159.251 - Tutorial 2 - Using Commandline and Batch files in Windows

This tutorial is to help you become familiar with working in Windows command line environment.

If you are not a big fan of Windows, but familiar with another UNIX or Unix-like OS (e.g., Linux), then feel free to do the same tasks using Bash shell.

Here are some resources (including a step-by-step tutorial) on how to use Bash..

http://linuxcommand.org/lc3_learning_the_shell.php

http://tldp.org/LDP/Bash-Beginners-Guide/html/

Before you start, download Tuorial 2 files (two zip files: TutorialFiles and FunFiles) from Stream

Try the following using only the command line

Accessing Help: you can access the help using ***help***. This command will display the all commands with their description.

```
help
```

```
Microsoft Windows [Version 6.1.7601]

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C:\Windows\system32>help

For more information on a specific command, type HELP command-name
```

```
ASSOC          Displays or modifies file extension associations.
ATTRIB         Displays or changes file attributes.
BREAK          Sets or clears extended CTRL+C checking.
```

BCDEDIT	Sets properties in boot database to control boot loading.
CACLS	Displays or modifies access control lists (ACLs) of files.
CALL	Calls one batch program from another.
CD	Displays the name of or changes the current directory.
CHCP	Displays or sets the active code page number.
CHDIR	Displays the name of or changes the current directory.
CHKDSK	Checks a disk and displays a status report.
CHKNTFS	Displays or modifies the checking of disk at boot time.
CLS	Clears the screen.

CMD	Starts a new instance of the Windows command interpreter.
COLOR	Sets the default console foreground and background colors.
COMP	Compares the contents of two files or sets of files.
COMPACT	Displays or alters the compression of files on NTFS partitions.
CONVERT	Converts FAT volumes to NTFS. You cannot convert the current drive.
COPY	Copies one or more files to another location.
DATE	Displays or sets the date.
DEL	Deletes one or more files.
DIR	Displays a list of files and subdirectories in a directory.
DISKCOMP	Compares the contents of two floppy disks.
DISKCOPY	Copies the contents of one floppy disk to another.
DISKPART	Displays or configures Disk Partition properties.
DOSKEY	Edits command lines, recalls Windows commands, and creates macros.
DRIVERQUERY	Displays current device driver status and properties.
ECHO	Displays messages, or turns command echoing on or off.
ENDLOCAL	Ends localization of environment changes in a batch file.
ERASE	Deletes one or more files.
EXIT	Quits the CMD.EXE program (command interpreter).
FC	Compares two files or sets of files, and displays the differences between them.
FIND	Searches for a text string in a file or files.

FINDSTR	Searches for strings in files.

