[320] Branching and Merging
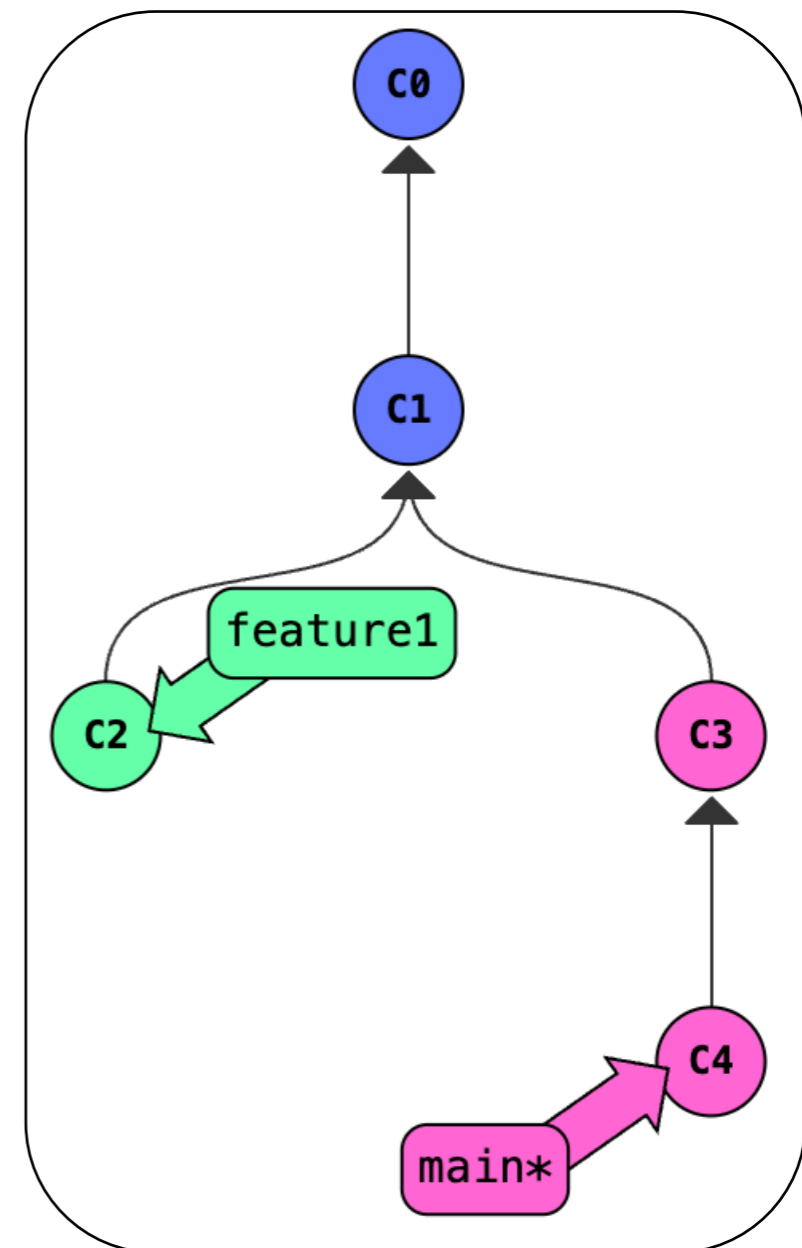
Yiyin Shen

Practice Branching
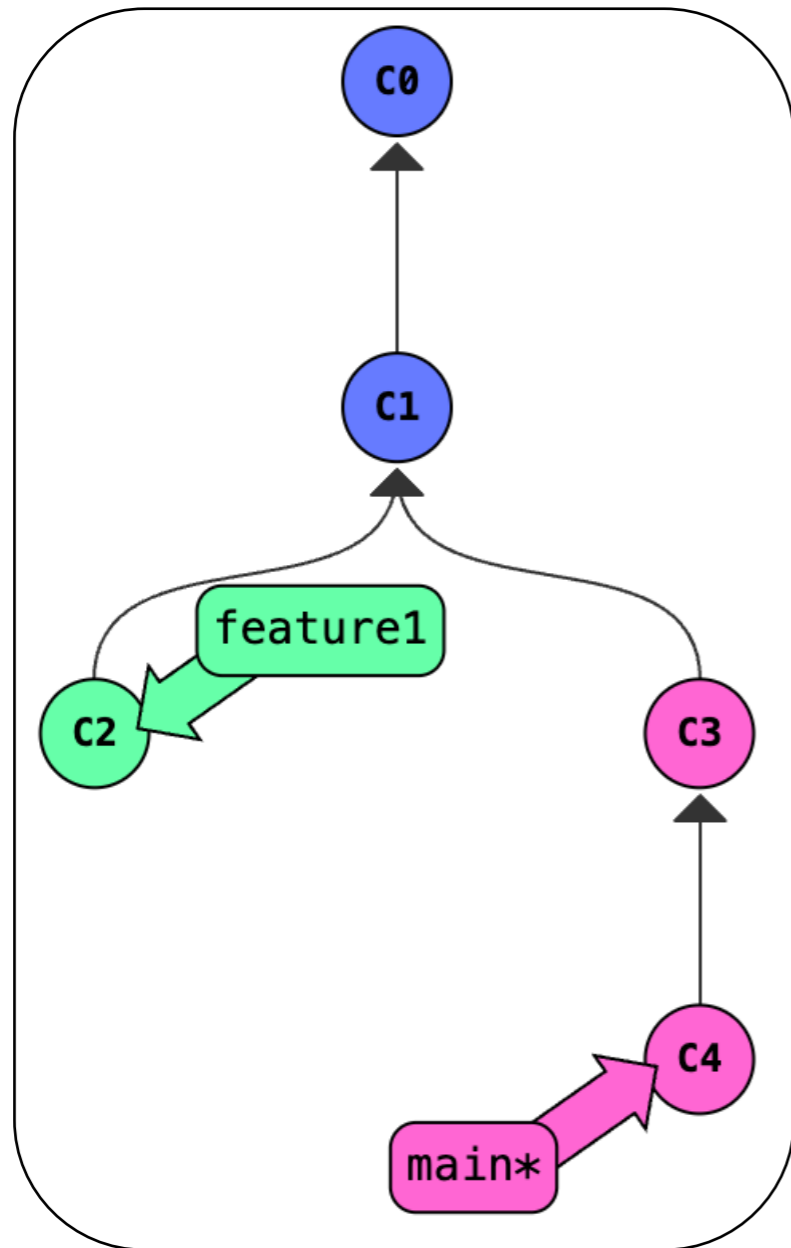
Git Simulator:

https://tyler.caraza-harter.com/cs320/learnGitBranching/index.html


```
$ git branch feature1
$ git checkout feature1
$ git commit
$ git checkout master
$ git commit -m 'v1'
$ git commit
```

