CSCI 3308 Software Dev Methodologies and Tools

Lab -2
January 22, 2025

Announcements

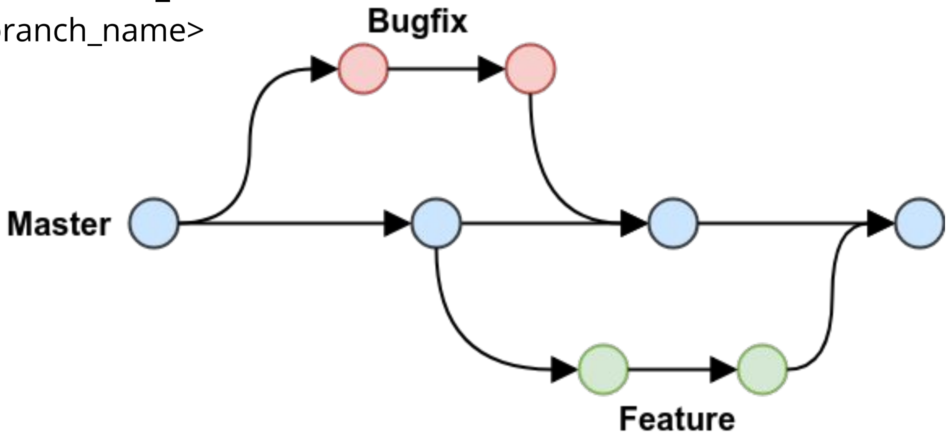
- Expect a team formation survey coming out soon. Ideally end of this week, latest by next week.
- Make sure when your attendance is being marked, you also provide your github username to your CA.
- Don't forget to submit your Lab assignment on the canvas

Git

Git Branches

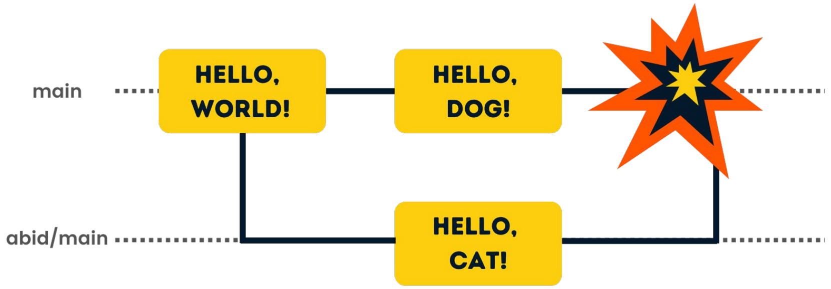
- Git branches are effectively a pointer to a snapshot of your changes. When you want to add a new feature or fix a bug—no matter how big or how small—you spawn a new branch to encapsulate your changes.
- This makes it harder for unstable code to get merged into the main code base, and it gives you the chance to clean up your future's history before merging it into the main branch.
- Commands:

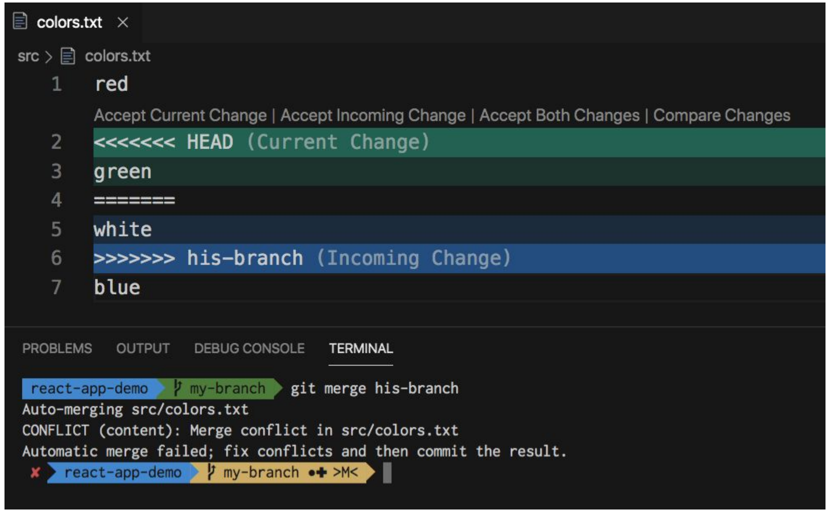
```
- git checkout -b <branch_name>
- git branch <branch_name>
```



Merge Conflicts

- Version control systems are all about managing contributions between multiple distributed authors (usually developers). Sometimes multiple developers may try to edit the same content.
- If Developer A tries to edit code that Developer B is editing a conflict may occur.

