CSCI 1411
FUNDAMENTAL OF COMPUTING LAB

Lab 1

Objectives

1. Introduction
2. Logging into a computer / CSE Unix Servers
3. Getting familiar with the terminal window in a Unix environment
4. Trying some of the Unix commands
5. Logging out and terminating a session

Introduction

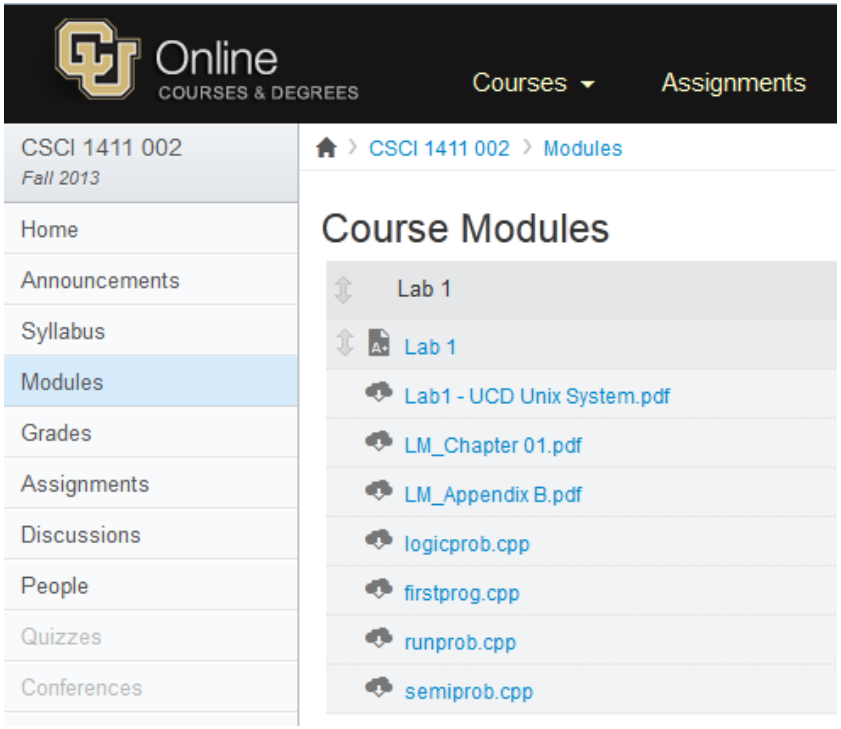
- **Course:** CSCI 1411 Fundamental of Computing Lab
- **Instructor:** Lan Vu
  - Master in Computer Science (2009)
  - Working on Doctor in Computer Science & Information Systems
  - Mother of a 6 year old girl
- **Office Hours:** Wed-Thu (1:45 pm – 2:45 pm)
- **Office Location:** LW836
- **Email:** lan.vu@ucdenver.edu

Agreement Form

- Require a signature on the Pre-requisite or Co-requisite Agreement.
  - Pre-requisite: Freshman status
  - Co-requisite: CSCI 1410 Fundamental of Computing

CSCI 1411 Canvas Site

- Announcements
- Syllabus/Schedule
  (found on CSCI 1410 site)
- Labs



- Canvas for Homework Submissions
  (do NOT need to use VPN for Canvas)

Introduction

Goals

- To gain skills in computer programming with the C++ language using a UNIX operating system

Grading Policy

1) 14 Labs worth 40 points each:
    1) Pre-lab assignments worth 5 points
    2) Programming component worth 35 points (see rubric)
2) No exams

Assignments

- Each lab must be completed and turned in **by start of class one week after assigned (exception is last lab of semester).**
- All work must be turned in **on Canvas**

How to Access Windows & Mac PCs in Lab

1. Log in to a PC in the lab

- User ID and Password are the same as you use to log into the UCDAcess portal and your UCD email account.
- Note you will using this same account to log into the Unix server.