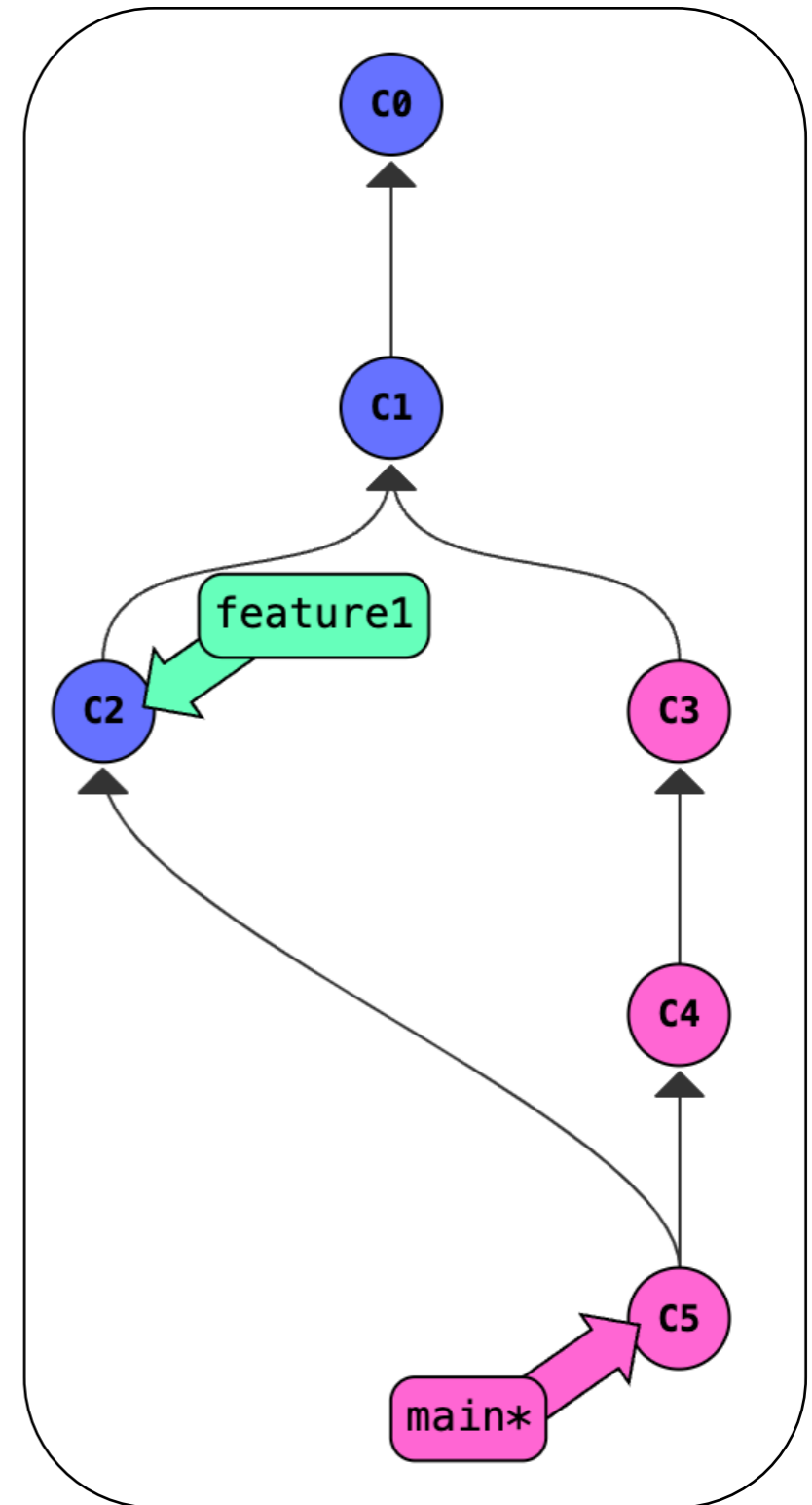# Merging without Conflicts

Switch branch

`git merge frombranch`

add whatever is there to the current branch
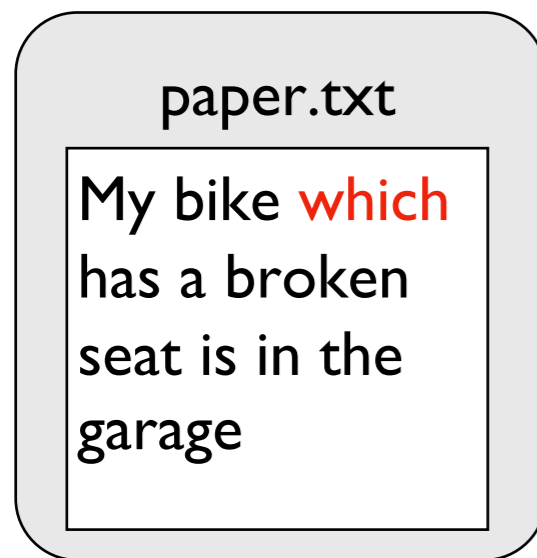
tip (or learn vim):
`export EDITOR=nano`

