



Lesson Module Checklist

- Slides
- WB

- Flash cards
- Page numbers
- 1st minute quiz
- Web Calendar summary
- Web book pages
- Commands

- Lab tested
- Put sonnet6 & bigfile in depot
- Real test 1 on standby
- Updated /etc/cis90-passwd
- Forbidden web page updated

- 9V backup battery for microphone
- Backup slides, CCC info, handouts on flash drive

Introductions and Credits



Jim Griffin

- Created this Linux course
- Created Opus and the CIS VLab
- Jim's site: <http://cabrillo.edu/~jgriffin/>



Rich Simms

- HP Alumnus
- Started teaching this course in 2008 when Jim went on sabbatical
- Rich's site: <http://simms-teach.com>

And thanks to:

- John Govsky for many teaching best practices: e.g. the First Minute quizzes, the online forum, and the point grading system (<http://teacherjohn.com/>)



Aaron



Andrew B.



Andrew C.



Instructor: **Rich Simms**
Dial-in: **888-450-4821**
Passcode: **761867**



Arthur



Brian



Cory



Daniel



David G.



Dave L.



David P.



Debbie



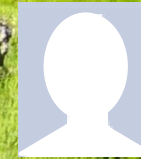
Edtson



Fidel



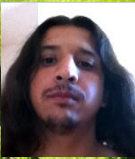
Humberto



Hunter



Imara



Ismael



Jessica



Joseph



Juliana



Lucie



Marc



Marty



Matt



Michael



Rochelle



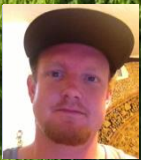
Shawn



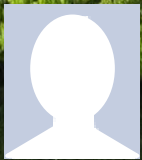
Tabitha



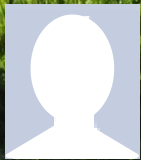
Taylor



Tyler



Will



Zachary



Zsolt

First Minute Quiz

Please answer these questions **in the order** shown:

No Quiz today ... test instead

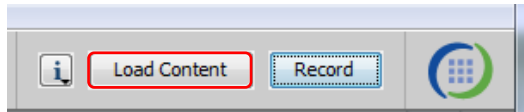
For credit email answers to:

risimms@cabrillo.edu

within the **first few minutes of class**

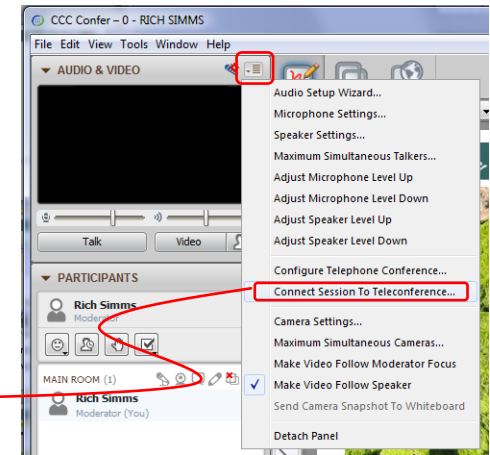
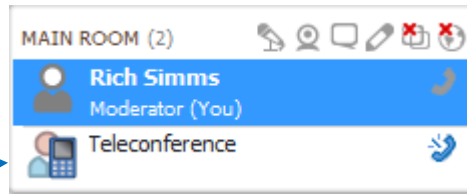


[] Preload White Board with *cis*lesson??*-WB*



[] Connect session to Teleconference

Session now connected to teleconference



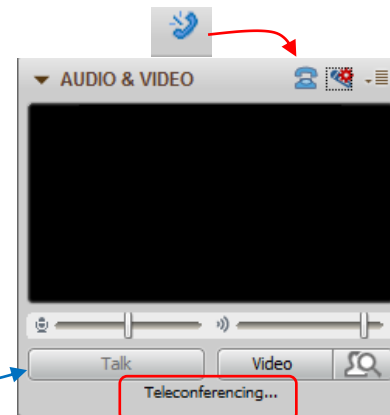
[] Is recording on?



Red dot means recording

[] Use teleconferencing, not mic

Should be greyed out





- [] Video (webcam) optional
- [] layout and share apps

The screenshot displays a Windows desktop environment with several applications open:

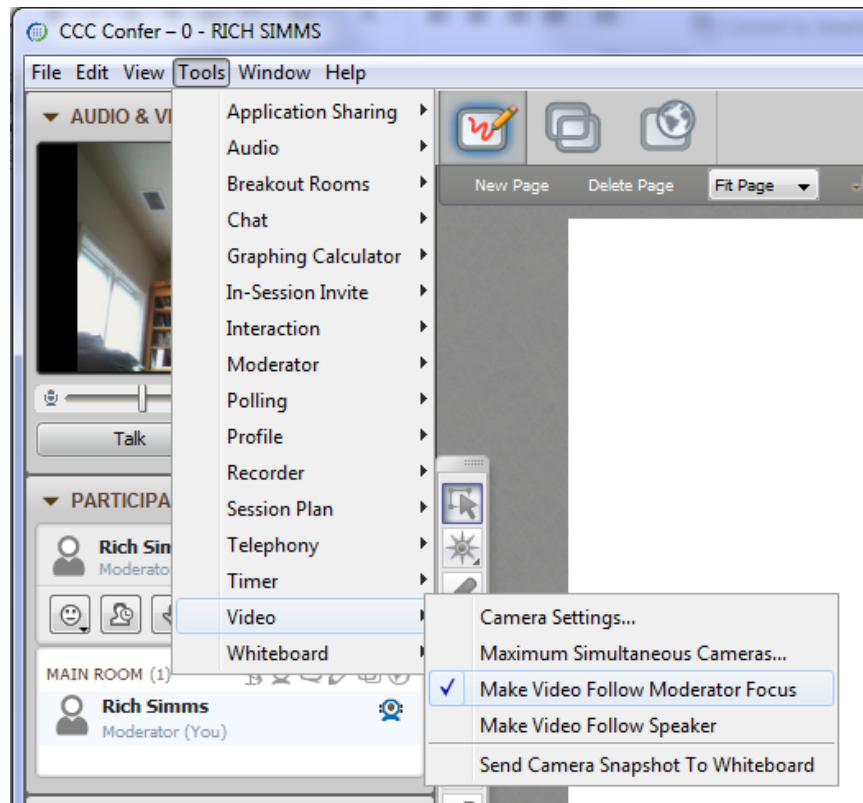
- CCC Confer**: A teleconference window on the left side of the screen.
- Chrome**: A web browser window displaying a document titled "Part 1 - Flashcards questions (1 point each)". The document contains two questions: [Q1] "What command shows the other users logged in to the computer?" and [Q2] "What environment variable is used by the shell to determine which directories to search when locating a command?".
- Putty**: A terminal window showing a login attempt for user "simben90" on a system named "oslab.cabrillo.edu". The terminal output includes "login as: simben90", "Access denied", and "Last login: Mon Oct 8 18:58:43 2012 from d.com".
- vSphere Client**: A virtual machine management interface window showing a list of virtual machines under "CIS 192".
- File Explorer**: A window showing a directory structure with folders like "boot", "bin", "etc", and "sbin".

Red callout boxes with arrows point to specific elements:

- foxit for slides**: Points to the File Explorer window.
- chrome**: Points to the Chrome browser window.
- putty**: Points to the terminal window.
- vSphere Client**: Points to the vSphere Client window.



- [] Video (webcam) optional
- [] Follow moderator
- [] Double-click on postage stamps



Universal Fix for CCC Confer:

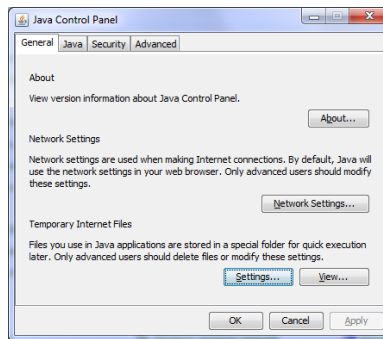
- 1) Shrink (500 MB) and delete Java cache
- 2) Uninstall and reinstall latest Java runtime



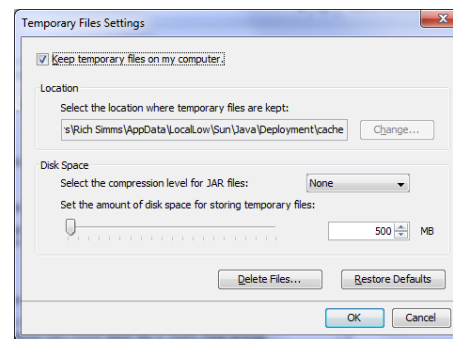
Control Panel (small icons)



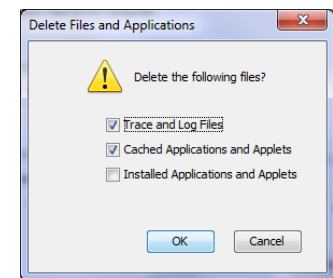
General Tab > Settings...



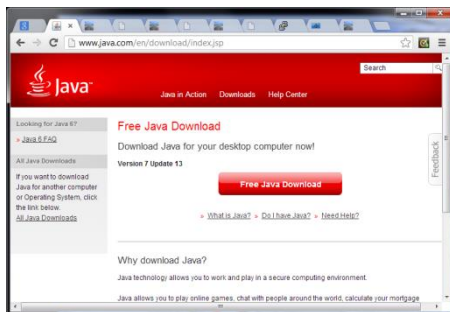
500MB cache size



Delete these



Google Java download



Managing Files

Objectives

- Be able to create, copy, move, remove and link files

Agenda

- Questions
- Test Prep
- Housekeeping
- Managing files
- Wrap up
- Test



Questions

Questions

Lesson material?

Labs?

How this course works?

- Graded work in home directories
- Answers to labs, tests and quizzes in /home/cis90/answers

Chinese
Proverb

他問一個問題，五分鐘是個傻子，他不問一個問題仍然是一個傻瓜永遠。

He who asks a question is a fool for five minutes; he who does not ask a question remains a fool forever.

