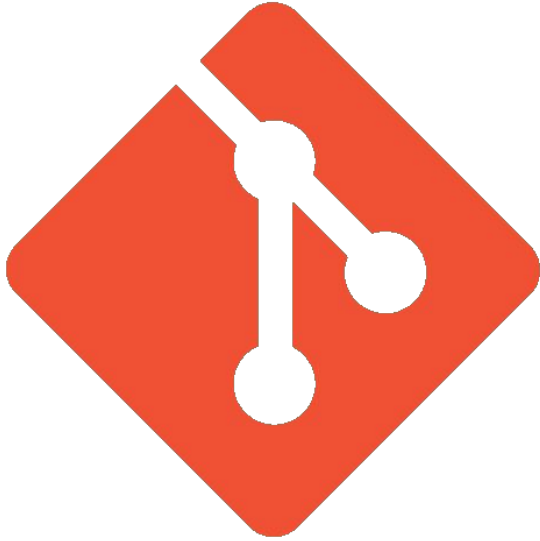


VCS Concept



git



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1  <!DOCTYPE html>
2  <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" content=
" text/html; charset=UTF-8">
3  <title>A great SEO optimized page title</title>
4  <link rel="alternate" type="application/rss+xml" title="RSS 2.0" href="https://www.sublimetext.com/blog
/feed">
5  <meta name="description" content="extraordinary features and amazing performance.">
6
7      <meta http-equiv="X-UA-Compatible" content="IE=edge">
8      <meta name="viewport" content="width=480, user-scalable=yes">
9      <link href="prose_files/css" rel="stylesheet">
10     <link rel="stylesheet" type="text/css" href="/sublime_v3.css">
11     <link rel="icon" href="https://www.sublimetext.com/favicon.ico">
12     <link rel="icon" size="64x64" href="https://www.sublimetext.com/favicon.ico">
13     <link rel="icon" sizes="192x192" href="https://www.sublimetext.com/images/icon.png">
14     <link rel="apple-touch-icon-precomposed" sizes="192x192" href="https://www.sublimetext.com/images/
icon.png">
15     <script type="text/javascript">
16     var plat = 'windows'
17     if (/Mac OS X/.test(navigator.userAgent))
18     |     plat = 'osx'
19     else if (/Linux|FreeBSD/.test(navigator.userAgent))
20     |     plat = 'linux'
21     var arch = /WOW64|Win64|x86_64/.test(navigator.userAgent) ? '64' : '32'
22     document.documentElement.className += ' plat_' + plat + ' arch_' + arch
23     function byid(x)
24     | {
25     |     return document.getElementById(x)
26     | }
27     var scale = 1
28     function res()
29     | {
30     |     scale = window.devicePixelRatio >= 1.3 && document.body.clientWidth > 1024 ? 2 : 1
31     |     return scale == 2 ? '@2x' : ''
32     | }
```



```
Present.htm
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1 <!DOCTYPE html>
2 <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" content=
" text/html; charset=UTF-8">
3 <title>A great SEO optimized page title</title>
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5 <meta
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Present.htm
UNREGISTERED

1 <!DOCTYPE html>
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4 <link rel="alternate" type="application/rss+xml" title="RSS 2.0" href="https://www.sublimetext.com/blog
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8 <meta name="viewport" content="width=480, user-scalable=yes">
9 <link href="prose_files/css" rel="stylesheet">
10 <link rel="stylesheet" type="text/css" href="/sublime_v3.css">
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17 if (/Mac OS X/.test(navigator.userAgent))
18 plat = 'osx'
19 else if (/Linux|FreeBSD/.test(navigator.userAgent))
20 plat = 'linux'
21 var arch = /WOW64|Win64|x86_64/.test(navigator.userAgent) ? '64' : '32'
22 document.documentElement.className += ' plat_' + plat + ' arch_' + arch
23 function byid(x)
24 {
25 }
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29 {
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32 }
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32 characters selected