Merging with Conflicts

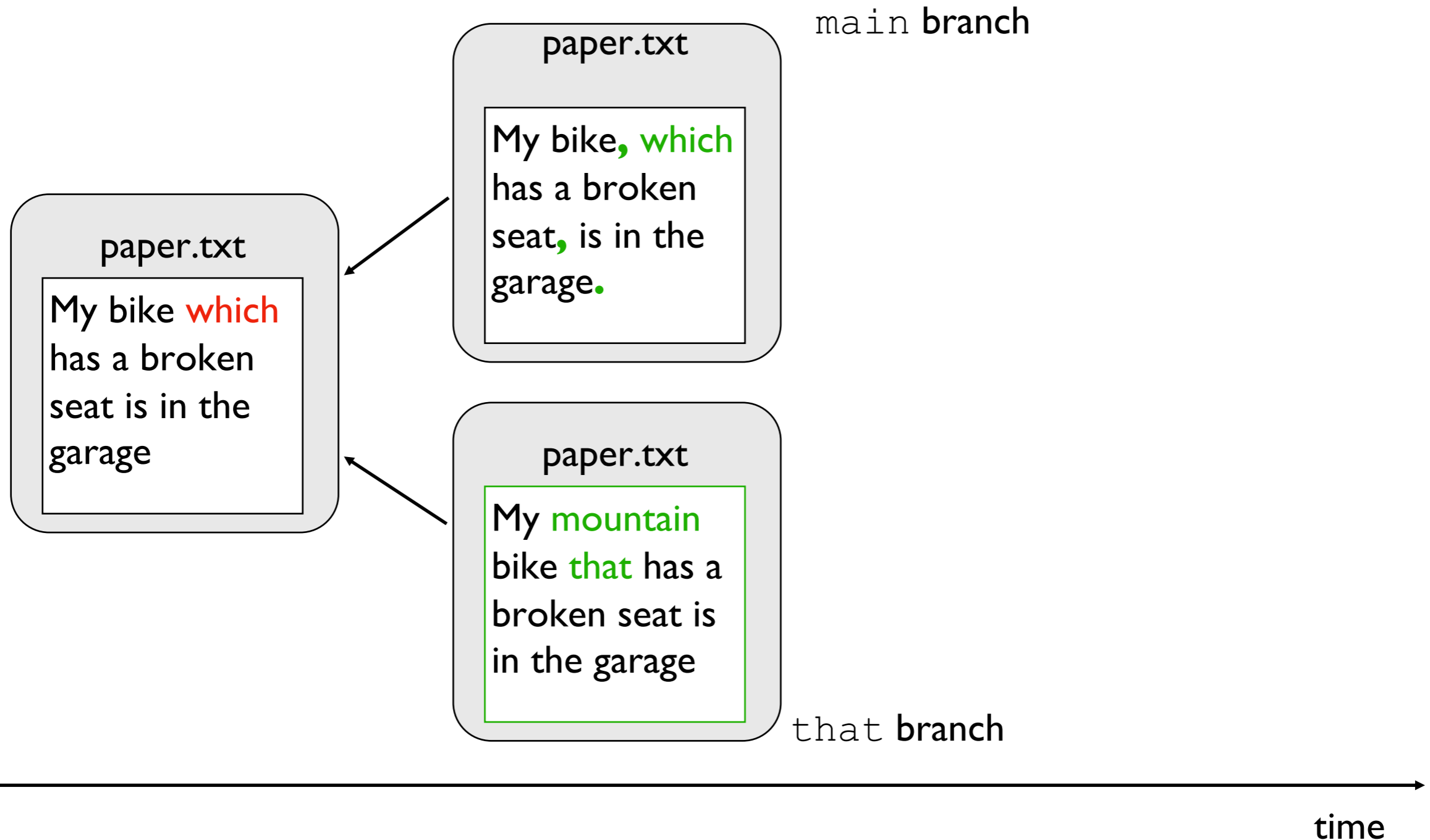What happens when two people try to fix the same issue, in two different (incompatible) ways?

main **branch**

paper.txt

My bike which has a broken seat is in the garage

time

Merging with Conflicts

What happens when two people try to fix the same issue, in two different (incompatible) ways?