Lab 4

Post

Mortem

Lab 4 results

01 XXX
02 XXXXXXXXXXXX
03
04 X
05 XXXXX
06 XX
07 XX
08 XXXX
09 XXXXXXX
10 XXXXXXX
11 XXXXX
12 XXXXX
13 X

14 X
15 XXXXXXXXXXXXXXXX
16 XXX
17 XXXXXXXXXXXXXXXXXXXXXXXX
18 X
19 XXXXXXXXXXXX
20 XXX
21 XXXXXXXXXXXXXXXXXXXXXXXX
22 X
23 XXXX
24 XXX
25 XXXXXXXXXXXXXXXXXXXXXXXX
26 XXXXXXXXXXXXX

29 labs submitted 

4 labs not submitted 

Lab 4 - Q2

2) Relative to your home directory, what is the pathname of the tiger file in the Blake subdirectory?

Correct answer: **Poems/Blake/tiger**

OK answer: `./Poems/Blake/tiger`

Incorrect answers:

`tiger`

`/Poems/Blake`

`/Poems/Blake/tiger`

`home/cis90/xxxxxx/Poems/Blake`

`/home/cis90/xxxxxx/Poems/Blake/tiger` *Not relative pathname*

`ls /Poems/Blake/tiger` *Pathnames do not include commands*

} *Bad pathname, fails the ls test*

Using **ls** test on Opus:

```
/home/cis90/simben $ ls Poems/Blake/tiger
```

```
Poems/Blake/tiger
```

Lab 4 - Q15

15) What file or files in your home directory should you not view with the cat or more commands?

Correct answer: `what_am_i`

Checking answer on Opus:

```
/home/cis90/simben $ file *
bigfile:          ISO-8859 English text, with overstriking
bin:              directory
dead.letter:      ASCII mail text
empty:           empty
Hidden:          directory
lab01.graded:     ASCII text
lab01-submitted: ASCII text
lab02.graded:     ASCII English text
lab03.graded:     ASCII English text
Lab2.0:          directory
Lab2.1:          directory
letter:          ASCII English text
log:             ASCII text
```

Use the **file** command to classify files. Use * which bash will expand to all non-hidden files in the directory as arguments to the file command.

All these are text files or directories

Lab 4 - Q15

```

mbox:          ASCII mail text, with very long lines
Miscellaneous: directory
mission:       ASCII English text
Poems:         directory
proposal1:     ASCII English text
proposal2:     ASCII English text
proposal3:     ASCII English text
small_town:    ASCII English text
spellk:        ASCII English text
text.err:      ASCII text
text.fxd:      ASCII text
timecal:       shell archive or script for antique kernel text
uhistory:      ASCII mail text
what_am_i:     data
/home/cis90/simben $

```

*These are all directories or text files ...
EXCEPT **what_am_i** which contains
binary data*

Even timecal is a text file (a script)



```

/home/cis90/roddyduk $ cat what_am_i
H/./>/..#.#.mailrc!.profile+HiddenLab3.1.1%Lab3.1.2f*PoemsReference8bigfile
$#bi!mailfoldersa_very_long_fi)lenamerrors/fruita#greeting,lettermys
tery^proposal1,proposal29timecal/home/cis90/roddyduk $

```

*Binary/data files contain unprintable characters that spew garbage on the screen. Text commands like **cat, head, more, ...**, etc. do not handle the unprintable characters gracefully. If your terminal gets messed up try the **reset** command.*

Lab 4 - Q17

17) What ls command-line allows you to see the permissions of your home directory while you are in your home directory?

Correct answer: **ls -ld** *(and many other solutions shown below)*

Checking answer on Opus:

Use the d option in conjunction with the l option to show information on the directory itself rather than its contents.

```
/home/cis90/simben $ ls -ld
drwxr-xr-x. 10 simben90 cis90 4096 Sep 27 12:37 .
```

or /home/cis90/simben \$ **ls -ld /home/cis90/simben/**
drwxr-xr-x. 10 simben90 cis90 4096 Sep 27 12:37 /home/cis90/simben/

or /home/cis90/simben \$ **ls -ld \$HOME**
drwxr-xr-x. 10 simben90 cis90 4096 Sep 27 12:37 /home/cis90/simben

or /home/cis90/simben \$ **ls -ld ~**
drwxr-xr-x. 10 simben90 cis90 4096 Sep 27 12:37 /home/cis90/simben

permissions

Lab 4 - Q17

Or do a long listing of the parent directory and locate your home directory in the output

```

/home/cis90/simben $ ls -l ..
total 172
< snipped >
drwxr-xr-x.  9 milhom90 cis90 4096 Sep 30 11:04 milhom
drwxr-xr-x.  9 mongeo90 cis90 4096 Oct  2 17:26 mongeo
drwxr-xr-x. 10 norwil90 cis90 4096 Oct  2 16:37 norwil
drwxr-xr-x.  9 pauhun90 cis90 4096 Oct  2 10:17 pauhun
drwxr-xr-x.  9 pendav90 cis90 4096 Oct  2 10:17 pendav
drwxr-xr-x.  9 pitmic90 cis90 4096 Oct  2 10:17 pitmic
drwxr-xr-x.  9 rawjes90 cis90 4096 Sep 25 13:11 rawjes
drwxr-xr-x.  8 roclea90 cis90 4096 Sep 11  2005 roclea
drwxr-xr-x.  9 rodduk90 cis90 4096 Sep 30 14:55 rodduk
drwxr-xr-x.  9 simben90 cis90 4096 Oct  2 10:17 simben
drwxr-xr-x.  9 skizac90 cis90 4096 Oct  2 10:17 skizac
drwxr-xr-x.  9 smimat90 cis90 4096 Oct  2 10:17 smimat
drwxr-xr-x.  9 tapart90 cis90 4096 Oct  2 10:17 tapart
drwxr-xr-x.  9 watroc90 cis90 4096 Sep 20 23:54 watroc
drwxr-xr-x. 10 wootyl90 cis90 4096 Oct  2 10:17 wootyl
drwxr-xr-x.  9 zamhum90 cis90 4096 Oct  2 10:17 zamhum
/home/cis90/simben $

```

Lab 4 - Q19

19) From your home directory what is the relative path to sonnet1?

Correct answer: **Poems/Shakespeare/sonnet1**

Incorrect answers:

/Poems/Shakespeare /sonnet1 *(multiple arguments, fails ls test)*

Poems/Shakespeare/ *(incomplete path, must include filename)*

/home/cis90/simben/Poems/Shakespeare/sonnet1 *(not a relative path)*

Checking answer on Opus:

/home/cis90/simben \$ **cd** *cd with no arguments takes you to your home directory*

/home/cis90/simben \$ **ls Poems/Shakespeare/sonnet1** *Always check your pathname by using it as an argument to the ls command*

Poems/Shakespeare/sonnet1

Lab 4 - Q21

21) What command will set your prompt to show your current working directory path and a \$?

Correct answer: `PS1=' $PWD $ '`

Incorrect answers:

`$PWD` (*bash will produce error message*)

`PS1='[\u@\h \W]\$ '` (*bash will produce a different prompt than asked for*)

`PS1="$PWD $ "` (*bash will expand \$PWD too soon and produce static prompt*)

`pwd` (*doesn't change the prompt variable PS1*)

Checking answer on Opus:

```
/home/cis90/simben $ PS1="Fix me: $"
```

```
Fix me: $PS1=' $PWD $ '
```

```
/home/cis90/simben $ cd /
```

```
/ $ cd
```

```
/home/cis90/simben $ cd ~/Poems/
```

```
/home/cis90/simben/Poems $
```

static prompt to test new prompt

dynamic prompt which changes as you move about file tree

Lab 4 - Q25

- 24) What file in the Miscellaneous directory is a symbolic link to another file?
25) What is the inode number of the file being linked to?

Correct answer: **varies by student**

The 1 code indicates this is a symbolic link

```
/home/cis90/simben $ ls -l Miscellaneous/
total 28
-rw-r--r--. 1 simben90 cis90 1382 Feb 1 2002 better_town
-rw-r--r--. 1 simben90 cis90 148 Jul 20 2001 file.dos
-rw-r--r--. 1 simben90 cis90 78 Oct 26 2004 fruit
-rw-r--r--. 2 simben90 cis90 10576 Jul 20 2001 manpage
lrwxrwxrwx. 1 simben90 cis90 20 Aug 1 16:55 mystery -> ../bin/enlightenment
-rw-r--r--. 1 simben90 cis90 78 Apr 17 2004 salad
/home/cis90/simben $ ls -i bin/enlightenment
9636 bin/enlightenment
```

The mystery file is a symbolic link to the enlightenment file in the user's bin directory

