

## ASSIGNMENT 3

**PRAKHAR AGRAWAL**  
**(15CS01015)**

**OBJECTIVE:** The object of this assignment is to gain experience with some advanced programming techniques including file descriptors, signals and pipes. To do this, you will be writing your own command shell - much like bash shell

**Commands supported:**

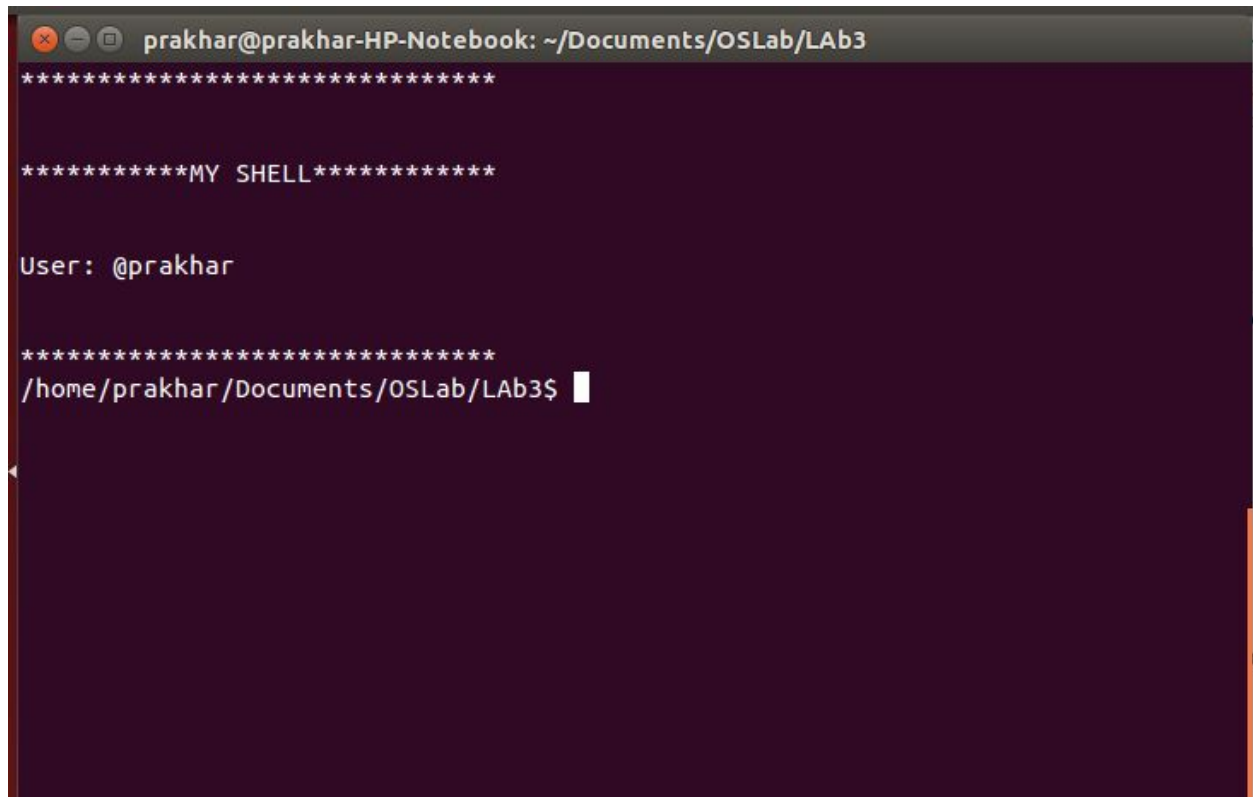
cd, ls, exit, help and I other built in function of bash.  
With pipe handling.

**Command to run the code :-**

```
gcc lab3assign.c -L/usr/local/lib -l/usr/local/include -lreadline  
./a.out
```

As readline is a gnu library we need to implement readline functions.

### Welcome screen



```
prakhar@prakhar-HP-Notebook: ~/Documents/OSLab/LAb3  
*****  
  
*****MY SHELL*****  
  
User: @prakhar  
  
*****  
/home/prakhar/Documents/OSLab/LAb3$
```

**\*Creating new directory (mkdir and ls)**

```
prakhar@prakhar-HP-Notebook: ~/Documents/OSLab/LAb3
/home/prakhar/Documents/OSLab/LAb3$ ls
1.txt  a.out  lab3assign.c  lab3assign.c~  Laboratory_3.pdf  mydir
/home/prakhar/Documents/OSLab/LAb3$ mkdir newdir
/home/prakhar/Documents/OSLab/LAb3$ ls
1.txt  a.out  lab3assign.c  lab3assign.c~  Laboratory_3.pdf  mydir  newdir
/home/prakhar/Documents/OSLab/LAb3$
```

