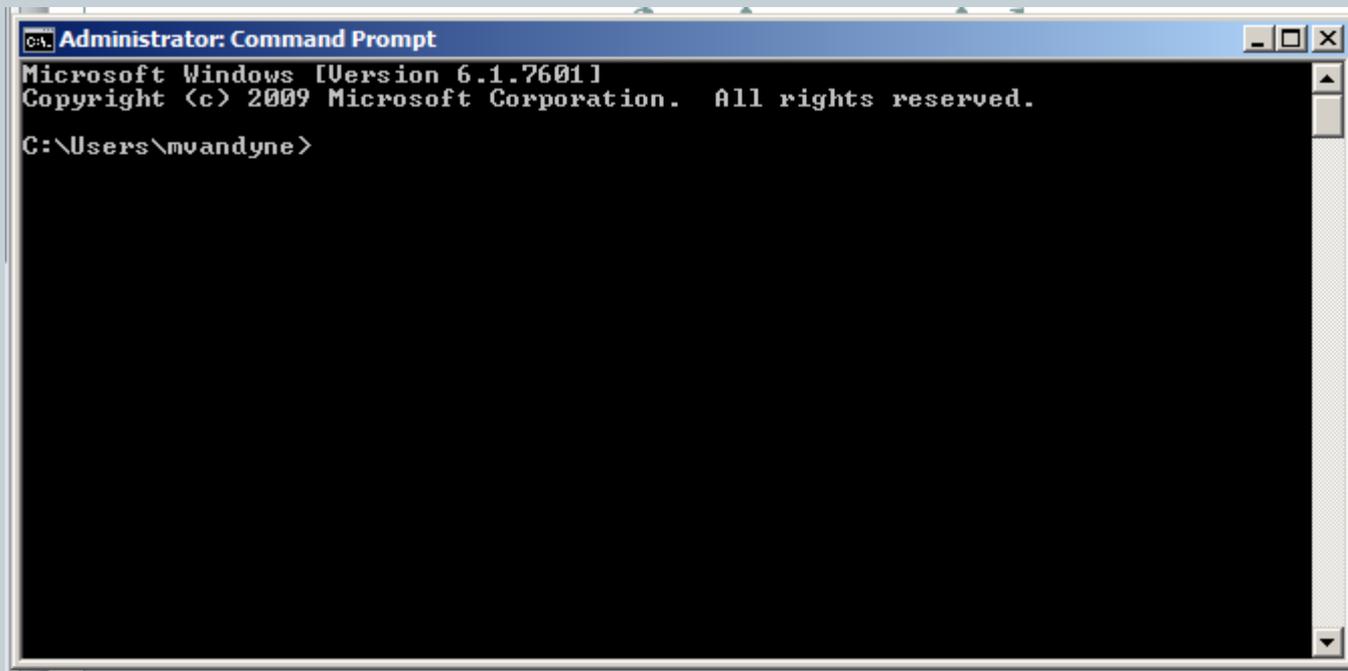


# The Command Shell



# Outline

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- Graphical User Interface
- Command Shell
  - Starting the Command Shell
  - Commands
  - Compiling and Running a Java Program
  - File Redirection and Piping

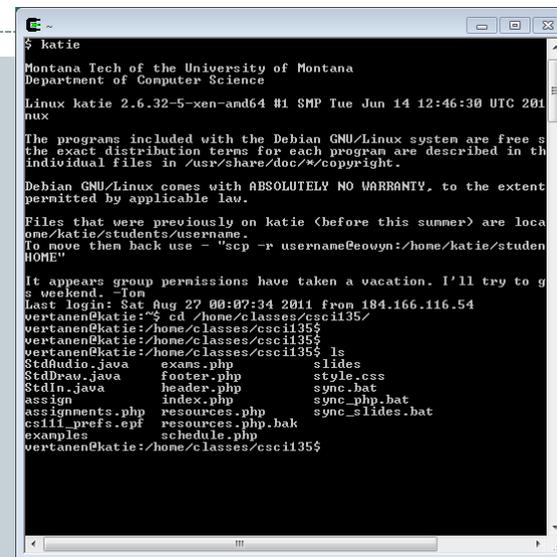
# Interfacing with your Computer

- **GUI (Graphical User Interfaces)**
  - Today: predominant interaction method
  - Windows, buttons, mouse
  - Advantages
    - ✦ Easier for novices
    - ✦ No commands to remember
    - ✦ Rich input and output capabilities