FOR	Runs a specified command for each file in a set of files.
FORMAT	Formats a disk for use with Windows.
FSUTIL	Displays or configures the file system properties.
FTYPE	Displays or modifies file types used in file extension associations.
GOTO	Directs the Windows command interpreter to a labeled line in a batch program.
GPRESULT	Displays Group Policy information for machine or user.
GRAFTABL	Enables Windows to display an extended character set in graphics mode.
HELP	Provides Help information for Windows commands.
ICACLS	Display, modify, backup, or restore ACLs for files and directories.
IF	Performs conditional processing in batch programs.
LABEL	Creates, changes, or deletes the volume label of a disk.
MD	Creates a directory.
MKDIR	Creates a directory.
MKLINK	Creates Symbolic Links and Hard Links
MODE	Configures a system device.
MORE	Displays output one screen at a time.
MOVE	Moves one or more files from one directory to another directory.
OPENFILES	Displays files opened by remote users for a file share.
PATH	Displays or sets a search path for executable files.
PAUSE	Suspends processing of a batch file and displays a message.
POPD	Restores the previous value of the current directory saved by PUSHD.
PRINT	Prints a text file.
PROMPT	Changes the Windows command prompt.
PUSHD	Saves the current directory then changes it.
RD	Removes a directory.
RECOVER	Recovers readable information from a bad or defective disk.

```
REM             Records comments (remarks) in batch files or CONFIG.SYS.
REN             Renames a file or files.
RENAME          Renames a file or files.
REPLACE         Replaces files.
RMDIR           Removes a directory.
ROBOCOPY        Advanced utility to copy files and directory trees
SET             Displays, sets, or removes Windows environment variables.
SETLOCAL        Begins localization of environment changes in a batch file.
SC              Displays or configures services (background processes).
SCHTASKS        Schedules commands and programs to run on a computer.
SHIFT           Shifts the position of replaceable parameters in batch files.
SHUTDOWN        Allows proper local or remote shutdown of machine.
SORT            Sorts input.
START           Starts a separate window to run a specified program or command.
SUBST           Associates a path with a drive letter.
SYSTEMINFO      Displays machine specific properties and configuration.
TASKLIST        Displays all currently running tasks including services.
TASKKILL        Kill or stop a running process or application.
TIME            Displays or sets the system time.
TITLE           Sets the window title for a CMD.EXE session.
TREE            Graphically displays the directory structure of a drive or
                path.
TYPE            Displays the contents of a text file.
VER             Displays the Windows version.
VERIFY          Tells Windows whether to verify that your files are written
                correctly to a disk.
VOL             Displays a disk volume label and serial number.
XCOPY           Copies files and directory trees.
WMIC            Displays WMI information inside interactive command shell.
```

Use ***exit()*** to quite the command prompt.

Explore

1. First thing: find out which directory you're in using **cd** (with no variables). This is just information, but it's a handy command to know.
2. Display the list of folders and files in the current directory

```
C:\dir
```

3. Find out the current user name using the **%username%** command. Remember, this is an environment variable. You need to use the **echo** command before.

```
C:\echo %username%
```

   Alternatively, you can use the following command to **whoami,** which tells us the domain name also.

```
C:\whoami
```

4. Now we want to do few more things with the folders…Let's move back to the directory. Try to go to the *Users* folder…

   Use **cd** to move around the directories (e.g. change into the directory you've just downloaded).

```
C:\cd C:\Users
```

   Then view what does folder contain using the ***dir*** command

```
dir
```

   Now we can see a list of folders/files in the selected directory.

More exploring

5. using the ***RENAME*** command, rename the **funfiles** directory to **tutorial2**
6. copy the **funfiles** directory using ***copy*** command

   copy sourceDirectory destinationDirectory

```
Copy C:\Users\XXXX\tutorial\FunFiles\chicken.txt D:\chicken.txt
```

Download the from the Stream

To make sure you had got the file, try to explore the folder containing the files.

```
cd c:\users\XXXX\tutorial2
```

Now we want to create a new folder to download the files into it. The ***md*** command will create the new folder within the chosen directory.

```
md C:\Users\XXXX\Downloads\tutorial\
```

Now rename the folder into “tutorial2”, using the ***rename*** command. Write the original file name (it must be surrounded with quotes) followed by the new file name (between quotes as well).

```
rename ” funfiles” ”tutorial2”
```

Saving the output into a text file

- use **>** to save the output of a command to a text file, overwriting if necessary

```
dir > output.txt
```

Then look in **output.txt** and see what's there

- use **>>** to **append** to a file.
-

Searching for a file within a directory

No we want to search for a particular file in a directory. You can use the simple ***dir*** command.

```
dir /b/s chicken.txt
```

You can also search for a particular file type – for example, let's search for all txt files within the directory:

```
dir /b/s *.txt
```

Copy a file from a directory to another

Use the following command

```
Copy C:\Users\XXXX\Downloads\tutorial\FunFiles\chicken.txt D:\chicken.txt
```

You can also copy an entire folder as well.

