

---

# CS200: Software Tools and Technology - II

## Assignment 1 : Report

Deadline: Friday, 28.04.2019

### Group Members

Anand Panchbhai (11640460)  
Dhruv Agrawal (11640340)  
Hrishikesh Kaulwar (11640460)  
Kaila Ram Reddy (11640450)

### Problem Statement

Write a command line tool in your favourite language to analyze the full log of a git repository and find out commits in which less than 10 lines changed among all the files. Show the working with possible use cases.

### Repository To try out Command:

Github Link: <https://github.com/panchbhai1969/stat2>

Report Pdf and Bash Script are included in the repository.

**Readme.md** describes steps to run the command line tool.

### Code :

Bash Script is written in **script.sh** .

---

The script is run in the following format,

**`./script.sh n`**

Where **n** is the number of line changes. The code prints out the hashes of the commit will less than n line changes. If n is not specified it is taken as 10.

## Output Screenshots :

We made a Command Line Tool named 'line' by aliasing the script. (We edited the .bashrc to make the script we built as an alias.)

### 1. line command

It gives a list of all commits in which less than 'K' lines are changed. K is an argument given. If we do not give no. of lines as an argument, it will by default take no of lines limit as 10. The repository used here for example is : <https://github.com/panchbhai1969/stat2>

Example 1 :

Command: line

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ line
Default
Commit with less than 10 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :fe2d37364ceb3483b194fe09df384a811d5a5b41
Lines changed :5
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :e36a1bfc749dc67f0a165099468044a0b97581cb
Lines changed :7
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

Example 2 :

Command: line 10

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ line 10
Commit with less than 10 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :fe2d37364ceb3483b194fe09df384a811d5a5b41
Lines changed :5
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddf86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :e36a1bfc749dc67f0a165099468044a0b97581cb
Lines changed :7
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

Example 3 :

Command: line 5

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ line 5
Commit with less than 5 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

Example 4 :

Command: line 3

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ line 3
Commit with less than 3 line changes.
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0eceaa8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

## 2. Bash Script

It gives a list of all commits(hashes) in which less than 'K' lines are changed. K is an argument given.

When we run bash script without giving anything as an argument, it takes K = 10 by default.

Example 1 :

Command: ./script.sh

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ ./script.sh
Default
Commit with less than 10 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :fe2d37364ceb3483b194fe09df384a811d5a5b41
Lines changed :5
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0eacea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910840737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :e36a1bfc749dc67f0a165099460844a0b97581cb
Lines changed :7
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

Example 2 :

Command: ./script.sh 10

Output:

```
hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ ./script.sh 10
Commit with less than 10 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :fe2d37364ceb3483b194fe09df384a811d5a5b41
Lines changed :5
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8bd71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bddff86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :e36a1bfc749dc67f0a165099468044a0b97581cb
Lines changed :7
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
```

Example 3 :

Command: ./script.sh 5

Output:



```

hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ ./script.sh 5
Commit with less than 5 line changes.
*****
commit hash_val :cb743a1505c3f6ebe087d773e80d10bff71b1cde
Lines changed :4
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :5744940c1b6390e1dcb2d74dbb2f6d31a4606d9f
Lines changed :4
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :fd309e35cd132cf6dea757ffb559e42937041376
Lines changed :3
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****

```

Example 4 :

Command: ./script.sh 3

Output:

```

hrishikesh@hrishikesh-HP-Pavilion-Notebook:~/stat2$ ./script.sh 3
Commit with less than 3 line changes.
*****
commit hash_val :69db1b247ed1fd6202a802c020a328fb6713f131
Lines changed :2
*****
commit hash_val :f448f3cb05b8a7b6d0ecea8b1d71e7d82464fba
Lines changed :2
*****
commit hash_val :da910848737118ea6ce300368172b0e9df9d3d08
Lines changed :2
*****
commit hash_val :270dcff5d02e217aaa29a7ce69ac42bdddff86db
Lines changed :2
*****
commit hash_val :a296e16d585b25f3706a669b26e6ff9113a7ee55
Lines changed :1
*****
commit hash_val :d9d2ece5944e24e744b8a26af286ccaa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****

```



## Bash Script

Click here: <https://github.com/panchbhai1969/stat2/blob/master/script.sh>

Screenshots of the Script :

```
1  #!/bin/bash
2
3  var=$(git log --stat | grep "|" | awk '{print $3}')
4
5  arr=($var)
6  stuff=($1)
7
8  len=${#stuff[@]}
9
10 zero=0
11 val=$1
12 if [ $len -eq $zero ]
13 then
14     val=10
15     echo Default
16 fi
17
18 re='^[0-9]+$'
19
20 if ! [[ $val =~ $re ]] ; then
21     echo "Please enter as command line argument an integer greater than 0."
22     exit
23 fi
24 echo Commit with less than $val line changes.
25 echo *****
26
```

```

27 index=()
28 commit_final=()
29 change_final=()
30 commit=$(git log --stat | grep "commit" | awk '{print $2}')
31 for i in "${!commit[@]"; do
32     commit_changes=0
33     com="commit"
34     if [ ${commit[i]} == $com ]
35     then
36         continue
37     fi
38     re='^[0-9]+$'
39     temp=0
40     commit_changes=$(git log --stat --max-count=1 ${commit[i]} | grep "|" | awk '{print $3}')
41     for v in "${!commit_changes[@]"; do
42         if ! [[ ${commit_changes[v]} =~ $re ]] ; then
43             continue
44         fi
45         temp=$((temp + ${commit_changes[v]}))
46     done
47     commit_changes=$temp
48     zero=0
49     if [ $commit_changes -eq $zero ]
50     then
51         continue
52     fi

53
54     commit_final+=(${commit[i]})
55     change_final+=($commit_changes)
56 done
57
58 for i in "${!commit_final[@]"; do
59     #echo ${commit_final[i]}
60     #echo ${change_final[i]}
61     continue
62
63 done
64
65
66 for i in "${!change_final[@]"; do
67     if [ ${change_final[i]} -lt $val ]
68     then
69         index+=($i)
70     fi
71 done
72
73
74 for i in "${!index[@]"; do
75     ind=${index[i]}
76     echo commit hash_val :${commit_final[ind]}
77     echo Lines changed :${change_final[ind]}
78     echo "*****"
79
80 done

```