## \*help command

```
prakhar@prakhar-HP-Notebook: ~/Documents/OSLab/LAb3
/home/prakhar/Documents/OSLab/LAb3$ help

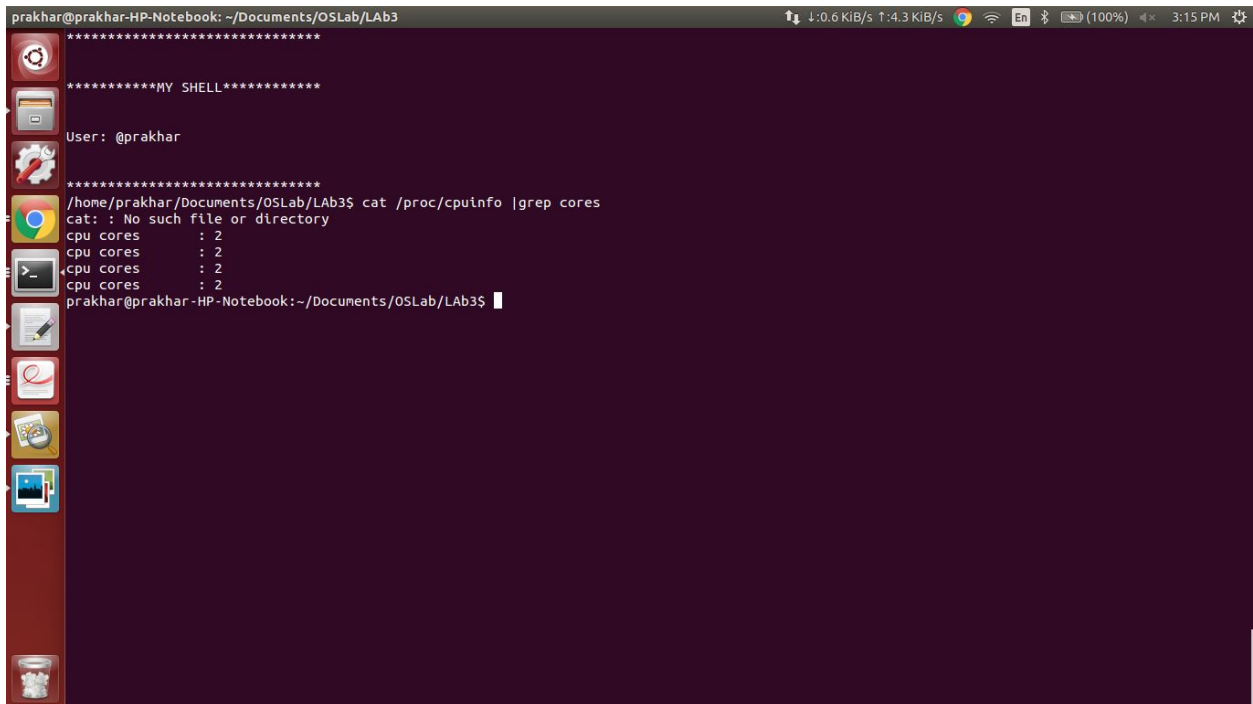
***WELCOME TO MY SHELL HELP***
Copyright @prakhar
-Use the shell at your own risk...
List of Commands supported:
>cd
>ls
>exit
>all other general commands available in UNIX shell
>pipe handling
>improper space handling
/home/prakhar/Documents/OSLab/LAb3$
```

## \*Command to generate cpuinfo

```
prakhar@prakhar-HP-Notebook: ~/Documents/OSLab/LAb3
/home/prakhar/Documents/OSLab/LAb3$ cat /proc/cpuinfo
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 61
model name     : Intel(R) Core(TM) i5-5200U CPU @ 2.20GHz
stepping       : 4
microcode      : 0x22
cpu MHz        : 798.015
cache size     : 3072 KB
physical id    : 0
siblings       : 4
core id        : 0
cpu cores      : 2
apicid         : 0
initial apicid : 0
fpu            : yes
fpu_exception  : yes
cpuid level    : 20
wp             : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdt
scp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc ap
erfnperrf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma
cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xs
ave avx f16c rdrand lahf_lm abm 3dnowprefetch epb invpcid_single intel_pt kaiser
tpr_shadow vmml flexpriority ept vpid fsgsbase tsc_adjust bml1 avx2 smep bml2 e
rms invpcid rdseed adx smap xsaveopt dtherm ida arat pln pts
bugs           :
bogomips       : 4389.90
clflush size   : 64
cache_alignme  : 64
address sizes  : 39 bits physical, 48 bits virtual
power managem  :

processor       : 1
vendor_id      : GenuineIntel
cpu family     : 6
```

**\*PIPES-> cat/proc/cpuinfo |grep cores**



```
prakh@prakh-HP-Notebook: ~/Documents/OSLab/LAb3
*****MY SHELL*****
User: @prakh
*****
/home/prakh/Documents/OSLab/LAb3$ cat /proc/cpuinfo |grep cores
cat: : No such file or directory
cpu cores      : 2
cpu cores      : 2
cpu cores      : 2
cpu cores      : 2
prakh@prakh-HP-Notebook: ~/Documents/OSLab/LAb3$
```

Here piping is used.

The output of first command is given as the input of the second.

void execute\_piped\_commands() is called to execute piped commands.