

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

Student checklist

- 1) Browse to the CIS 90 website Calendar page
 - <http://simms-teach.com>
 - Click CIS 90 link on left panel
 - Click Calendar link near top of content area
 - Locate today's lesson on the Calendar
- 2) Download the presentation slides for today's lesson for easier viewing
- 3) Click Enter virtual classroom to join CCC Confer session
- 4) Connect to Opus using Putty or ssh command

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/>)



Instructor: **Rich Simms**

Dial-in: **888-450-4821**

Passcode: **761867**



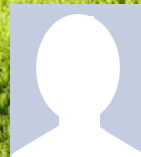
Buzz



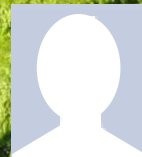
Carlos



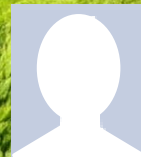
Elijah



Emily



Enrique C.



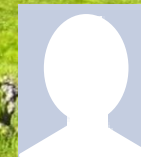
Enrique R.



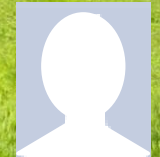
Jon M.



Jon W.



Jordan



Joseph



JJ



Kiernan



Maria



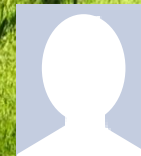
Mathew



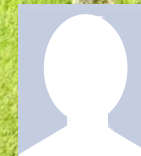
Mike C.



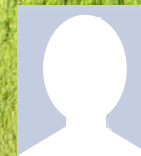
Michael F.



Mike M.



Nick L.



Patrick



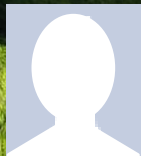
Rebecca



Ricardo



Robert



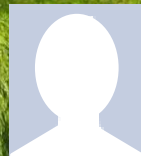
Ruth



Steve



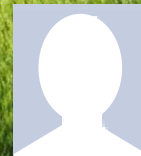
Tess



Tim



Trevor



Troy

First Minute Quiz

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

No Quiz today ... test instead

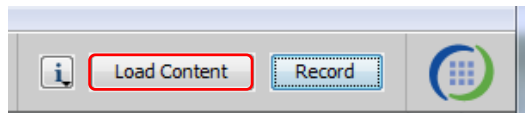
For credit email answers to:

`risimms@cabrillo.edu`

within the **first few minutes of class**

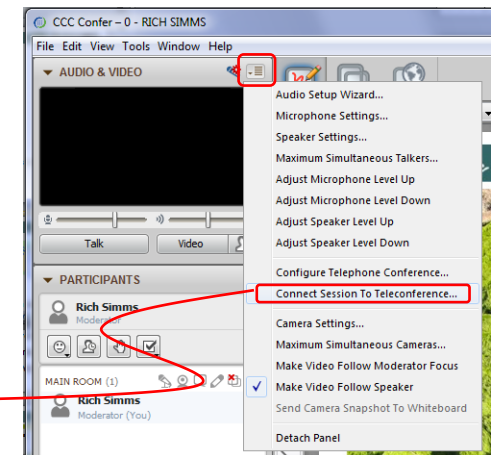
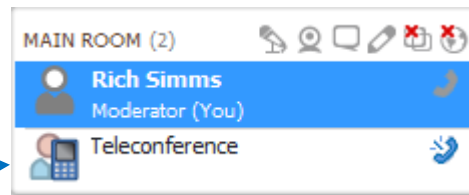


[] Preload White Board with *cis*lesson??*-WB*



[] Connect session to Teleconference

Session now connected to teleconference



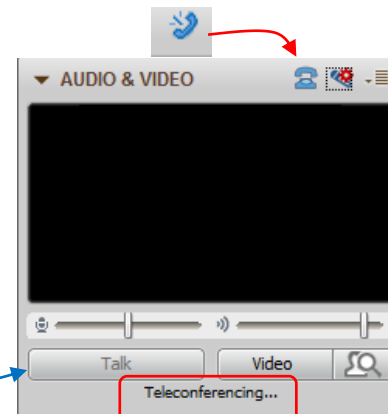
[] Is recording on?



Red dot means recording

[] Use teleconferencing, not mic

Should be greyed out





[] layout and share apps

The screenshot displays a desktop environment with several applications open. On the left is the CCC Confer application window, showing a video feed of Rich Simms and a list of participants. In the center is a Foxit Reader window displaying a PDF document titled "cis90lesson07.pdf". To the right of the Foxit Reader is a terminal window titled "simben90@oslab:~" showing a login sequence and a prompt. Below the terminal is a vSphere Client window showing a list of virtual machines. A red box labeled "chrome" points to the browser window displaying "simms-teach.com/docs/cis90/cis-90-TEST-1-Fall-12.pdf". A red box labeled "putty" points to the terminal window. A red box labeled "vSphere Client" points to the vSphere Client window. A red box labeled "foxit for slides" points to the Foxit Reader window. The desktop background is a light blue gradient with a small icon of a recycling bin in the top left corner. The taskbar at the bottom shows various application icons and the system clock indicating 6:52 AM on 10/10/2012.

Part 1 - Flashcards questions (1 point each)

[Q1] What command shows the other users logged in to the computer?

[A1] _____

[Q2] What environment variable is used by the shell to determine which directories to search when locating a command?

