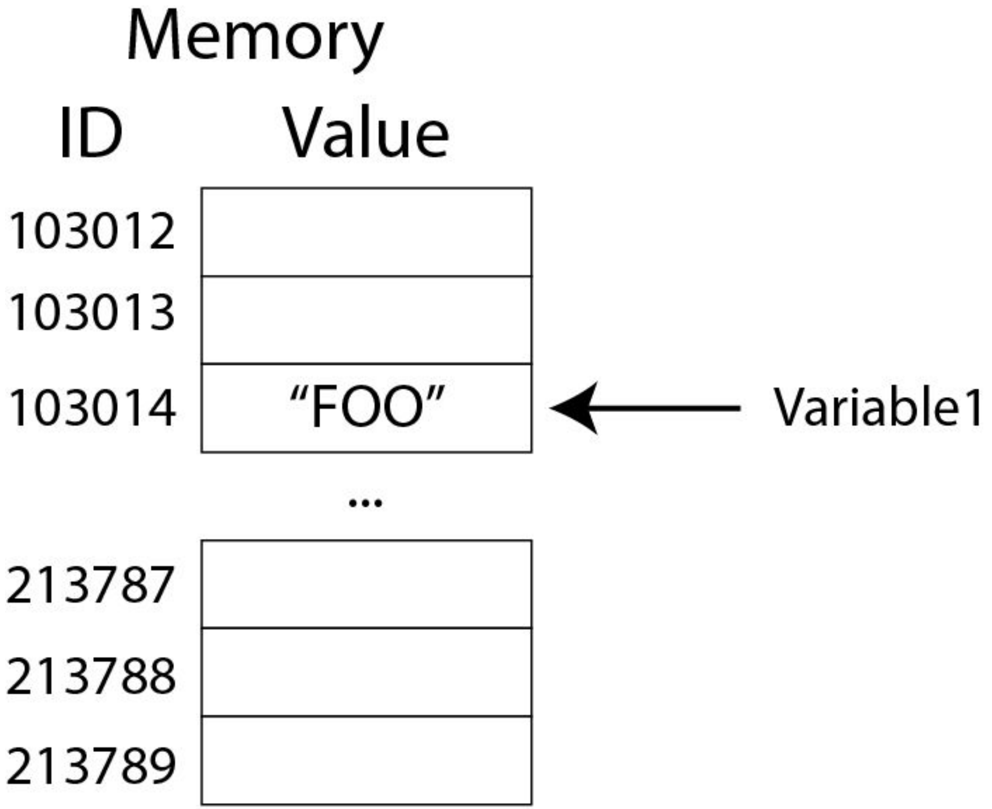
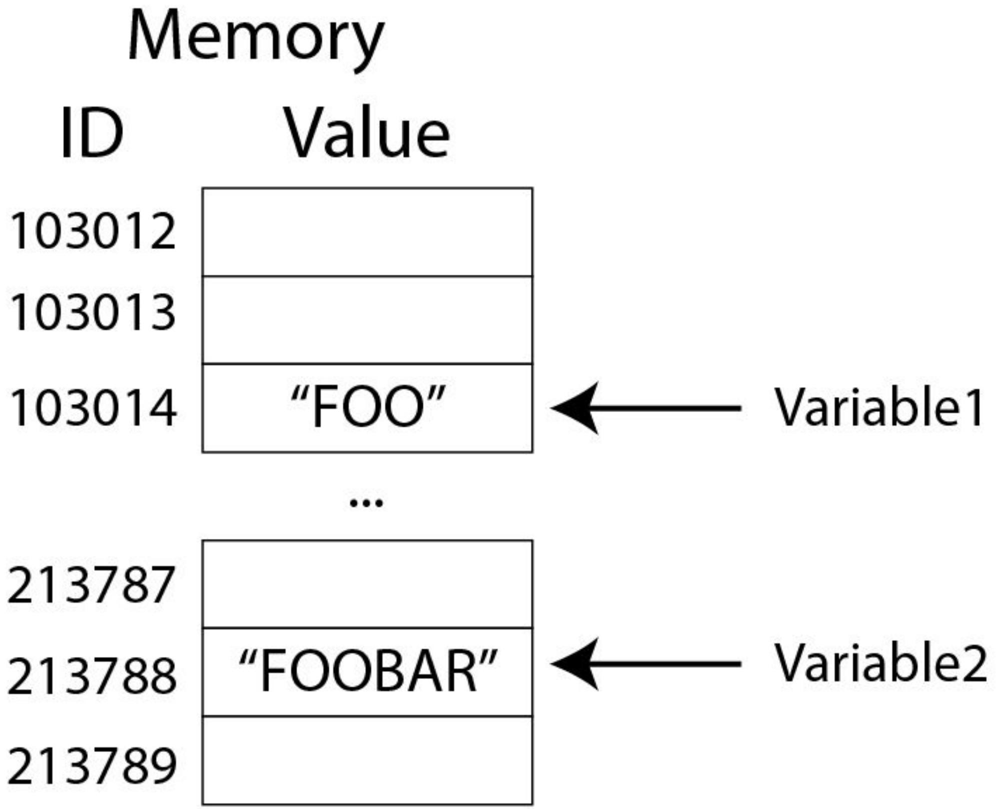
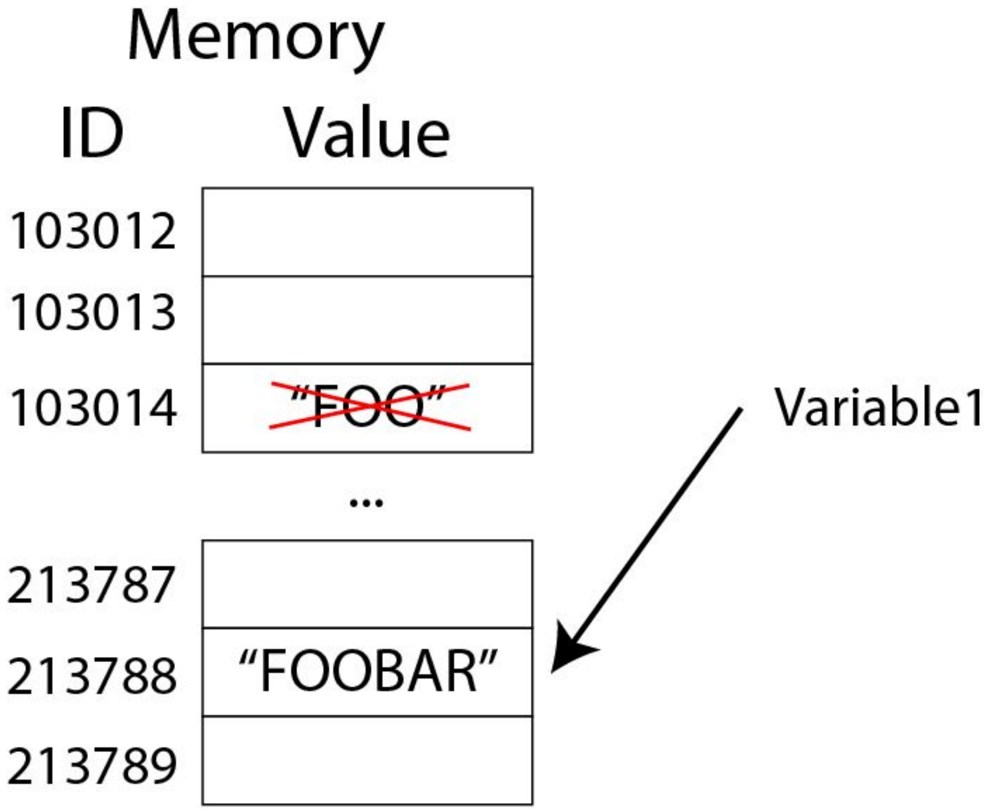


```
1:  Variable1 = "FOO"
```



```
1:  Variable1 = "FOO"
2:  Variable2 = Variable1 + "BAR"
```