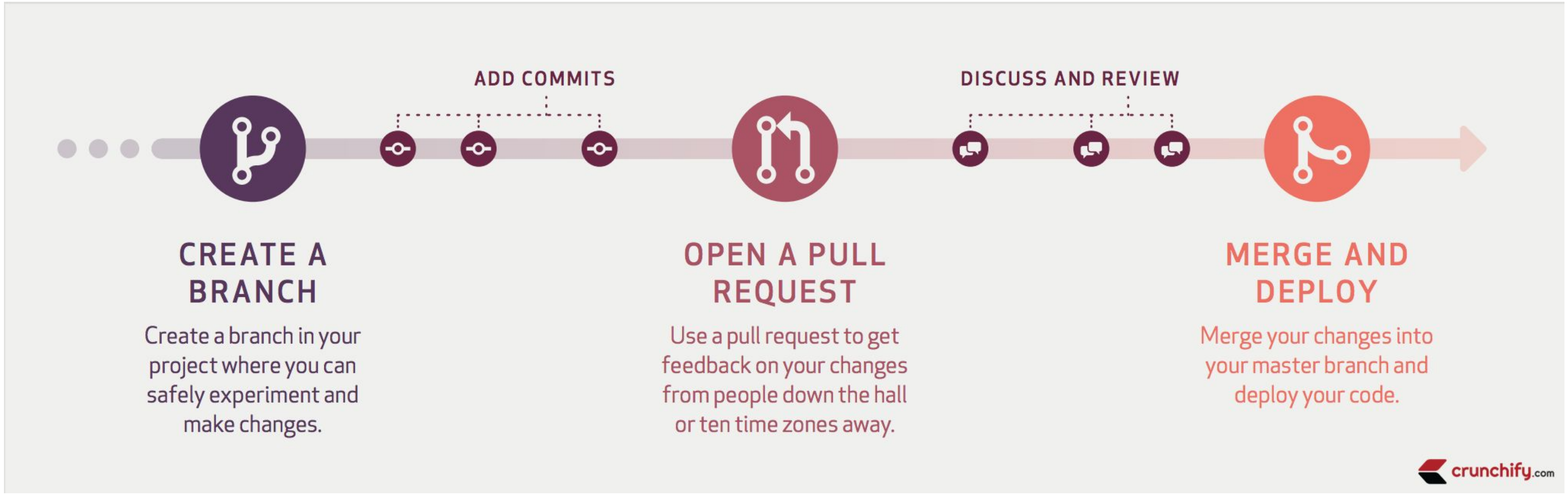



colors.txt
src > colors.txt
Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL

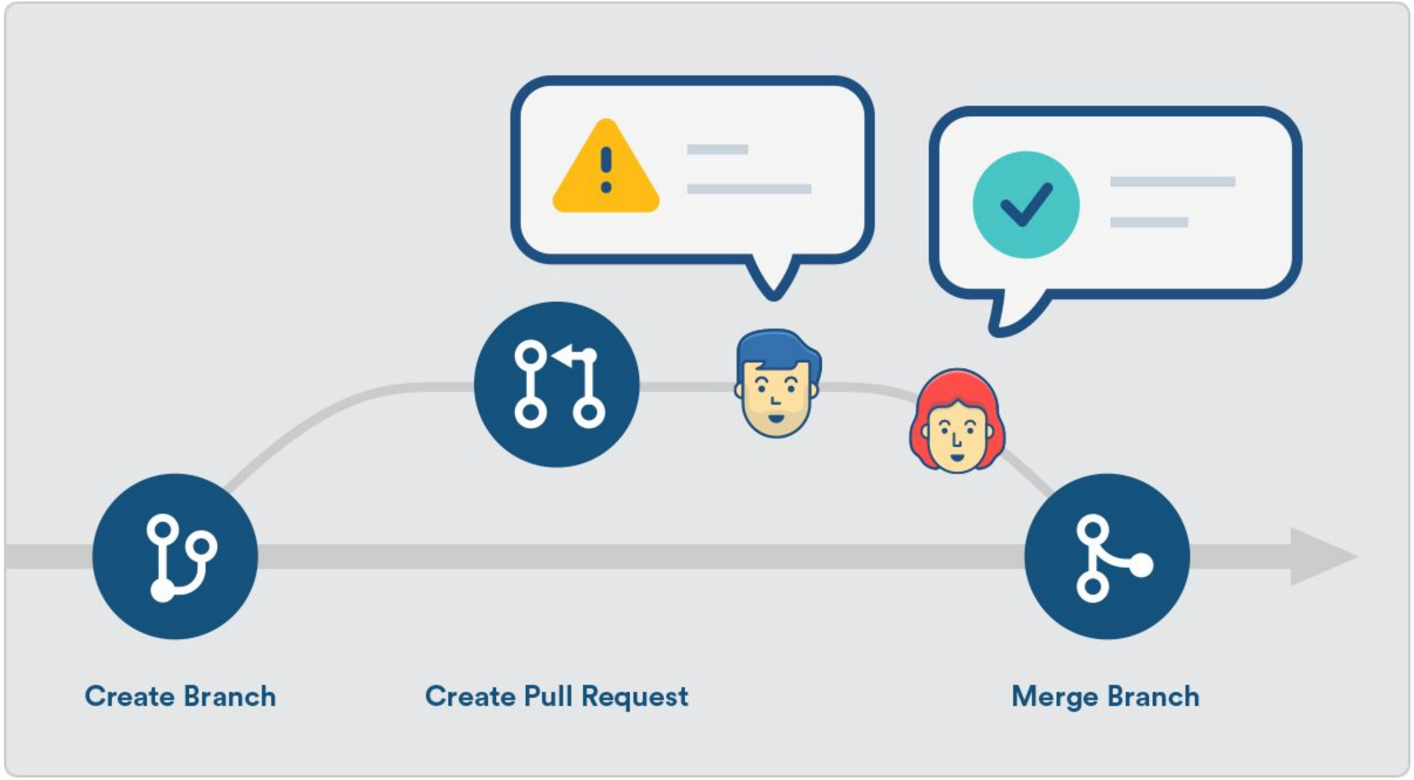
```
red
<<<<<<< HEAD (Current Change)
green
=======
white
>>>>>>> his-branch (Incoming Change)
blue
```

```
react-app-demo  my-branch  git merge his-branch
Auto-merging src/colors.txt
CONFLICT (content): Merge conflict in src/colors.txt
Automatic merge failed; fix conflicts and then commit the result.
✘  react-app-demo  my-branch ●✚ >M<
```

