

Linux Programming

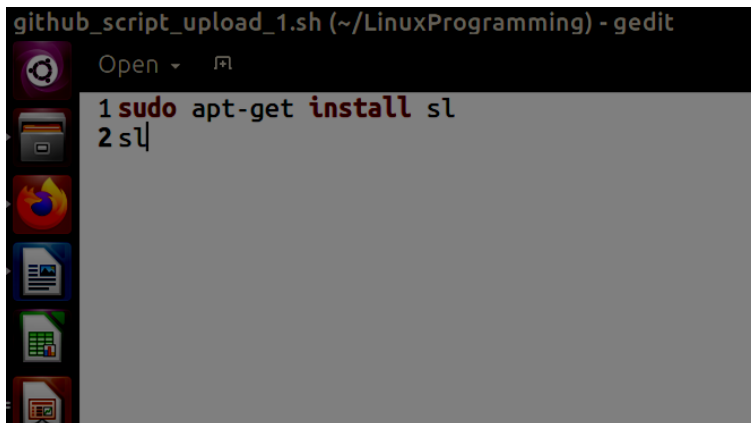
Lab Exercise

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Register Number: 16MIS1090

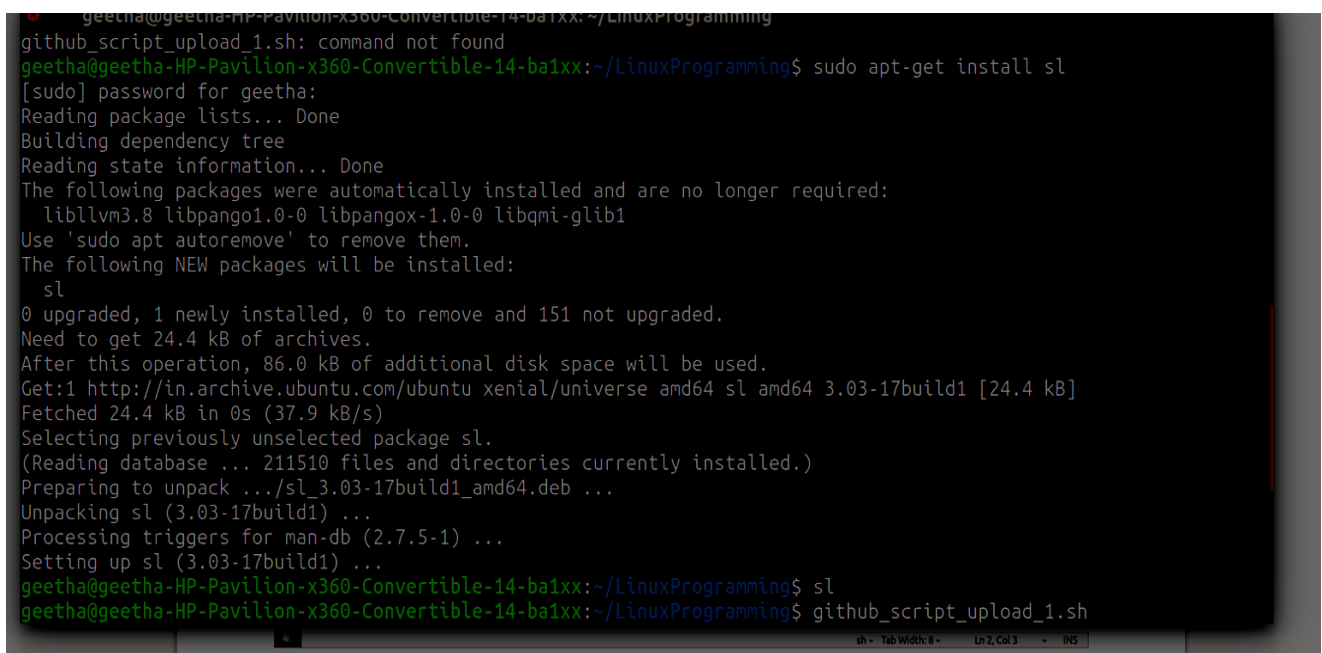
1. Shell script for downloading sl and to run sl:

