



Department of Computer Science

COMP311(Winter 2016/2017)

Final Project (Due Monday, May 29th)

Project Objectives

- Demonstrate your ability to manipulate files in a Linux file system
- Demonstrate our ability to use the vi editor to modify the contents of a text file.
- Demonstrate your understanding of most frequently used Linux commands
- Practice using pipes and filters to develop more complex commands
- Practice basic shell script concepts, including reading command line parameters, passing them to other scripts, using looping and selection structures together with basic commands and environment variables.
- Practice writing modular shell scripts by having a script call another script.
- Practice output redirection by appending data to a file from within a shell script.

Tasks

- Create a folder *finalproject*. Inside that folder, write a script called *Dr[lastname]KnowItAll* (e.g., *DrNofalKnowItAll*) that asks a user to enter a user id (e.g., u1143523) then checks whether the user exists in the system.

Use the following pattern to check whether a user exists:

The id is exactly 8 digits.

The first digit is the letter “u”,

the second digit is the number “1”,

the third digit is the number “1”,

the fourth digit is any number between 1 and 6,

the 5th, 6th, 7th, and 8th digits can be numbers between 0 and 9.



- If user does not exist, an error message is displayed, and the user is prompted to reenter an id:

```
Please enter a user id: u11
```

```
Excuse me dude! User does not exist. Try again:
```

- If the user exists, the program displays the following:

```
Cool! How can I help you?
```

```
1 - display user information
```

```
2 - display host information
```

```
3 - display file system information
```

```
4 - display terminal information
```

```
5 - exit
```

Good luck!



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- Whatever choice the user enters, your script should check if the file *myscriptlog* exists and search inside that file for the provided user id. If the id exists, only the part of the file that corresponds to the choice made by the user is displayed on the screen.
- If the file does not exist or if the id is not inside the file, then the file *myscriptlog* should be created, and result of every choice made by the user should be both displayed on the screen and added/appended (on a separate line) to the file *myscriptlog*.
- if choice 1 is entered the script (*whoisthis*) is executed. The script should display the following information about the user:

```
id: u1132523
Fname: Nariman
Lname: Ammar
group: students
home: /home/students/comp311/u1132523
```
- if choice 2 is entered, the script (*whatishost*) is executed. The script should display the following information about user's computer:

```
host name:
ip:
Mac address:
default gateway:
```
- Choices 3 executes the *howfslooklike* script that displays a sub menu for the user:

```
Ok dude! What exactly do you wanna know?
a - display number of files, directories, links under home directory
b - display tree structure of a directory
c - display files less than 1K in size in a directory
d - remove a file that is less than 1K in size
```

Make sure you don't delete your project files!!



- If choices b or c are selected the following message is displayed:

```
Enter directory name:
```
- If choice d is selected the following message is displayed:

```
Enter file name:
```
- *Choice 4* executes the *howtermslooklike* script, which displays a sub menu:

```
Ok dude! What would you like to do?
a - display user's active terminals:
b - display commands running on a terminal
```

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- if the user selects choice a, the following message is displayed:
Active terminals:
pts/5
pts/6
- if the user selects choice b, the following message is displayed:
Enter terminal name:
- The user can enter a terminal name or a “*”. If a terminal name is entered, the commands running on that terminal are displayed:
active commands: pts/5
w who vi
- If a “*” is entered, commands running on all terminals are displayed:
active commands: pts/5
w who vi
active commands: pts/6
ls grep cat
- When the user selects, exit the program stops, and contents of the file *myscriptlog* should be displayed on the screen. The *myscriptlog* file should look like this:
Name: [Your name]
student id:[Your id]
id: u1132523
Fname: Nariman
Lname: Ammar
group: students
home: /home/students/comp311/u1132523
host name:
ip: 172.16.2.90
Mac address:
default gateway:
number of files: 20
number of directories: 5
number of links: 3
myproject structure:
DrKnowItAll howfslooklike howtermslooklike whoisthis whatishost myscriptlog
active terminals:
pts/5 pts/6
active commands: pts/5
w who vi
active commands: pts/6
ls grep cat
files less than 1k:
howfslooklike howtermslooklike whoisthis whatishost

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Deliverables:

- Be sure to have your script(s) and the log file ready by the due date and time in the *finalproject* directory under your system home directory **on the server (172.16.2.90)**. **Projects on any other media (personal laptops, flash drives, etc.) will NOT be accepted)**
- Your *finalproject* folder should look like this:

```
finalproject
  Dr[lastname]KnowItAll
  howfslooklike
  howtermslooklike
  whoisthis
  whatishost
  myscriptlog
```
- You also need to turn in a hard copy of the scripts and the log file to your instructor by the due date and time.
- You need to discuss the project with your instructor on one of the proposed dates (29/5, 30/5, and 31/5) and times listed under this doodle link:
 - <http://doodle.com/poll/fhu2z5rds33se4zh>
 - You may only select one time slot. Only 4 are allowed to discuss within the same 1 hour time slot (15 min each).

Rubric (30 points):

- Your project will be graded based on the following rubric:
 - **(20 points)** The scripts contain at least one of the following:
 - a comment on the top of every file of your name and student id
 - control structures: if statement, case statement, while loop, for loop,
 - conditions using regular expressions, string/numeric comparisons
 - commands: grep, tr, ps, head/tail or both, wc, ls,
 - techniques: output/input redirection, pipes/filters, variable substitution
 - other: environment variables
 - **(5 points)** The scripts run perfectly without syntax or logic errors, files have necessary permissions, current directory is added to path variable, etc.
 - **(5 points)** Ability to answer questions during the demo.



Any students working together on any part of this project

Good luck!