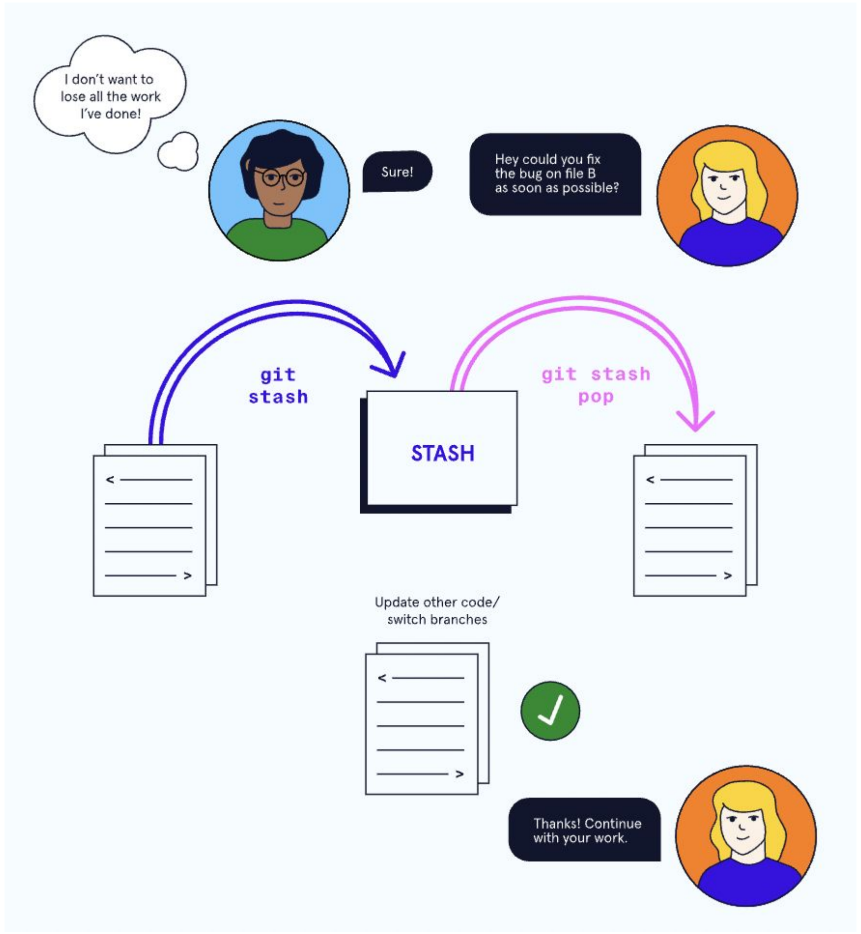
Pull Request


ADD COMMITS
DISCUSS AND REVIEW
CREATE A BRANCH
Create a branch in your project where you can safely experiment and make changes.
OPEN A PULL REQUEST
Use a pull request to get feedback on your changes from people down the hall or ten time zones away.
MERGE AND DEPLOY
Merge your changes into your master branch and deploy your code.
crunchify.com

