
CS200: Software Tools and Technology - II

Assignment 1 : Report

Deadline: Friday, 28.04.2019

Group Members

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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 to be run is included in the repository.

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

Code :

Bash Script is written in **script.sh** . When we ran the tool it gave us a list of all the hashes of the commits in which condition of no of changes satisfies.

Output Screenshots :

We made a Command Line Tool named 'line' by aliasing the script

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.

```
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 :d9d2ece5944e24e744b8a26af286caa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

```
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 :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 :d9d2ece5944e24e744b8a26af286caa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

```
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
*****
```

```
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 :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
*****
```

2. Bash Script

It gives a list of all commits 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.

```
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 :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 :d9d2ece5944e24e744b8a26af286caa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

```
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 :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 :d9d2ece5944e24e744b8a26af286caa476c0c46
Lines changed :2
*****
commit hash_val :2f433c8a49426a794fd4b0db03da02e73471a9a7
Lines changed :2
*****
```

```

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 :270dcff5d02e217aaa29a7ce69ac42bddff86db
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
*****

```

```

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 :270dcff5d02e217aaa29a7ce69ac42bddff86db
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

```
#!/bin/bash
```

```
var=$(git log --stat | grep "|" | awk '{print $3}')
```

```
arr=($var)
```

```
stuff=($1)
```

```
len=${#stuff[@]}

zero=0

val=$1

if [ $len -eq $zero ]

then

    val=10

    echo Default

fi


echo Commit with less than $val line changes.

echo    "*****"


index=()

commit_final=()

change_final=()

commit=$(git log --stat | grep "commit" | awk '{print $2}')

for i in "${!commit[@]}; do

    commit_changes=0

    com="commit"

    if [ ${commit[i]} == $com ]
```

```
then

    continue

fi

re='^[0-9]+$'

temp=0

commit_changes=$(git log --stat --max-count=1 ${commit[i]} | grep
"|" | awk '{print $3}')

for v in "${!commit_changes[@]}; do

    if ! [[ ${commit_changes[v]} =~ $re ]] ; then

        continue

    fi

    temp=$((temp + ${commit_changes[v]}))

done

commit_changes=temp

zero=0

if [ $commit_changes -eq $zero ]

then

    continue

fi

commit_final+=(${commit[i]})

change_final+=($commit_changes)

done
```

```
for i in "${!commit_final[@]}" ; do

    #echo ${commit_final[i]}

    #echo ${change_final[i]}

    continue

done


for i in "${!change_final[@]}" ; do

    if [ ${change_final[i]} -lt $val ]

        then

            index+=($i)

        fi

done


for i in "${!index[@]}" ; do

    ind=${index[i]}

    echo commit hash_val :${commit_final[ind]}

    echo Lines changed :${change_final[ind]}

    echo "*****"
```




done