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# The Command Line is Your Friend

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Intro to the command-line:  
10-28-19



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# Launch Bash Shell

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1: cmd - spc

2: Search terminal



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# Bash Basics

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- Commands
  - ex: ls, cp, mv, git add, pip freeze
- Positional arguments come after the command
  - `Mv text_file.txt csv_file.csv`
- Named Options
  - designated with one or two dashes
  - not ordered



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# Bash Basics

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- Named Options (cont)
  - use two dashes for named args
    - `python --version`
  - use one dash for abbreviations
    - `-ls -l -a -t -h`
- Block together short options that don't take arguments
  - `ls -lath`



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# Navigation

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## Essential nav commands

- cd
- pwd
- ls
- man

## Special Folders

- .
- ..
- ~
- /

## Extra navigation

- popd
- pushd
- dirs
- ~1



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# Exercise

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- Navigate to your root directory
- List folders and files
- Navigate to downloads
- List files by size
  - Don't forget to use man



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# Creation and Manipulation

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## Folders

- mkdir
- rmdir
  - -rf (recursive force - careful!)
- mv
  - Use to rename as well
- cp

## Files - general

- touch
- rm / rm \*.txt
- echo
  - echo "text" > filename.md
  - echo "text" >> filename.md
- cat

## Files - csv

- less
- head
- tail



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# Exercise

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- Make a folder on your desktop called test\_project
- Make a folder within test\_project called data
- Populate data with a .csv file named favorite\_food.csv
- Add name of food, calories, and flavor characteristics as comma separated values in the favorite\_food.csv file
- Copy the file and rename it favorite\_foods.csv
  - Append a second favorite food



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# vim

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- Insert mode (you can type)
  - Pressing i enters insert mode.
- Command mode (each key does something)
- The Esc key brings you to command mode.
- A few commands:
  - 0 / \$
  - gg / G
  - dd / dt
  - / and ?
  - :wq
  - :q!



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# emacs

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- Less intuitive key strokes
  - Ctrl-x ctrl-c (quit)
  - Ctrl-c ctrl-y (copy)
  - Ctrl-k (delete)
- Has benefits such as org mode
- Spacemacs



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# Other Editors

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## Text Editors

- Sublime Text
- Atom

## IDEs - Integrated Development Environments

- Jupyter Notebook / Lab
- PyCharm
- Visual Studio



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# Exercise: Make an Alias for Jupyter

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- To open jupyter notebook, type `jupyter notebook`
- To open jupyter lab, type `jupyter lab`
- Open `.bash_profile` with `vim`
- Add line: `alias jl="jupyter lab"`
- `:wq`



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# Let's get some data

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```
curl http://rcs.bu.edu/\  
examples/python/\  
data_analysis/\  
flights.csv \  
-o flights.csv
```



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# initial exploration

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```
cat flights.csv
```

```
head flights.csv
```

```
tail flights.csv
```

```
Less flights.csv
```



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# More exploration

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```
cat flights.csv\  
| cut -d, -f12 \  
| tail -n +2 \  
| sort \  
| uniq \  
| wc -l \
```



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# More exploration

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```
cat flights.csv\  
| cut -d, -f12 \  
| tail -n +2 \  
| sort \  
| uniq -c \  
| sort -r -n \  
| head -n10 \
```



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# .csv exercise

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<https://raw.githubusercontent.com/vega/vega/master/docs/data/sp500.csv>

**High point? Low point?**

<https://raw.githubusercontent.com/vega/datalib/master/test/data/stocks.csv>

**How many observations of each unique stock?**

<http://www.gutenberg.org/cache/epub/5200/pg5200.txt>

**What are the most common words and their counts?**

hint: use `tr " " "\n"` to break out words on their own line