1: Variable1 = "FOO"

2: Variable1 = Variable1 + "BAR"

git

Version control software

Tracks changes to files within a directory

Allows multiple people to collaborate on a project

Tracking Changes without VC

+ Main_File.txt	2.1 kb
+ Main_File_old_1.txt	1.0 kb
+ Main_File_old_2.txt	1.2 kb
+ Main_File_old_3.txt	1.3 kb
+ Main_File_old_4.txt	1.6 kb
+ Main_File_old_5.txt	1.8 kb

- One current version of the file
- Multiple copies with different changes in each copy
- Each new file will probably be bigger
    - This wastes space
- What happens when two people are working on the same document?
    - What happens if they both make a change to the same sentence?
    - What happens if one person deletes a sentence?

What Git Does

Version1

```python
results = []
for num in range(20):
    if num %2 == 0:
        results.append(num)

print(results)
```

Nothing has been saved yet so the entire file is saved

Version2

```python
results = []
for num in range(20):
    if num %2 == 1:
        results.append(num)

print(results)
```

All that changed is one line, so all that needs to be stored is:

```diff
- if num%2 == 0:
+ if num%2 == 1:
```

Git Workflow

1. Open the terminal (Osx/unix) or Git Bash(Windows)

2. Navigate to the directory you would like to track
   a. $ cd path/to/directory

3. Initialize git to track the directory
   a. $ git init

4. Add files/changes to be tracked
   a. $ git add .
      i. This will add all the files within the directory
   b. $ git add ‘filename’
      i. This will add specific files

5. Commit the changes, this saves a backup for how the files currently look
   a. $ git commit -m ‘commit message’
      i. -m is a flag for message, the text in quotes after the flag is the message

Useful Git Commands

$ git status

- tells you which branch you are on
- tells you which files have been modified

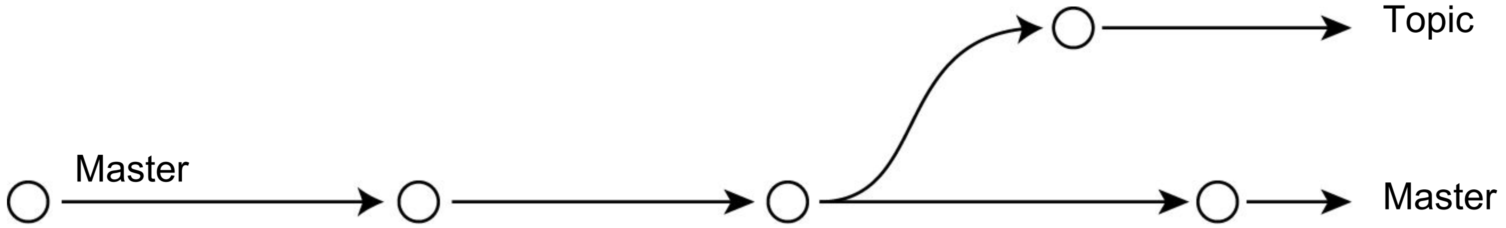
$ git diff ‘filename’

- shows you what changes have been made to the file since the last commit

$ git reset ‘filename’ or ‘.’

- opposite of $ git add ‘filename’ or ‘.’

