

Lab OS Assignment 3A: Shell: add support for basic command id

We have provided the skeleton code for the shell along with the Makefile. Various helper functions are included for parsing the command from the user. In order to run the shell:

```
make
./shell
```

In order to terminate the shell after it starts, either type quit or press CTRL-D.

The provided shell code follows the same dispatch pattern used in operating systems (<https://0xax.gitbooks.io/linux-insides/SysCall/linux-syscall-2.html>). In the OS, the system calls are implemented as software interrupts. Whenever a system call is invoked, an exception is generated and the appropriate handler from the system call table is invoked. Here we look up commands entered by the user in a cmd table and transfer control to the appropriate command handler. So far, the only commands supported are ? for help menu, and exit to quit the shell.

(i) Add a new built-in command 'id' which can be used to display the user-id, the primary group-id and the groups the user is part of. Type id in the bash shell to see the output.

e.g. On my machine

```
$ id
uid=1000(sriramk) gid=1000(sriramk)
groups=1000(sriramk),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),113(lpadmin),128(sambashare),132(wireshark)
```

(ii) Also build support for flags: -u, -g, -G.

Read man page for id to know what each of these flags mean. The description of the flags should be displayed when the '?' is passed to the shell.

Acknowledgments:

Code snippets from UC Berkeley's offering have been used for this assignment.