Shell Script:

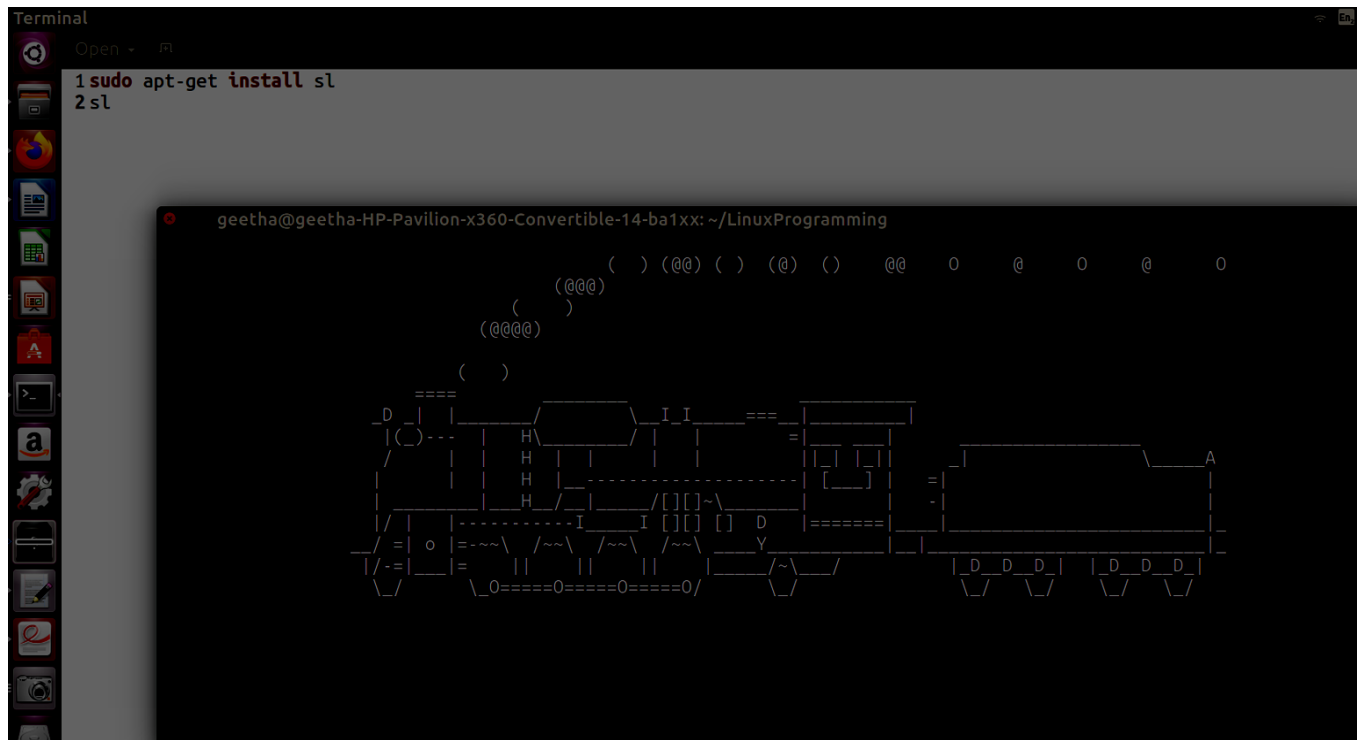


```
github_script_upload_1.sh (~/.LinuxProgramming) - gedit
Open
1 sudo apt-get install sl
2 sl
```