How to Access CSE Unix Servers

3. Contact for problems involving your CSE account.

- Christopher Hamilton
  Systems and Network Administrator
  - helpdesk system: csehelp.ucdenver.pvt
  - Or e-mail csehelp@ucdenver.edu

Accessing CSE Servers from off campus

1. Install Virtual Private Network

   Used to connect to the UCD network
   https://itservices-web.ucdenver.edu/VPN/

2. User your University Account to Authenticate

3. Download the Correct Version of the VPN based on your home computer OS version.

4. Follow the Detailed Instruction Provided Exactly and to the Letter!

Accessing Terminal Services

- Basic terminal access (if off campus turn on VPN first, if on campus don't use VPN):
  - Connect to the load balancer **csegrid.ucdenver.pvt** via ssh using the client of your choice (This will forward you to one of the six servers)

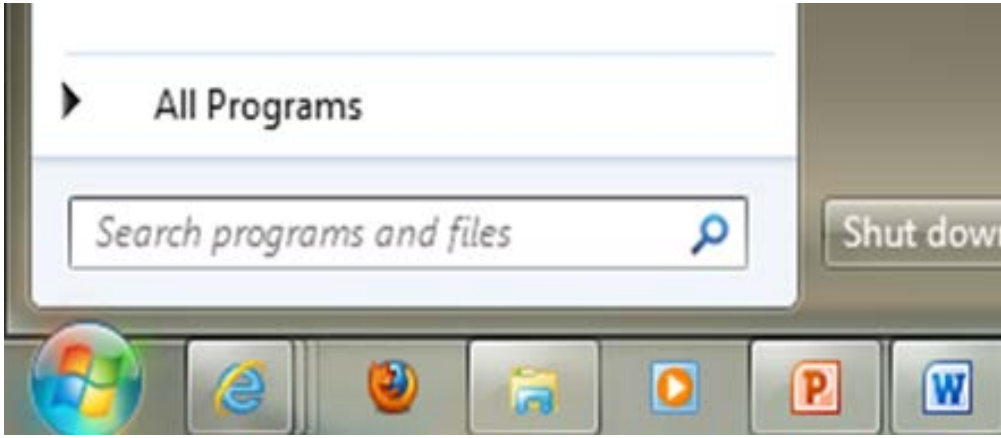
Accessing Terminal Services

- File Transfers
  - SCP to **csegrid.ucdenver.pvt** (this doesn't work until you log in using **ssh** for the first time, otherwise your home directory will not have been created)
  - Connect to: **\\csenas.ucdenver.pvt\<username>** from Windows desktop and copy files to home directory
  - Connect to **SMB://csenas.ucdenver.pvt/<username>** from a Mac finder window and copy files to home directory.