## Interfacing with your Computer

- **Command Line Interface (CLI)**
  - Originally the only option
  - Input by **typing commands**
  - Advantages:
    - ✦ Can be **faster for experts** than a GUI
    - ✦ Easier to **automate** tasks
    - ✦ Easier to **hook programs together**



```
$ katie
Montana Tech of the University of Montana
Department of Computer Science

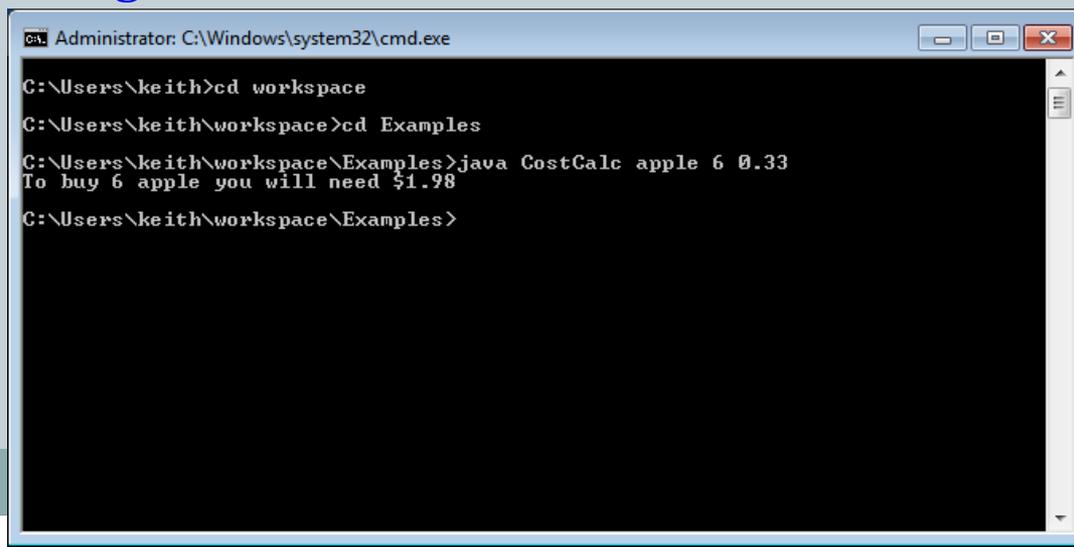
Linux katie 2.6.32-5-xen-amd64 #1 SMP Tue Jun 14 12:46:30 UTC 2011
nux

The programs included with the Debian GNU/Linux system are free s
the exact distribution terms for each program are described in th
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the exten
permitted by applicable law.

Files that were previously on katie (before this summer) are loca
one/katie/students/username.
To move them back use - "scp -r username@oovyn:/home/katie/studen
HOME"

It appears group permissions have taken a vacation. I'll try to g
s weekend. -!on
Last login: Sat Aug 27 00:07:34 2011 from 184.166.116.54
vertanen@katie:~$ cd /home/classes/cscii35/
vertanen@katie:/home/classes/cscii35$
vertanen@katie:/home/classes/cscii35$ ls
StdAudio.java  exams.php  slides
StdDraw.java  footer.php  style.css
StdIn.java    header.php  sync.bat
assign        index.php  sync_php.bat
assignments.php  resources.php  sync_slides.bat
cscii_prefs.epf  resources.php.bak
examples       schedule.php
vertanen@katie:/home/classes/cscii35$
```



```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\keith>cd workspace
C:\Users\keith\workspace>cd Examples
C:\Users\keith\workspace\Examples>java CostCalc apple 6 0.33
To buy 6 apple you will need $1.98
C:\Users\keith\workspace\Examples>
```