Output

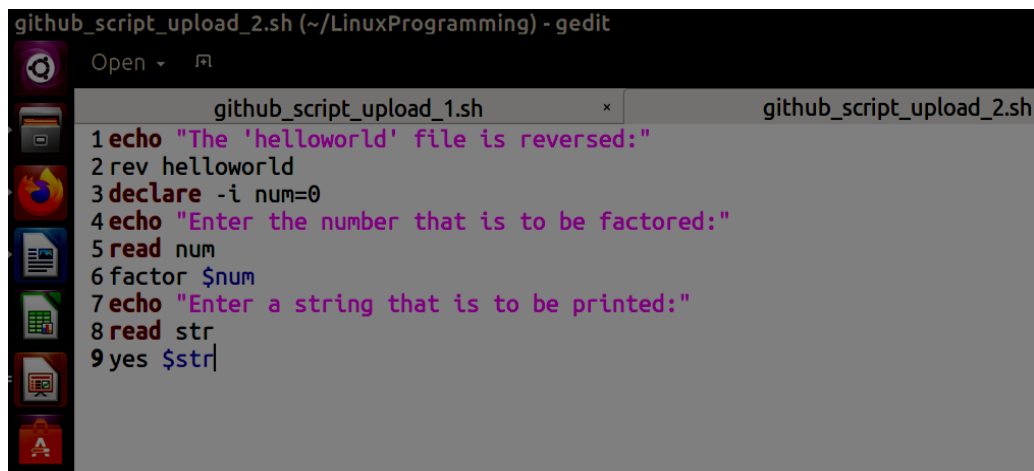


```
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming
github_script_upload_1.sh: command not found
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ sudo apt-get install sl
[sudo] password for geetha:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libllvm3.8 libpango1.0-0 libpangox-1.0-0 libqmi-glib1
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  sl
0 upgraded, 1 newly installed, 0 to remove and 151 not upgraded.
Need to get 24.4 kB of archives.
After this operation, 86.0 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu xenial/universe amd64 sl amd64 3.03-17build1 [24.4 kB]
Fetched 24.4 kB in 0s (37.9 kB/s)
Selecting previously unselected package sl.
(Reading database ... 211510 files and directories currently installed.)
Preparing to unpack .../sl_3.03-17build1_amd64.deb ...
Unpacking sl (3.03-17build1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up sl (3.03-17build1) ...
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ sl
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ github_script_upload_1.sh
```