`main` **branch**

paper.txt
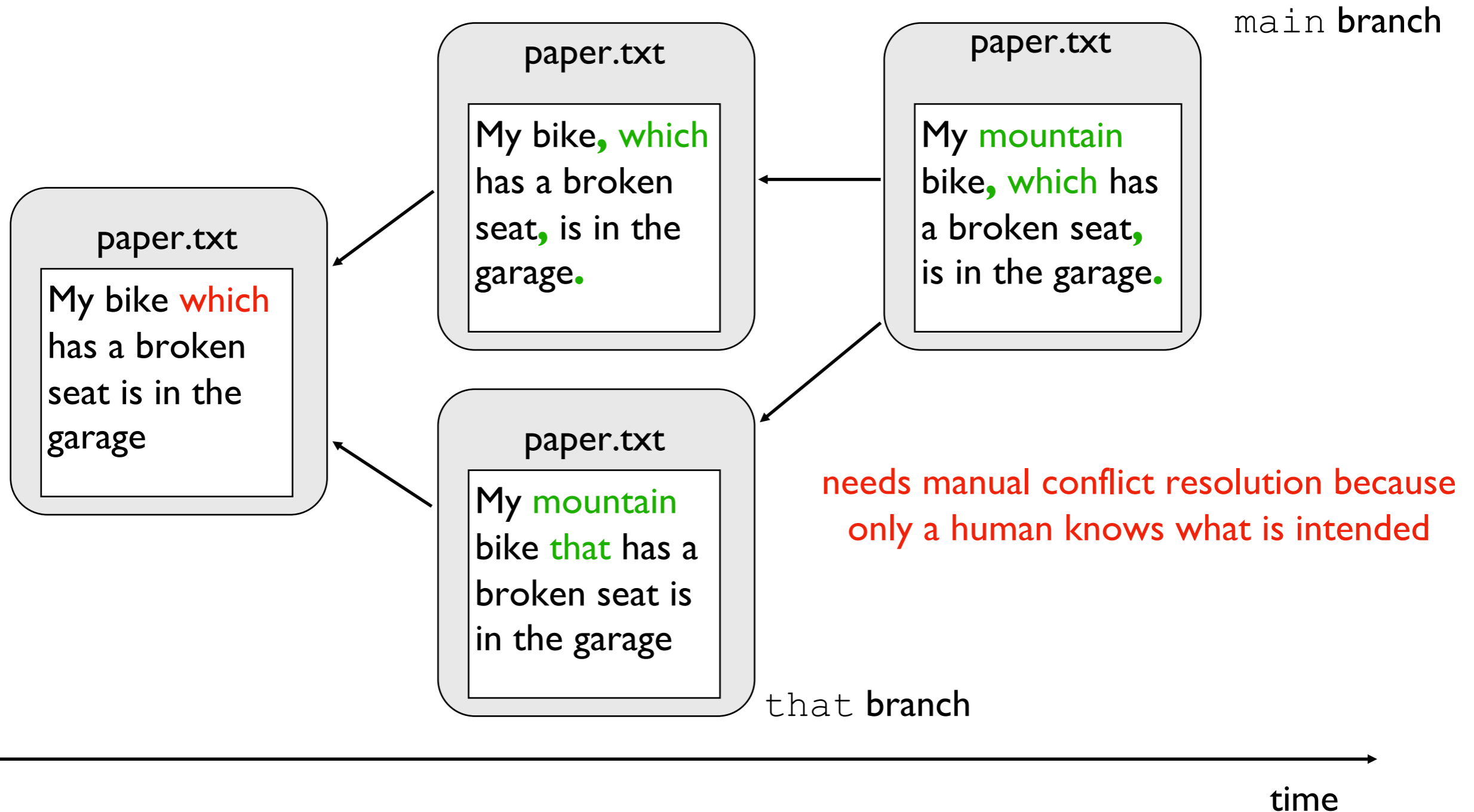
My bike, which has a broken seat, is in the garage.

paper.txt

My bike which has a broken seat is in the garage

paper.txt

My mountain bike that has a broken seat is in the garage

`that` **branch**

time

Merging with Conflicts

What happens when two people try to fix the same issue, in two different (incompatible) ways?

paper.txt

My bike, which has a broken seat, is in the garage.

paper.txt

My mountain bike, which has a broken seat, is in the garage.

