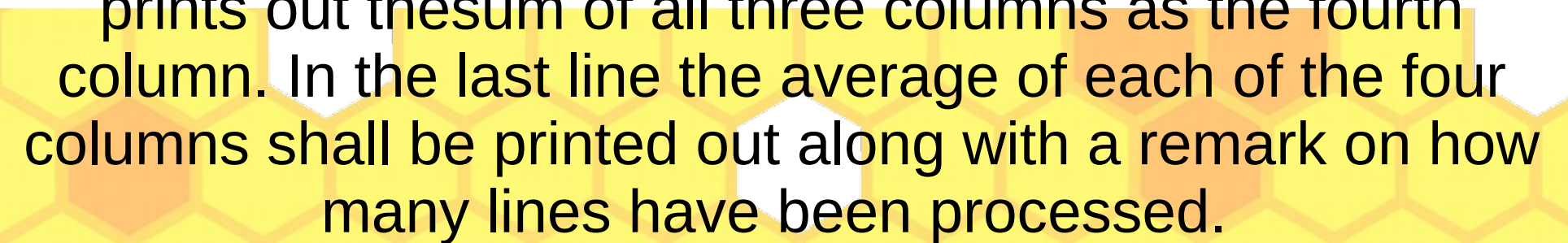


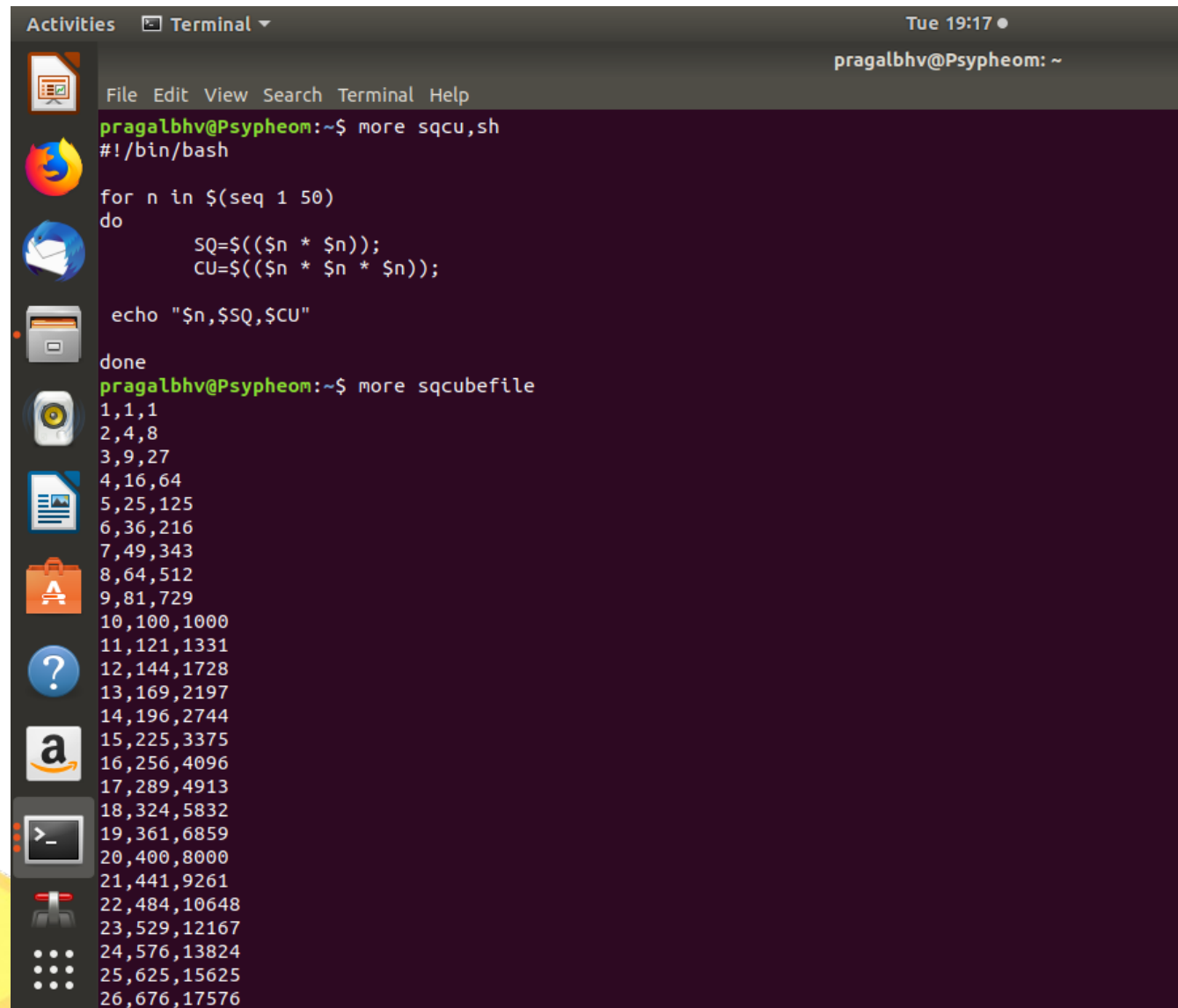


# HOMework 4

Create a comma separated value file that contains three columns of data where the second and third columns contain the square and cube of the number in the first column, respectively. You can do it manually or using a shell script. Create an awk script that reads each line and prints out the sum of all three columns as the fourth column. In the last line the average of each of the four columns shall be printed out along with a remark on how many lines have been processed.