How to Access Terminal Service

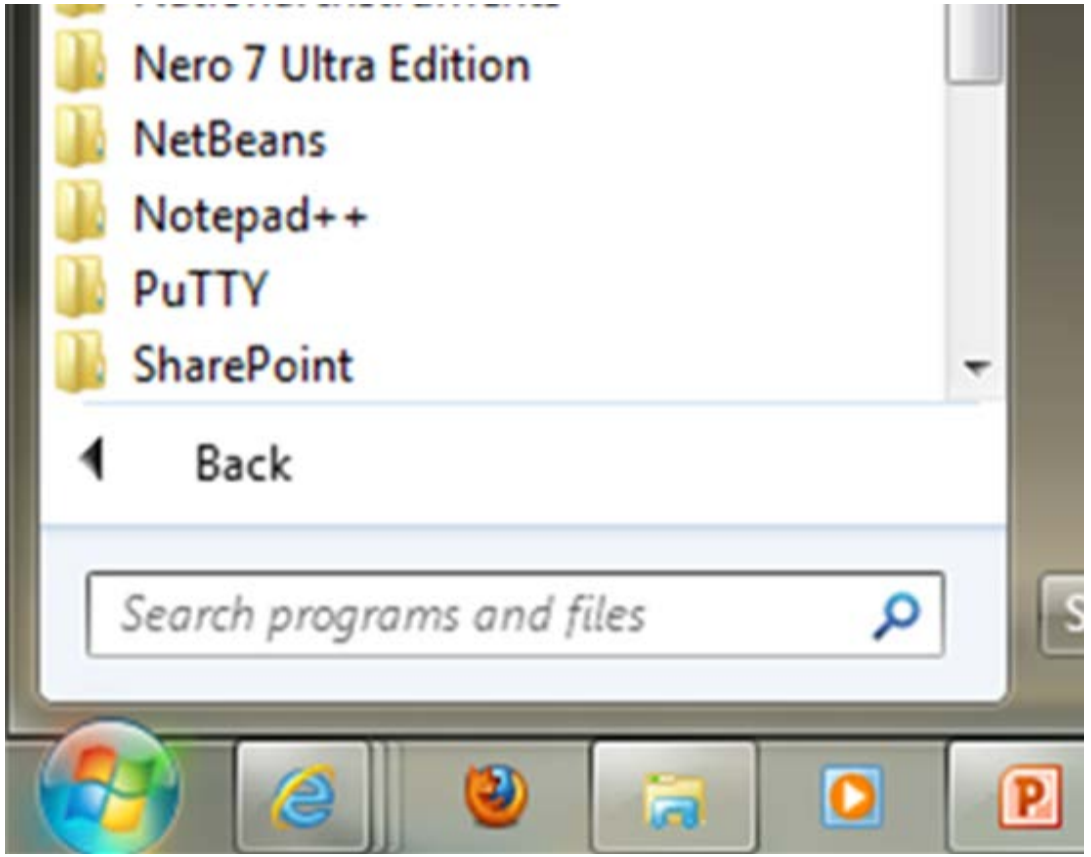
2) All programs->

1) start->



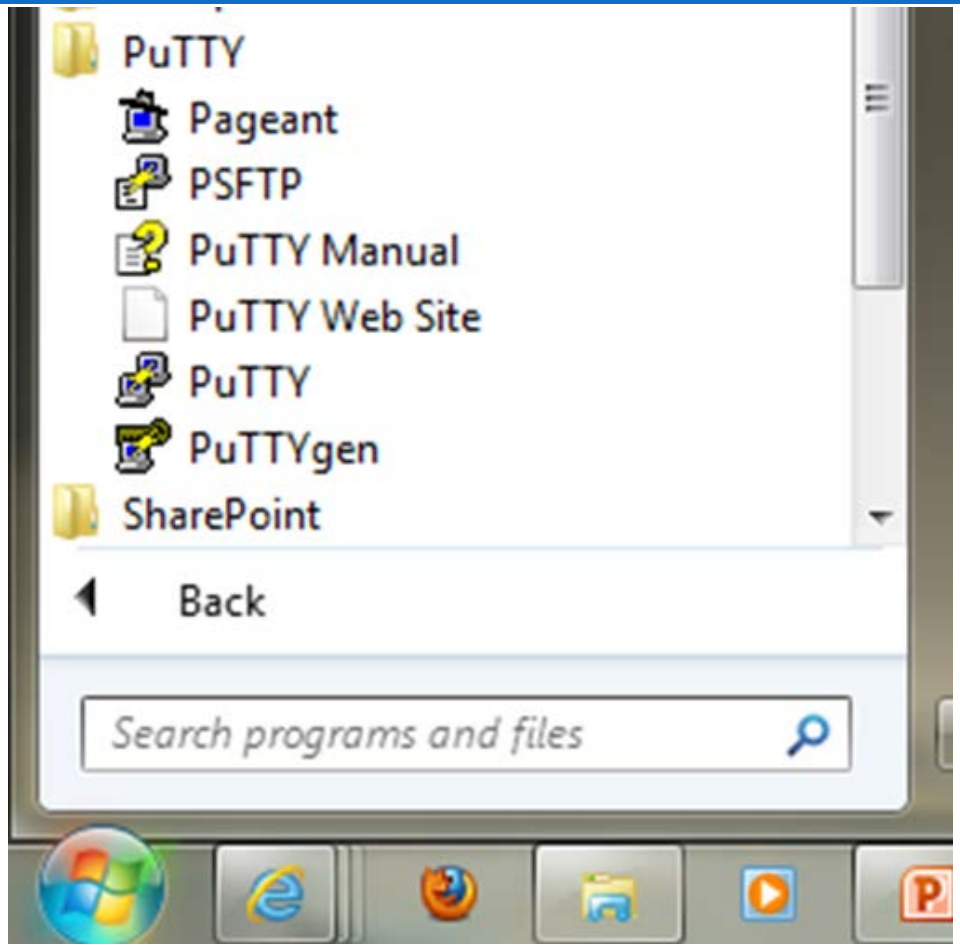
How to Access Terminal Service

3) PuTTY->



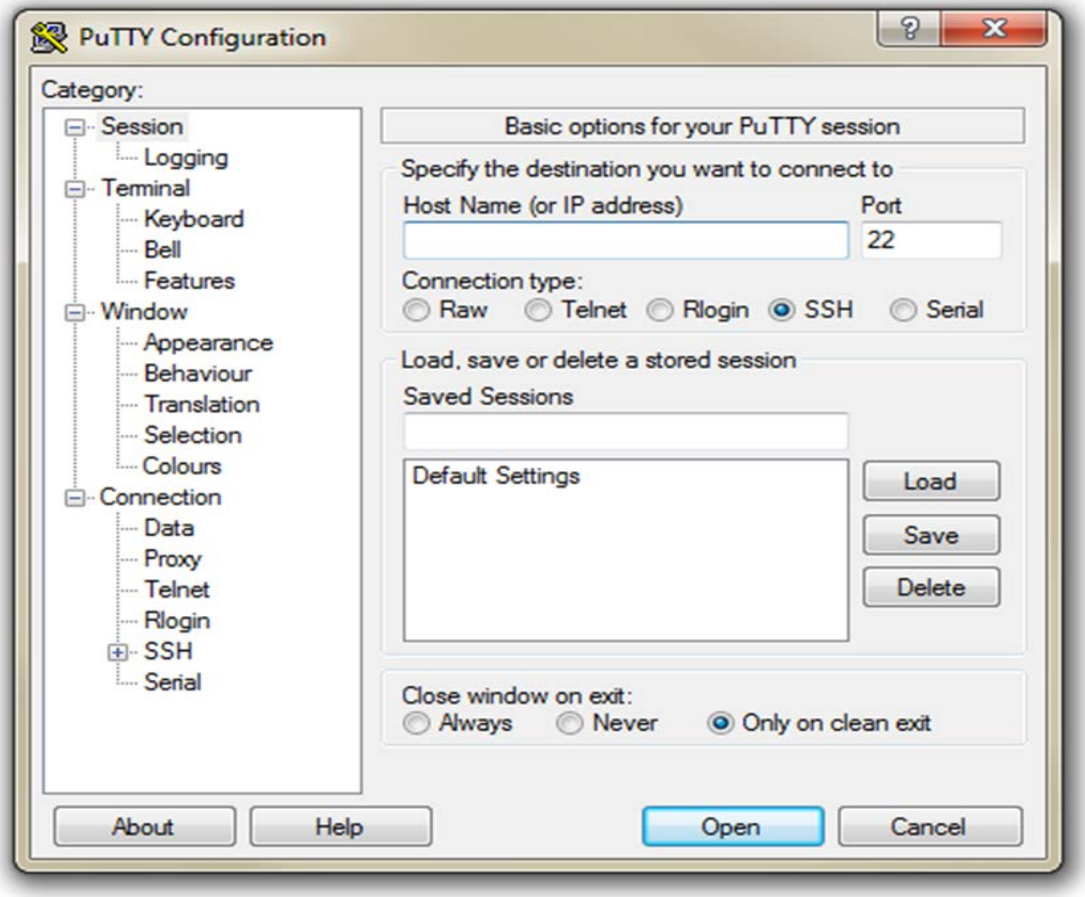
How to Access Terminal Service

4) PuTTY->



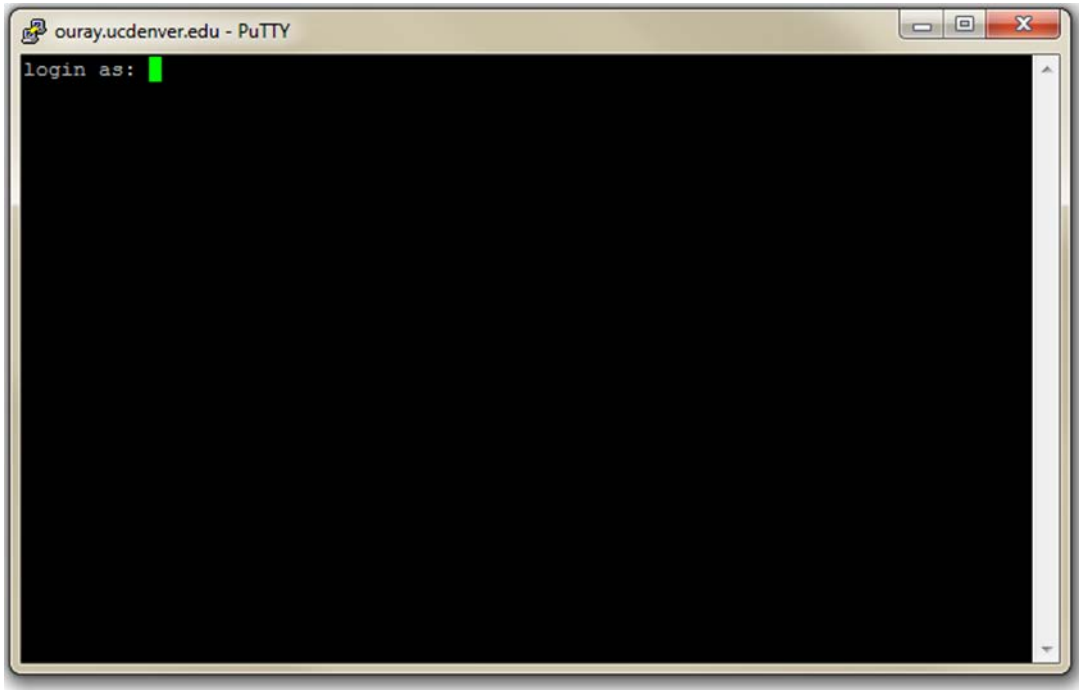
How to Access Terminal Service

Host Name: csegrid.ucdenver.pvt



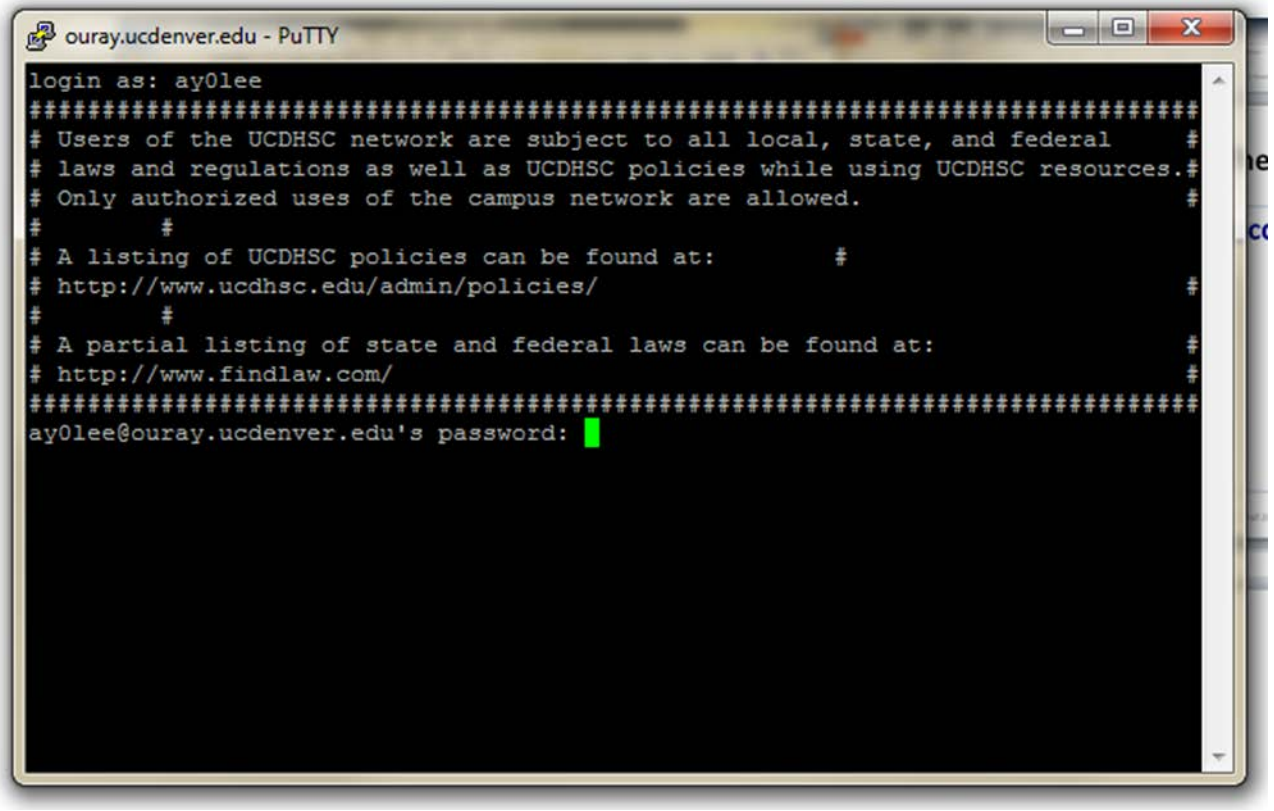
How to Access Terminal Service

login as: User Name



How to Access Terminal Service

Password: User Password



Trying Some of Unix Commands

What is UNIX? UNIX is an operating system (OS), software that manages the hardware and software resources of a computer.

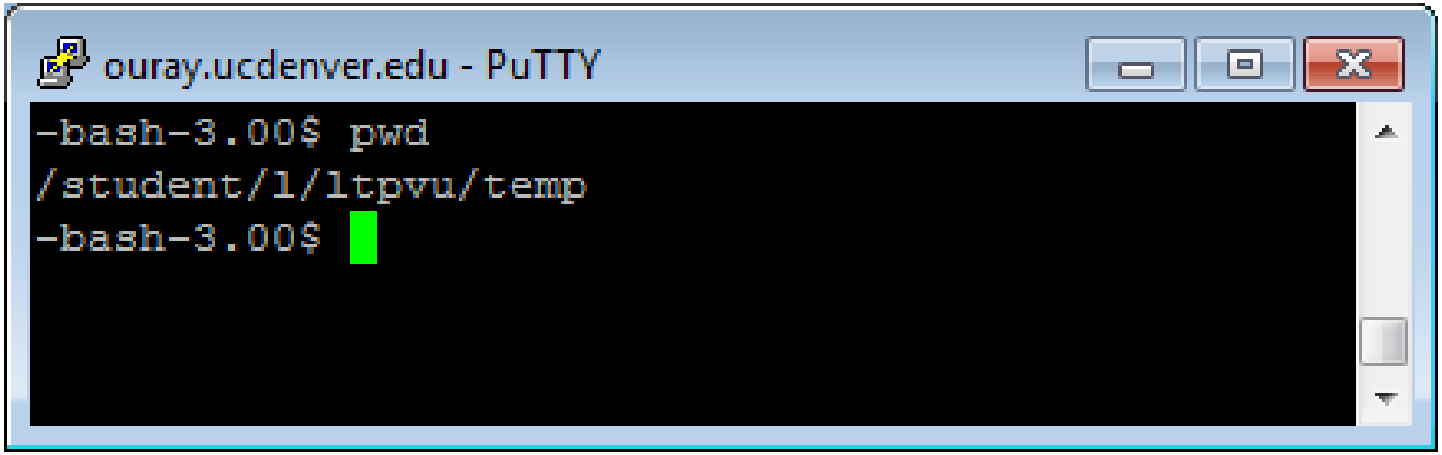
Trying Some of Unix Commands

- Each of these commands is typed in after the UNIX prompt, and each is terminated by a (Enter). ***Dir*** and ***file*** represent the pathnames of a directory and a file, respectively.

Unix Command	Meaning
mkdir *Dir*	Make a directory having the pathname *Dir*
mv *file Dir*	Move *file* into the directory *Dir*
cd *Dir*	Change to directory having the pathname *Dir*
cd	Change to home directory
rmdir *Dir*	Remove (i.e., delete) the directory *Dir*
pwd	Print working directory's pathname
ls	List files in the current directory
cat *file*	Display *file*

pwd command

- Print working directory's pathname
- For example:



mkdir command

- Make a directory having the pathname *Dir*
- For example:

mkdir csci1410

mkdir csci1411

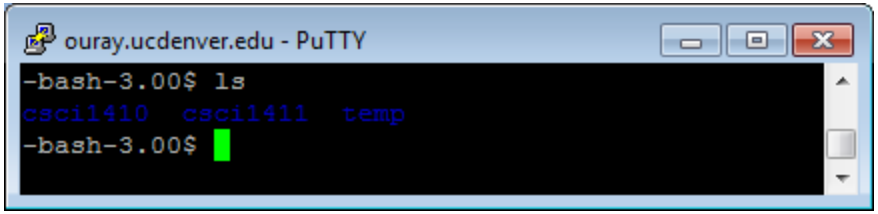
mkdir ~/temp

  - create a directory at student's home directory

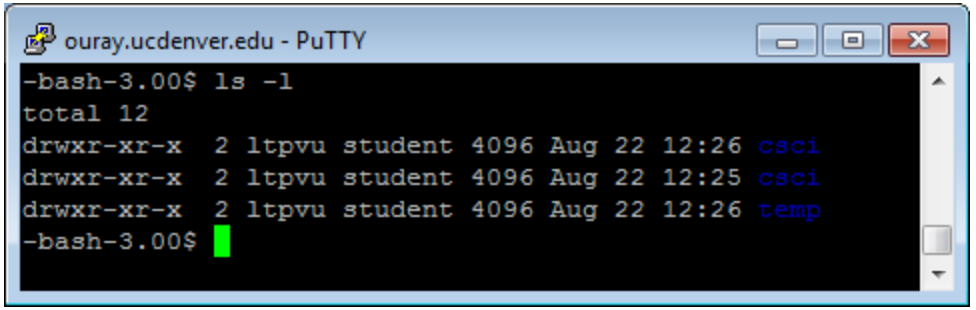
ls command

- List files in the current directory
- For example:

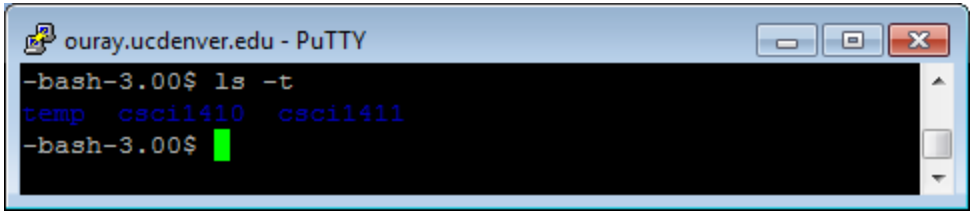
ls →



ls -l →



ls -t →



rmdir command

- Remove (i.e., delete) the directory *Dir*
- For example:

rmdir csci1410

rmdir ~/temp

cd command

- Change to directory having the pathname *Dir*
- For example:

cd csci1411

(and then try ls and pwd command to see the output)

cd

(and then try ls and pwd command to see the output)

cat command

- Display *file*
- For example: enter bellow commands

wget http://www.google.com/index.html

(to download Google's webpage)

ls

(to see what file was download)

cat index.html

(to display the content of this file)

mv command

- Move *file* into the directory *Dir*
- For example:

mv index.html csci1411

(and then try these commands to see if file is moved)

cd csci1411

ls

UNIX Text Editors

1. nano

   nano *file_name*

   Example: nano firstprog.cpp

1. vi

   vi *file_name*

Trying a Simply Program

1. Create a program file

- **nano firstprog.cpp**
- Type the code

```
// This is the first program that just writes out a simple message
// Place your name here
#include <iostream>                // needed to perform C++ I/O
using namespace std;
int main ()
{
cout << "Now is the time for all good men" << endl;
cout << "To come to the aid of their party" << endl;
return 0;
}
```

Trying a Simply Program

- Press Ctrl+O to save
- Press Ctrl+X to exit nano editor

2. Compile the code

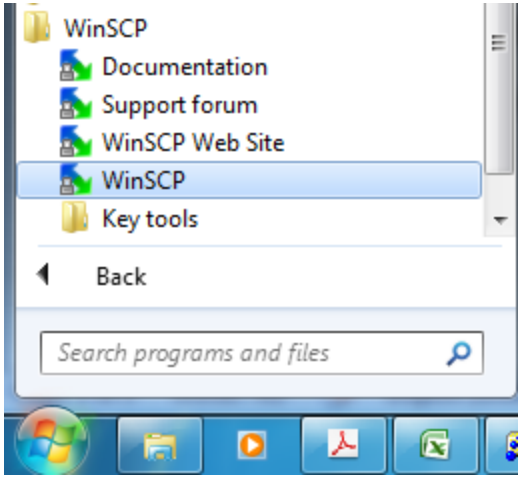
- **g++ firstprog.cpp**

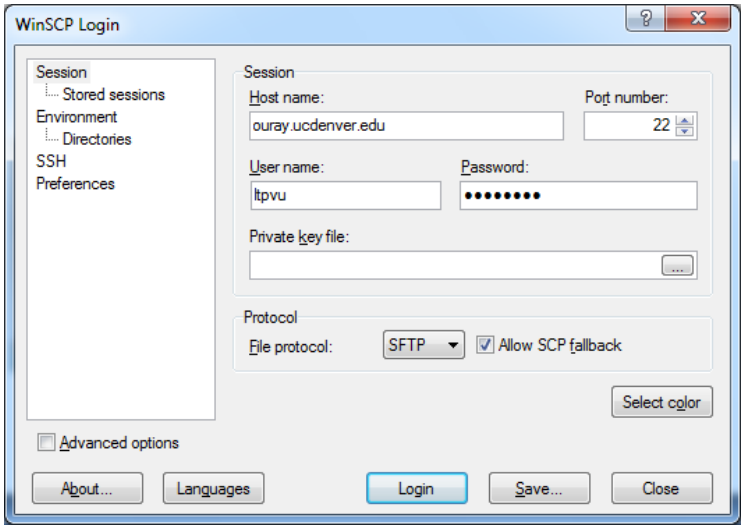
3. Run the program

./a.out

Download/Upload files using WinSCP

- Start → All Program → WinSCP → WinSCP
- Enter Hostname: **csegrid.ucdenver.pvt**
- Enter **Username & Password** used for University login





Download/Upload files using WinSCP

- Drap & Drop files between two windows to download/upload file into UCD Server