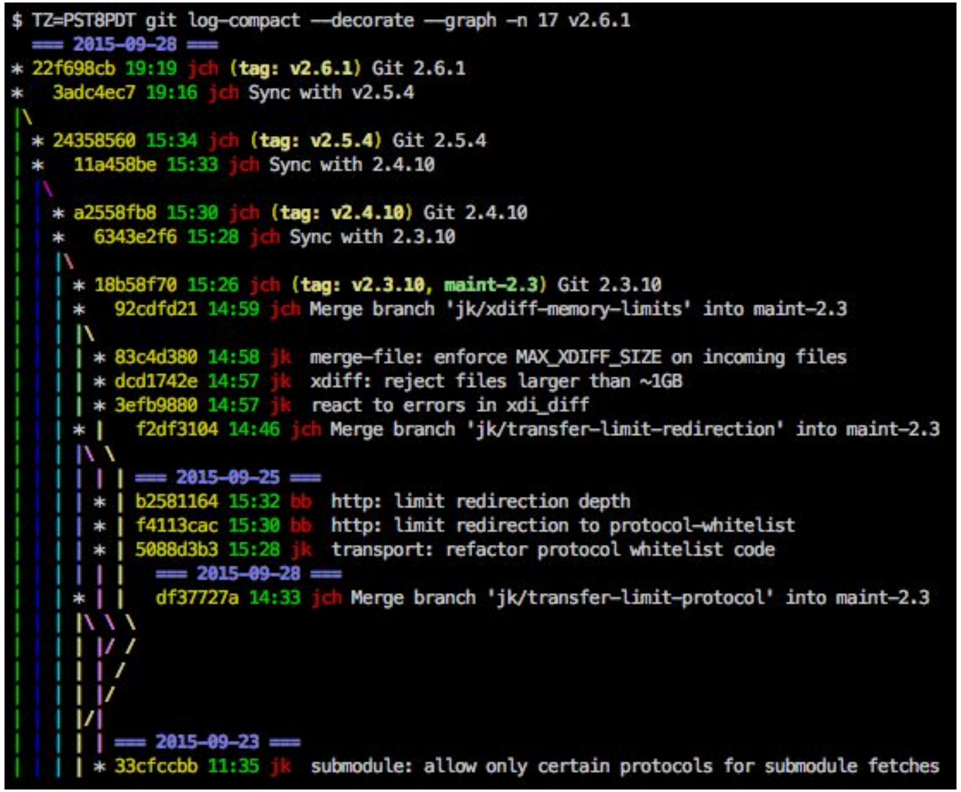
Pull Request



Git Stash / Git Pop

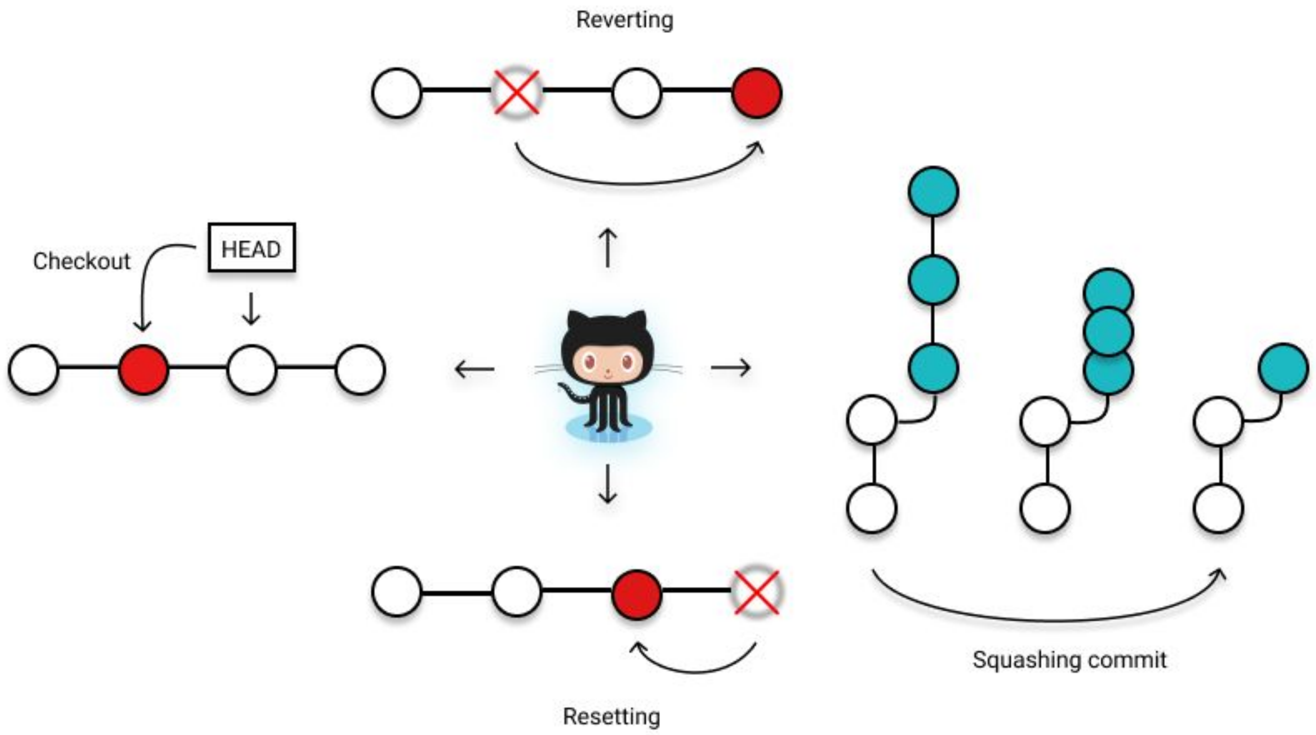

I don't want to lose all the work I've done!
Sure!
Hey could you fix the bug on file B as soon as possible?
git stash
STASH
git stash pop
Update other code/ switch branches
Thanks! Continue with your work.

Git log

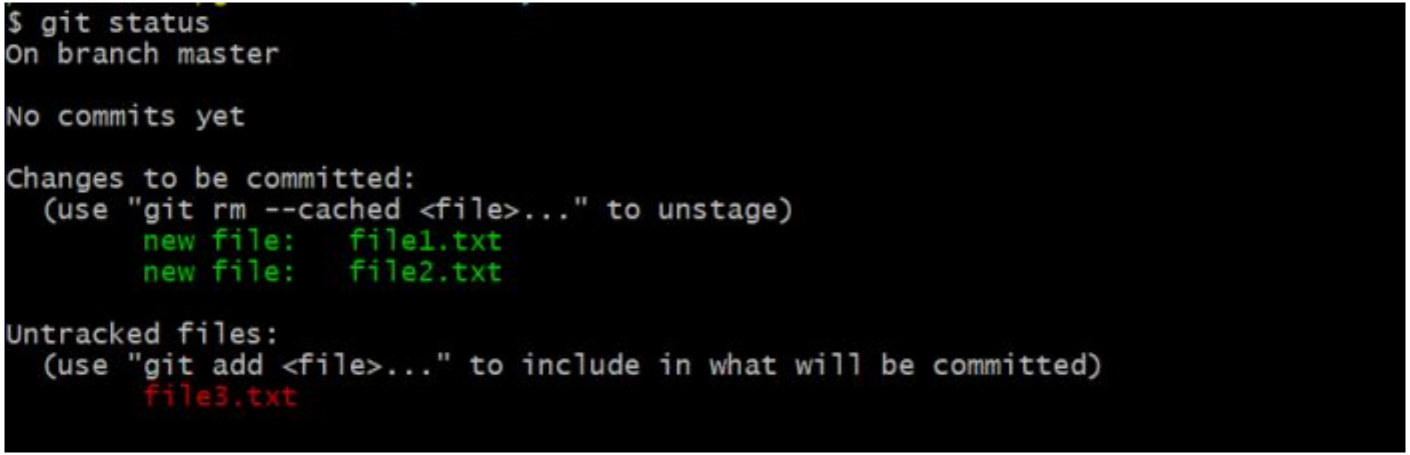


```
$ TZ=PST8PDT git log-compact --decorate --graph -n 17 v2.6.1
  === 2015-09-28 ===
* 22f698cb 19:19 jch (tag: v2.6.1) Git 2.6.1
*   3adc4ec7 19:16 jch Sync with v2.5.4
|\
| * 24358560 15:34 jch (tag: v2.5.4) Git 2.5.4
| *   11a458be 15:33 jch Sync with 2.4.10
| |\
| | * a2558fb8 15:30 jch (tag: v2.4.10) Git 2.4.10
| | *   6343e2f6 15:28 jch Sync with 2.3.10
| | |\
| | | * 18b58f70 15:26 jch (tag: v2.3.10, maint-2.3) Git 2.3.10
| | | *   92cdfd21 14:59 jch Merge branch 'jk/xdiff-memory-limits' into maint-2.3
| | | |\
| | | | * 83c4d380 14:58 jk  merge-file: enforce MAX_XDIFF_SIZE on incoming files
| | | | * dcd1742e 14:57 jk  xdiff: reject files larger than ~1GB
| | | | * 3efb9880 14:57 jk  react to errors in xdi_diff
| | | * |   f2df3104 14:46 jch Merge branch 'jk/transfer-limit-redirection' into maint-2.3
| | | |\ \
| | | | | | === 2015-09-25 ===
| | | | * | b2581164 15:32 bb  http: limit redirection depth
| | | | * | f4113cac 15:30 bb  http: limit redirection to protocol-whitelist
| | | | * | 5088d3b3 15:28 jk  transport: refactor protocol whitelist code
| | | | | |   === 2015-09-28 ===
| | | * | |   df37727a 14:33 jch Merge branch 'jk/transfer-limit-protocol' into maint-2.3
| | | |\ \ \
| | | | |/ /
| | | | | /
| | | | |/
| | | |/|
| | | | | === 2015-09-23 ===
| | | | * 33cfccbb 11:35 jk  submodule: allow only certain protocols for submodule fetches
```

Git Revert



Git Status



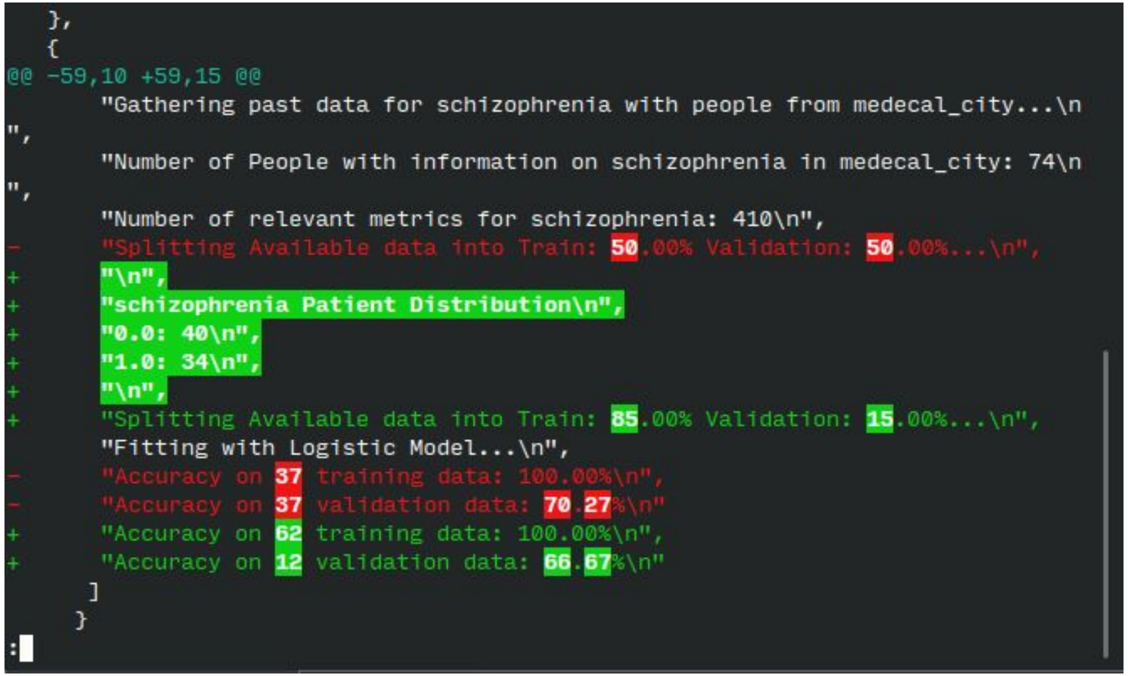
```
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   file1.txt
        new file:   file2.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file3.txt
```

Git Diff



```
   },
   {
@@ -59,10 +59,15 @@
       "Gathering past data for schizophrenia with people from medecal_city...\n
",
       "Number of People with information on schizophrenia in medecal_city: 74\n
",
       "Number of relevant metrics for schizophrenia: 410\n",
-      "Splitting Available data into Train: 50.00% Validation: 50.00%...\n",
+      "\n",
+      "schizophrenia Patient Distribution\n",
+      "0.0: 40\n",
+      "1.0: 34\n",
+      "\n",
+      "Splitting Available data into Train: 85.00% Validation: 15.00%...\n",
       "Fitting with Logistic Model...\n",
-      "Accuracy on 37 training data: 100.00%\n",
-      "Accuracy on 37 validation data: 70.27%\n"
+      "Accuracy on 62 training data: 100.00%\n",
+      "Accuracy on 12 validation data: 66.67%\n"
      ]
    }
:
```

Git Restore

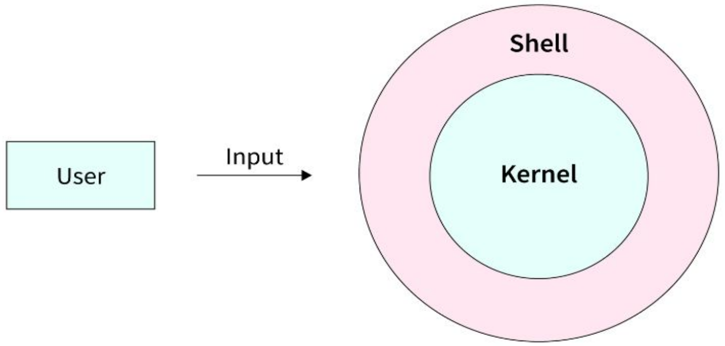
Remove changes made after the commit

- git restore <file_path>
- git restore .   (All files from current directory)

Shell Scripting

What is a Shell ?