Branching



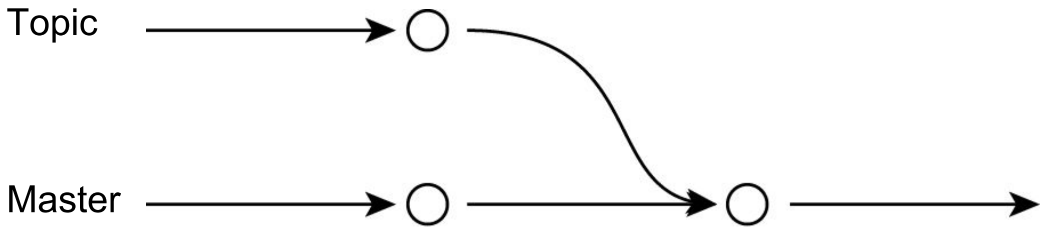
```
$ git branch 'branch_name'
```
- This will create a new branch

```
$ git checkout 'branch_name'
```
- This will change which branch is being used

```
$ git branch
```
- this command provides a list of branches
- an * is next to the active branch

```
$ git status
```
- This will also tell you which branch is active

Merging



```
$ git checkout master
```
- you always merge the changes into a branch

```
$ git merge Topic
```
- this will merge topic into master

Can result in merge conflicts

github.com

Allows you to store your code online

- This makes it easier to share code with collaborators
- It also is a more robust method of backing up your code

1. Create a new repository on github.com
2. Link your local repository with the online one
   a. `$ git remote add origin https://github.com/user/repo.git`

3. Check that the link is correct
   a. `$ git remote -v`

4. Push changes to github
   a. `$ git push remotename branchname`
   b. `$ git push origin master`

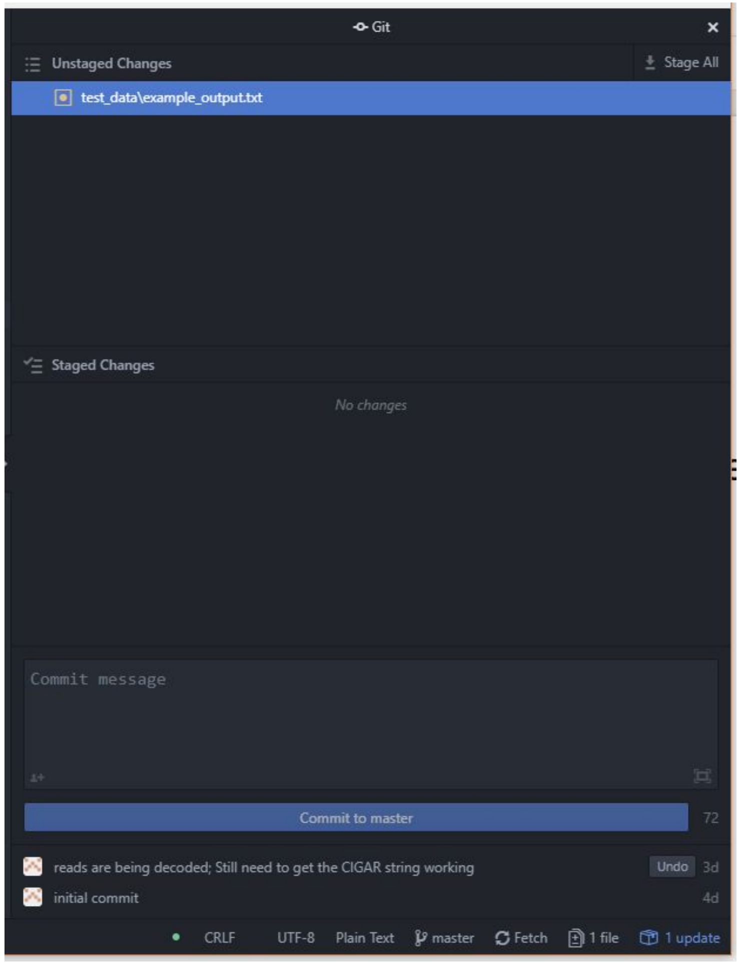
5. Pull changes from github
   a. `$ git pull remotename branchname`
   b. `$ git pull origin master`

Most of gits functionality is available in atom

- Repositories must be initialized and linked to the remote from the terminal first

More guides on git

https://guides.github.com/
https://www.atlassian.com/git/tutorials
https://git-scm.com/doc



test_data\example_output.txt

reads are being decoded; Still need to get the CIGAR string working 3d

initial commit 4d