Christopher Welch

Prof. Nielsen CIS220.470 February 24, 2018

DISCOVERY EXERCISES (1-20)

EXERCISE 1

[student@COS-047 ~]\$ cd / [student@COS-047 /]\$ ls 1 boot etc lib media opt root sbin sys usr bin dev home lib64 mnt proc run srv tmp var

EXERCISE 2

2. Use the ls -l command to view the contents of the root file system directory (/).

[student@COS-047 /]\$ ls -1 total 32 -rw-r--r-. 1 root root 0 Jan 22 2017 1 lrwxrwxrwx. 1 root root 7 Jan 22 2017 bin -> usr/bin dr-xr-xr-x. 4 root root 4096 Jan 22 2017 boot drwxr-xr-x. 19 root root 3100 Jan 23 16:08 dev drwxr-xr-x. 140 root root 8192 Feb 20 14:58 etc drwxr-xr-x. 4 root root 35 Nov 5 2016 home lrwxrwxrwx. 1 root root 7 Jan 22 2017 lib -> usr/lib lrwxrwxrwx. 1 root root 9 Jan 22 2017 lib64 -> usr/lib64 drwxr-xr-x. 2 root root 6 Nov 5 2016 media drwxr-xr-x. 2 root root 6 Nov 5 2016 mnt drwxr-xr-x. 3 root root 15 Nov 5 2016 opt dr-xr-xr-x. 209 root root 0 Jan 23 16:08 proc dr-xr-x---. 17 root root 4096 Jan 11 00:57 root drwxr-xr-x. 36 root root 1140 Feb 24 16:26 run lrwxrwxrwx. 1 root root 8 Jan 22 2017 sbin -> usr/sbin drwxr-xr-x. 2 root root 6 Nov 5 2016 srv dr-xr-xr-x. 13 root root 0 Jan 23 16:08 sys

EXERCISE 3

3. Determine the inode value for the /etc directory.

drwxrwxrwt. 21 root root 4096 Feb 24 20:11 tmp drwxr-xr-x. 13 root root 4096 Jan 22 2017 usr drwxr-xr-x. 22 root root 4096 Jan 23 16:08 var

[student@COS-047 /]\$ ls -i etc

71336087 abrt 410156 lvm

33951064 adjtime 33854108 machine-id

36255999 aliases 36509607 magic

33554565 aliases.db	34838295 mail.rc
820180 alsa	34076334 makedumpfile.conf.sample
100766698 alternatives	34285038 man_db.conf
33951110 anacrontab	71061470 mayen
34145726 asound.conf	35521127 mke2fs.conf
36856736 at.deny	323604 modprobe.d
36268296 at-spi2	323613 modules-load.d
436488 audisp	33554605 motd
67635979 audit	33554564 mtab
35492368 autofs.conf	35706682 mtools.conf
35492369 autofs_ldap_auth	.conf 102399068 multipath
35001016 auto.master	37042645 my.cnf
35655608 auto.master.d	100818912 my.cnf.d
35001017 auto.misc	37703518 nanorc
35001018 auto.net	33766050 netconfig
35001019 auto.smb	345546 NetworkManager
208463 avahi	33853199 networks
67169364 bash_completion	
33554592 bashrc	34766745 nsswitch.conf
100861123 binfmt.d	34766751 nsswitch.conf.bak
841908 bluetooth	33638404 nsswitch.conf.rpmnew
102615264 brltty	35655584 ntp
36696109 brltty.conf	35714286 ntp.conf
36255987 centos-release	34913029 numad.conf
33554583 centos-release-up	
820280 certmonger	35000869 oddjobd.conf
34913031 cgconfig.conf	35000870 oddjobd.conf.d
102173780 cgconfig.d	323392 openldap
35001008 cgrules.conf	100663444 opt
	klist.conf 33554586 os-release
162801 chkconfig.d	71061351 PackageKit
35655373 chrony.conf	100818297 pam.d
35655376 chrony.keys	37951733 passwd
35655595 cifs-utils	33766303 passwd-
100767232 conky	37703647 pbm2ppa.conf
345819 cron.d	34538752 pinforc
67356922 cron.daily	162941 pkcs11
33951111 cron.deny	67169355 pki
179964 cron.hourly	100902490 plymouth
100902423 cron.monthly	183 pm
33951120 crontab	37703648 pnm2ppa.conf
345824 cron.weekly	67562313 polkit-1
33554563 crypttab	33690542 popt.d
33554593 csh.cshrc	101149417 postfix
33554594 csh.login	67562266 ppp
1639910 cups	33556809 prelink.conf.d
102749517 cupshelpers	33554606 printcap
33853515 dbus-1	33554608 profile
101767957 dconf	33554610 profile.d
201707707 Geom	sees for prometa