Lab 4 - Q25

```
/home/cis90/simben $ ls -l Miscellaneous/
```

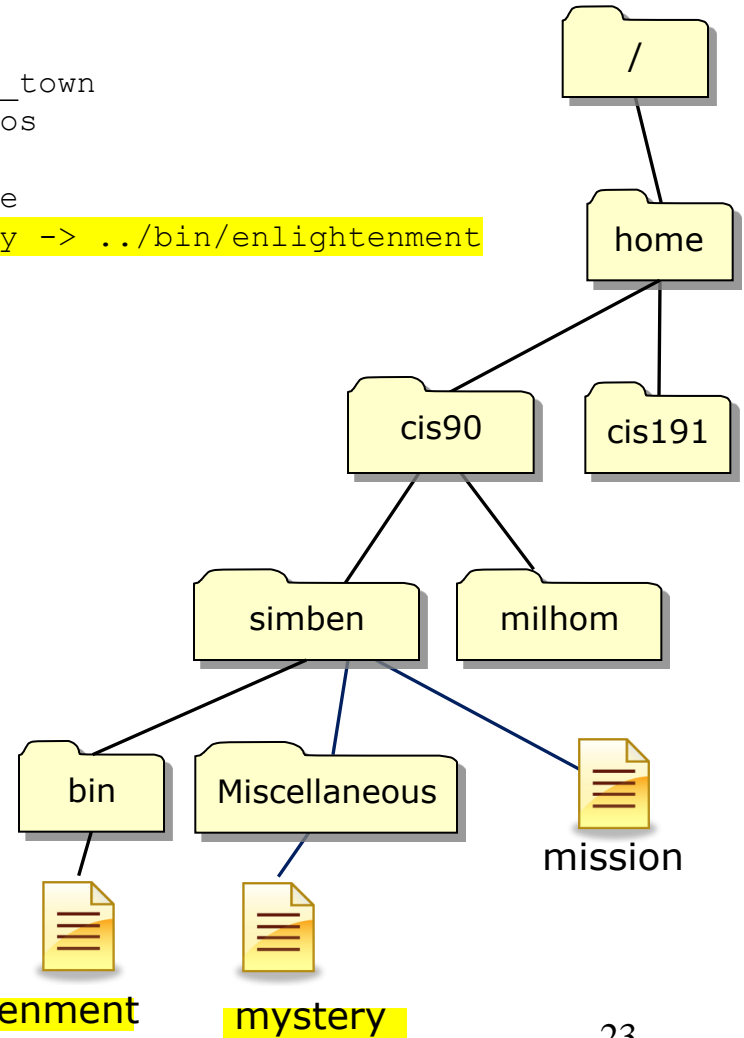
```
total 28
```

```
-rw-r--r--. 1 simben90 cis90 1382 Feb 1 2002 better_town
-rw-r--r--. 1 simben90 cis90 148 Jul 20 2001 file.dos
-rw-r--r--. 1 simben90 cis90 78 Oct 26 2004 fruit
-rw-r--r--. 2 simben90 cis90 10576 Jul 20 2001 manpage
lrwxrwxrwx. 1 simben90 cis90 20 Aug 1 16:55 mystery -> ../bin/enlightenment
-rw-r--r--. 1 simben90 cis90 78 Apr 17 2004 salad
```

```
/home/cis90/simben $ ls -li bin/enlightenment
```

```
9636 bin/enlightenment
```

The mystery file is a symbolic link to the enlightenment file in the user's bin directory



Lab 4 - Q26 Bonus Question

Bonus) With what command can you list only the hidden files of your home directory?

```
/home/cis90/simben $ echo .*
. .. .bash_history .bash_logout .bash_profile .bashrc .lesshst .plan .ssh .vim
.viminfo
```

or /home/cis90/simben \$ **ls -d .***

```
. .bash_history .bash_profile .lesshst .ssh .viminfo
.. .bash_logout .bashrc .plan .vim
```

or /home/cis90/simben \$ **ls -a | grep '^\.'**

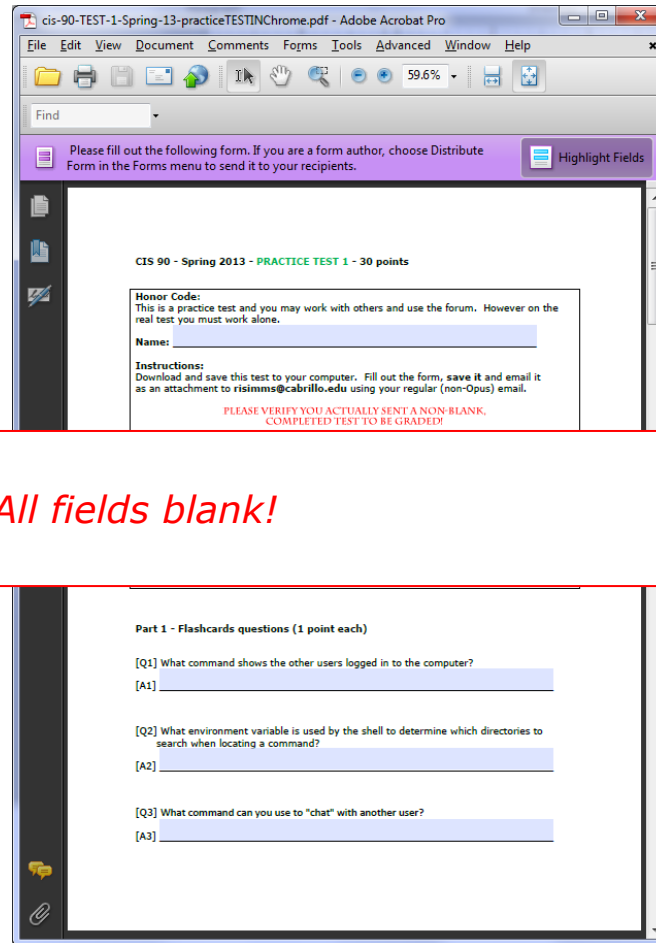
```
.
..
.bash_history
.bash_logout
.bash_profile
.bashrc
.lesshst
.plan
.ssh
.vim
.viminfo
```

This last command has several elements that we have not yet studied: piping, grep command and regular expressions.



Housekeeping

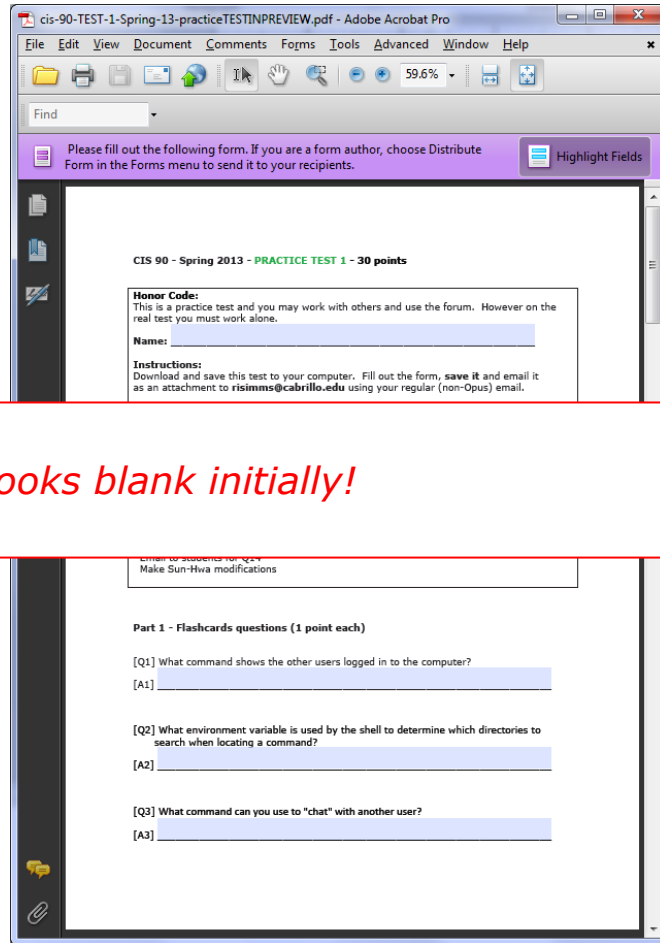
Jay's Mac testing of PDF Forms **Chrome Browser**



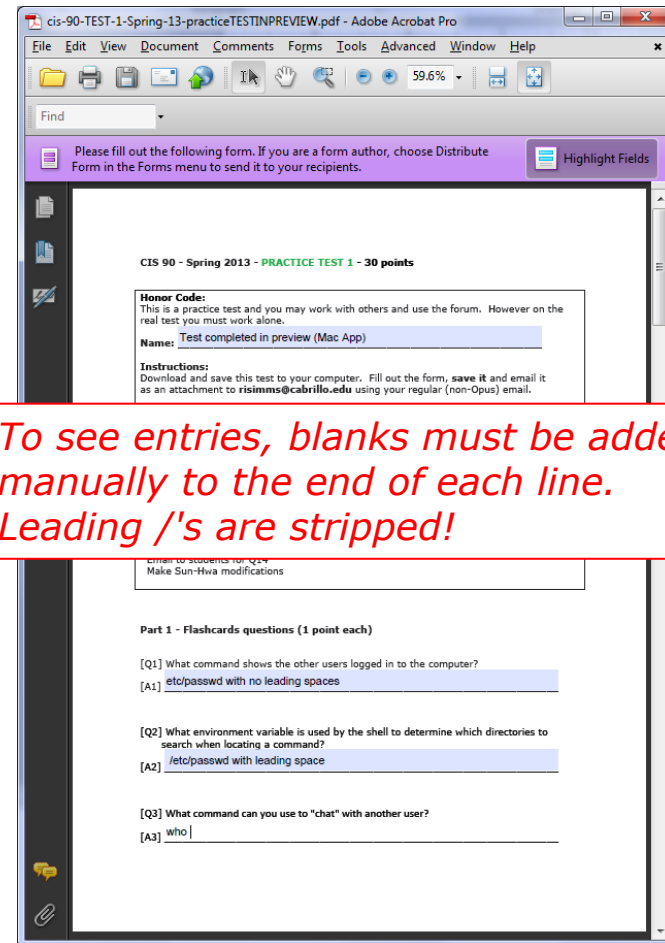
All fields blank!

Don't use the Chrome Browser to fill out your PDF test!

