Assignment 8
Python and Github

ELP-780

Software Lab

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1 Problem Statement 1

1.1 Problem Statement

Find two largest crosses lengths of smart cell grid

- Input a 2D array of strings consisting of DULL and SMART cells and find crosses which will be of odd lengths.
- Print largest two crosses found in matrix in non increasing order.

1.2 Assumptions

- Cells can either contains S or D character to represent SMART and DULL grid.
- Dimensions of 2D matrix can not be greater than $105 * 105$.

1.3 Algorithm Steps

- If fourth column which is depicting plans in CDR is 1 then store it in plan1 file.
- Repeat step 1 for plan2 and plan 3 as well.
- Search for MTC,MOC,SMSMT or SMSMO in fifth column and increment the value in corresponding variable.
- Do above step for plan1,plan2 and plan3 file.
- Calculate MOC and SMS-MO charge according to plan rate table.
- Print output in desired format.

1.4 Input and Output Format

I/O format

- **1.4.1 Input Format**
  - awk fileawk filenametxt
- **1.4.2 Output Format**
  - All plan file in text format.
  - For each plan : Call type:Average Valeu
  - SMS type:Total value
  - For part1.3
  - call type:charge
  - Sms type:charge
  - Total charge

1.5 Difficulty faced

- Process multiple files.

1.6 Screenshots

```
ravi@emblab:~/Desktop/eet172840_7$ awk -f ps21.awk paragraph.txt
But as the riper should by time decease,
Thou that art now the world's fresh ornament,
And only herald to the gaudy spring,
Pity the world, or else this glutton be,
To eat the world's due, by the grave and thee.
ThE dream i am dreaming.tHe chances i am taking,



Number of lines in Input file =  19
Number of lines in output file  =  6
Ratio of input to output =  0.315789
```

2 Problem Statement 2

2.1 Problem Statement

Search for a word in a file

- Search for the in file print that line.
- Count number of occurance of the and print it.
- count the number of lines in input and output files and find ratio.

2.2 Assumptions

- the cannot be in the end of any line.
- two words in file is separated by a space.

2.3 Algorithm Steps

- Search for the in file and print that line which contains it.
- While reading each line containing the,keep on incrementing counter and at the end print it.
- Find the number of lines in input and output file containing the and find its ratio.

2.4 Input and Output Format

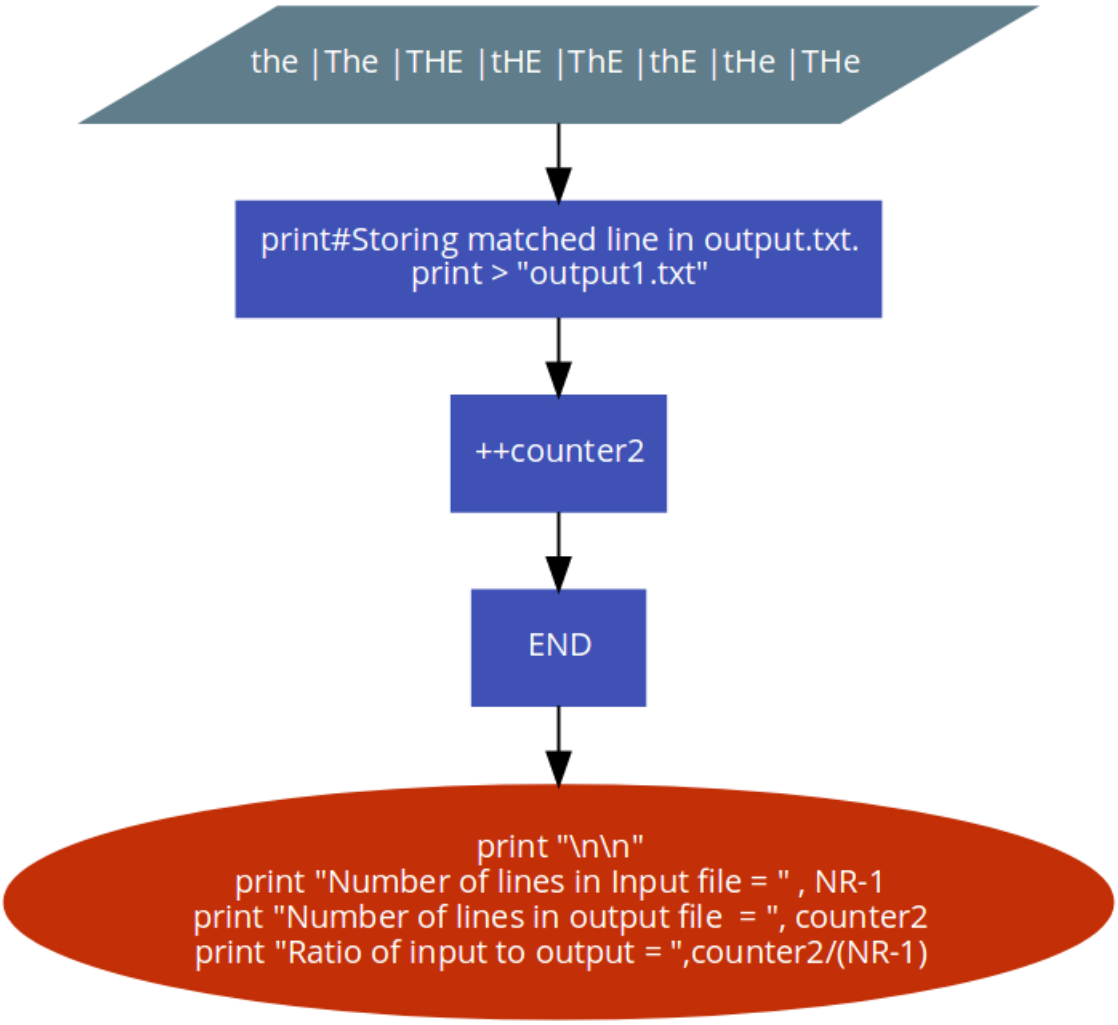
I/O format

- **2.4.1 Input Format**
  - awk fileawk filename
- **2.4.2 Output Format**
  - First few lines are lines containing the from input file.
  - Counter value
  - Ratio

2.5 Difficulty faced

- Processing multiple files at a time.

2.6 Program Structure



2.7 Screenshots

```
ravi@emblab:~/Desktop/eet172840_7$ awk -f ps14.awk CDR.txt



MOC(in Minutes):  4.16515
MTC(in Minutes):  5
SMS-MO(in Seconds):  0
SMS-MT(in Seconds):  0



MOC(in Minutes):  2.08333
MTC(in Minutes):  2.5
SMS-MO(in Seconds):  0
SMS-MT(in Seconds):  0



MOC(in Minutes):  1.38889
MTC(in Minutes):  1.66667
SMS-MO(in Seconds):  0
SMS-MT(in Seconds):  0
```

```
Plan1:
MOC  8247
SMS-MO  0
Total Amount  8247



Plan1:
MOC  13000
SMS-MO  0
Total Amount  13000



Plan1:
MOC  3750
SMS-MO  0
Total Amount  3750
```

3 Appendix

Appendix-A : code for ps1.py

```
###### this is the first .py file ###########

####### write your code here ##########
```

Appendix-B : code for ps2.py

```
###### this is the second .py file ##########

####### write your code here ##########
```

References

[1] https://stackoverflow.com/questions/44894083/awk-to-extract-lines-in-file-that-contain-matching-pattern-and-variable-digit

[2] https://www.tutorialspoint.com/awk/awkbasicexamples.htm

[3] https://www.thegeekstuff.com/2010/02/awkconditionalstatements/