

# INTRO TO PROGRAMMING

# GIT DEMO

- enter the project directory at `~/intro-programming``
- if directory doesn't exist there are two possibilities
  - clone the 'intro-programming' repo you've already published
  - signup or login to Github and use the arrow symbol in the top right to create an empty repo, then clone it
- look at contents of directory with ``ls``, use ``git status`` to see what's currently saved
- use ``mkdir``, ``git add``, and ``git mv`` to rearrange files into 3 numbered directories like ``assignment_1``

# APT-GET

- enter th

# BASH SCRIPTING

prints the bash  
executable's location

```
which bash
```

This output prefixed by  
'#!' forms a "shebang"

```
which bash > hello.sh
```

Use Vim to edit script `hello.sh`:

```
#!/bin/bash
# declare STRING variable
STRING="Hello World"
#print variable on a screen
echo $STRING
```

# EXECUTING SCRIPTS

Add execute (x) permission  
to `hello.sh` file:

```
chmod +x hello.sh
```

Specify path to execute:

```
./hello.sh
```

Shell searches \$PATH for an executable,  
which intentionally excludes CWD because of  
security risks.

# CONDITIONAL TESTING

```
#!/bin/bash
directory="$HOME/intro-programming"
# using ~ instead of $HOME fails here
if [ -d $directory ]; then
    echo "Submission directory exists"
else
    echo "You need to create it with \"mkdir\""
fi
```

`[` is just an alias for the `test` command

# CHAINING

Can "pipe" one program's output into another's input

```
ifconfig  
ifconfig | grep 'inet addr'  
ifconfig | grep 'inet addr' | grep Bcast
```

# USEFUL COMMANDS

## relatively basic

- find
- which
- echo
- cat
- ifconfig
- uname

## intermediate

- sed
- sort
- uniq
- grep / ack

## more advanced

- xargs
- awk



# META LEARNING

- when learning a new subject like bash, you can make a lot of headway by searching for a query like 'bash scripting tutorial' in a web browser and skimming the top 10 results
  - result 1: <https://linuxconfig.org/bash-scripting-tutorial> - many examples, very succinct, but minimal explanation
  - result 5: <http://ryanstutorials.net/bash-scripting-tutorial/bash-script.php> - wordy and gradual introduction to the concepts of bash, good if you like thorough understanding but long

# BASH SCRIPT EXERCISE

- copy commands for simple note taking script
- can have multiple script files for different tasks, assignment will be to update or supplement example
- now can work individually or in groups up to 3
- can pick from several options:
  - add content tags - could write a separate script that searches the storage file for an argument tag
  - add priority argument - if number was first part of task message, then you could use `sort` in another script to return highest priority first
  - work on your own script idea, subject to instructor approval

# PYTHON SCRIPTING

First set up your virtual environment

```
cd ~/intro-programming/assignment_3  
  
# only create VENV if it doesn't exist already  
python3 -m venv VENV  
  
source VENV/bin/activate
```

# PYTHON EXERCISES

Recreate bash exercises

- <https://docs.python.org/3.4/library/os.html>
- <https://docs.python.org/3/tutorial/inputoutput.html>

# ENJOY THE WEEKEND

Assignments 1-3 will be accepted until  
Saturday at midnight, email me with  
questions ( [im60@nyu.edu](mailto:im60@nyu.edu) )