[A2] _____

login as: simben90
simben90@oslab.cabrillo.edu's password:
Access denied
simben90@oslab.cabrillo.edu's password:
Last login: Mon Oct 8 18:58:43 2012 from d.com

Current directory
source
destination

What command copies th

Terminal type? [xterm]
Terminal type is xterm.
/home/cis90/simben \$

Recent Tasks

Name	Target	Status	Details	Initiated by

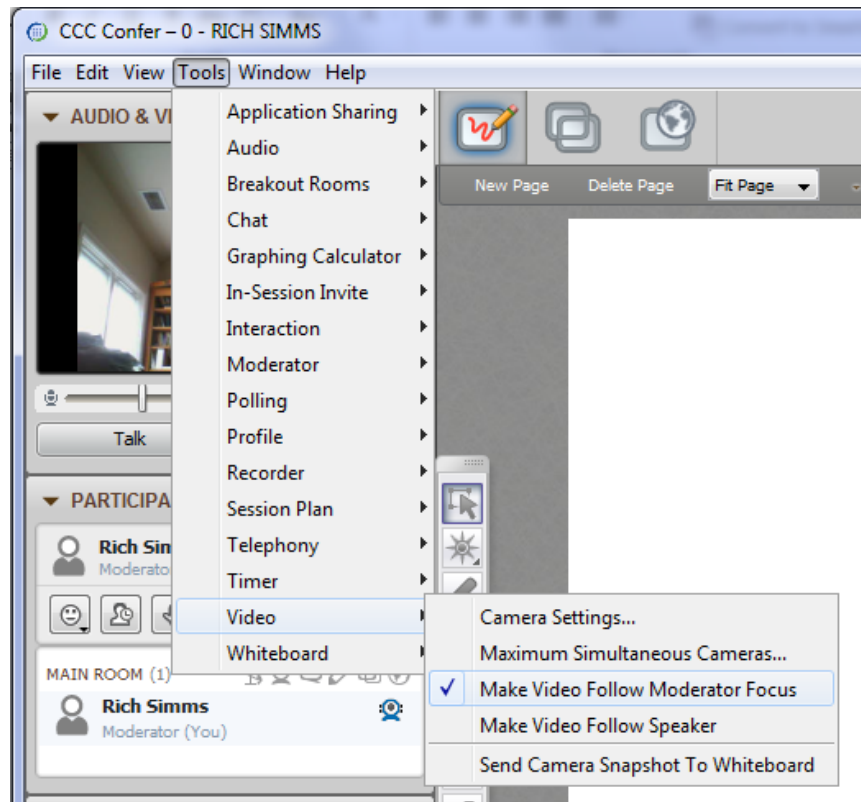
License Period: 331 days remaining CISLAB/simms



[] Video (webcam) optional

[] Follow moderator

[] Double-click on postages stamps



Universal Fix for CCC Confer:

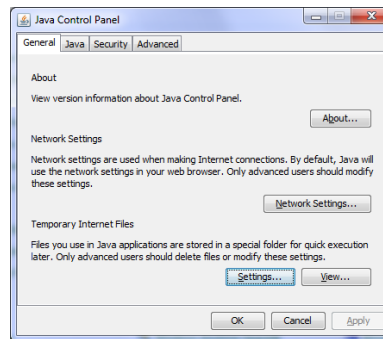
- 1) Shrink (500 MB) and delete Java cache
- 2) Uninstall and reinstall latest Java runtime



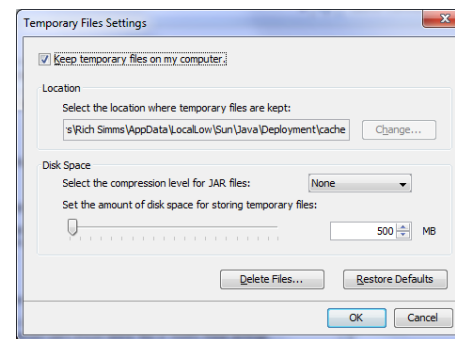
Control Panel (small icons)



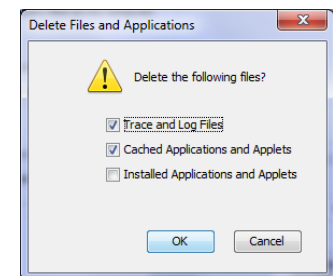
General Tab > Settings...



500MB cache size



Delete these



Google Java download



Managing Files

Objectives	Agenda
• Be able to create, copy, move, remove and link files	• Questions • Housekeeping • Managing files • Wrap up • Test

Questions

Questions?

Lesson material?

Labs? Tests?

How this course works?

- Graded work in home directories
- Answers in /home/cis90/answers

Who questions much, shall learn much, and retain much.

- Francis Bacon

If you don't ask, you don't get.