- A shell is special user program which provide an interface to user to use operating system services.
- Shell accept human readable commands from user and convert them into something which kernel can understand.



Components of Shell Scripting

1. A shell script comprises following elements

2. Shell Keywords
   a. if, else, break etc.

3. Shell commands
   a. cd, ls, echo, pwd, touch etc.

4. Functions

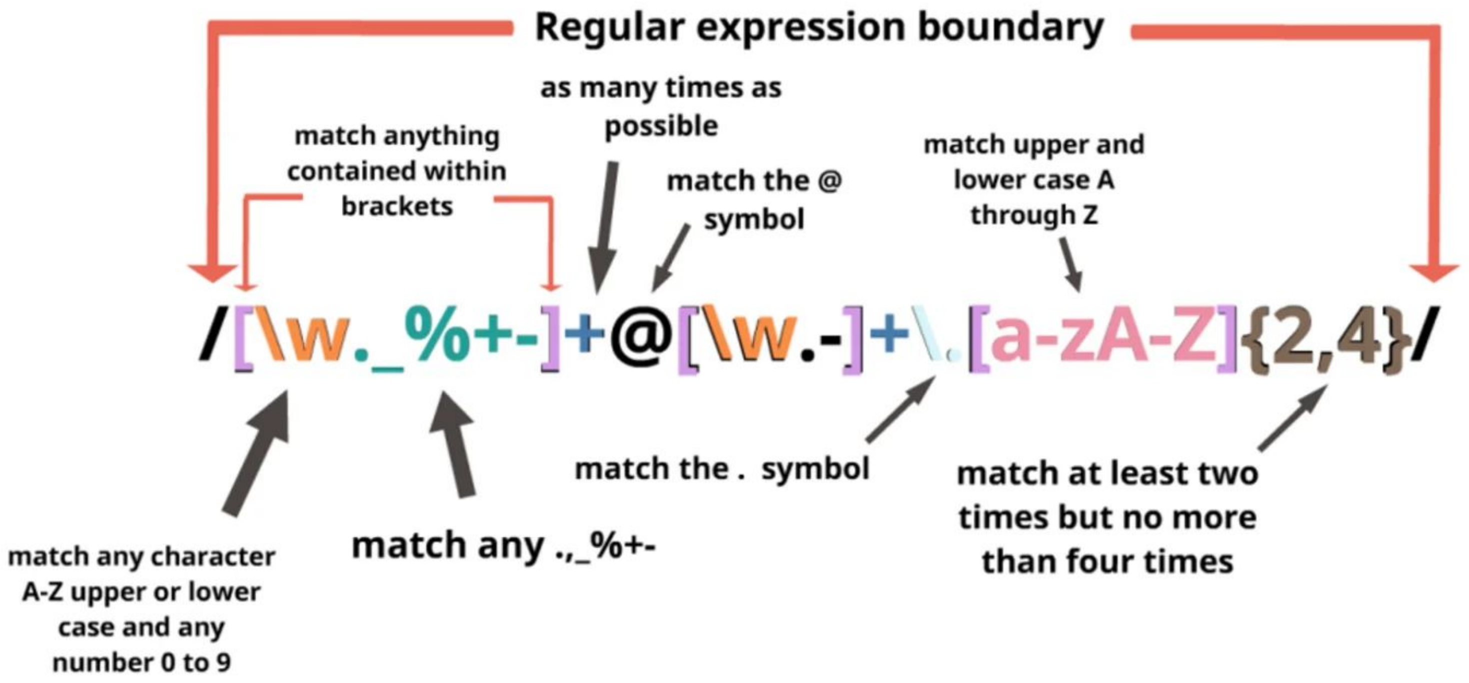
5. Control flow
   a. if..then..else, case and shell loops etc.