Let's try the ***robocopy*** (a powerful copying method). We will use this method to backup the tutorial folder in a different directory

```
robocopy C:\Users\XXXX\Downloads\tutorial\FunFiles D:\backup\tutorial /e
```

The **/e** modifier direct ***robocopy*** to include all subdirectories. This also includes empty folders. ***robocopy*** will automatically copy hidden and system files. It will create new directories if they don't exist at the target location.

View the environment variables

View your computer environment variables through the **echo** command. There are a number of systems default environment variables such as

```
%HOMEDRIVe% ----- display the home drive

% HOMEDRIVE%

% NUMBER_OF_PROCESSORS% ------ Display the number of processors running on the
machine.

% PROCESSOR_ARCHITECTURE% ---- this doesn't tell you the architecture of the
processor but only of the current process, see here http://ss64.com/nt/syntax-
64bit.html

% PATH % ---- returns a list of the file extensions that the operating system
considers to be executable.

% SYSTEMROOT% --------- returns the location of the system directory, including the
drive and path

%WINDIR% -------- returns the windows directory
```

For more environment variable commands, see http://ss64.com/nt/syntax-variables.html

Create a batch file in Windows

A batch file is a kind of script file that that include a list of commands that can be executed by the command line interpreter. This information can be stored in plain text file. You can edit these files using a normal text editor. The file extension for batch files is .bat

Let's create a small batch file to print a message in the command screen:

- open a new notepad (or any text editor) file
- type the following lines

```
@echo off

echo my first batch file!

pause

dir c:\windows

pause
```

- Now click save as, and save the file as ***test.bat***
- Close the editor
- Go to the Command Prompt and execute the batch file (you can also run the file by double-clicking the batch file)

```
C:\Users >testBatch.bat
```

Here is another batch file to find the physical memory size from command line:

```
@echo off

systeminfo | findstr /C:"Total Physical Memory"

pause

dir c:\windows

pause
```

Task: try to create another batch file to view the following environment variables:

NUMBER_OF_PROCESSORS

COMPUTERNAME

DATE

What to submit

Takes screen snapshots of your console/terminal window showing:

1. the results of ***dir*** of your home directory, followed by the ***whoami*** commands.
2. rename the **FunFiles** directory to **TutorialsWork** with your name, for example**: AmjedTutorialWork**
3. use ***find*** to locate all the **.txt** and then all **.epub** files in the tutorial2 directory
4. save the output from 1 and 3 into a text file called **output.txt** using **>**
5. view the list of the following environment variables: HOMEDRIVE, PROCESSOR_ARCHITECTURE, OS and HOMEDRIVE. (Remember, you will need to use the **echo** command to display these variables).

6. create a batch file called **findtxt.bat** that contains the command(s) to find all (search for) files ending with **.txt** from the **TutorialsWork** folder. Save the output in a **commandOut.txt** using >. Run this batch file from the Command console. Submit you batch file .
7. Write another batch file that copies the newly created folder **NameTutorialsWork** to a new folder called "**BACKUP_ NameTutorialsWork**" and then delete the old folder "**NameTutorialsWork**". Need help? For windwos have a look here, if you use Linux or Mac, have a look here.

You need to do ALL 7 tasks.

You need also to submit the output text files (**.txt**) from task 3. ….

~~You will need to run those commands for us so we can mark your work……~~

Feeling good? Try these extra tasks **no additional marks**

8. Backup *only* ***.epub*** files from ***tutorial2*** in a new directory called "backupTutorial2" using ***robocopy.*** Save this into another txt file called **BackupDate.txt.**
9. Delete all **.epub** copies from the original folder ***tutorial2***

Capturing the screen

- On Windows, you can use ALT-PrtSc to capture an image of the current window to the clipboard.
- On a Mac, screen capture is built-in
- on Linux, use *shutter*, *ksnapshot* or whatever you like.

You can then paste each image as captured into any word processor such as MS Word/Wordpad or OpenOffice Writer (free, open source for all platforms).

Please submit only **.doc**, **.docx** or **.odt** files.

You MUST submit this tutorial by end of Wendsday, September 12th at 8pm.