- Mahatma Gandhi

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

Answers in /home/cis90/answers

01 XXXXX

02 XXXXXXXXX

03 X

04 XX

05 XX

06 XXX

07 XXXX

08 XXX

09 XXXX

10 XX

11 XXXXX

12

13 X

14 X

15 XXXXXXXXX

16

17 XXXXXXXXXXXXXXXX

18 XXXX

19 XXXXXXXX

20 X

21 XXXXXXXXXXXXXXXX

22 X

23 XXXX

24 XXXXX

25 XXXXXX

26 XXXXXX

*21 labs
submitted*

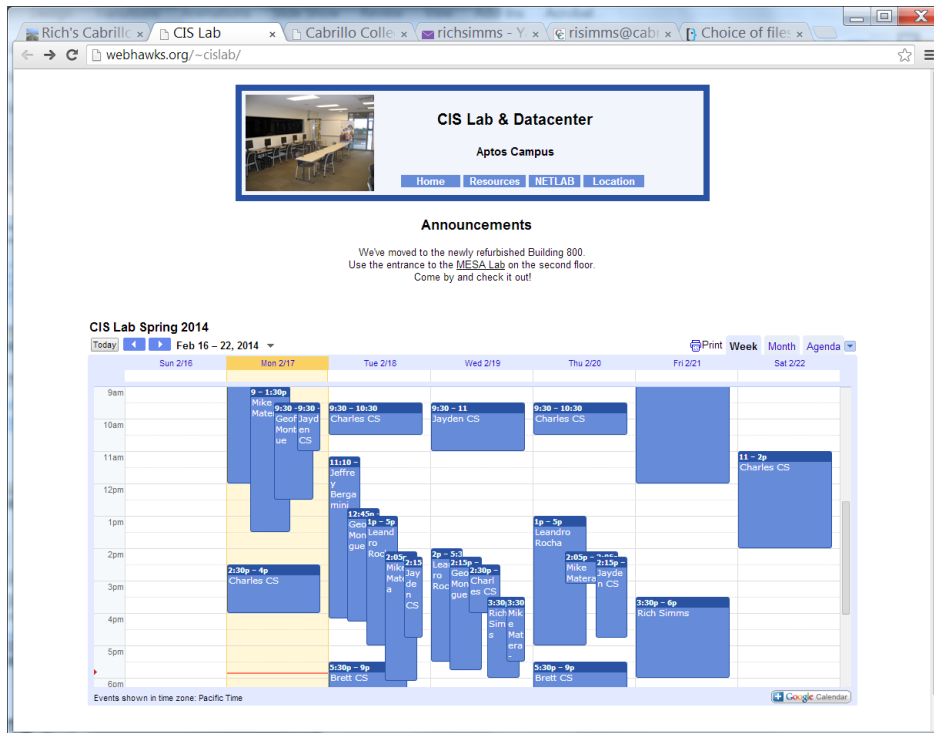


*7 labs not
submitted*



CIS Lab Schedule

<http://webhawks.org/~cislabs/>



*Not submitting lab work?
Would like some help?*

*Come to the CIS Lab to work
with classmates, lab assistants
and instructors on Lab
assignments.*

Rich is in the lab Wednesdays and Fridays from 3:30 - 6:00 PM

*Note: On 3/5/2014, Rich will be in the lab from 2:45 - 5:15 PM instead.
The Santa Cruz New Tech MeetUp starts at 6PM at Cruzio that night.*

CIS 90 Tutoring Available

<http://www.cabrillo.edu/services/tutorials/>

TUTORIALS

ANNOUNCEMENTS & DEADLINES

- New subjects for Spring 2014:
- American Sign Language
- Computer Applications/Business Technology (CABT)
- Computer and Information Systems (CIS)
- History 17A

Welcome to the Tutorials Center!

We offer FREE peer tutoring to Cabrillo students who are enrolled in the course/s for which they need help.

- Tutoring is by appointment. The days and times of tutoring sessions are established by the office.
- Sessions are weekly and for the duration of the semester.
- Tutoring sessions are scheduled in small groups. Sessions last 1-2 hours depending on the class. Occasionally, sessions may be one to one but that is not guaranteed.
- Come directly to the TC office to schedule (second floor of library).

The following classes are being tutored for Spring 2014:

- Accounting 1A, 1B, 6, 54A, 151A, 159, 163
- American Sign Language (ASL) 1, 2
- Biology 4, 5, 6
- Computer Applications/Business Technology (CABT) 31, 38, 41, 101, 157, 160
- Computer and Information Systems (CIS) 81, 90, 172**
- Chemistry 1A, 1B, 2, 30A, 30B, 32

CONTACT INFORMATION

Tutorials Center

Location Room 1080A - Learning Resource Center

Phone 831.479.6470

Email tutorialscenter@cabrillo.edu

Coordinator Lori Chavez

Phone 831.479.6126

Email lochavez@cabrillo.edu

Hours Monday - Thursday: 9am - 5pm
Friday: 9am - 1pm

MAP, DIRECTIONS, & PARKING

DEPARTMENT STAFF & FACULTY DIRECTORY



Matt Smithey

All students interested in tutoring in CIS 90, 172, and 81 classes need to come directly to the Tutorials Center to schedule, register and fill out some paperwork. This is just a one-time visit.

The tutoring will take place at the STEM center and they will log in and log out on a computer you have designated (I will figure out exactly what that means).

Matt is available M: 9:00-5:00, T: 9-11 and 2-5, Wed: 9-12 and Th: 9-11 and 3-5.



Housekeeping

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!***

THIS MAY BE THE LAST CHANCE!

Career Technical Information	
Your answers to these questions will help qualify Cabrillo College for Perkins/VTEA grant funds.	
Are you currently receiving benefits from:	
☐ Yes	TANF/CALWORKS
☐ No	
☐ Yes	SSI (Supplemental Security Income)
☐ No	
☐ Yes	GA (General Assistance)
☐ No	
☐ Yes	Does your <u>income</u> qualify you for a fee waiver?
☐ No	
☐ Yes	Are you a single parent with custody of one or more minor children?
☐ No	
☐ Yes	Are you a <u>displaced homemaker</u> attending Cabrillo to develop job skills?
☐ No	
☐ 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?
☐ No	