Jay's testing of PDF Forms Mac Preview



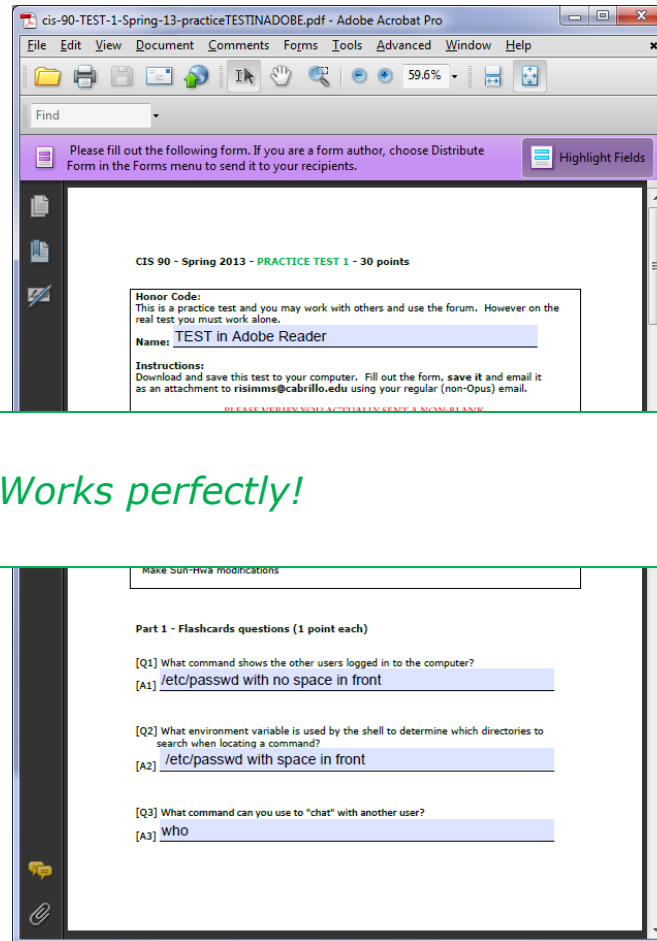
Looks blank initially!



*To see entries, blanks must be added manually to the end of each line.
Leading /'s are stripped!*

Don't use Mac Preview to fill out your PDF test!

Jay's Mac testing of PDF Forms Adobe Reader



*Always use
Adobe Reader to
fill out your tests*



*Foxit Reader
also works!*

1

- Presentation slides ([download](#))
- Instructor Evaluation Form ([link](#))
- Practice test ([download](#))

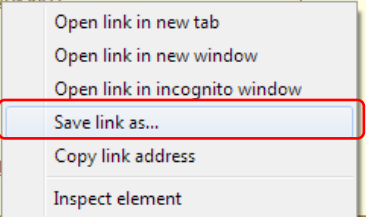
Assignment

- NA

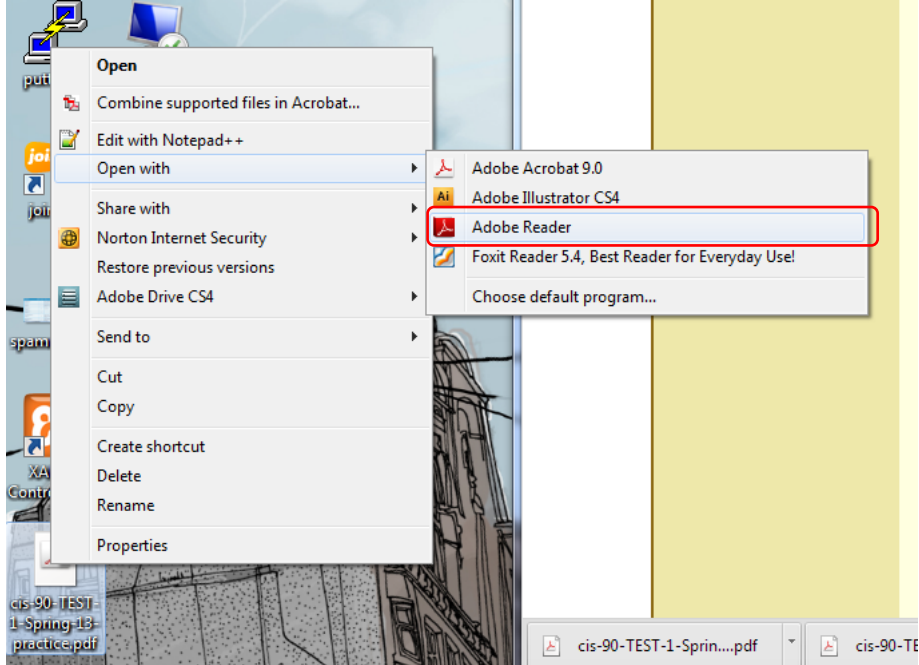
CCC Confer

- [Enter virtual class](#)
- [Class archives](#)

Test #1



2



This Works!

Instructions:

Download and save this test to your computer. Fill out the form using **Adobe Reader**, save it and email it as an attachment to **risimms@cabrillo.edu** using your regular (non-Opus) email.

PLEASE VERIFY YOU ACTUALLY SENT A NON-BLANK TEST WITH COMPLETE ANSWERS TO BE GRADED!

Perkins/VTEA Survey

Carl D. Perkins Career and Technical Education Act

□ by **Rich Simms** » Sun Sep 22, 2013 3:21 pm

The Carl D. Perkins Vocational and Technical Education Act was originally authorized by Congress in 1984. It was reauthorized in 1998 and again in 2006. This act provides federal funding for improving career technical education (CTE) within the United States in order to help the economy.

For Cabrillo College to receive a portion of this funding students in technical classes must fill out a survey. The more surveys completed the more funds the college will receive. The survey only needs to be completed once per term by each student.

This survey can be completed online using web advisor:

Log on to WEBADVISOR at <https://wave.cabrillo.edu>

Select "STUDENTS: Click Here" (navy blue bar)

- Under "Academic Profile" Click on "Student Update Form"
- Use drop down list under "Select the earliest term for which you are registered" and click on the current term.
- Select "SUBMIT"

Scroll down to the "Career Technical Information"

- Answer questions by clicking on the circle to the left of your "Yes" or "No" answers
- You can get details about a question by clicking on blue underlined phrase
- After answering all questions Select "SUBMIT"

Then "LOG OUT"

Thank you for taking a few minutes to help Cabrillo College CS/CIS programs!

- Rich

This is an important source of funding for Cabrillo College.

*Send me an email stating you completed this survey for **three points extra credit!***

| Career Technical Information | |
|--|--|
| Your answers to these questions will help qualify Cabrillo College for Perkins/VTEA grant funds. | |
| Are you currently receiving benefits from: | |
| <input type="radio"/> Yes | TANF/CALWORKS |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | SSI (Supplemental Security Income) |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | GA (General Assistance) |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | Does your income qualify you for a fee waiver? |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | Are you a single parent with custody of one or more minor children? |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | Are you a displaced homemaker attending Cabrillo to develop job skills? |
| <input type="radio"/> No | |
| <input type="radio"/> Yes | Have you moved in the preceding 36 months to obtain, or to accompany parents or spouses to obtain, temporary or seasonal employment in agriculture, dairy, or fishing? |
| <input type="radio"/> No | |

Current Point Tally

As of 10/7/2013

Points that could have been earned:

4 quizzes: 12 points
 4 labs: 120 points
 1 forum quarter: 20 points
Total: 152 points

| Percentage | Total Points | Letter Grade | Pass/No Pass |
|---------------|---------------|--------------|--------------|
| 90% or higher | 504 or higher | A | Pass |
| 80% to 89.9% | 448 to 503 | B | Pass |
| 70% to 79.9% | 392 to 447 | C | Pass |
| 60% to 69.9% | 336 to 391 | D | No pass |
| 0% to 59.9% | 0 to 335 | F | No pass |

adaldrida: 98% (149 of 152 points)
 anborn: 0% (0 of 152 points)
 aragorn: 96% (147 of 152 points)
 arwen: 77% (118 of 152 points)
 balrog: 45% (69 of 152 points)
 barliman: 2% (4 of 152 points)
 beregond: 70% (107 of 152 points)
 boromir: 0% (0 of 152 points)
 celebrian: 84% (128 of 152 points)
 dori: 96% (146 of 152 points)
 dwalin: 90% (137 of 152 points)
 elrond: 95% (145 of 152 points)
 eomer: 92% (141 of 152 points)
 faramir: 99% (151 of 152 points)
 frodo: 91% (139 of 152 points)
 gimli: 98% (150 of 152 points)
 goldberry: 109% (166 of 152 points)

huan: 43% (66 of 152 points)
 ingold: 96% (147 of 152 points)
 ioreth: 76% (116 of 152 points)
 legolas: 67% (103 of 152 points)
 marhari: 104% (159 of 152 points)
 pallando: 105% (160 of 152 points)
 pippen: 100% (153 of 152 points)
 quickbeam: 55% (85 of 152 points)
 samwise: 81% (124 of 152 points)
 sauron: 103% (157 of 152 points)
 shadowfax: 72% (110 of 152 points)
 strider: 81% (124 of 152 points)
 theoden: 98% (150 of 152 points)
 treebeard: 92% (141 of 152 points)
 tulkas: 101% (155 of 152 points)
 ulmo: 60% (92 of 152 points)

Jesse's checkgrades python script

<http://oslab.cabrillo.edu/forum/viewtopic.php?f=31&t=773&p=2966>

```
/home/cis90/simben $ checkgrades smeagol
```

Remember, your points may be zero simply because the assignment has not been graded yet.

Quiz 1: You earned 3 points out of a possible 3.
Quiz 2: You earned 3 points out of a possible 3.
Quiz 3: You earned 3 points out of a possible 3.
Quiz 4: You earned 3 points out of a possible 3.

Forum Post 1: You earned 20 points out of a possible 20.

Lab 1: You earned 30 points out of a possible 30.
Lab 2: You earned 30 points out of a possible 30.
Lab 3: You earned 30 points out of a possible 30.
Lab 4: You earned 29 points out of a possible 30.

You've earned 15 points of extra credit.

You currently have a 109% grade in this class. (166 out of 152 possible points.)

Use your LOR code name as an argument on the checkgrades command

Jesse is a CIS 90 Alumnus. He wrote this python script when taking the course. It mines data from the website to check how many of the available points have been earned so far.

The screenshot shows a web browser window displaying the CIS Lab & Datacenter website. The page includes a header with the college name and a navigation menu. Below the header is an announcement about moving to Building 800. The main content is a calendar for 'CIS Lab Fall 2013' showing lab sessions from September 22nd to 28th. The calendar is a grid with time slots on the y-axis (8am to 4pm) and days on the x-axis. Blue blocks represent lab sessions with instructor names and lab names. For example, on Monday 9/23, there is a session from 8-9:30am by Gerlinde Brady. On Tuesday 9/24, there are sessions from 9:30-10am by Mike Maters and 10-12:30pm by Rick Graziani. On Wednesday 9/25, there is a session from 12:45-1:30pm by Geoff Leandro. On Thursday 9/26, there is a session from 8-9:30am by Gerlinde Brady. On Friday 9/27, there is a session from 10-2p by Mike Maters and Leandro Rocha. At the bottom of the page, there are logos for W3C XHTML 1.0 and W3C CSS.