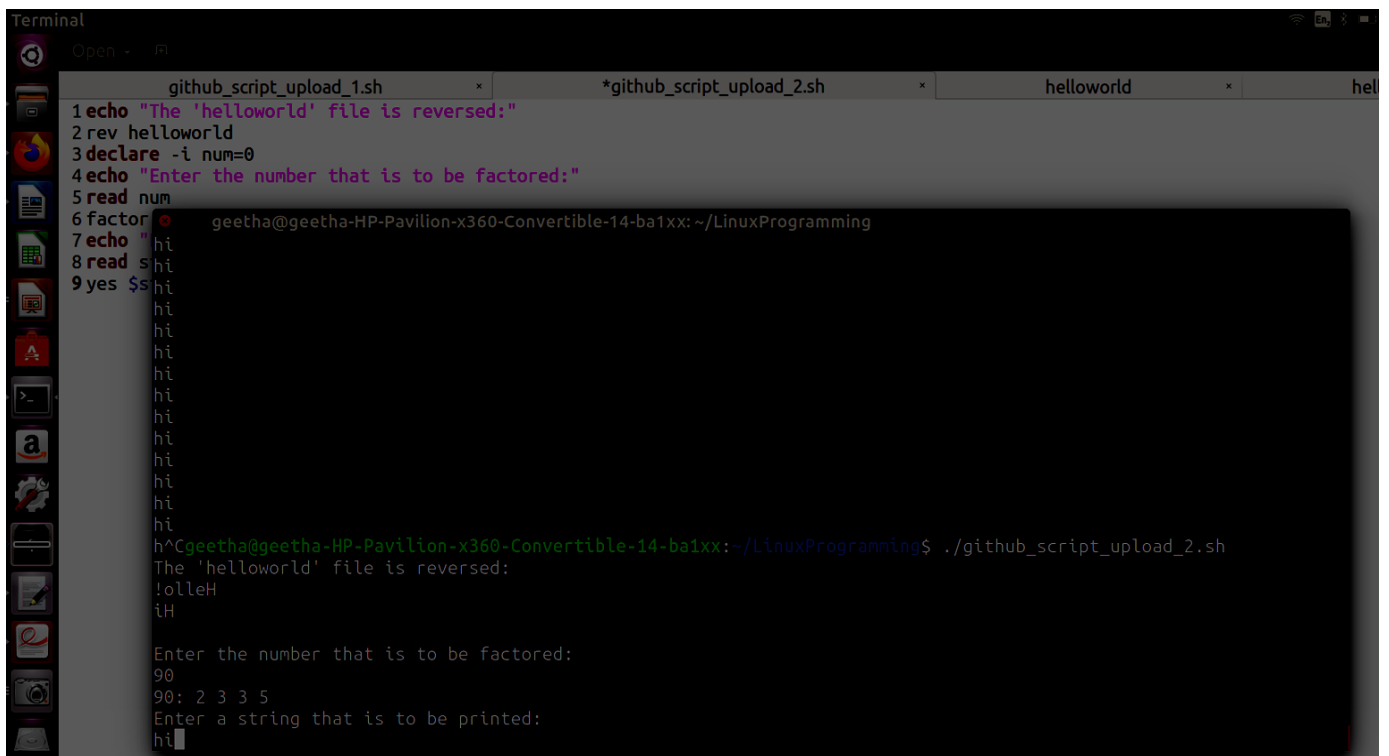


2. Shell script executing ‘rev’, ‘factor’ and ‘yes’:

Shell Script:



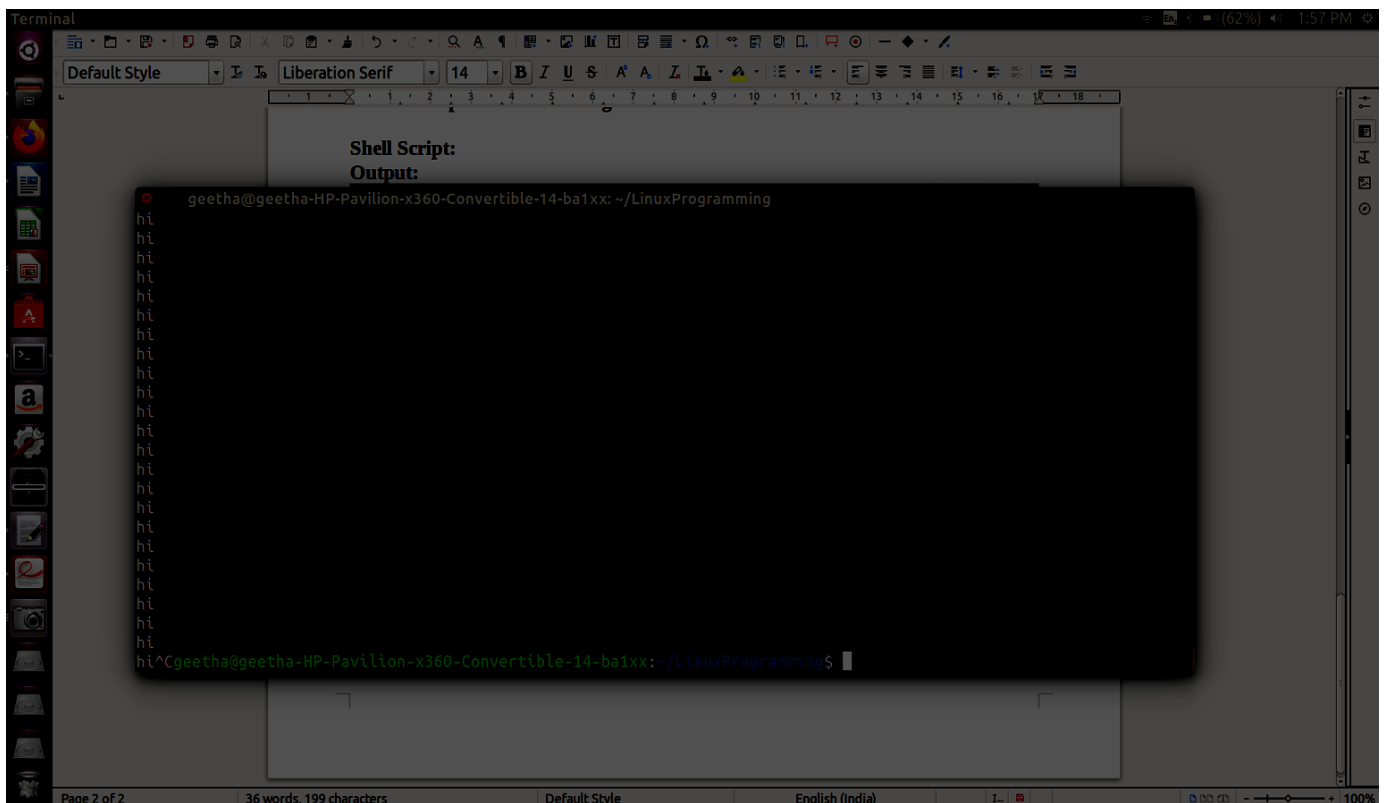
Output:

A terminal window with three tabs: 'github_script_upload_1.sh', '*github_script_upload_2.sh', and 'helloworld'. The first tab is active and shows a script with the following content:

```
1 echo "The 'helloworld' file is reversed:"
2 rev helloworld
3 declare -i num=0
4 echo "Enter the number that is to be factored:"
5 read num
6 factor $num
7 echo "hi"
8 read s
9 yes $s
```

The terminal output shows the script being executed. The first two lines output 'The 'helloworld' file is reversed:' and 'olleH'. The third line outputs 'Enter the number that is to be factored:'. The user enters '90', and the script outputs '90: 2 3 3 5'. The fourth line outputs 'Enter a string that is to be printed:'. The user enters 'hi', and the script outputs 'hi' repeatedly.

```
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx: ~/LinuxProgramming
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ ./github_script_upload_2.sh
The 'helloworld' file is reversed:
olleH
Enter the number that is to be factored:
90
90: 2 3 3 5
Enter a string that is to be printed:
hi
```

A terminal window with a title bar showing 'Terminal' and a menu bar with 'Default Style', 'Liberation Serif', '14', and various icons. The terminal output shows the script being executed. The first two lines output 'The 'helloworld' file is reversed:' and 'olleH'. The third line outputs 'Enter the number that is to be factored:'. The user enters '90', and the script outputs '90: 2 3 3 5'. The fourth line outputs 'Enter a string that is to be printed:'. The user enters 'hi', and the script outputs 'hi' repeatedly.

```
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx: ~/LinuxProgramming
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ ./github_script_upload_2.sh
The 'helloworld' file is reversed:
olleH
Enter the number that is to be factored:
90
90: 2 3 3 5
Enter a string that is to be printed:
hi
```

3. Hot Question : Write a bash shell script to monitor the health of your system. Let the details be stored and archived in any folder of your choice.

Collectl is a very good performance monitoring tool.