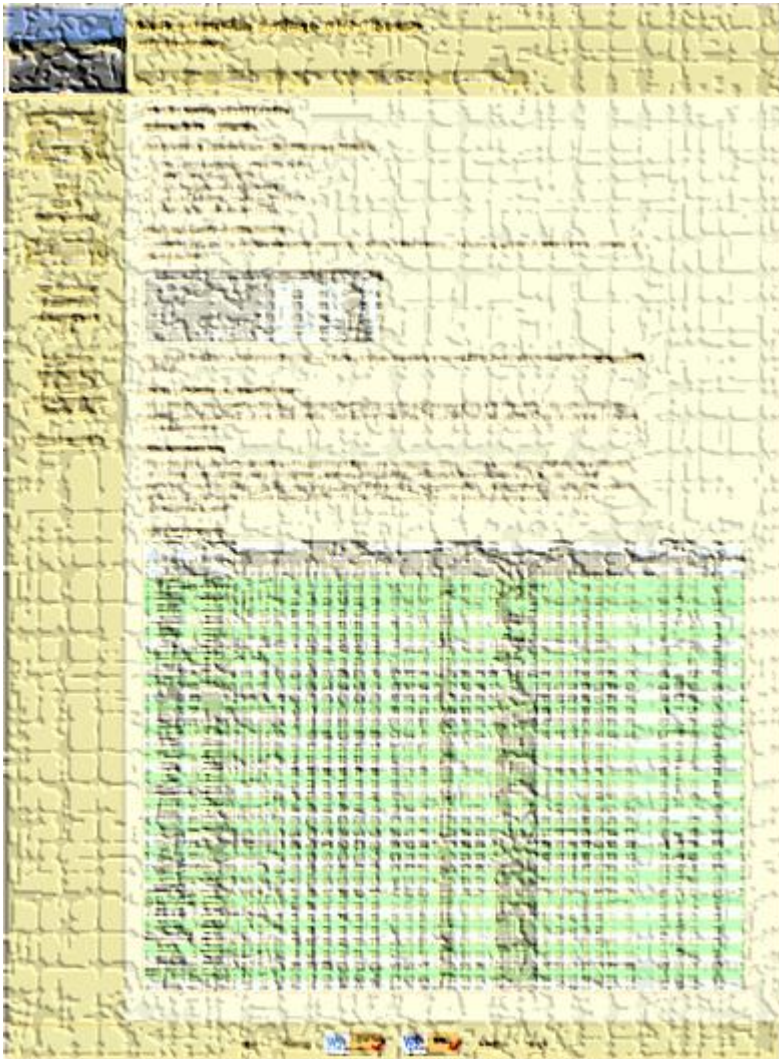
<http://oslab.cabrillo.edu/forum/viewtopic.php?f=93&t=2751>

<http://simms-teach.com/cis90grades.php>

GRADES

Be sure and check your progress on the Grades page as the course continues on.

Send me a student survey if you haven't already to get your LOR secret code name.



The screenshot shows a web browser window displaying a page titled "CIS 90 - Grades". The page has a yellow background with a textured pattern. On the left side, there is a vertical navigation menu with links such as "Home", "About", "Contact", "Grades", "LOR", "Survey", and "FAQ". The main content area features a large table with multiple columns and rows, displaying student names and their corresponding grades. The table is partially obscured by a large, semi-transparent watermark that reads "CIS 90 - Grades".

Current Point Tally

As of 3/5/2014

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

alatar: 55% (84 of 152 points)
anborn: 92% (140 of 152 points)
aragorn: 87% (133 of 152 points)
arwen: 94% (143 of 152 points)
beregond: 0% (0 of 152 points)
bilbo: 50% (77 of 152 points)
celebrian: 90% (138 of 152 points)
dwalin: 91% (139 of 152 points)
elrond: 0% (0 of 152 points)
eomer: 86% (132 of 152 points)
faramir: 90% (137 of 152 points)
frodo: 91% (139 of 152 points)
gwaihir: 100% (152 of 152 points)
ioareth: 90% (137 of 152 points)

legolas: 86% (131 of 152 points)
marhari: 62% (95 of 152 points)
orome: 71% (108 of 152 points)
pallando: 0% (0 of 152 points)
pippen: 72% (110 of 152 points)
quickbeam: 94% (143 of 152 points)
rian: 0% (0 of 152 points)
samwise: 88% (135 of 152 points)
shadowfax: 0% (0 of 152 points)
strider: 84% (128 of 152 points)
theoden: 46% (70 of 152 points)
treebeard: 98% (149 of 152 points)
tulkas: 74% (113 of 152 points)
ulmo: 65% (100 of 152 points)

If you are not happy with your current standing contact the instructor ASAP

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.

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

Lab 1: You earned 28 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.

You've earned 6 points of extra credit.

You currently have a 103% grade in this class. (123 out of 119 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.

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>
tree	<i>to visual list a directory</i>

Redirecting stdout:

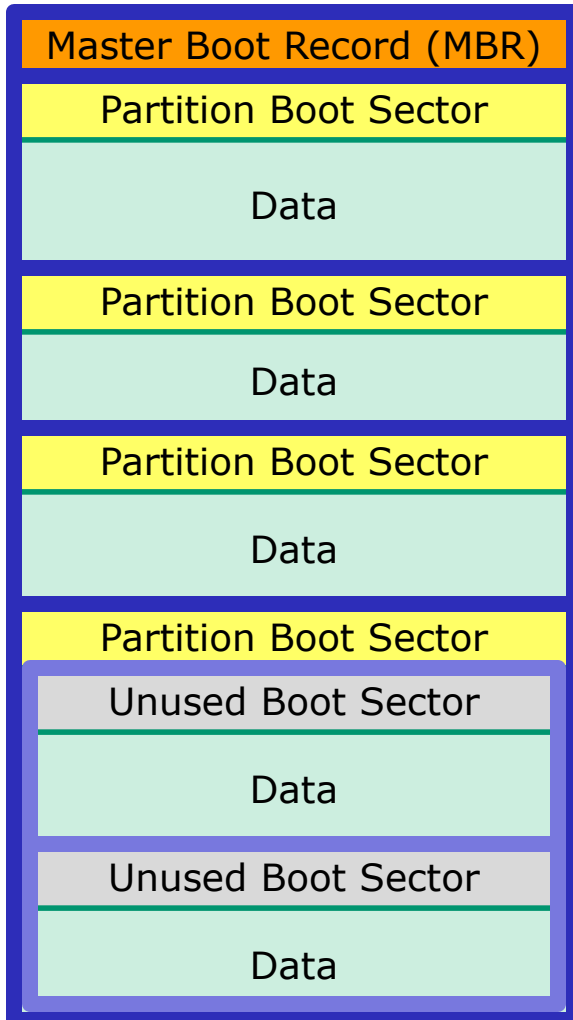
> *filename* *redirecting stdout to create/empty a file*



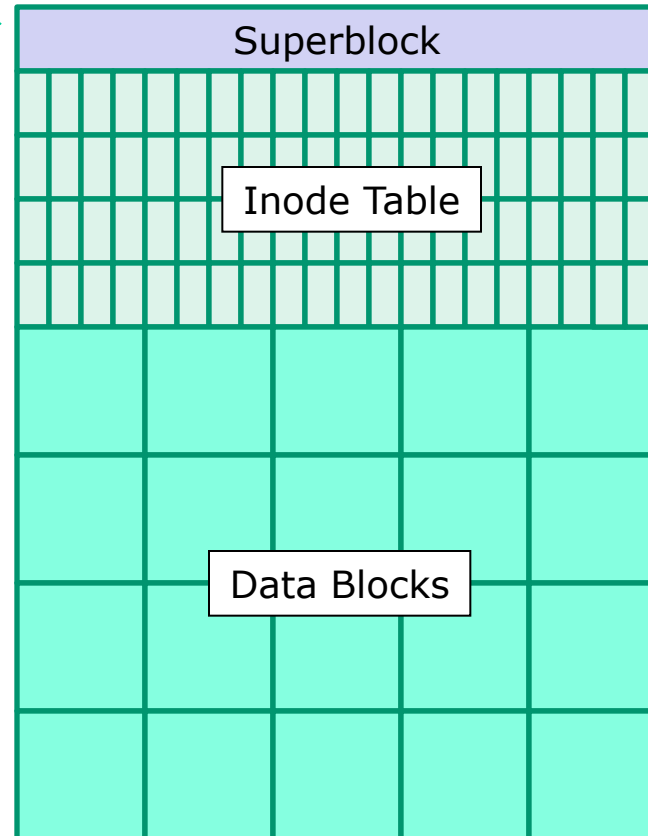
File Systems

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.



ext3 file system



UNIX Files

The three elements of a file

```
/home/cis90/simben/Poems $ ls
ant Blake nursery Shakespeare twister Yeats
```

filename

+

```
/home/cis90/simben/Poems $ ls -li twister
102625 -rw-r--r-- 1 simben90 cis90 151 Jul 20 2001 twister
```

inode number *inode information*

inode

+

```
/home/cis90/simben/Poems $ cat twister
A tutor who tooted the flute,
tried to tutor two tooters to toot.
Said the two to the tutor,
"is it harder to toot? Or to
tutor two tooters to toot?"
```

data

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.

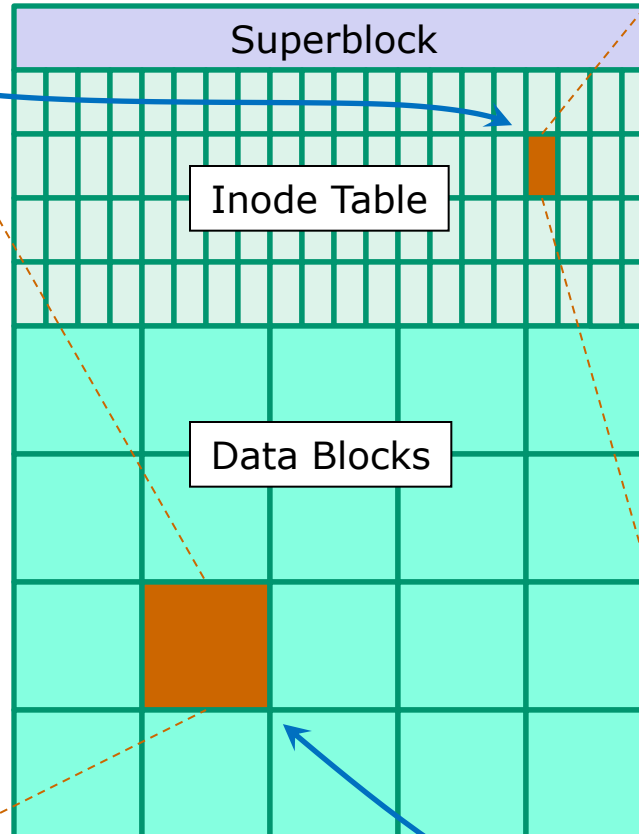
Take me home, oh Mother, Father, take me home! I hate Granada.
Don't leave me out in the forest where I might get eaten by a bear! Take me home, I promise that I won't make noise, or mess the house with other boys, oh please don't make me stay -- I've been here one whole day.