CIS Lab Schedule
<http://webhawks.org/~cislab/>

*Work on assignments together
 with other classmates*

*Get help from instructors and
 student lab assistants*



Managing Files



New commands for your toolbox:

| | |
|-------|---|
| touch | <i>to make a file (or update the timestamp)</i> |
| mkdir | <i>to make a directory</i> |
| cp | <i>to copy a file</i> |
| mv | <i>to mv or rename a file</i> |
| rmdir | <i>to remove a directory</i> |
| rm | <i>to remove a file</i> |
| ln | <i>to create a link</i> |

Redirecting stdout:

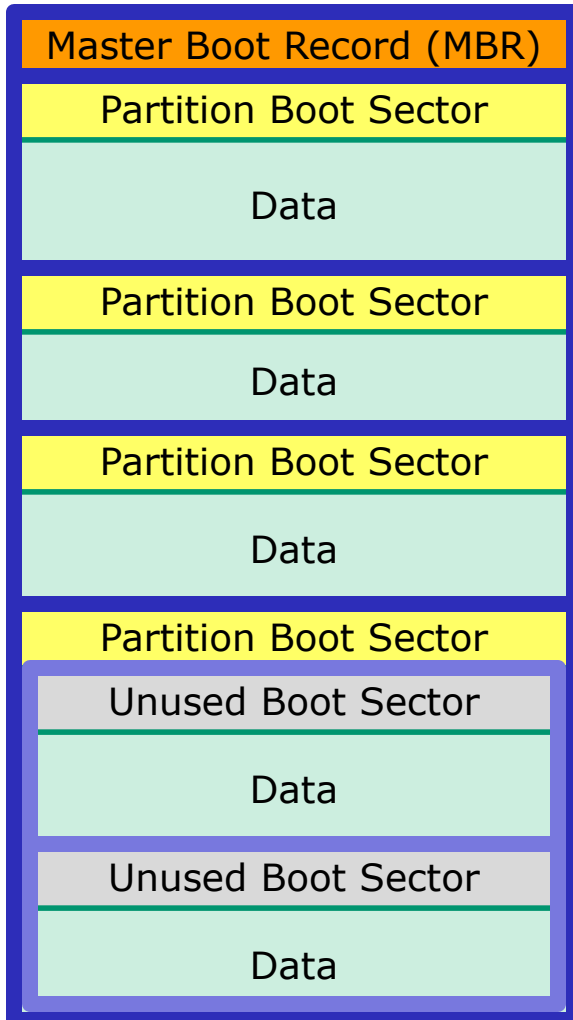
> *filename* *redirecting stdout to create/empty a file*



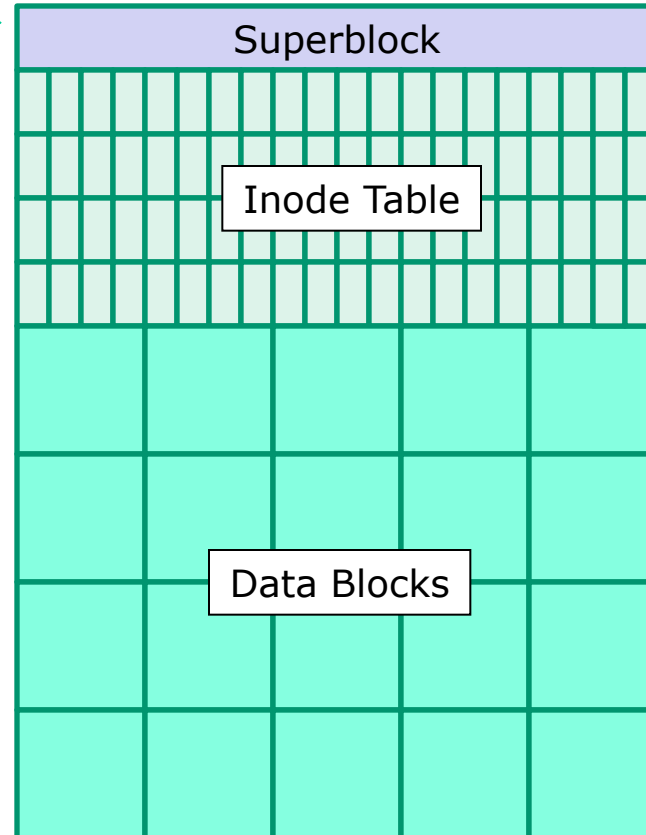
File Systems

Linux

The hard drive is partitioned and the data areas can be formatted as a file system. Linux typically uses ext2, ext3 and ext4 file systems. Windows uses FAT32 and NTFS file systems.



ext2 file system



filenames are stored in directories, **not** in inodes

bigfile 19470
bin 9628
letter 9662

Hello Mother! Hello Father!

Here I am at Camp Granada. Things are very entertaining, and they say we'll have some fun when it stops raining.

All the counselors hate the waiters, and the lake has alligators. You remember Leonard Skinner? He got ptomaine poisoning last night after dinner.

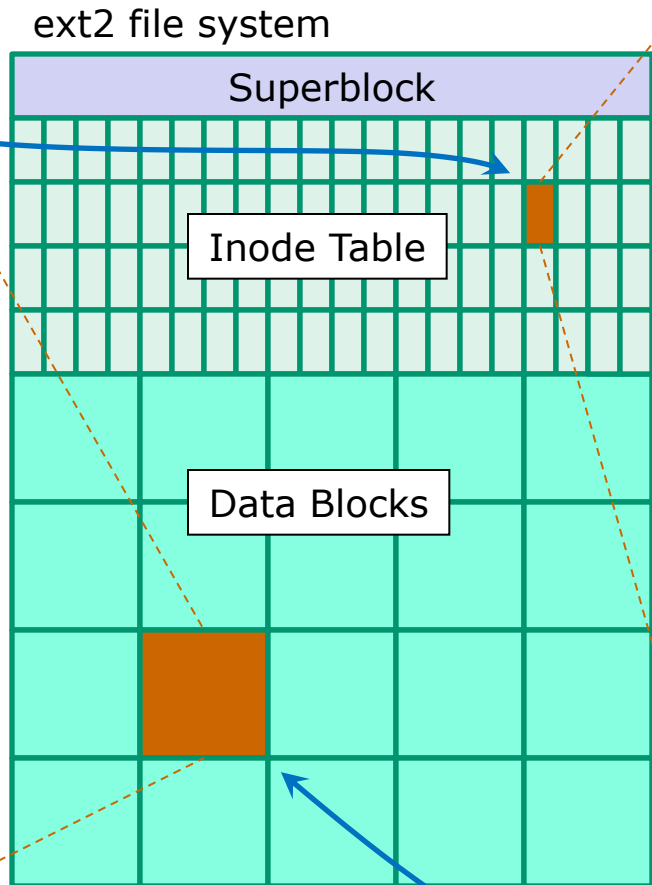
Now I don't want this to scare you, but my bunk mate has malaria. You remember Jeffrey Hardy? Their about to organize a searching party.

Take me home, oh Mother, Father, take me home! I hate Granada.
Don't leave me out in the forest where I might get eaten by a bear! Take me home, I promise that I won't make noise, or mess the house with other boys, oh please don't make me stay -- I've been here one whole day.

Dearest Father, darling Mother, how's my precious little brother? I will come home if you miss me. I will even let Aunt Bertha hug and kiss me!

Wait a minute! It's stopped hailing! Guys are swimming!
Guys are sailing! Playing baseball, gee that's better!
Mother, Father, kindly disregard this letter.

Alan Sherman



| | |
|---------------------------|---------------------------|
| 9662 | inode number |
| - | Type |
| rw-r--r-- | Permissions |
| 1 | Number of links |
| simben90 | User |
| cis90 | Group |
| 1044 | Size |
| 2001-07-20 | Modification time |
| 2012-09-17 | Access Time |
| 2012-08-01 | Change time |
| Pointer(s) to data blocks | Pointer(s) to data blocks |

```
/home/cis90/simmsben $ ls -il letter
9662 -rw-r--r--. 1 simben90 cis90 1044 Jul 20 2001 letter
```

Creating Files

Managing the UNIX/Linux File System

Creating Files

Commands:

touch

- creates an empty ordinary file(s), or if the file already exists, it updates the time stamp.

mkdir

- creates an empty directory(s)
- options: -p (to create nested directories)

echo "string" > filename

- Creates or overwrites a text file

Managing the UNIX/Linux File System

Creating Files

touch creates one or more empty regular files, or if the file already exists, it updates the time stamp.

A new file, named sawyer is created in the current working directory

```
/home/cis90/simmsben $ ls -l sawyer  
ls: sawyer: No such file or directory
```

```
/home/cis90/simmsben $ touch sawyer  
/home/cis90/simmsben $ ls -l sawyer  
-rw-rw-r-- 1 simmsben cis90 0 Mar 18 06:34 sawyer
```

An empty file 

Managing the UNIX/Linux File System

Creating Files

Multiple files can be created with one command

```
/home/cis90ol/simmsben $ ls -l a b c
ls: a: No such file or directory
ls: b: No such file or directory
ls: c: No such file or directory
```

```
/home/cis90ol/simmsben $ touch a b c
/home/cis90ol/simmsben $ ls -l a b c
-rw-rw-r-- 1 simmsben cis90ol 0 Mar 17 09:27 a
-rw-rw-r-- 1 simmsben cis90ol 0 Mar 17 09:27 b
-rw-rw-r-- 1 simmsben cis90ol 0 Mar 17 09:27 c
```

Managing the UNIX/Linux File System

Creating Files


The last modified timestamp for sawyer is updated if the file already exists

```

/home/cis90/simmsben $ ls -l sawyer
-rw-rw-r-- 1 simmsben cis90 0 Mar 18 06:34 sawyer

/home/cis90/simmsben $ touch sawyer
/home/cis90/simmsben $ ls -l sawyer
-rw-rw-r-- 1 simmsben cis90 0 Mar 18 06:40 sawyer

```



Last modified

Managing the UNIX/Linux File System

Creating Files

mkdir creates one or more new directories

Create a new directory named island

```
/home/cis90/simmsben $ ls -l island
ls: island: No such file or directory
```

```
/home/cis90/simmsben $ mkdir island
/home/cis90/simmsben $ ls -ld island
drwxrwxr-x 2 simmsben cis90 4096 Mar 18 06:43 island
```

Note: Use the d option on the ls command to list information about the directory itself rather than directory contents

file type is directory

Managing the UNIX/Linux File System

Creating Files

Create multiple directories at once

```
/home/cis90ol/simmsben $ mkdir redhat debian slackware  
/home/cis90ol/simmsben $ ls -ld redhat/ debian/ slackware/  
drwxrwxr-x 2 simmsben cis90ol 4096 Mar 17 09:36 debian/  
drwxrwxr-x 2 simmsben cis90ol 4096 Mar 17 09:36 redhat/  
drwxrwxr-x 2 simmsben cis90ol 4096 Mar 17 09:36 slackware/
```

Note: Use the d option on the ls command to list information about the directory itself rather than directory contents

Managing the UNIX/Linux File System

Creating Files

Create nested directories (one directory inside another)

```
/home/cis90/simmsben $ mkdir africa/ghana  
mkdir: cannot create directory `africa/ghana': No  
such file or directory
```

```
/home/cis90/simmsben $ mkdir -p africa/ghana  
/home/cis90/simmsben $ ls africa  
ghana
```

Need to use the p option to create new parent directories as needed

Managing the UNIX/Linux File System

Creating Files

echo "string" > newfile Creates or overwrites a text file

Creating a file named accra and adding some text to it

```
/home/cis90/simmsben $ cd africa
/home/cis90/simmsben/africa $ ls
ghana
/home/cis90/simmsben/africa $ cd ghana
/home/cis90/simmsben/africa/ghana $ echo Population 1,658,937 > accra
/home/cis90/simmsben/africa/ghana $ cat accra
Population 1,658,937
```

Output of the echo command is redirected from the screen to a file named accra



Managing the UNIX/Linux File System

Creating Files

Be careful!



```
/home/cis90/simmsben/africa/ghana $ cat accra
Population 1,658,937
/home/cis90/simmsben/africa/ghana $ > accra
/home/cis90/simmsben/africa/ghana $ cat accra
/home/cis90/simmsben/africa/ghana $
```

*The redirection character > will create the file named if that file does not exist. **If the file does exist though it will be emptied!***

Class Exercise

- In your home directory create a directory named *characters* inside a directory name *island*.

```
mkdir -p island/characters
```

- In the directory named *characters* create three files:

```
cd island/characters  
echo "Katherine Anne Austin" > kate  
echo "James Ford" > sawyer  
echo "Hugo Reyes" > hurley
```

- Print all files with **cat ***
- Empty the file *hurley*

```
> hurley
```



Listing Files

Managing the UNIX/Linux File System

Short listing

```
/home/cis90/simmsben $ ls island  
characters
```

Short recursive listing

```
/home/cis90/simmsben $ ls -R island  
island:  
characters  
  
island/characters:  
hurley kate sawyer
```

Managing the UNIX/Linux File System

Long listing

```
/home/cis90/simmsben $ ls -l island  
total 8  
drwxrwxr-x 2 simmsben cis90 4096 Mar 18 07:25 characters
```

Long recursive listing

```
/home/cis90/simmsben $ ls -lR island  
island:  
total 8  
drwxrwxr-x 2 simmsben cis90 4096 Mar 18 07:25 characters  
  
island/characters:  
total 24  
-rw-rw-r-- 1 simmsben cis90 11 Mar 18 07:25 hurley  
-rw-rw-r-- 1 simmsben cis90 22 Mar 18 07:25 kate  
-rw-rw-r-- 1 simmsben cis90 11 Mar 18 07:25 sawyer
```

Managing the UNIX/Linux File System

Making a directory tree diagram

```
/home/cis90/simmsben $ tree island
```

```
island
```

```
`-- characters  
    |-- hurley  
    |-- kate  
    `-- sawyer
```

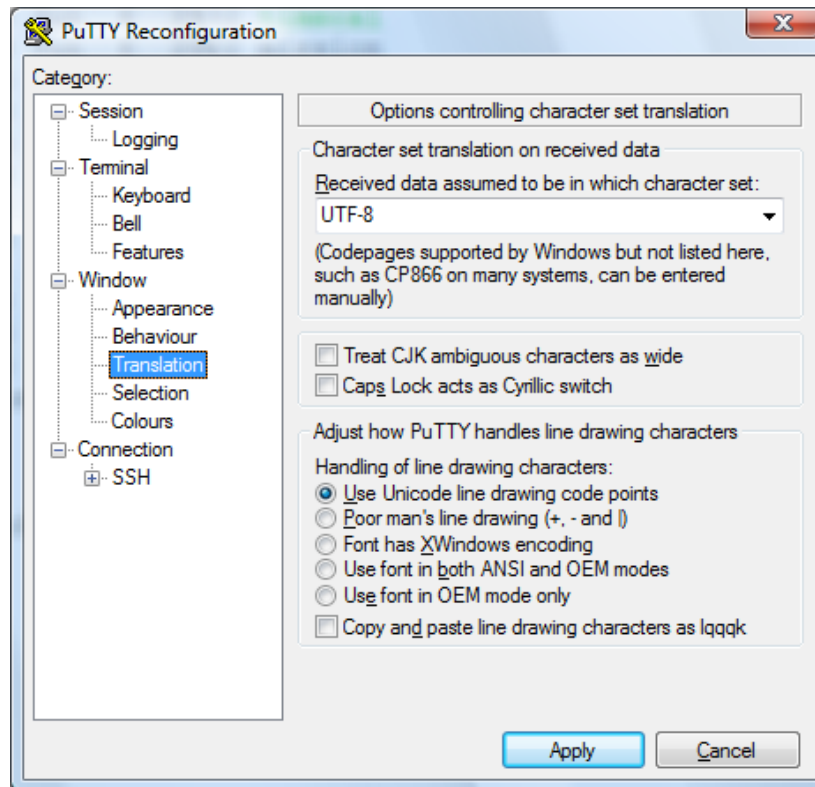
```
1 directory, 3 files
```

```
/home/cis90/simmsben $
```

Putty must be configured to use the UTF-8 translation to show line drawing characters

Managing the UNIX/Linux File System

Putty may need to be configured UTF-8 for tree command



Class Exercise

- Return to your home directory with:

```
cd
```

- Do a long listing of the *island* directory with:

```
ls island
```

- Do a long recursive listing of the *island* directory with:

```
ls -lR island
```

- Make tree diagram of the *island* directory with:

```
tree island
```



Copy Files

Managing the UNIX/Linux File System

Copying

Copying files:

cp *<source file> <target file>*

cp *<source file> <target directory>*

cp *<source file> <source file> <target directory>*

Where:

<source file>

<target file>

<target directory>

are **absolute** or **relative** pathnames

Managing the UNIX/Linux File System

Copying

Copying files:

cp *<source file> <target file>*

cp *<source file> <target directory>*

cp *<source file> <source file> <target directory>*

options: -i -r

i = warn before overwriting target files

r = recursive (copies all source sub-directories)

Managing the UNIX/Linux File System

Copying a file

Commands:

Note: using a relative pathname



cp *<source file>* *<target file>*

```
/home/cis90/simmsben $ cd
/home/cis90/simmsben $ cd island/characters/
/home/cis90/simmsben/island/characters $ ls
hurley kate sawyer
/home/cis90/simmsben/island/characters $ echo "Hugo Reyes" > hurley
```

Make a copy of the hurley file

```
/home/cis90/simmsben/island/characters $ cp hurley hurley.bak
/home/cis90/simmsben/island/characters $ ls
hurley hurley.bak kate sawyer
/home/cis90/simmsben/island/characters $ cat hur*
Hugo Reyes
Hugo Reyes
```

Managing the UNIX/Linux File System

Copying multiple files to a directory

cp *<source file> <source file> <target directory>*

```
/home/cis90/simmsben/island/characters $ ls  
hurley hurley.bak kate sawyer
```

Make a new directory called backup

```
/home/cis90/simmsben/island/characters $ mkdir backup
```

Copy three files to the new directory

```
/home/cis90/simmsben/island/characters $ cp hurley kate sawyer backup/
```

List the three files in the new directory

```
/home/cis90/simmsben/island/characters $ ls backup  
hurley kate sawyer
```

Managing the UNIX/Linux File System

Copying multiple files to a directory

cp <source file> <source file> <target directory>

Copy all files to the new directory

```
/home/cis90/simmsben/island/characters $ cp * backup/
```

```
cp: omitting directory `backup'
```

Although * matches backup, it is not included in the copy

List the four files in the new directory

```
/home/cis90/simmsben/island/characters $ ls backup/
```

```
hurley hurley.bak kate sawyer
```

```
/home/cis90/simmsben/island/characters $
```

Note: copying a file to an existing file will overwrite that file

Managing the UNIX/Linux File System

Copying

options: `-i -r`

`i` = warns before overwriting

`r` = recursive (copies all sub folders)

```
/home/cis90/simmsben/island/characters $ ls h*
hurley  hurley.bak
/home/cis90/simmsben/island/characters $ cp -i hurley hurley.bak
cp: overwrite `hurley.bak'? yes
/home/cis90/simmsben/island/characters $
```

The `i` option provides some interaction with the user before overwriting a file

Managing the UNIX/Linux File System

Copying

options: `-i -r`

`i` = warns before overwriting

`r` = recursive (copies all sub directories)

```
/home/cis90/simmsben/island/characters $ cd ..  
/home/cis90/simmsben/island $ ls  
characters
```

Do recursive copy of the characters directory to a new players directory

```
/home/cis90/simmsben/island $ cp -r characters players  
/home/cis90/simmsben/island $ ls -R players  
players:  
backup hurley hurley.bak kate sawyer  
  
players/backup:  
hurley hurley.bak kate sawyer  
/home/cis90/simmsben/island $
```

Class Exercise

- Change to your *island* directory using an absolute path

```
cd /home/cis90/simben/island/characters/
```

Use your own username



- Make a backup copy of *kate*

```
cp kate kate2
```

- Copy *hurley* and overwrite *kate* using interactive mode

```
cp -i hurley kate      (Respond with yes to overwrite)  
cat kate
```

- Restore *kate* from the backup copy

```
cp kate2 kate  
cat kate
```


moving files

Managing the UNIX/Linux File System

Moving

Moving files:

mv *<source file>* *<target file>*

mv *<source file>* *<target directory>*

mv *<source file>* *<source file>* *<target directory>*

Where:

<source file>

<target file>

<target directory>

are **absolute** or **relative** pathnames

Managing the UNIX/Linux File System

Moving

Moving files:

mv *<source file> <target file>*

mv *<source file> <target directory>*

mv *<source file> <source file> <target directory>*

options: -i

i = warn before overwriting

Managing the UNIX/Linux File System

Renaming

Commands:

mv *<original name>* *<new name>*

This is how you rename files in UNIX/Linux!