Step 1: Installed collectl

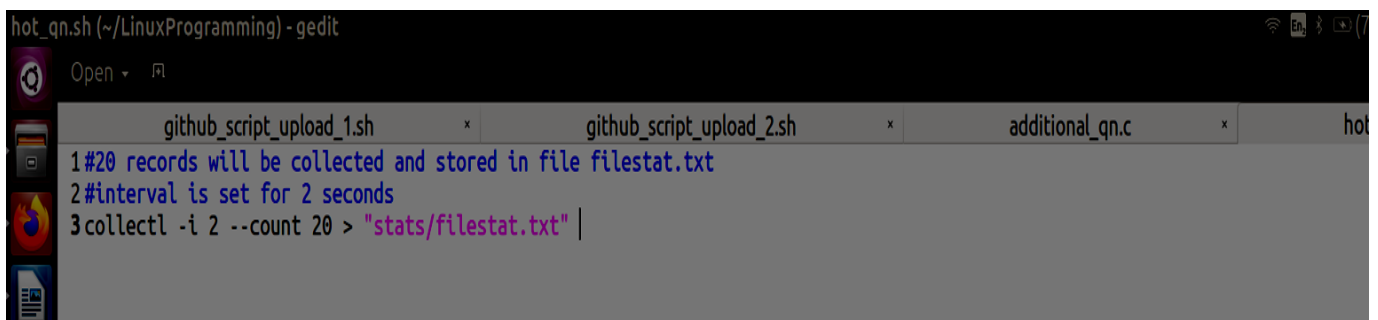
Step 2: Wrote the shell script

Hot_qn.sh

#20 records will be collected and stored in file filestat.txt

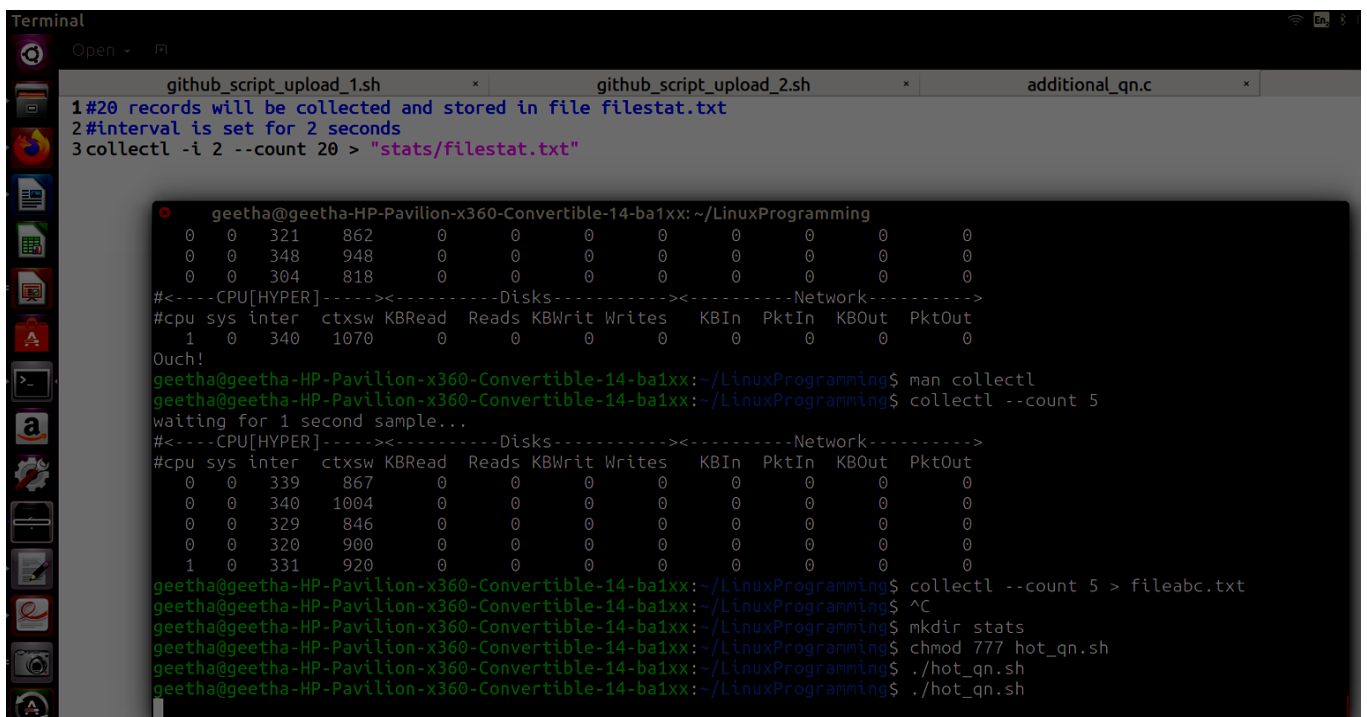
#interval is set for 2 seconds

collectl -i 2 --count 20 > "stats/filestat.txt"



```
hot_qn.sh (~/.LinuxProgramming) - gedit
1#20 records will be collected and stored in file filestat.txt
2#interval is set for 2 seconds
3collectl -i 2 --count 20 > "stats/filestat.txt" |
```