paper.txt

My bike which has a broken seat is in the garage

paper.txt

My mountain bike that has a broken seat is in the garage

that **branch**

needs manual conflict resolution because only a human knows what is intended

time

https://www.grammarly.com/blog/which-vs-that/

Summary of Terms

commit: a snapshot of files at a point in time

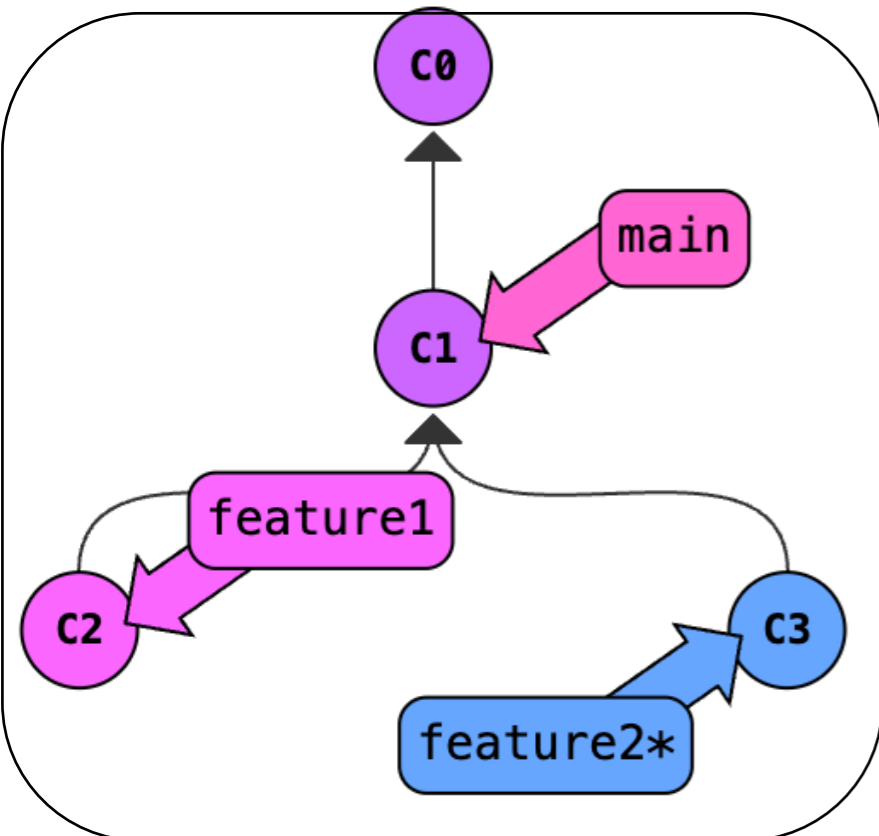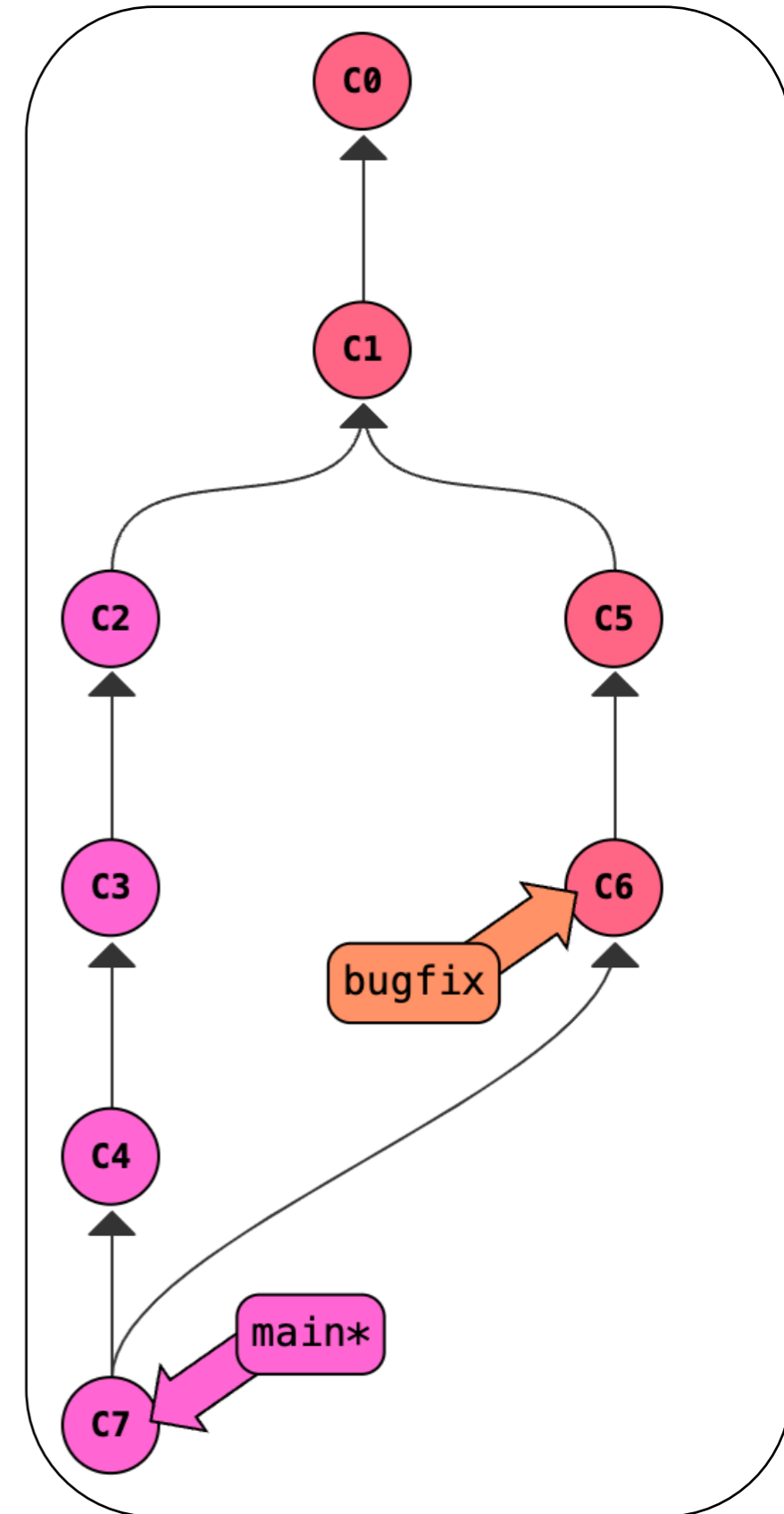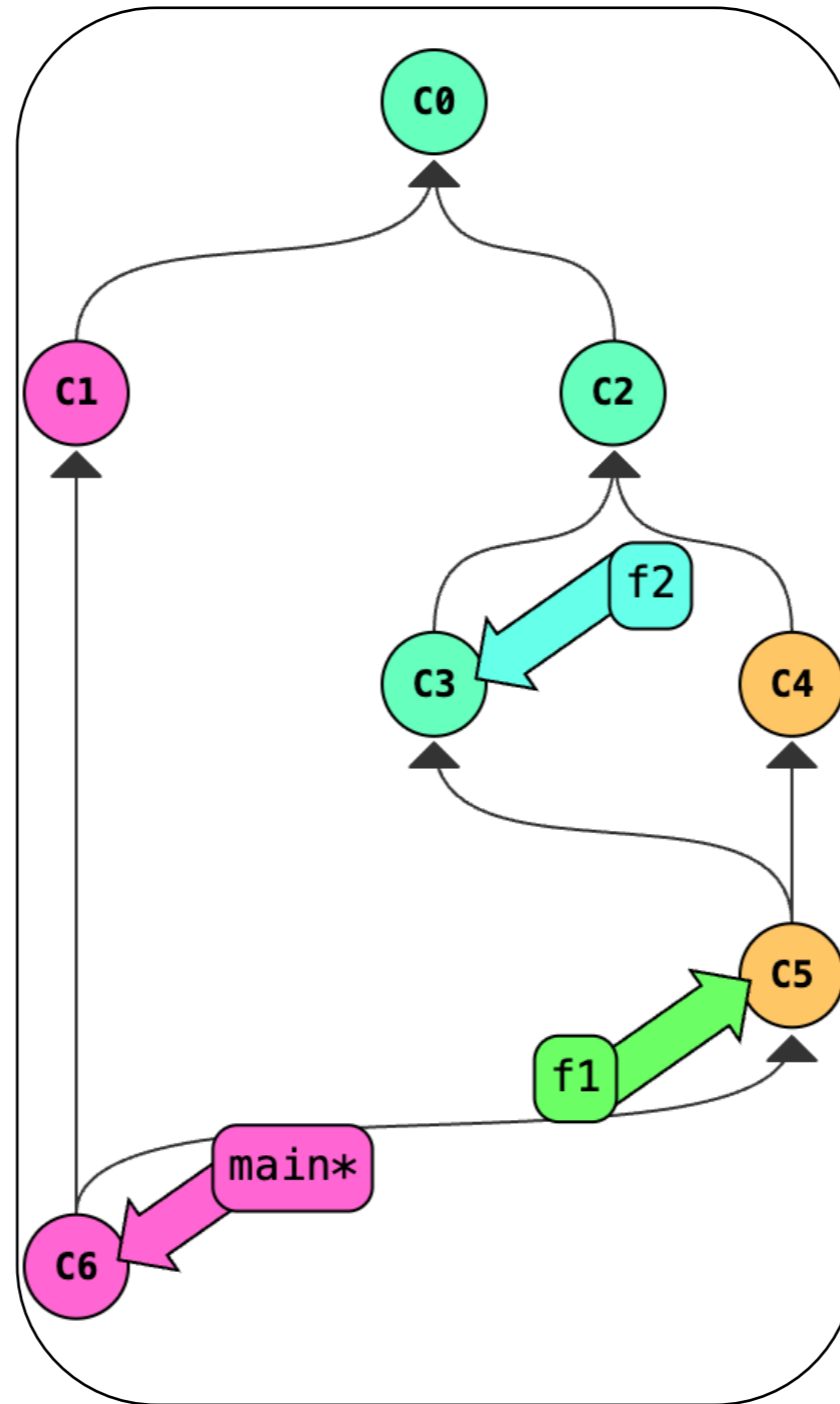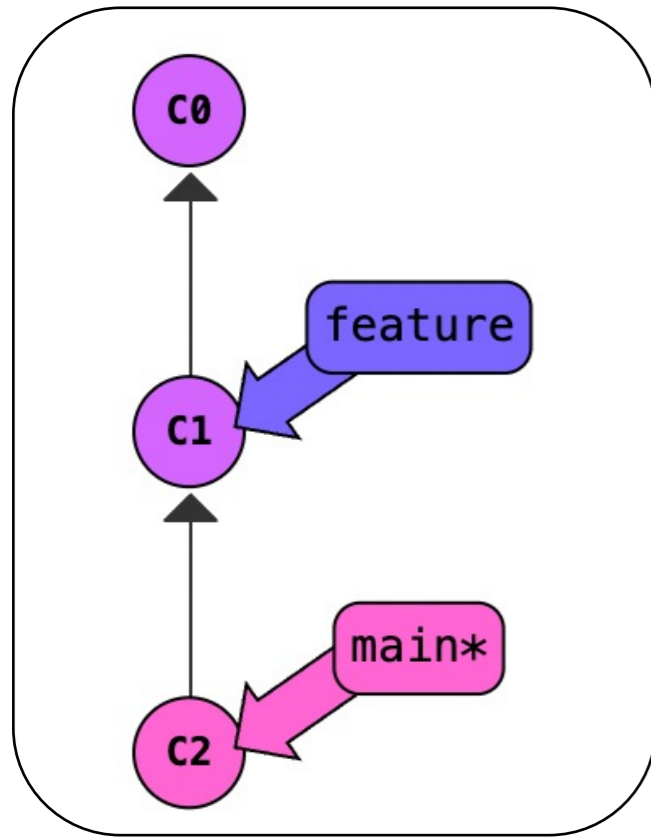HEAD: a convenient label for the current commit

tag: a long-term label associated with a commit

branch: a label attached to a commit that re-attaches to new commits

merge: to combine changes on another branch into the current branch

conflict: differences that cannot automatically be merged

Challenges (figure out how to reproduce):

Before class:
1. P1 release
2. Student information survey due tonight
3. Screenshots for lab 1A due tonight
4. Quiz 1 due Thursday night

Bug Tracing:
Ctrl + R:
pwd:
ls:
git clone URL:
cd directory:
cd ..:
git pull:
cat:
python3 xxx.py:
<xxx>:
[xxx]:
Tab:
sys.argv:
git status:
git diff:
git restore file:
:q:
git add file:
git commit + nano:
git commit -m "msg":
git log:
git checkout commit_number:
git checkout main:
git push:

Git Simulator:
Detached head:
Attached head (branch_name*****):
Ghost commit:
git branch:
git checkout branch_name:
git checkout -b branch_name:
git tag:
A head can only point to a branch or a commit (never a tag)
git merge:
fast forward merge:
non fast forward merge:

Conflict Resolution:
mkdir:
git init:

# of commits in git log: