ ls
Alive  Dead  HG  Infra  Lab5  LG  LG_Supra_  Survival  Time
ibab@IBAB-Workshop-Comp017:~/Downloads/Lab5/Directory_1$
```