100861087 depmod.d 35915320 pulse 39987161 dhclient-eno16777984.com	11134 default	33554609 protocols
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34368212 dhclient-ens160.comf 34076226 dhcp 73215743 qemu-ga 33692259 DIR_COLORS 71530281 qemu-kvm 33692079 DIR_COLORS.256color 35831414 radvd.conf 33692079 DIR_COLORS.256color 35831414 radvd.conf 33692079 DIR_COLORS.lightbgcolor 33690556 rc0.d 36103889 dleyna-server-service.conf 33853205 rc1.d 33951246 dnsmasq.conf 33690559 rc2.d 33690550 rc3.d 34147500 dracut.conf 33690560 rc3.d 34147500 dracut.conf 33690561 rc4.d 67440223 dracut.conf.d 34766732 rc5.d 34766732 rc5.d 34766732 rc5.d 34766733 rc6.d 35521126 e2fsck.conf 33638442 rc.local 33554595 environment 33638443 rc.local 33554595 environment 33554597 redhat-release 33554596 exports 34147481 request-key.conf 1737992 exports.d 101769558 request-key.d 33766150 favicon.png 33692597 resolv.conf 33692597 resolv.conf 33692597 resolv.conf 33692597 resolv.conf 33692597 resolv.conf 33692597 resolv.conf 336946646 rsyncd.conf 240026 firewalld 67440367 rsyslog.d 33853493 fuse.conf 7440367 rsyslog.d 33853493 fuse.conf 33694696 samba 33853493 fuse.conf 33690932 sasl2 33690699 gcrypt 36750976 scl 33690699 gcrypt 36759976 scl 33690699 gcrypt 36750976 scl 33690699 gcrypt 36750976 scl 33690932 sasl2 33690699 gcrypt 36750976 scl 33690699 gcrypt 36750976 scl 33690932 sasl2 33690699 gcrypt 36750976 scl 33690932 sasl2 33690699 gcrypt 36750976 scl 33690932 sasl2 33690699 gcrypt 36750976 scl 33690699 gcrypt 36750976 scl 33690699 gcrypt 36750976 scl 33690699 gcrypt 36750979 scurity 1076984 sgml 10769984 sgml 10769984 sgml 10769984 sgml 10769984 sgml 10769984 sgml 10769984 sgml 3766096 grub2.cfg 389161 smartmontolos 35830719 sos.conf 37554619 spach-dispatcher 376354599 gshadow 360344	-	-
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179918 gnupg 101769984 sgml 33690604 GREP_COLORS 34507460 shadow 33690936 groff 33554607 shadow- 35830940 group 33554615 shells 33766299 group- 184 skel 34366996 grub2.cfg 2899161 smartmontools 33951126 grub.d 35830719 sos.conf 37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh	34838421 GeoIP.conf.default	103197903 setroubleshoot
179918 gnupg 101769984 sgml 33690604 GREP_COLORS 34507460 shadow 33690936 groff 33554607 shadow- 35830940 group 33554615 shells 33766299 group- 184 skel 34366996 grub2.cfg 2899161 smartmontools 33951126 grub.d 35830719 sos.conf 37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh	35915347 ghostscript	73128180 setuptool.d
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35830940 group 33554615 shells 33766299 group- 184 skel 34366996 grub2.cfg 2899161 smartmontools 33951126 grub.d 35830719 sos.conf 37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh	33690604 GREP_COLORS	34507460 shadow
33766299 group- 184 skel 34366996 grub2.cfg 2899161 smartmontools 33951126 grub.d 35830719 sos.conf 37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh		33554607 shadow-
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33951126 grub.d 35830719 sos.conf 37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh	33766299 group-	184 skel
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37951729 gshadow 36034426 speech-dispatcher 33554599 gshadow- 67439960 ssh		35830719 sos.conf
33554599 gshadow- 67439960 ssh	_	36034426 speech-dispatcher
_	_	1 1
-	_	33692254 ssl