## Starting a Command Shell

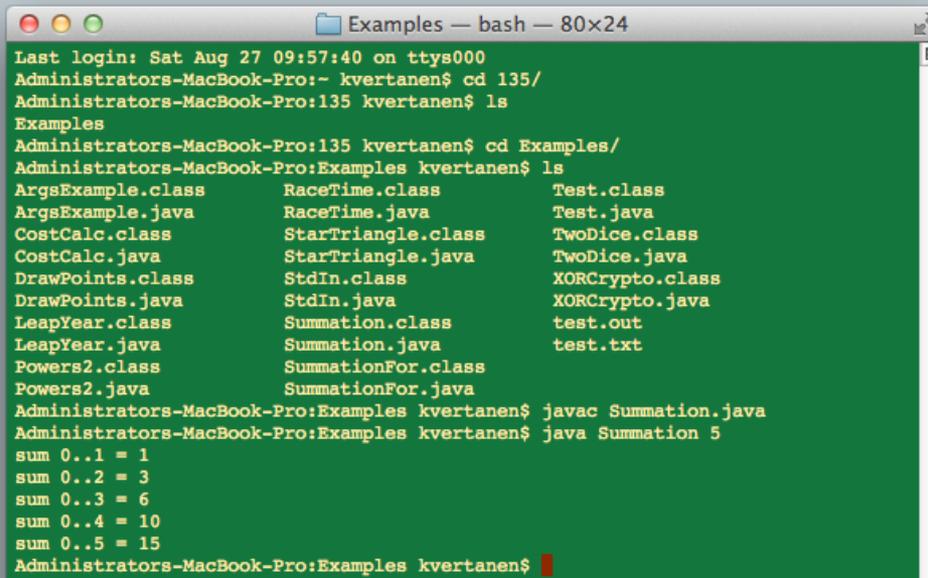


```
Administrator: C:\Windows\system32\cmd.exe
C:\Users\keith>cd workspace
C:\Users\keith\workspace>cd Examples
C:\Users\keith\workspace\Examples>java CostCalc apple 6 0.33
To buy 6 apple you will need $1.98
C:\Users\keith\workspace\Examples>
```

### Windows 7

Start → type "cmd"

All Programs → Accessories →  
Command Prompt



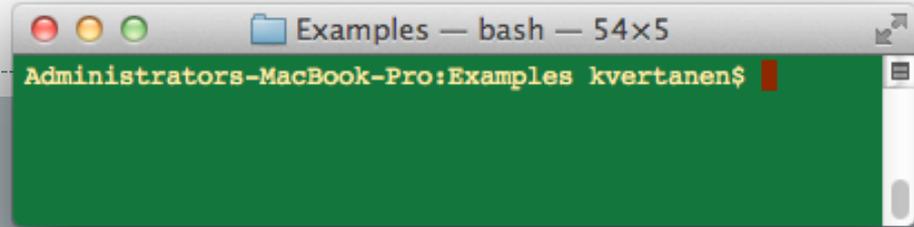
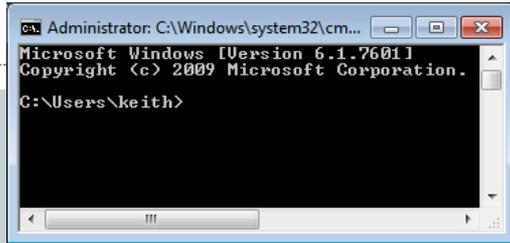
```
Examples — bash — 80x24
Last login: Sat Aug 27 09:57:40 on ttys000
Administrators-MacBook-Pro:~ kvertanen$ cd /
Administrators-MacBook-Pro:~ kvertanen$ ls
Examples
Administrators-MacBook-Pro:~ kvertanen$ cd Examples/
Administrators-MacBook-Pro:Examples kvertanen$ ls
ArgsExample.class      RaceTime.class        Test.class
ArgsExample.java       RaceTime.java         Test.java
CostCalc.class         StarTriangle.class    TwoDice.class
CostCalc.java          StarTriangle.java     TwoDice.java
DrawPoints.class       StdIn.class           XORCrypto.class
DrawPoints.java        StdIn.java            XORCrypto.java
LeapYear.class         Summation.class       test.out
LeapYear.java          Summation.java        test.txt
Powers2.class          SummationFor.class
Powers2.java           SummationFor.java
Administrators-MacBook-Pro:Examples kvertanen$ javac Summation.java
Administrators-MacBook-Pro:Examples kvertanen$ java Summation 5
sum 0..1 = 1
sum 0..2 = 3
sum 0..3 = 6
sum 0..4 = 10
sum 0..5 = 15
Administrators-MacBook-Pro:Examples kvertanen$
```