Managing the UNIX/Linux File System

Moving Examples

```
/home/cis90/simben $ touch iPhone iPad ProLiant Pavilion Powerege
```

```
/home/cis90/simben $ mv Powerege PowerEdge Renaming a file
```

```
/home/cis90/simben $ mkdir Apple HP Dell Make some sample directories
```

```
/home/cis90/simben $ mv iPhone Apple/ Moving files one  
at a time into a
```

```
/home/cis90/simben $ mv iPad Apple/ directory
```

```
/home/cis90/simben $ mv ProLiant Pavilion HP/ Moving multiple files at  
once into a directory
```

```
/home/cis90/simben $ mv PowerEdge Dell/ Moving one file into a  
directory
```

Managing the UNIX/Linux File System

Verifying file moves

Listing the contents of multiple directories to verify file moves

```
/home/cis90/simben $ ls Apple HP Dell
```

```
Apple:
```

```
iPad iPhone
```

```
Dell:
```

```
PowerEdge
```

```
HP:
```

```
Pavilion ProLiant
```

```
/home/cis90/simben $ tree Apple HP Dell
```

```
Apple
```

```
|-- iPad
```

```
`-- iPhone
```

```
HP
```

```
|-- Pavilion
```

```
`-- ProLiant
```

```
Dell
```

```
`-- PowerEdge
```

```
0 directories, 5 files
```

Class Exercise

- Change to your *island* directory using an absolute path

```
cd /home/cis90/simben/island/characters/
```

Use your own username



- Rename *kate* to *katherine*

```
mv kate katherine  
cat katherine
```

- Create a new file named *jin* and rename it to be hidden

```
touch jin  
mv jin .jin
```

(verify with `ls` and `ls -a`)



Removing Files

Managing the UNIX/Linux File System

Removing

Removing files:

rm <file-pathname> ...

The ... (ellipses) mean you can specify more than one filename per command

options: -i -r -f

i = prompt before remove

r = recursive (delete subdirectories)

f = force (never prompt)

rmdir <directory-pathname> ...

Directories must be empty for this to work

Managing the UNIX/Linux File System

Remove a file

Remove a file:

```
/home/cis90/simben $ touch junk1 junk2 junk3 junk4  
/home/cis90/simben $ ls junk*  
junk1 junk2 junk3 junk4
```

*Create four
test files*

```
/home/cis90/simben $ rm junk1  
/home/cis90/simben $ ls junk*  
junk2 junk3 junk4
```

Remove one of them

Managing the UNIX/Linux File System

Remove one or more files interactively

Remove one or more files interactively:

```
/home/cis90/simben $ rm -i junk*
rm: remove regular empty file `junk2'? y Remove just the junk2 file
rm: remove regular empty file `junk3'? n
rm: remove regular empty file `junk4'? n

/home/cis90/simben $ ls junk* Verify it was removed
junk3  junk4
```

Managing the UNIX/Linux File System

Removing Directories

Remove a directory

```
/home/cis90/simben $ mkdir junkdir1 Make a test directory
/home/cis90/simben $ touch junkdir1/junk6 Put a test file in new directory

/home/cis90/simben $ rmdir junkdir1 Try to remove non-empty directory
rmdir: junkdir1: Directory not empty

/home/cis90/simben $ rm junkdir1/junk6 Remove file in directory
/home/cis90/simben $ rmdir junkdir1 Remove empty directory
/home/cis90/simben $
```

*Directories must be empty to be removed by **rmdir***

Class Exercise

- Change to your home directory

```
cd
```

- Create some test files

```
touch junk1 junk2 junk3 junk4  
ls junk*
```

- Remove one

```
rm junk1  
ls junk*
```

- Remove the others

```
rm junk[234]  
ls junk*
```

linking files

Managing the UNIX/Linux File System

Linking

Linking files:

ln *<existing-name>* *<new-name>*

options: -s

s = symbolic link (like Windows shortcut)

With UNIX there are hard and soft (symbolic) links

Managing the UNIX/Linux File System

Hard Links

Creating a "hard" link

In *<existing-name>* *<new-name>*

```
/home/cis90/simben $ echo "Chocolate Licorice Taffy Jelly Beans" > sweets
/home/cis90/simben $ cat sweets
Chocolate Licorice Taffy Jelly Beans
```

```
/home/cis90/simben $ ln sweets dulces Hard link dulces to sweets
/home/cis90/simben $ ls -il sweets dulces
100176 -rw-rw-r-- 2 simben90 cis90 37 Mar 14 09:29 dulces
100176 -rw-rw-r-- 2 simben90 cis90 37 Mar 14 09:29 sweets
```

same inode

number of hard linked files

Hard links allows multiple filenames for the same file.

Managing the UNIX/Linux File System

Hard Links

Creating a "hard" link

ln *<existing-name>* *<new-name>*

```

/home/cis90/simben $ ln sweets candy Hard link candy to dulces
/home/cis90/simben $ ls -il sweets dulces candy
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 candy
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 dulces
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 sweets

```

same inode *number of hard linked files*

```

/home/cis90/simben $ ln sweets bonbons Hard link bonbons to sweets
/home/cis90/simben $ ls -il sweets dulces candy bonbons
100176 -rw-rw-r-- 4 simben90 cis90 37 Mar 14 09:29 bonbons
100176 -rw-rw-r-- 4 simben90 cis90 37 Mar 14 09:29 candy
100176 -rw-rw-r-- 4 simben90 cis90 37 Mar 14 09:29 dulces
100176 -rw-rw-r-- 4 simben90 cis90 37 Mar 14 09:29 sweets

```

same inode *number of hard linked files*

Managing the UNIX/Linux File System

Hard Links

The . and .. directories are hard links!

```
/home/cis90/simben $ ls -ldi . /home/cis90/simben
```

```
98306 drwxr-xr-x 10 simben90 cis90 4096 Mar 14 09:41 .
98306 drwxr-xr-x 10 simben90 cis90 4096 Mar 14 09:41 /home/cis90/simben
```

same inode

number of hard linked files

(9 directories in /home/cis90/simben with a .. file)

```
/home/cis90/simben $ ls -ldi .. /home/cis90/
```

```
2395394 drwxr-x--- 42 rsimms cis90 4096 Mar 6 08:17 ..
2395394 drwxr-x--- 42 rsimms cis90 4096 Mar 6 08:17 /home/cis90/
```

same inode

number of hard linked files

(41 directories in /home/cis90 with a .. file)

Hard links allows **multiple** filenames for the **same** file.

Note the hidden . and .. files are hard linked to their respective directories

Managing the UNIX/Linux File System

Hard Links

Creating a "hard" link

In *<existing-name> <new-name>*

```
/home/cis90/simben $ rm sweets
/home/cis90/simben $ ls -il sweets dulces candy bonbons
ls: sweets: No such file or directory
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 bonbons
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 candy
100176 -rw-rw-r-- 3 simben90 cis90 37 Mar 14 09:29 dulces
```

↑ *same inode*

↑ *number of hard linked files*

Removing one of the hard linked files will not delete any of the other hard links, it will just decrement the number of hard links shown in a long listing

Managing the UNIX/Linux File System

Symbolic "Soft" Links

Creating a "soft" (symbolic) link

ln -s *<existing-name>* *<new-name>*

The s option for a symbolic link

```
/home/cis90/simben $ ln -s /etc/httpd/conf/httpd.conf apache
```

Creating a symbolic link to the Apache configuration file

```
/home/cis90/simben $ ls -li apache /etc/httpd/conf/httpd.conf
```

```
100172 lrwxrwxrwx 1 simben90 cis90 26 Mar 14 09:13 apache -> /etc/httpd/conf/httpd.conf
1280166 -rw-r--r-- 1 root root 33776 Feb 29 18:45 /etc/httpd/conf/httpd.conf
```

l for symbolic link, - for regular file

Different inodes

Symbolic links are like Windows shortcuts. They are two separate files and it is possible to break the links when the target files get renamed.

Managing the UNIX/Linux File System

Symbolic "Soft" Links

```
/home/cis90/simben $ ls -li apache /etc/httpd/conf/httpd.conf
100172 lrwxrwxrwx 1 simben90 cis90    26 Mar 14 09:13 apache -> /etc/httpd/conf/httpd.conf
1280166 -rw-r--r-- 1 root      root   33776 Feb 29 18:45 /etc/httpd/conf/httpd.conf
```

```
/home/cis90/simben $ head -n 5 apache
#
# This is the main Apache server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.2/> for detailed information.
# In particular, see
```

```
/home/cis90/simben $ head -n 5 /etc/httpd/conf/httpd.conf
#
# This is the main Apache server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.2/> for detailed information.
# In particular, see
```

From Benji's home directory, he can now refer to the Apache configuration file using either `apache` or `/etc/httpd/conf/httpd.conf`

Class Exercise

- Create a file named candy using:
`> candy`
- Create a hard link to candy named sweets using:
`ln candy sweets`
- Create a soft link to candy named dulces using:
`ln -s candy dulces`
- List them using:
`ls -li candy sweets dulces`

Wrap up (lesson)

New commands:

cp

copy files

ln

link files

mkdir

make directory

mv

move or rename files

rm

remove files

rmdir

remove directory

touch

make/modify a file

Redirection:

>

redirects stdout



Lab 6: Organizing Files

The goal of this lab is to become proficient with system commands for copying, moving, renaming, creating and removing files within your home directory.

Forum

Forum ID: <http://opus.cabrillo.edu/forum/viewforum.php?f=46>

Check this forum for any lab scheduling news about this lab. The forum is also the place to go if you get stuck, have a question or want to discuss something you have learned about this lab.

Procedure

Log on to the OpenLab site and click on the link titled "Lab 6" at your school. Be sure you are in your home directory to start this lab. We are going to reorganize the files in our home directory. This will involve making new subdirectories and moving files around. The questions asked during this procedure are for your information only. You will be graded on correctly performing this procedure. At the end of this lab you will submit your own layout by entering the command:

submit

Part 1 - Making Directories

1. Display a listing of the files in your home directory using the `ls -l` command.
2. Now we will make some new directories using the `mkdir` command:
 - a. Make a new directory named `code` for keeping our lab code using the following command:
`mkdir code`
 - b. Make the new directory's contents using the `cp` option of the `ls` command. Do you see the two hidden files that were created with this directory?
 - c. You can make more than one new directory at a time by supplying the arguments to the `mkdir` command. Make two new directories, one called `dir1` and one called `dir2`.
 - d. Verify that they were made in your home directory.

In this lab you will reorganize your home directory

Be careful. For this lab, the slower you go the sooner you will be done!

Next Class

Assignment: Check Calendar Page on web site to see what is due next week:

<http://simms-teach.com/cis90calendar.php>

Lab 5 due

Quiz questions for next class:

- What command is used to rename a file?
- If two files are hard linked do they have the same or different inode numbers?
- What option for the rm command provides confirmation when deleting files?



Test 1

Test

- Open book, open notes, open computer ... **HOWEVER, you must work alone. You may not share answers. You may not receive or give assistance to others.**
- Download and save the test to your computer. Fill out the form using Adobe Reader, save it and email it as an attachment to **risimms@cabrillo.edu** using your regular (non-Opus) email. Please cc: yourself and verify you actually sent a non-blank, completed test to be graded.
- Everyone should submit their test (completed or not) by the end of class.
- If you need extra time, you can submit again by no later than 11:59PM. Only the last submittal will be graded.



Notes to instructor

[] Send email on Opus to students

```
~/cis90/test01/q15/mail-q15-T1
```

[] Logoff Sun-Hwa users

```
skill -KILL -v pts/n
```

[] Create T1 trouble on Sun-Hwa-II

```
#./trouble-T1
```

[] Change file permissions on Test 1

```
simms-teach.com 644
```



Test 1

Backup

Lab 4 - Q1

2) Write down the absolute path of your home directory.

Correct answer: `/home/cis90/simben`

OK answer: `~`

Incorrect answers:

`$HOME` *That is the correct variable, but question asks for an absolute path*

`/home/cis90/xxxxxx $` *Close, that is the prompt and it fails ls test*

`home/cis90/xxxxxx` *Close, fails the ls test, absolute pathnames must start with /*

`/home/cis90/xxxxxx90/` *Close, fails the ls test, drop the "90"*

Using **ls** check on Opus:

```
/home/cis90/simben $ ls -d /home/cis90/simben/  
/home/cis90/simben/  
/home/cis90/simben $
```


Lab 4 - Q5

5) Are any of your hidden files directories? If so, which ones?

Correct answers: `., .., .mozilla, .ssh`

Incorrect answers:

Poems/

Lab2.0/

Lab2.1

Hidden/

bin

Miscellaneous

.bash_history

.bash_profile

.emacs

.plan

Not hidden

(hidden files have names that start with .)

Not directoroes

Lab 4 - Q5

Files that are **directories** (1st column=d) AND **hidden** (filenames start with .)

```

/home/cis90/simben $ ls -ald .*
➡ drwxr-xr-x 10 simben90 cis90 4096 Mar 7 14:19 .
➡ drwxr-x--- 42 rsimms cis90 4096 Mar 6 08:17 ..
-rw----- 1 simben90 cis90 16776 Mar 9 09:49 .bash_history
-rw----- 1 simben90 cis90 24 Jul 20 2001 .bash_logout
-rw----- 1 simben90 cis90 354 Sep 17 2003 .bash_profile
-rw----- 1 simben90 cis90 146 Jan 18 2004 .bashrc
-rw-r--r-- 1 simben90 cis90 515 Feb 4 16:33 .emacs
-rw----- 1 simben90 cis90 65 Mar 9 07:45 .lessht
➡ drwxr-xr-x 4 simben90 cis90 4096 Feb 4 16:33 .mozilla ←
-rw-r--r-- 1 simben90 cis90 40 Jul 20 2001 .plan
➡ drwx----- 2 simben90 cis90 4096 Feb 8 15:58 .ssh ←
-rw----- 1 simben90 cis90 1222 Feb 26 19:20 .viminfo
/home/cis90/simben $

```

Lab 4 - Q5

Files that are **directories** (1st column=d) AND **hidden** (filenames start with .)

```
/home/cis90/simben $ ls -aF
```

```
./          bin/        Lab2.0/     .plan      text.fxd
../         dead.letter Lab2.1/     Poems/     timecal*
accounts@   .emacs     .lessht     proposal1  uhistory
allfiles17137 empty      letter      proposal2  .viminfo
.bash_history Hidden/     log         proposal3  what_am_i
.bash_logout lab01.graded mbox        small_town
.bash_profile lab01-submitted Miscellaneous/ spellk
.bashrc     lab02.graded mission     .ssh/
bigfile     lab03.graded .mozilla/   text.err
/home/cis90/simben $
```

Lab 4 - Q8

8) What is the inode number of the /home/cis90 directory?

Correct answers: 8966

Incorrect answers:

9011

Wrong directory

9131

chosen

9063

Checking answer on Opus:

```
/home/cis90/simben $ ls -ld /home/cis90
```

```
8966 /home/cis90
```

the /home/cis90 directory



The inode number



Lab 4 - Q10

10) What's the name of the largest text file in your home directory?

Correct answer: **varies by student**

```
/home/cis90/simben $ ls -lS
total 396
```

Use the l (for long) and S (for size) options to sort by size

```
-rw----- 1 simben90 cis90 124804 Mar  4 20:09 mbox
-r----- 1 simben90 staff  27073 Mar  1 10:15 lab03.graded
-rw-rw-r-- 1 simben90 cis90  25390 Feb 29 22:18 uhistory
-rw-r--r-- 2 simben90 cis90  10576 Jul 20  2001 bigfile
```

< *snipped* >

```
/home/cis90/simben $ file mbox lab03.graded uhistory bigfile
```

```
mbox:          ASCII mail text, with very long lines
```

```
lab03.graded:  ASCII English text
```

Use the file command to identify text files

```
uhistory:     ASCII mail text
```

```
bigfile:      ISO-8859 English text, with overstriking
```

```
/home/cis90/simben $
```

The biggest text file for simben90 is mbox at 124,804 bytes

Lab 4 - Q9

9) Who is the owner of your home directory?

Correct answers: **your username, e.g. simben90, milhom90, etc.**

Incorrect answers:

/home/cis90/simben *That's not a username (it's a home directory)*

simben *That is an incomplete user name*

rsimms *Not the owner*

cis90 *Not the owner*

Checking answer on Opus:

```
/home/cis90/simben $ cd
```

cd with no arguments takes you to your home directory

```
/home/cis90/simben $ ls -ld
```

```
drwxr-xr-x 10 simben90 cis90 4096 Mar  7 14:19 .
```

owner →

← *group*

```
/home/cis90/simben $ ls -ld /home/cis90/simben/
```

```
drwxr-xr-x 10 simben90 cis90 4096 Mar  7 14:19 /home/cis90/simben/
```

owner →

← *group*

Lab 4 - Q9

```

/home/cis90/simben $ ls -l /home/cis90
total 320
drwxr-xr-x 10 ahrmat90 cis90 4096 Mar 12 13:44 ahrmat
drwxr-xr-x  2 rsimms   cis90 4096 Mar  8 21:59 answers
drwxr-x---  3 rsimms   cis90 4096 Mar  7 06:34 bin
drwxr-xr-x  9 blerav90 cis90 4096 Mar  8 22:02 blerav
drwxr-xr-x  9 bodian90 cis90 4096 Mar  8 22:02 bodian
drwxr-xr-x 10 bunsol90 cis90 4096 Mar  7 15:39 bunsol
drwxr-xr-x  9 cheken90 cis90 4096 Feb 16 13:17 cheken
drwxr-xr-x  9 cofcol90 cis90 4096 Mar  8 22:02 cofcol
drwxr-xr-x 10 colabd90 cis90 4096 Mar  8 22:02 colabd
drwxr-xr-x 10 deltas90 cis90 4096 Mar  8 22:02 deltas
drwxr-xr-x  4 rsimms   cis90 4096 Feb 28 13:03 depot
drwxr-xr-x  9 doucor90 cis90 4096 Mar  8 22:02 doucor
drwxr-xr-x  9 flamat90 cis90 4096 Mar  8 22:02 flamat
drwxr-xr-x  9 gueous90 cis90 4096 Mar  8 22:02 gueous
drwxr-xr-x  9 guest90  cis90 4096 Feb 19 23:35 guest
< snipped >

```

owners



groups



directories