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

ext2 file system



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/simben $ ls -il letter
```

```
9662 -rw-r--r--. 1 simben90 cis90 1044 Jul 20 2001 letter
```

Creating Files

Creating Files

The touch, mkdir commands and redirection

Commands:

touch *<new-name>*

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

mkdir *<new-name>*

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

echo *"string"* **>** *<new-name>*

- Creates or overwrites a text file

Creating Files

The touch command

touch <*new-name*>

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/simben $ ls -l sawyer
```

```
ls: sawyer: No such file or directory
```

```
/home/cis90/simben $ touch sawyer
```

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

```
-rw-rw-r-- 1 simben90 cis90 0 Mar 18 06:34 sawyer
```

*The file type
is a regular
file*

*The file owner
is simben90
(Benji)*

*The file size is 0
bytes (an empty file)*

Creating Files

The touch command

Multiple files can be created with one command

```
/home/cis90/simben $ 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/cis90/simben $ touch a b c multiple arguments allowed  
/home/cis90/simben $ ls -l a b c  
-rw-rw-r-- 1 simben90 cis90 0 Mar 17 09:27 a  
-rw-rw-r-- 1 simben90 cis90 0 Mar 17 09:27 b  
-rw-rw-r-- 1 simben90 cis90 0 Mar 17 09:27 c
```

Creating Files

The touch command

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

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

```
-rw-rw-r-- 1 simben90 cis90 0 Mar 18 06:34 sawyer
```

```
/home/cis90/simben $ touch sawyer
```

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

```
-rw-rw-r-- 1 simben90 cis90 0 Mar 18 06:40 sawyer
```

Last modified

*Last modified
timestamp
updated*

Creating Files

The mkdir command

mkdir <new-name>

creates one or more new directories

Create a new directory named island

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

```
/home/cis90/simben $ mkdir island  
/home/cis90/simben $ ls -ld island  
drwxrwxr-x 2 simben90 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*

The basic file type is a directory

The file owner is a simben90 (Benji)

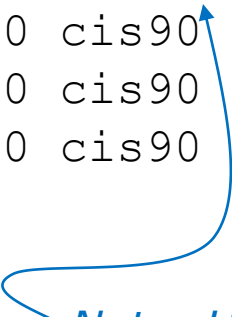
The file size is 4096 bytes

Creating Files

The mkdir command

Create multiple directories at once

```
/home/cis90/simben $ mkdir redhat debian slackware  
/home/cis90/simben $ ls -ld redhat/ debian/ slackware/  
drwxrwxr-x 2 simben90 cis90 4096 Mar 17 09:36 debian/  
drwxrwxr-x 2 simben90 cis90 4096 Mar 17 09:36 redhat/  
drwxrwxr-x 2 simben90 cis90 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*

Creating Files

The mkdir command

Create nested directories (one directory inside another)

```
/home/cis90/simben $ mkdir africa/ghana
```

```
mkdir: cannot create directory `africa/ghana': No  
such file or directory
```

```
/home/cis90/simben $ mkdir -p africa/ghana
```

```
/home/cis90/simben $ ls africa
```

```
ghana
```

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



Creating Files

Redirection to stdout

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

Creating a file named accra and adding some text to it

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

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



Creating Files

Redirection to stdout

Be careful!



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

The redirection character > will create the file named if that file does not exist.

If the file does exist it will be emptied without warning!

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

Listing Files

Short listing

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

Short recursive listing

```
/home/cis90/simben $ ls -R island  
island:           Directory name  
characters        Contents of directory
```

```
island/characters: Sub-directory pathname  
hurley kate sawyer Contents of sub-directory
```

Managing the UNIX/Linux File System

Long listing

```
/home/cis90/simben $ ls -l island  
total 8  
drwxrwxr-x 2 simben90 cis90 4096 Mar 18 07:25 characters
```

Long recursive listing

```
/home/cis90/simben $ ls -lR island  
island: Directory name  
total 8 Contents of directory  
drwxrwxr-x 2 simben90 cis90 4096 Mar 18 07:25 characters
```

```
island/characters: Sub-directory pathname  
total 24 Contents of sub-directory  
-rw-rw-r-- 1 simben90 cis90 11 Mar 18 07:25 hurley  
-rw-rw-r-- 1 simben90 cis90 22 Mar 18 07:25 kate  
-rw-rw-r-- 1 simben90 cis90 11 Mar 18 07:25 sawyer
```

Managing the UNIX/Linux File System

Making a directory tree diagram

```
/home/cis90/simben $ tree island
```

```
island
```

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

```
1 directory, 3 files
```

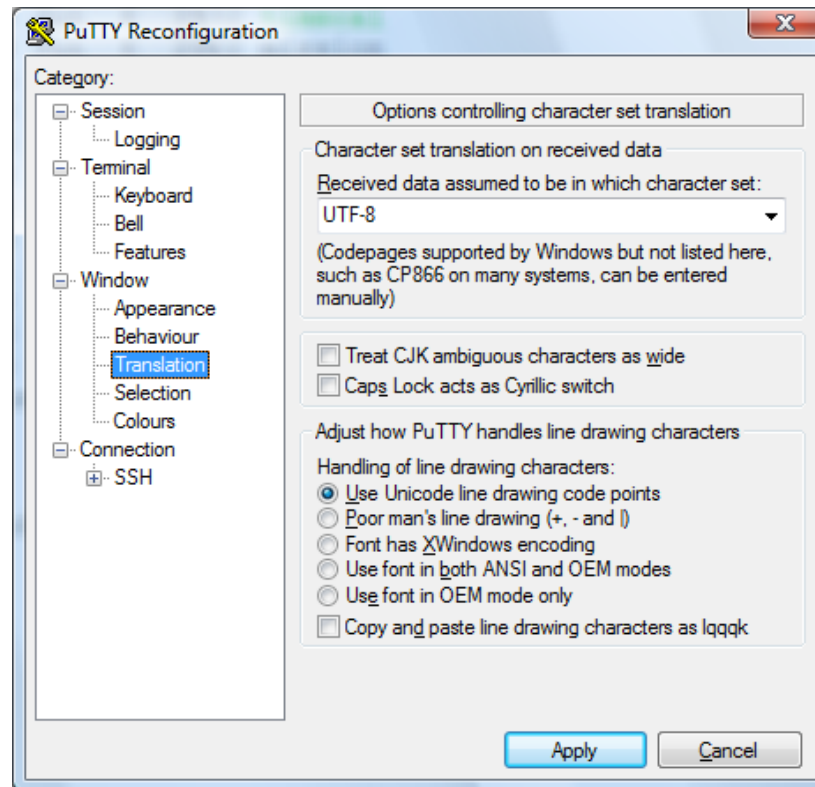
```
/home/cis90/simben $
```



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
```

Copying Files

Copying files

The **cp** command

Command syntax:

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)

*Where: <source file> <target file> <target directory>
are **absolute** or **relative** pathnames*

Copying files

Copy one file to another

cp *<source file> <target file>*

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

Make a copy of the hurley file

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

Copying files

Copy multiple files to a directory

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

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

Make a new directory called backup

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

Copy three files of the four files to the new directory

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

Copying files

Copy multiple files to a directory

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

Copy all files to the new directory

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

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

*While parsing the shell expands *
to hurley hurley.bak kate sawyer*

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

List the four files in the new directory

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

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

Note: copying a file to an existing file will overwrite that file without warning!

Copy files

The **i** (interactive) option to warn about overwrites

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

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

Copying files

The **r** (recursive) option to copy an entire tree branch

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

```
/home/cis90/simben/island $ ls
```

```
characters
```

*This directory does
not exist yet*



```
/home/cis90/simben/island $ cp -r characters players
```

```
/home/cis90/simben/island $ ls -R players
```

```
players:
```

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

```
players/backup:
```

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

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

A recursive copy will copy everything in a directory (including all files and nested subdirectories) to another directory

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

Moving Files

The **mv** command

Command syntax:

mv *<source file> <target file>*

mv *<source file> <target directory>*

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

options: **-i**

i = warn before overwriting

*Where: <source file> <target file> <target directory>
are **absolute** or **relative** pathnames*

Moving Files

Renaming a file with the **mv** command

mv <original name> <new name>

This is how you rename files in UNIX/Linux!

oops ... typo! →

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

typo fixed by renaming file

```
/home/cis90/simben $ mv Powerege PowerEdge
```

```
/home/cis90/simben $ ls iP* P[ra]* Pow*
iPad  iPhone  Pavilion  PowerEdge  ProLiant
```

↑ *successfully renamed*

Moving Files

Moving a file into a directory

mv *<source file> <target directory>*

/home/cis90/simben \$ **mkdir Apple HP Dell** *Make some new directories*

/home/cis90/simben \$ **mv iPhone Apple/** *Move one file at a time into one of*
/home/cis90/simben \$ **mv iPad Apple/** *the new directories*

/home/cis90/simben \$ **ls Apple** *List the new directory the files were moved into*
iPad iPhone

Moving Files

Moving multiple files into a directory

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

```
/home/cis90/simben $ mv ProLiant Pavilion PowerEdge HP/
```

Moving multiple files at once into a directory

Moving Files

The **mv** command

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

Removing Files

The **rm** and **rmdir** commands

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

Removing Files

The **rm** and **rmdir** commands

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

Note: the file is removed without warning!

Removing Files

Using the `i` option to interactively remove multiple files

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
```

Removing Files

The **rmdir** command

Use **rmdir** to 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

Linking files

The **ln** command

Command syntax:

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

options: -s

s = symbolic link (like Windows shortcut)

With UNIX there are hard and soft (symbolic) links

Linking files

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.
The link count on a long listing tells you how many
names the file has.*

Linking files

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

Linking files

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
(includes the . file and .. files in sub-directories)*

```
/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
(includes the . file and .. files in sub-directories)*

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

Note the hidden . and .. files different filenames for the same directories

Linking files

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

Linking Files

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.

Linking Files

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

ln

mkdir

mv

rm

rmdir

touch

tree

copy files

link files

make directory

move or rename files

remove files

remove directory

make/modify a file

draw file tree branch

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.

Course:

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

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

Procedure:

Log on to this Open server as that you have a confirmed link shell at your disposal. 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 clarification only. You will be graded on correctly performing this procedure. At the end of this lab you will submit your own report 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 let's make some new directories using the `mkdir` command:
 - a. Make a new directory named `code` for keeping our lab code using the `mkdir code` command.
 - b. After the new directory is created using the `ls -l` option of the `ls` command, do you see the two folders 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 `docs` and the other called `ch`.
 - 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 the test from the website into a text file on your computer. Use a text editor like Notepad (Windows) or TextWrangler (Mac) .
- **SINGLE** line answers only following the A1), A2), A3), etc. tags
- When finished, copy and paste everything into an email to:
rsimms@oslab.cabrillo.edu (that's my email address on Opus)
and include yourself as a recipient so you have a time-stamped record of your submittal.
- 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/q29/mail-q29-T1
```

[] Logoff Sun-Hwa users

```
skill -KILL -v pts/n; cp /etc/nologin.bak /etc/nologin
```

[] Create T1 trouble on Sun-Hwa-II

```
./trouble-T1
```

[] Allow Sun-Hwa-II logins

```
rm /etc/nologin
```

[] 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 - 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 - 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

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

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

Incorrect answers:

`.bash_history` *this is not a directory*
`.plan` *this is not a directory*
`none` *hidden directories start with a .*

Checking answer on Opus:

/home/cis90/simben \$ ls -lad .*

hidden files start with a .