### Mac

Spotlight → type "terminal"

Go → Applications → Utilities  
→ Terminal

## Getting around the Command Line



Action	Windows	Mac OS / Unix
Move into a folder	cd myfolder	cd myfolder
Move into parent folder	cd ..	cd ..
Move into a folder, absolute folder	cd \Users\keith	cd /Users/keith
List files in current folder	dir	ls
Compile program in current folder	javac Prog.java	javac Prog.java
Run a compiled program	java Prog	java Prog
See what is in a text file	type Prog.java	more Prog.java
Auto-complete filenames	<tab key>	<tab key>
Previous command	<up arrow>	<up arrow>

## Getting Around in the Command Shell

```
Administrator: Command Prompt
C:\Users\mvandyne>F:
F:\>cd CSCI135
F:\CSCI135>cd Fall 2015
F:\CSCI135\Fall 2015>cd Workspace
F:\CSCI135\Fall 2015\Workspace>cd 03-CommandWindow
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>
```

Changing to a different drive and to different folders

```
Administrator: Command Prompt
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>dir
Volume in drive F is Lexar
Volume Serial Number is 4FF2-8A1B

Directory of F:\CSCI135\Fall 2015\Workspace\03-CommandWindow
10/06/2016  11:43 AM    <DIR>          .
10/06/2016  11:43 AM    <DIR>          ..
10/06/2016  11:43 AM                392 .project
10/06/2016  11:43 AM    <DIR>          .settings
10/06/2016  11:43 AM                295 .classpath
10/06/2016  11:47 AM                558 AvgNums.java
10/06/2016  11:43 AM                365 RandomNums.java
         4 File(s)          1,610 bytes
         3 Dir(s)  23,167,860,736 bytes free

F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>
```

Looking at the contents of a folder

# File Redirection and Piping

```
Administrator: Command Prompt
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>javac RandomNums.java
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>java RandomNums 5
0.1682685275047755
0.12068830564025268
0.9327769833103258
0.11308394660122867
0.4423324383549112
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>java RandomNums 5 > rnd.txt
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>type rnd.txt
0.061850514201200246
0.9150891589355326
0.9881875769393479
6.156643587881261E-4
0.30643150265677965
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>
```

```
Administrator: Command Prompt
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>javac AvgNums.java
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>java AvgNums <rnd.txt
0.4544348834183297
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>java RandomNums 5 | java AvgNums
0.5786082115230553
F:\CSCI135\Fall 2015\Workspace\03-CommandWindow>
```

Redirecting program **output to a file** using **>** followed by the output filename.

Reading input from **file** using **<** followed by the filename.

Directly **piping output from one program to another** using pipe **|**

# Summary

- Graphical User Interface
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