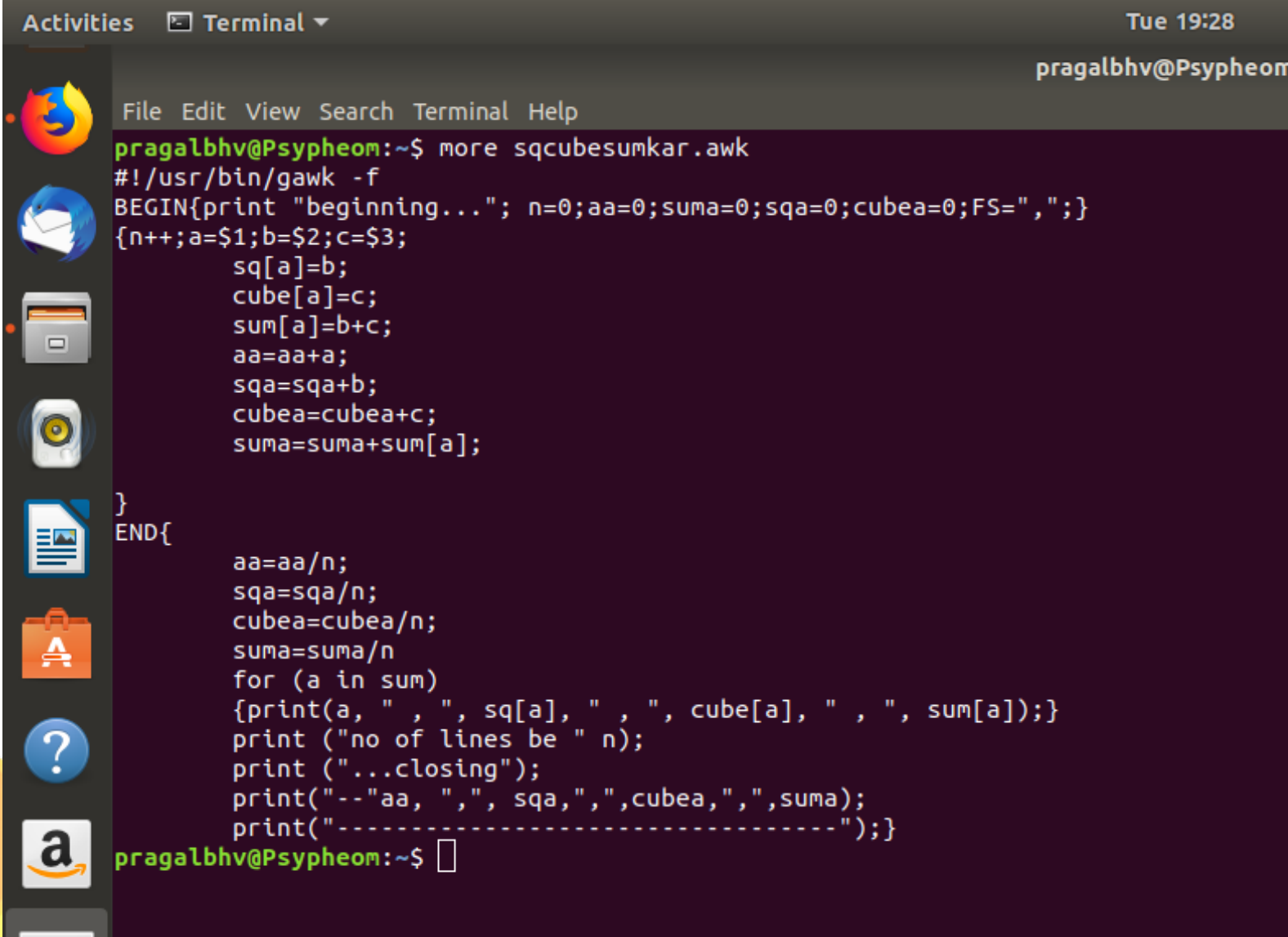


# Code and data file

A terminal window titled 'Terminal' with a dark background and light text. The window shows a shell prompt 'pragalbhv@Psyspheom:~\$' followed by the command 'more sqcu,sh'. The output is a bash script that loops from n=1 to 50, calculating SQ and CU values, and printing them. The prompt then changes to 'pragalbhv@Psyspheom:~\$' followed by 'more sqcubefile', which displays a list of 26 rows of three numbers separated by commas. The window has a sidebar with various application icons and a top bar showing the time 'Tue 19:17' and the user 'pragalbhv@Psyspheom: ~'.

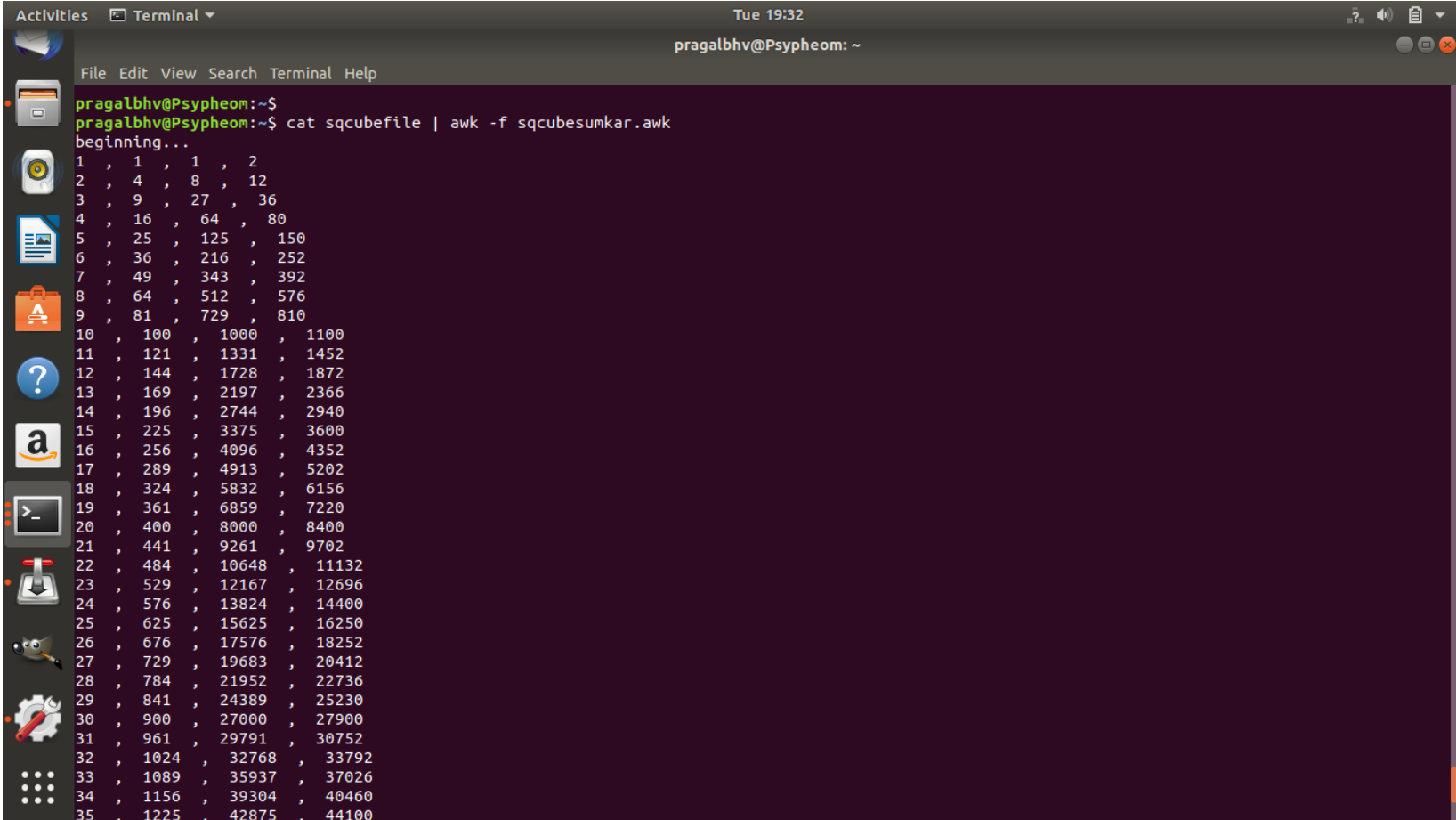
```
Activities Terminal Tue 19:17 ● pragalbhv@Psyspheom: ~
File Edit View Search Terminal Help
pragalbhv@Psyspheom:~$ more sqcu,sh
#!/bin/bash
for n in $(seq 1 50)
do
    SQ=$(( $n * $n ));
    CU=$(( $n * $n * $n ));
    echo "$n,$SQ,$CU"
done
pragalbhv@Psyspheom:~$ more sqcubefile
1,1,1
2,4,8
3,9,27
4,16,64
5,25,125
6,36,216
7,49,343
8,64,512
9,81,729
10,100,1000
11,121,1331
12,144,1728
13,169,2197
14,196,2744
15,225,3375
16,256,4096
17,289,4913
18,324,5832
19,361,6859
20,400,8000
21,441,9261
22,484,10648
23,529,12167
24,576,13824
25,625,15625
26,676,17576
```

# Awk file



```
pragalbhv@Psypheom:~$ more sqcubesumkar.awk
#!/usr/bin/gawk -f
BEGIN{print "beginning..."; n=0;aa=0;suma=0;sqa=0;cubea=0;FS=",";}
{n++;a=$1;b=$2;c=$3;
    sq[a]=b;
    cube[a]=c;
    sum[a]=b+c;
    aa=aa+a;
    sqa=sqa+b;
    cubea=cubea+c;
    suma=suma+sum[a];
}
END{
    aa=aa/n;
    sqa=sqa/n;
    cubea=cubea/n;
    suma=suma/n
    for (a in sum)
    {print(a, " , ", sq[a], " , ", cube[a], " , ", sum[a]);}
    print ("no of lines be " n);
    print ("...closing");
    print("--aa, ",",", sqa," ,",cubea," ,",suma);
    print("-----");
}
pragalbhv@Psypheom:~$
```

# output

A terminal window titled "pragalbhv@Psyspheom: ~" with a menu bar (File, Edit, View, Search, Terminal, Help) and a sidebar with application icons. The terminal shows a command being executed: `cat sqcubefile | awk -f sqcubesumkar.awk`. The output is a table of 35 rows, each with four columns of numbers. The first column contains integers from 1 to 35. The subsequent columns contain values that appear to be powers of the first column's values, specifically  $x^2$ ,  $x^3$ , and  $x^4$ .

```
pragalbhv@Psyspheom:~$ cat sqcubefile | awk -f sqcubesumkar.awk
beginning...
1 , 1 , 1 , 2
2 , 4 , 8 , 12
3 , 9 , 27 , 36
4 , 16 , 64 , 80
5 , 25 , 125 , 150
6 , 36 , 216 , 252
7 , 49 , 343 , 392
8 , 64 , 512 , 576
9 , 81 , 729 , 810
10 , 100 , 1000 , 1100
11 , 121 , 1331 , 1452
12 , 144 , 1728 , 1872
13 , 169 , 2197 , 2366
14 , 196 , 2744 , 2940
15 , 225 , 3375 , 3600
16 , 256 , 4096 , 4352
17 , 289 , 4913 , 5202
18 , 324 , 5832 , 6156
19 , 361 , 6859 , 7220
20 , 400 , 8000 , 8400
21 , 441 , 9261 , 9702
22 , 484 , 10648 , 11132
23 , 529 , 12167 , 12696
24 , 576 , 13824 , 14400
25 , 625 , 15625 , 16250
26 , 676 , 17576 , 18252
27 , 729 , 19683 , 20412
28 , 784 , 21952 , 22736
29 , 841 , 24389 , 25230
30 , 900 , 27000 , 27900
31 , 961 , 29791 , 30752
32 , 1024 , 32768 , 33792
33 , 1089 , 35937 , 37026
34 , 1156 , 39304 , 40460
35 , 1225 , 42875 , 44100
```

Activities Terminal

File Edit View Search Terminal Help

```
18 , 324 , 5832 , 6156
19 , 361 , 6859 , 7220
20 , 400 , 8000 , 8400
21 , 441 , 9261 , 9702
22 , 484 , 10648 , 11132
23 , 529 , 12167 , 12696
24 , 576 , 13824 , 14400
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26 , 676 , 17576 , 18252
27 , 729 , 19683 , 20412
28 , 784 , 21952 , 22736
29 , 841 , 24389 , 25230
30 , 900 , 27000 , 27900
31 , 961 , 29791 , 30752
32 , 1024 , 32768 , 33792
33 , 1089 , 35937 , 37026
34 , 1156 , 39304 , 40460
35 , 1225 , 42875 , 44100
36 , 1296 , 46656 , 47952
37 , 1369 , 50653 , 52022
38 , 1444 , 54872 , 56316
39 , 1521 , 59319 , 60840
40 , 1600 , 64000 , 65600
41 , 1681 , 68921 , 70602
42 , 1764 , 74088 , 75852
43 , 1849 , 79507 , 81356
44 , 1936 , 85184 , 87120
45 , 2025 , 91125 , 93150
46 , 2116 , 97336 , 99452
47 , 2209 , 103823 , 106032
48 , 2304 , 110592 , 112896
49 , 2401 , 117649 , 120050
50 , 2500 , 125000 , 127500
no of lines be 50
...closing
--25.5 , 858.5 , 32512.5 , 33371
-----
pragalbhv@Psypheom:~$
```

out  
put

Activities Terminal

File Edit View Search Terminal Help

```
18 , 324 , 5832 , 6156
19 , 361 , 6859 , 7220
20 , 400 , 8000 , 8400
21 , 441 , 9261 , 9702
22 , 484 , 10648 , 11132
23 , 529 , 12167 , 12696
24 , 576 , 13824 , 14400
25 , 625 , 15625 , 16250
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43 , 1849 , 79507 , 81356
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45 , 2025 , 91125 , 93150
46 , 2116 , 97336 , 99452
47 , 2209 , 103823 , 106032
48 , 2304 , 110592 , 112896
49 , 2401 , 117649 , 120050
50 , 2500 , 125000 , 127500
no of lines be 50
...closing
--25.5 , 858.5 , 32512.5 , 33371
-----
pragalbhv@Psypheom:~$
```

out  
put