Terminal output



```
Terminal
1#20 records will be collected and stored in file filestat.txt
2#interval is set for 2 seconds
3collectl -i 2 --count 20 > "stats/filestat.txt"

geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx: ~/LinuxProgramming
0 0 321 862 0 0 0 0 0 0 0 0
0 0 348 948 0 0 0 0 0 0 0 0
0 0 304 818 0 0 0 0 0 0 0 0
#<---CPU[HYPER]----->-----Disks----->-----Network----->
#cpu sys inter ctxsw KRead Reads KBWrit Writes KBIn PktIn KBOut PktOut
1 0 340 1070 0 0 0 0 0 0 0 0
Ouch!
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ man collectl
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ collectl --count 5
waiting for 1 second sample...
#<---CPU[HYPER]----->-----Disks----->-----Network----->
#cpu sys inter ctxsw KRead Reads KBWrit Writes KBIn PktIn KBOut PktOut
0 0 339 867 0 0 0 0 0 0 0 0
0 0 340 1004 0 0 0 0 0 0 0 0
0 0 329 846 0 0 0 0 0 0 0 0
0 0 320 900 0 0 0 0 0 0 0 0
1 0 331 920 0 0 0 0 0 0 0 0
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ collectl --count 5 > fileabc.txt
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ ^C
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ mkdir stats
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ chmod 777 hot_qn.sh
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ ./hot_qn.sh
geetha@geetha-HP-Pavilion-x360-Convertible-14-ba1xx:~/LinuxProgramming$ ./hot_qn.sh
```

Step 3: The output (system details) is written to the file named “filestat” in the folder “stats”.

Output file:

```
Filestat.txt (~/.LinuxProgramming/stats) - gedit
Open
github_script_upload_1.sh
github_script_upload_2.sh
additional_qn.c
hot_qn.sh
filestat.txt
1|waiting for 2 second sample...
2#<---CPU[HYPER]----->-----Disks----->-----Network----->
3#cpu sys inter ctxsw KBRead Reads KBWrit Writes KBIn PktIn KBOut PktOut
4 1 0 543 1681 0 0 0 0 0 0 0 0
5 2 0 661 2378 0 0 0 0 0 0 0 0
6 2 0 616 1890 0 0 24 1 0 0 0 0
7 0 0 431 1001 0 0 0 0 0 0 0 0
8 6 1 1260 5051 0 0 0 0 0 0 0 0
9 2 0 983 2196 0 0 96 3 0 0 0 0
10 3 0 837 2920 0 0 0 0 0 0 0 0
11 3 0 830 2859 0 0 0 0 0 0 0 0
12 7 0 1139 3317 0 0 380 3 0 0 0 0
13 0 0 568 1378 0 0 0 0 0 0 0 0
14 1 0 644 1537 0 0 0 0 0 0 0 0
15 4 0 1356 2690 0 0 36 1 0 0 0 0
16 1 0 997 2215 0 0 352 1 0 0 0 0
17 2 0 1258 2570 0 0 0 0 0 0 0 0
18 2 0 735 1839 0 0 26 1 0 0 0 0
19 6 0 847 1992 0 0 86 17 0 0 0 0
20 5 0 733 1747 0 0 0 0 0 0 0 0
21 10 0 960 2201 0 0 16 3 0 0 0 0
22 10 0 909 2000 0 0 0 0 0 0 0 0
23 12 0 1004 2308 0 0 0 0 0 0 0 0
```