102338243 gssproxy	36704242 sssd
34838244 hba.conf	33690565 statetab
33554598 host.conf	33951073 statetab.d
34509178 hostname	33766565 subgid
33554602 hosts	34367771 subuid
33554601 hosts.allow	40127129 sudo.conf
33554603 hosts.deny	39987159 sudoers
1015420 hp	67766345 sudoers.d
34838416 idmapd.conf	40127130 sudoers.rpmnew
34766731 init.d	40127127 sudo-ldap.conf
33853198 inittab	33554618 sysconfig
33554604 inputrc	33853209 sysctl.conf
35915058 ipa	33853921 sysctl.d
100860931 iproute2	67440377 systemd
35830364 ipsec.conf	33554588 system-release
1015096 ipsec.d	33554589 system-release-cpe
35830365 ipsec.secrets	1035578 target
820982 iscsi	33951402 tcsd.conf
33554584 issue	9132 terminfo
33554585 issue.net	33692337 tmpfiles.d
34838913 java	34838841 trusted-key.key
786087 jvm	100994148 tuned
34838916 jvm-commmon	33853923 udev
34076333 kdump.conf	71627463 udisks2
514150 kernel	102198474 unbound
33690698 krb5.conf	37702453 updatedb.conf
33692066 krb5.conf.d	21346 UPower
33951674 ksmtuned.conf	35714282 usb_modeswitch.conf
33766550 ld.so.cache	34509175 vconsole.conf
33638403 ld.so.conf	35656114 vimrc
33638417 ld.so.conf.d	35865081 virc
33690598 libaudit.conf	104102479 vmware
71054162 libibverbs.d	1089674 vmware-tools
33690717 libnl	37702444 wgetrc
102074953 libreport	67562304 wpa_supplicant
33853084 libuser.conf	34538878 wvdial.conf
71530375 libvirt	100663443 X11
34509177 locale.conf	67169366 xdg
34368216 localtime	185 xinetd.d
36047971 login.defs	34148159 xml
35656220 logrotate.conf	33554581 yum
100818788 logrotate.d	33853514 yum.conf
769280 lsm	169 yum.repos.d

EXERCISE 4. Make /etc your current working directory and then go back to your home directory.

```
[student@COS-047 etc]$ cd
[student@COS-047 ~]$
```

EXERCISE 5. Make the root file system directory your current working directory. What command can you use to verify that you are in the root file system directory? Return to your home directory.

[student@COS-047 ~]\$ cd /

[student@COS-047/]\$ cd

[student@COS-047 ~]\$

EXERCISE 6 The file info.txt is in the help directory, which is a subdirectory of the /dev directory. What is the absolute path to info.txt?

/dev/help/info.txt

EXERCISE 7 Change to the /dev directory. Next, access your home directory using a tilde (~) in the command that you employ.

[student@COS-047 ~]\$ cd /dev [student@COS-047 dev]\$ cd ~ [student@COS-047 ~]\$

EXERCISE 8. Determine whether there are any hidden files in the /home directory.

[student@COS-047 ~]\$ ls -a .cache Documents .ICEauthority Music .config Downloads last name notes .bash_history_corp_db .esd_auth .lesshst **Pictures** .bash logout dept 4540 first name **Public** .local .bash profile dept 4550 full name1.txt middle name Templates .bashrc Desktop full name22.txt .mozilla Videos

EXERCISE 9. Make a directory under your home directory called documents. Next, make a directory under the documents directory called spreadsheets. What is the absolute path for the spreadsheets directory?

[student@COS-047 ~]\$ mkdir documents [student@COS-047 ~]\$ cd documents [student@COS-047 documents]\$ cat > spreadsheets [student@COS-047 documents]\$ ls spreadsheets

/home/student/documents/spreadsheets

EXERCISE 10. Make certain you are in your home directory. Use a relative path to make your new documents directory the current working directory. Next, use a relative path to make the spreadsheets directory your current working directory. Now use a command with dots in it to make the documents directory your current working directory.

```
[student@COS-047 ~]$ cd spreadsheets [student@COS-047 spreadsheets]$ cd .. [student@COS-047 documents]$
```

EXERCISE 11. With your home directory as your current directory, use the command to remove read, write, and execute permissions from group and others for the spreadsheets directory. Next, verify that your change has taken place. **(NOTE:** Execute permissions were not given for some reason.)

```
[student@COS-047 ~]$ chmod ugo+rwx ~/documents [student@COS-047 ~]$ ls -l documents total 4 -rw-rw-r--. 1 student student 3 Feb 24 20:46 spreadsheets
```