Some important shell scripting commands

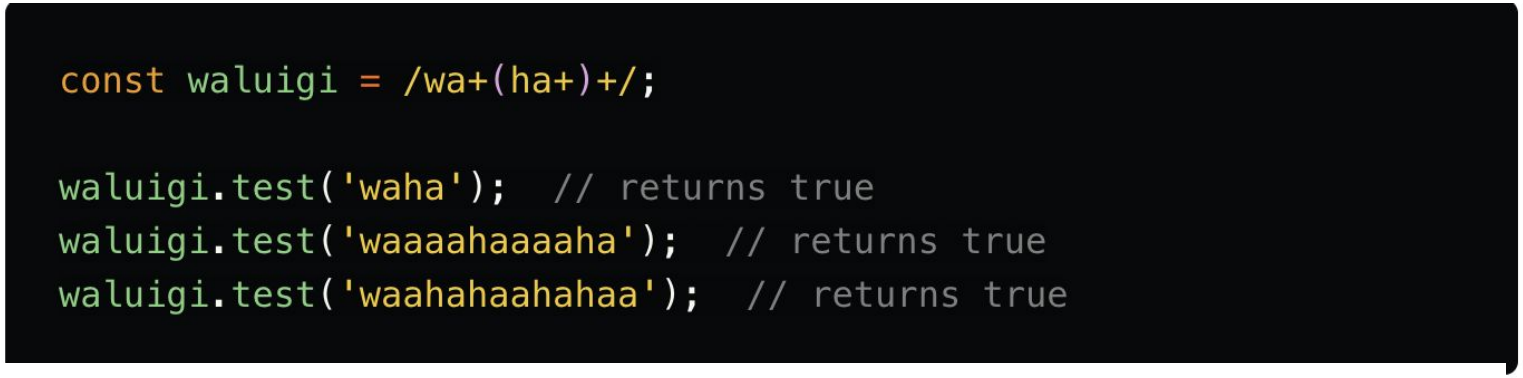
- **ls -** lists the contents of the directory
- **pwd -** to show the working directory
- **echo -** to show the environment variables
- **touch -** creates file
- **vim -** to open a file in a editor (vi)
- **chmod -** to make a file executable
- **cat -** check the contents of the file
- **rm -** delete a file

Regular Expression

Regex

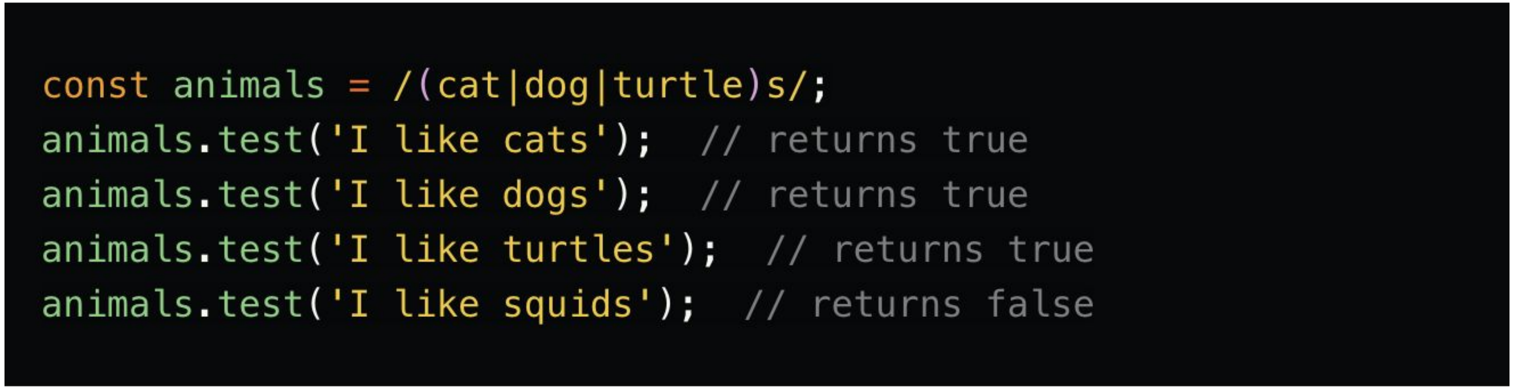

Regular expression boundary
as many times as possible
match anything contained within brackets
match the @ symbol
match upper and lower case A through Z
/[\w._%+-]+@[\w.-]+\.[a-zA-Z]{2,4}/
match the . symbol
match at least two times but no more than four times
match any character A-Z upper or lower case and any number 0 to 9
match any .,_%+-

Regex



```
const waluigi = /wa+(ha+)+/;

waluigi.test('waha');  // returns true
waluigi.test('waaaahaaaaha');  // returns true
waluigi.test('waahahaahahaa');  // returns true
```



```
const animals = /(cat|dog|turtle)s/;
animals.test('I like cats');  // returns true
animals.test('I like dogs');  // returns true
animals.test('I like turtles');  // returns true
animals.test('I like squids');  // returns false
```

Lets get to work !!!

You got 45 minutes.

Once you clone, the return value is 1. Make a new commit to 0 to ensure you get a merge conflict.

If you don't get a merge conflict, reach out to your TA / CA