<code>drwxr-xr-x.</code>	10	simben90	cis90	4096	Sep 27 12:37	<code>.</code>
<code>drwxr-x---</code>	34	rsimms	cis90	4096	Sep 11 12:02	<code>..</code>
<code>-rw-----.</code>	1	simben90	cis90	14518	Sep 30 09:01	<code>.bash_history</code>
<code>-rw-----.</code>	1	simben90	cis90	24	Jul 20 2001	<code>.bash_logout</code>
<code>-rw-----.</code>	1	simben90	cis90	354	Sep 17 2003	<code>.bash_profile</code>
<code>-rw-----.</code>	1	simben90	cis90	146	Jan 18 2004	<code>.bashrc</code>
<code>-rw-----.</code>	1	simben90	cis90	41	Sep 19 18:41	<code>.lessht</code>
<code>-rw-r--r--.</code>	1	simben90	cis90	40	Jul 20 2001	<code>.plan</code>
<code>drwx-----.</code>	2	simben90	cis90	4096	Aug 2 14:23	<code>.ssh</code>

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

9131

9063

*Wrong directory
chosen*

Checking answer on Opus:

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

```
8966 /home/cis90
```

the /home/cis90 directory

The inode number

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

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 - 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_filenameerrors/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*

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/
```

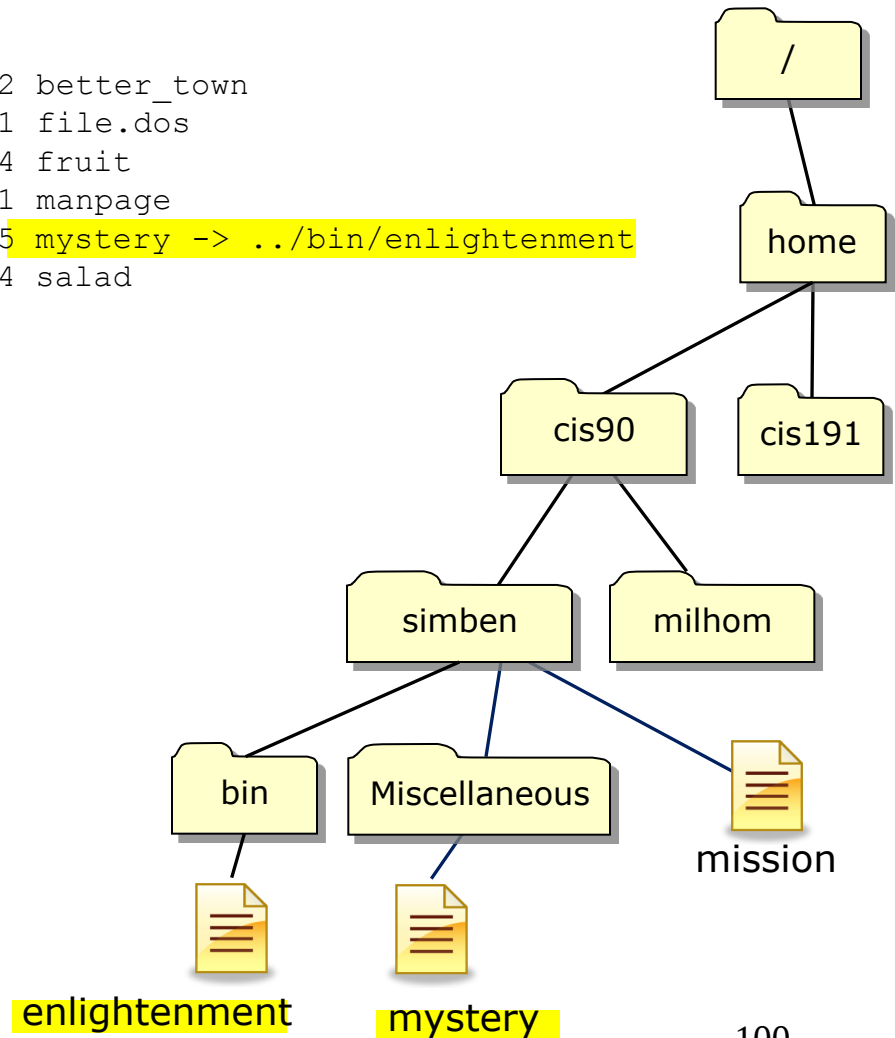
```
total 28
```

```
-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 -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 - 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 .lessht .plan .ssh .vim  
.viminfo
```

or

```
/home/cis90/simben $ ls -d .*  
. .bash_history .bash_profile .lessht .ssh .viminfo  
.. .bash_logout .bashrc .plan .vim
```

or

```
/home/cis90/simben $ ls -a | grep '^\.'  
.  
..  
.bash_history  
.bash_logout  
.bash_profile  
.bashrc  
.lessht  
.plan  
.ssh  
.vim  
.viminfo
```

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