EXERCISE 12. Use the cat command to create a two-line file in your home directory called datainfo. On the first line, enter 144, and on the second line, enter 288. After the file is created, copy it from your home directory to the spreadsheets directory you created.

```
[student@COS-047 ~]$ cat > datainfo
144
288
[student@COS-047 ~]$ cat datainfo > spreadsheets
```

EXERCISE 13. Determine the default permissions on the datainfo file you created. Next, set the permissions on the datainfo file so that the owner, group, and others can read and execute the file. (Otherwise, leave the default settings as is.)

```
[student@COS-047 ~]$ ls -l datainfo
-rw-rw-r--. 1 student student 8 Feb 24 21:15 datainfo
[student@COS-047 ~]$ chmod ugo+rx ~/datainfo
[student@COS-047 ~]$ ls -l datainfo
-rwxrwxr-x. 1 student student 8 Feb 24 21:15 datainfo
[student@COS-047 ~]$ chmod ugo-w ~/datainfo
[student@COS-047 ~]$ ls -l datainfo
-r-xr-xr-x. 1 student student 8 Feb 24 21:15 datainfo
```

EXERCISE 14. Append the current month's calendar to the datainfo file that is in your home directory. Next, copy your changed datainfo file over the older datainfo file in the spreadsheets directory, but use the copy option that prompts you before you over-write the file in the spreadsheets directory. Check the contents of the datainfo file in the spreadsheets directory to make certain your copy was successful.

```
[student@COS-047 ~]$ chmod u+w ~/datainfo
[student@COS-047 ~]$ cat cal >> datainfo
[student@COS-047 ~]$ cp -i datainfo spreadsheets
cp: overwrite 'spreadsheets'?
[student@COS-047 ~]$ cat datainfo
144
288
February 2018
Su Mo Tu We Th Fr Sa
```

[student@COS-047 ~]\$ cd

1 2 3

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

EXERCISE 15. Make the spreadsheets directory your working directory. Make copies of the datainfo file in the spreadsheets directory, so that one copy is named myinfo and one is named datadata. Next, use a wildcard character to list all files that start with "data." Use a wildcard character to list all files that end with "info." Use a wildcard character combination to list all files that have "ata" as the second, third, and fourth characters.

[student@COS-047 ~]\$ cd spreadsheets [student@COS-047 spreadsheets]\$ cat datainfo > myinfo; cat datainfo > datadata; [student@COS-047 spreadsheets]\$ ls data* datadata datainfo [student@COS-047 spreadsheets]\$ ls *info datainfo myinfo [student@COS-047 spreadsheets]\$ ls *ata datadata

EXERCISE 16. Make certain you are in your home directory. Change your command prompt so that it shows your current working directory with an exclamation point, such as mydirectory! Change to the spreadsheets and then to the documents directory and notice how the prompt changes. (**NOTE:** Could not find the correct command for this function.)

 $[student@COS-047 \sim] $PS1 = [\u@\h \W!] \$

bash: !]\\$: event not found

 $[student@COS-047 \sim] \$ PS1 = [\u@\h! \W] \$

bash: PS1: command not found...

 $[student@COS-047 \sim] \$ PS1 = [\u!\h] \$

bash: !\h]\\$: event not found

 $[student@COS-047 \sim]$ PS1 = $[\u@\h \W]\!$

bash: PS1: command not found...

EXERCISE 17. Change to your home directory. Use the rmdir command to delete the spreadsheets directory. What happens?

[student@COS-047 ~]\$ rmdir spreadsheets

rmdir: failed to remove 'spreadsheets': Directory not empty

EXERCISE 18. Delete the datainfo files in both your home directory and in the spreadsheets directory. Also, delete the myinfo and datadata files in the spreadsheets directory.

[student@COS-047 ~]\$ rm datainfo

[student@COS-047 ~]\$ cd spreadsheets

[student@COS-047 spreadsheets]\$ rm datainfo

[student@COS-047 spreadsheets]\$ rm myinfo

[student@COS-047 spreadsheets]\$ rm datadata

EXERCISE 19. Change to your home directory. Delete the spreadsheets directory and then delete the documents directory.

[student@COS-047 spreadsheets]\$ cd .. [student@COS-047 ~]\$ rmdir spreadsheets

[student@COS-047 ~]\$ rmdir documents

EXERCISE 20 Create a directory called secure under your home directory. Next, using the octal permission format, set security on the secure directory so that you have all permissions and no one else has any permissions.

[student@COS-047 ~]\$ mkdir secure [student@COS-047 ~]\$ chmod 700 secure