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2 <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" content=
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Present.htm
1 <!DOCTYPE html>
2 <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" c
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5 <meta name="description" content="extraordinary features and amazing performance.">
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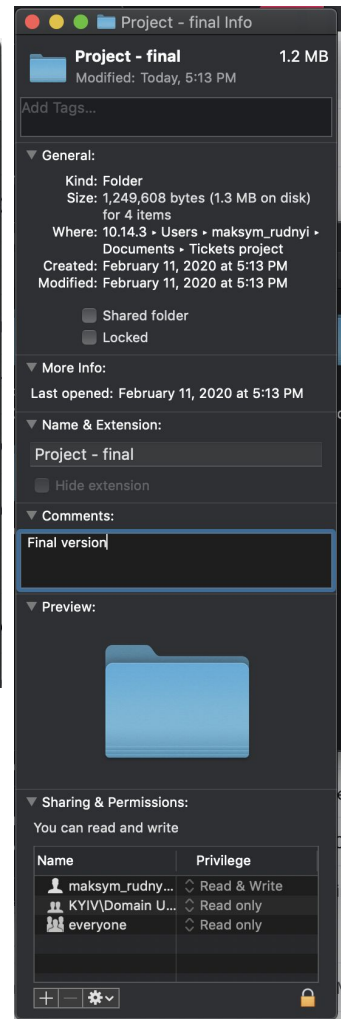
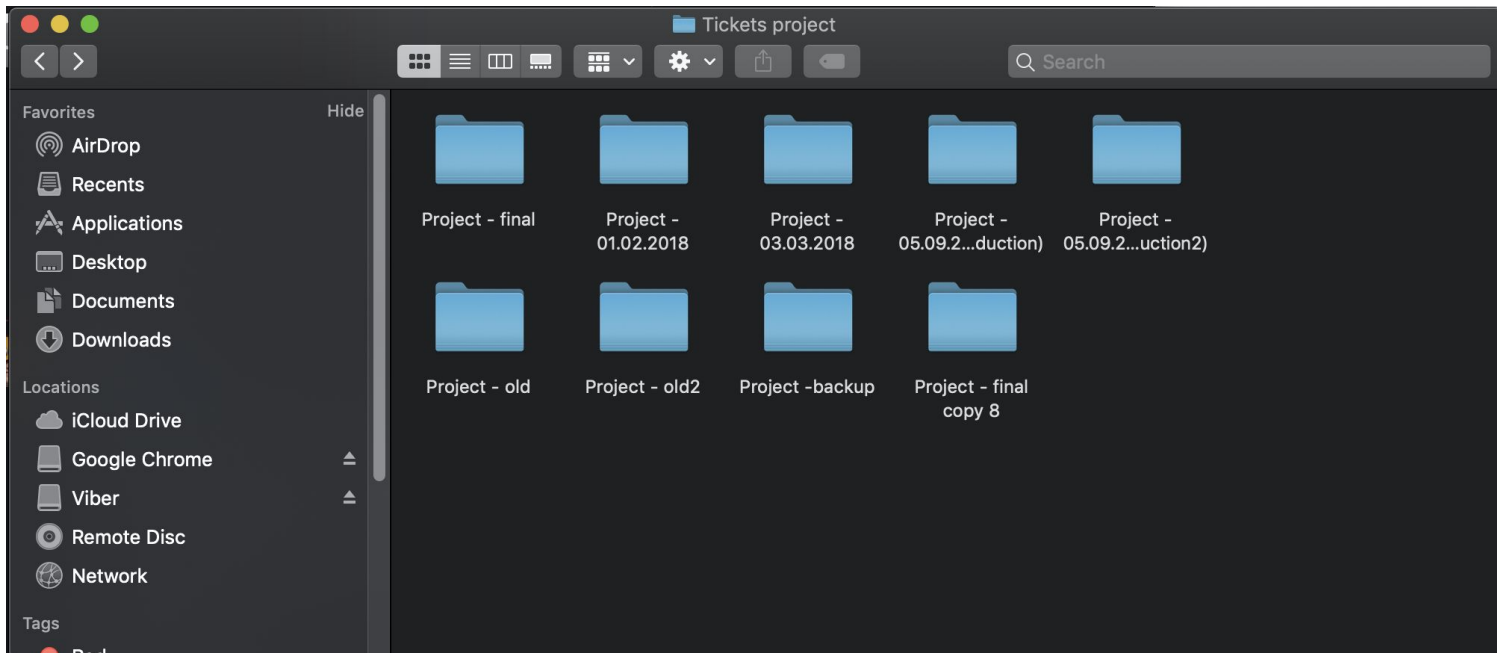


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Present.htm
1 <!DOCTYPE html>
2 <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" content=
  "text/html; charset=UTF-8">
3 <title>A great SEO optimized page title</title>
4 <link rel="alternate" type="application/rss+xml" title="RSS 2.0" href="https://www.sublimetext.com/blog
  /feed">
5 <meta
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1 <!DOCTYPE html>
2 <html class=" plat_osx arch_32" data-lt-installed="true"><head><meta http-equiv="Content-Type" c
  "text/html; charset=UTF-8">
3 <title>{Document title is generated by script}</title>
4 <link rel="alternate" type="application/rss+xml" title="RSS 2.0" href="https://www.sublimetext.c
  /feed">
5 <meta name=
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∨ Frequent folders (8)



Desktop
This PC



Downloads
This PC



Documents
This PC



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Local Disk (C:)



benchmark
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classroom
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Version control system (VCS) requirements

1. Backup and restore
2. Synchronization
3. Undo
4. Track changes and ownership
5. Sandboxing
6. Branching

Lock-modify-unlock strategy

SCCS, VAULT

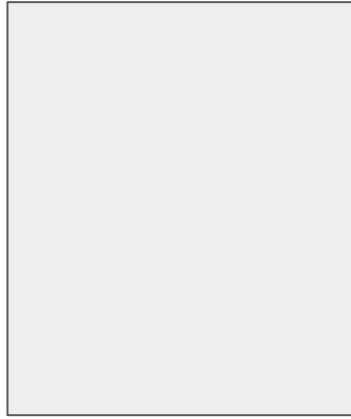
SVN, Perforce, TFS

Copy-modify-merge strategy

CVS, GIT, Mercurial, GNU Bazaar

Lock-modify-unlock strategy

Lock-modify-unlock strategy



Song.txt

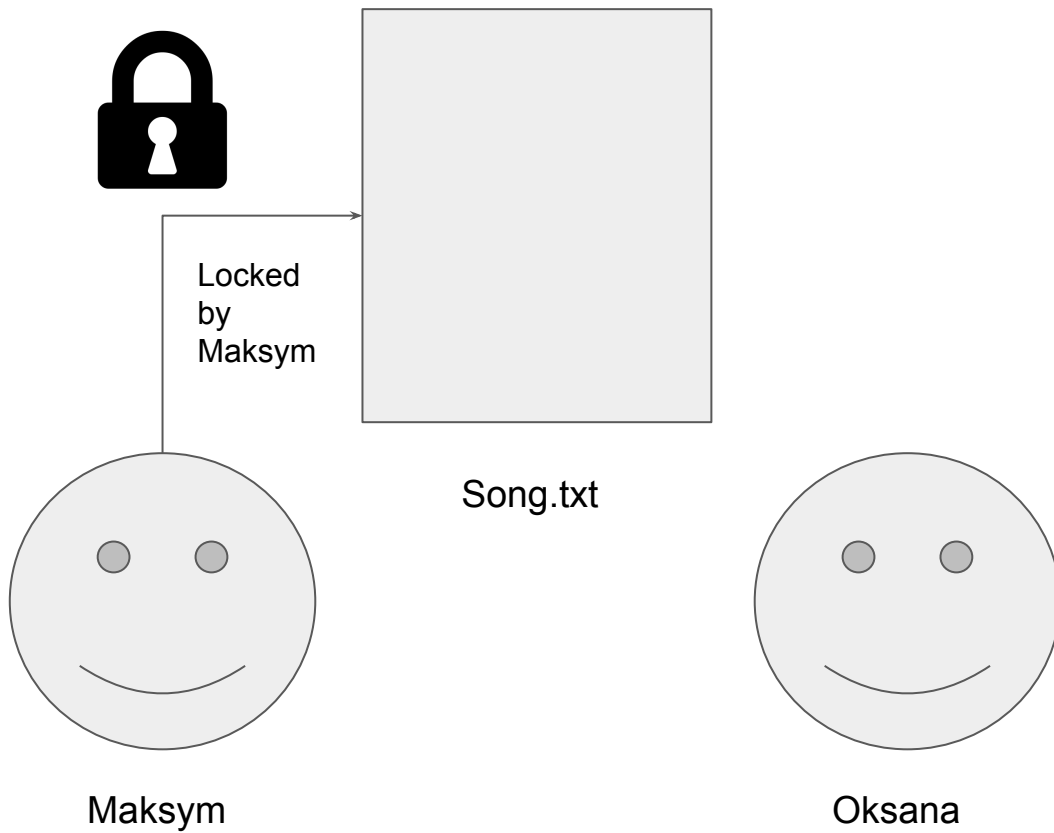


Maksym



Oksana

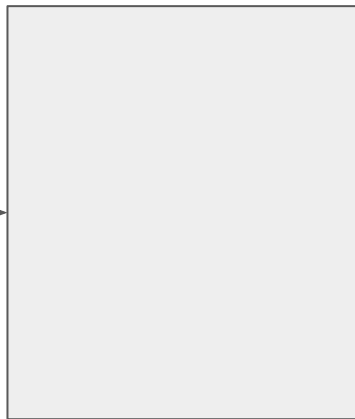
Lock-modify-unlock strategy



Lock-modify-unlock strategy

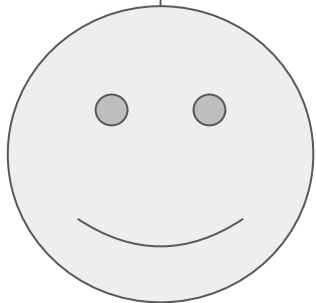


Locked
by
Maksym



Song.txt

The snow glows
white on the
mountain tonight



Maksym



Oksana

Lock-modify-unlock strategy

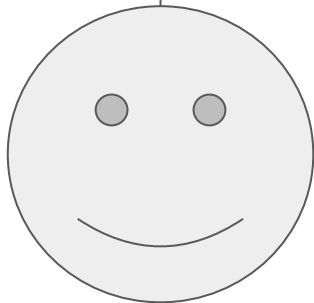


The snow glows
white on the
mountain tonight

Locked
by
Maksym

Song.txt

The snow glows
white on the
mountain tonight



Maksym



Oksana

Lock-modify-unlock strategy



The snow glows
white on the
mountain tonight

Song.txt

The snow glows
white on the
mountain tonight



Maksym



Oksana

Lock-modify-unlock strategy



The snow glows
white on the
mountain tonight

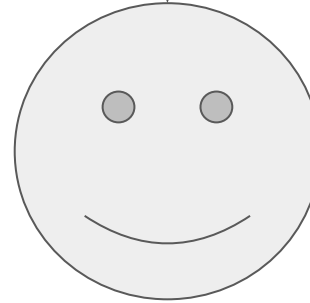
Song.txt

Oksana updates her local copy

The snow glows
white on the
mountain tonight



Maksym



Oksana

Lock-modify-unlock strategy



The snow glows
white on the
mountain tonight

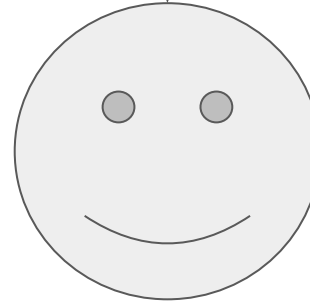
Song.txt

Oksana updates her local copy

The snow glows
white on the
mountain tonight



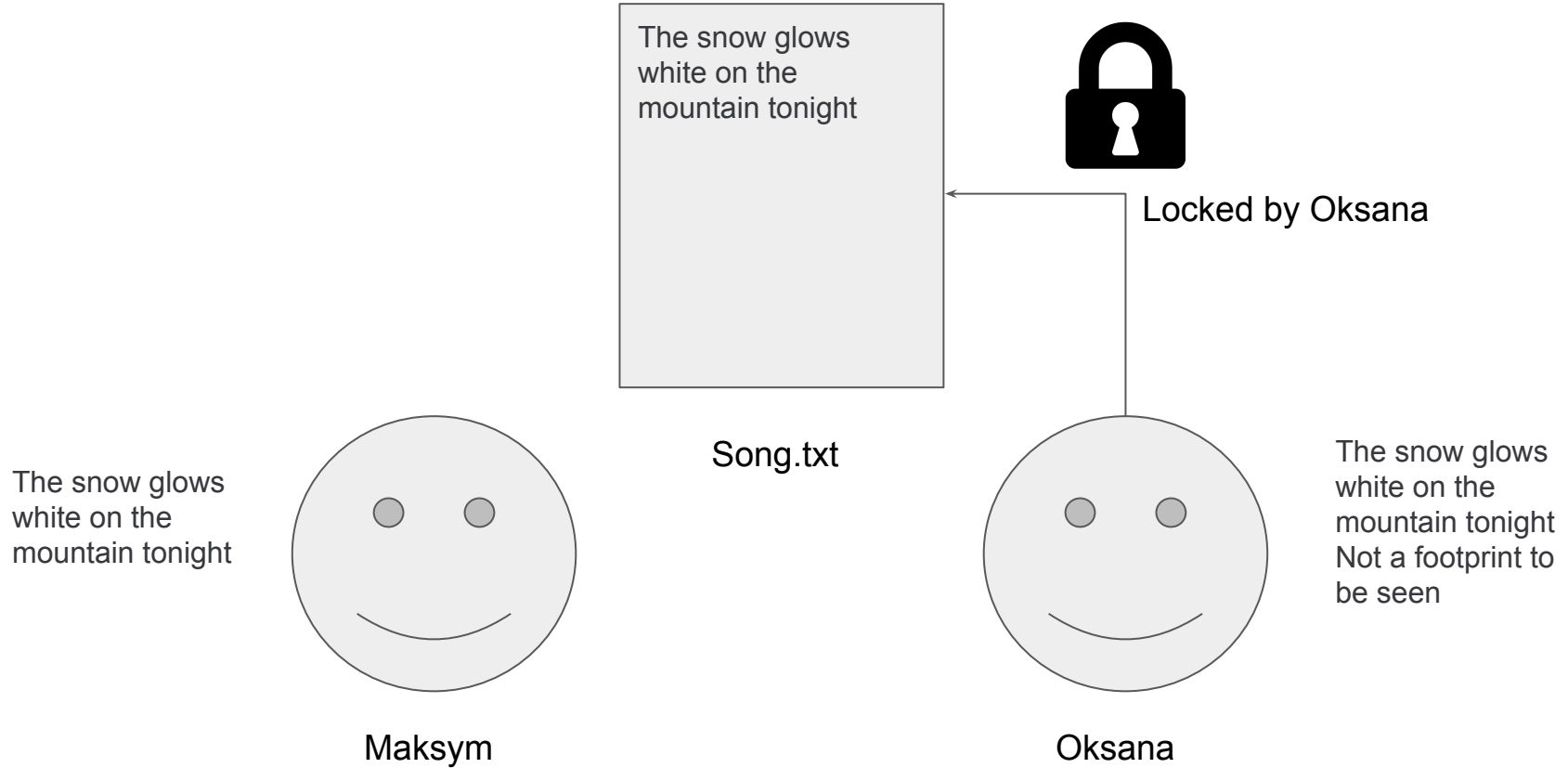
Maksym



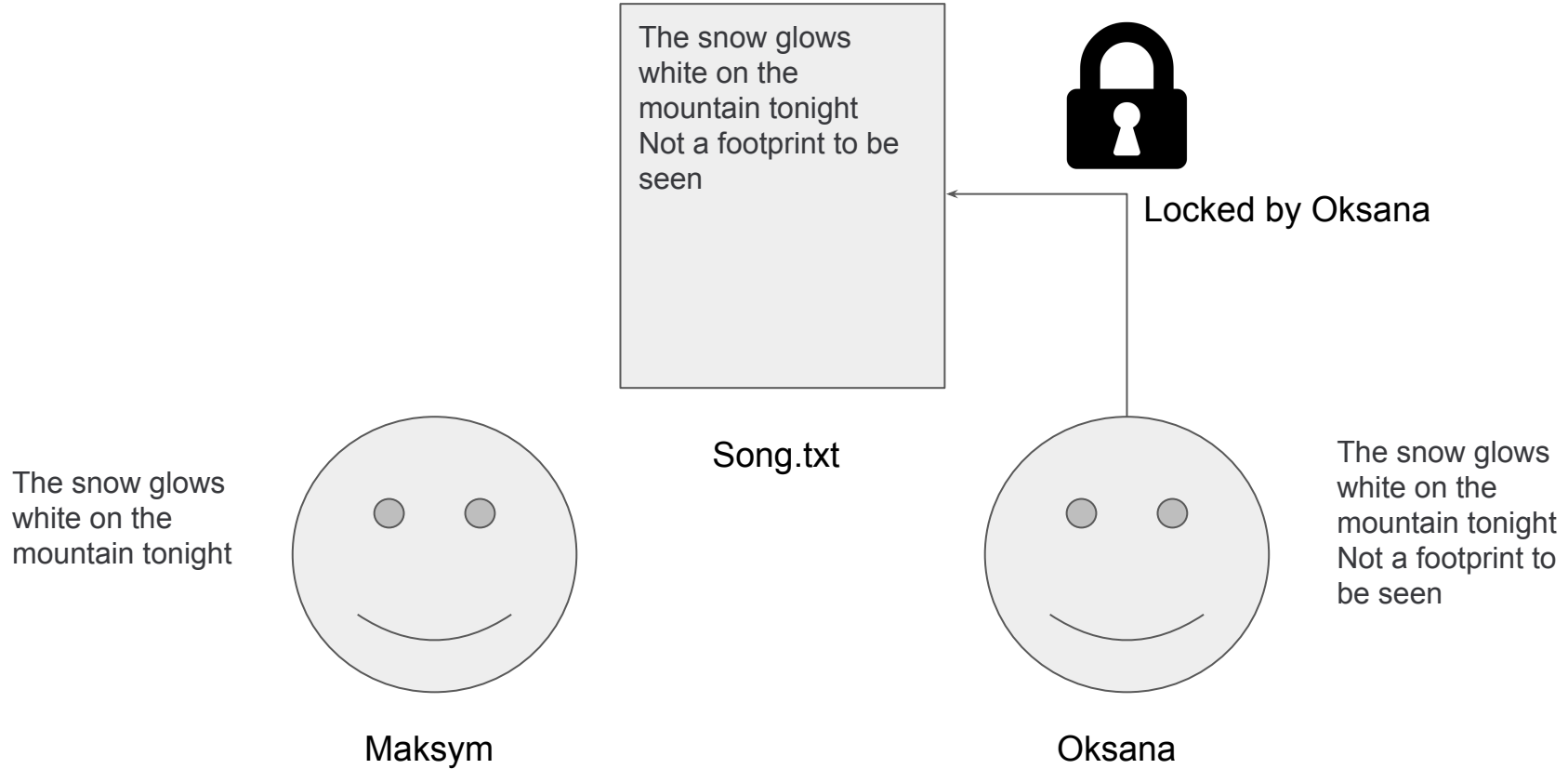
Oksana

The snow glows
white on the
mountain tonight

Lock-modify-unlock strategy



Lock-modify-unlock strategy



Lock-modify-unlock strategy

The snow glows
white on the
mountain tonight
Not a footprint to be
seen



Unlocked by
Oksana

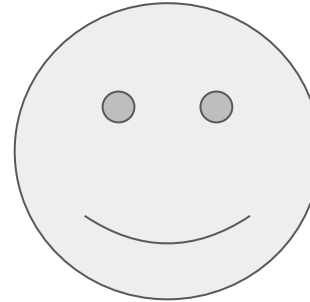
Song.txt

The snow glows
white on the
mountain tonight



Maksym

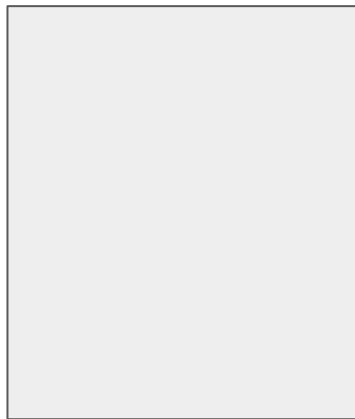
The snow glows
white on the
mountain tonight
Not a footprint to
be seen



Oksana

Copy-modify-merge
strategy

Copy-modify-merge strategy



Song.txt

The snow glows
white on the
mountain tonight



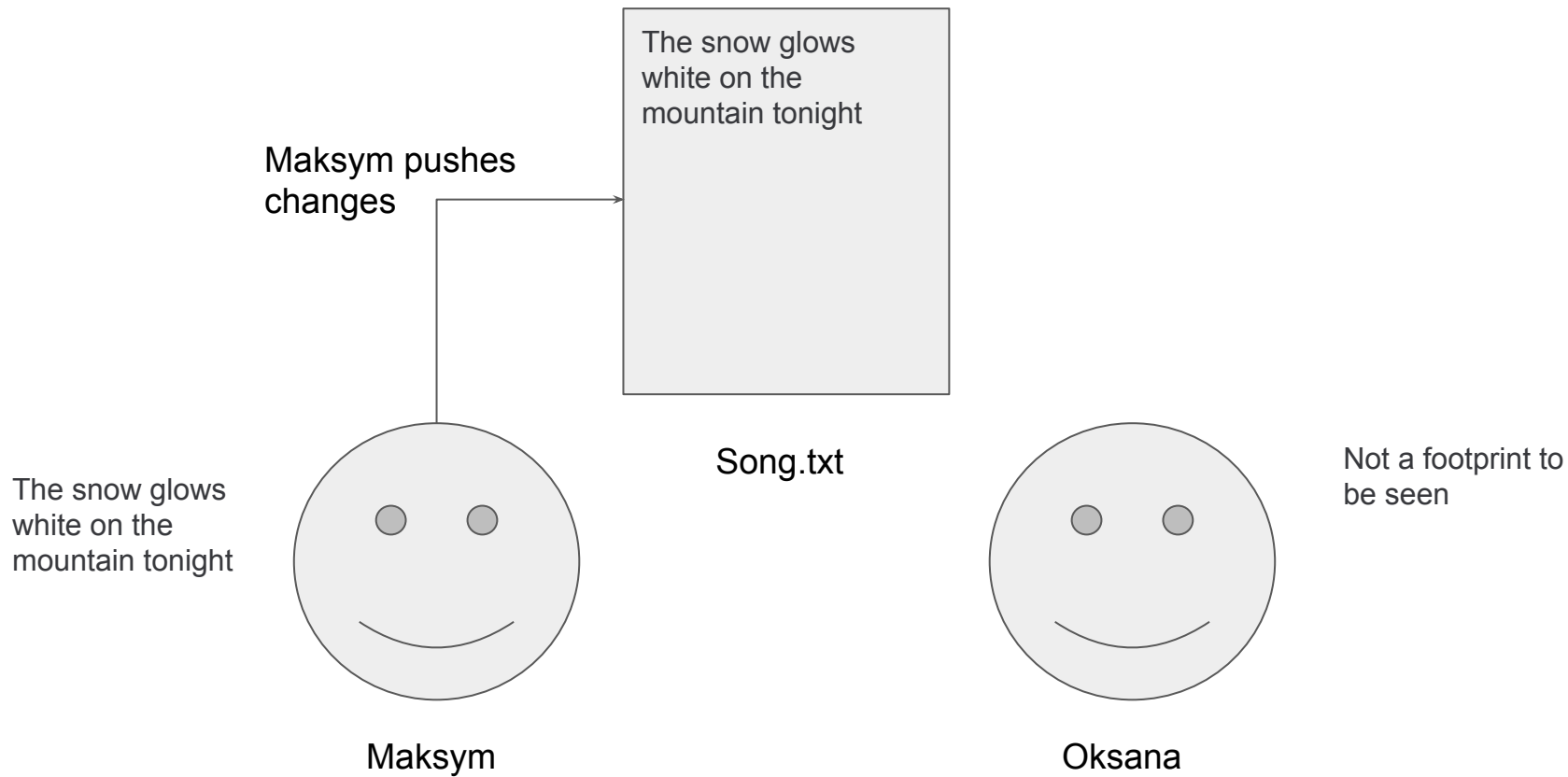
Maksym



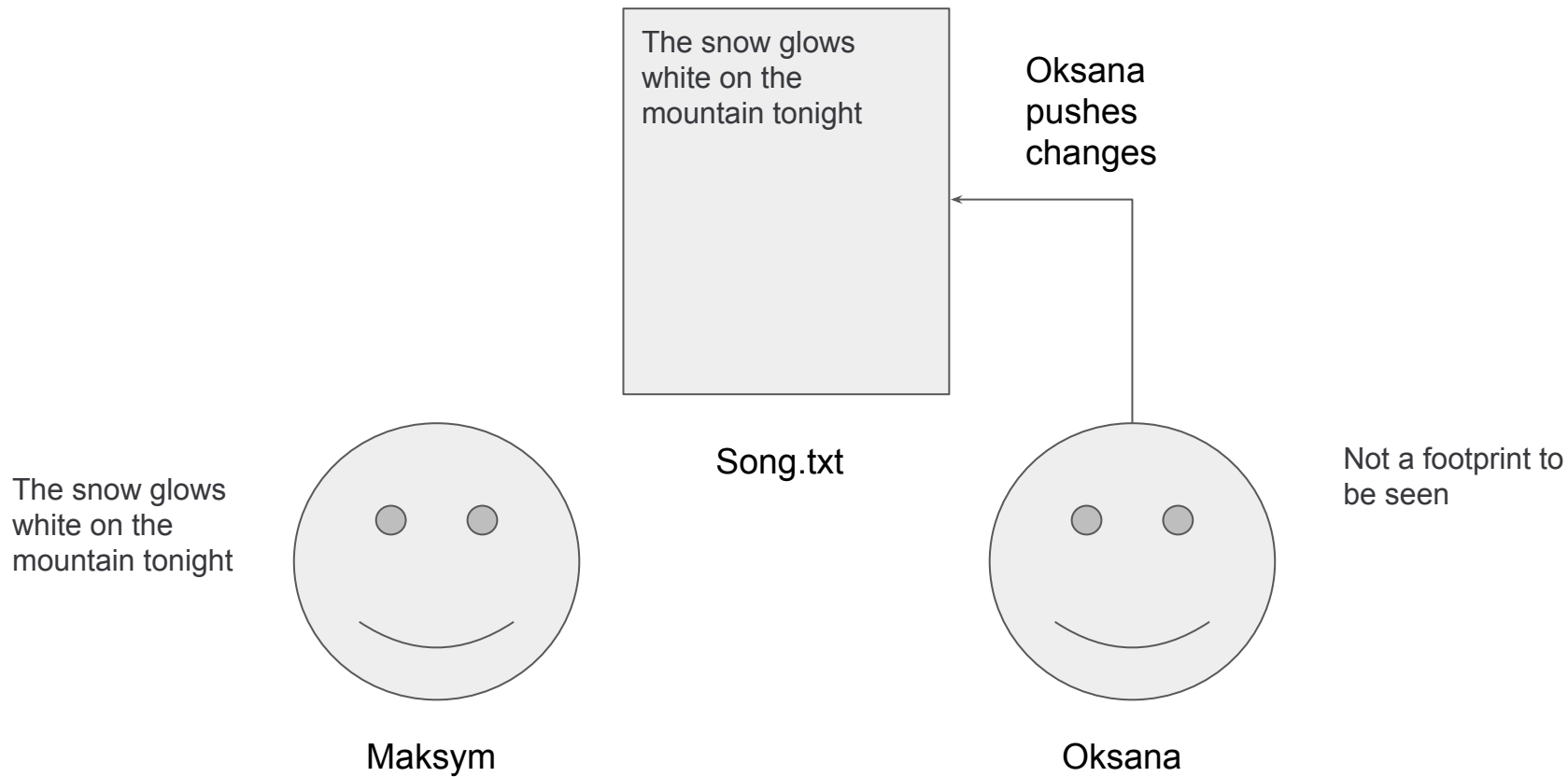
Oksana

Not a footprint to
be seen

Copy-modify-merge strategy



Copy-modify-merge strategy



Copy-modify-merge strategy

The snow glows
white on the
mountain tonight

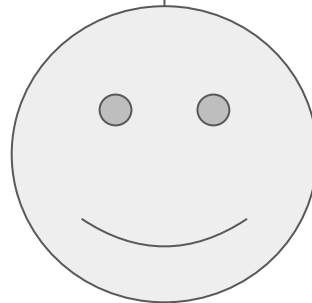


Maksym

The snow glows
white on the
mountain tonight

Song.txt

Oksana pushes changes



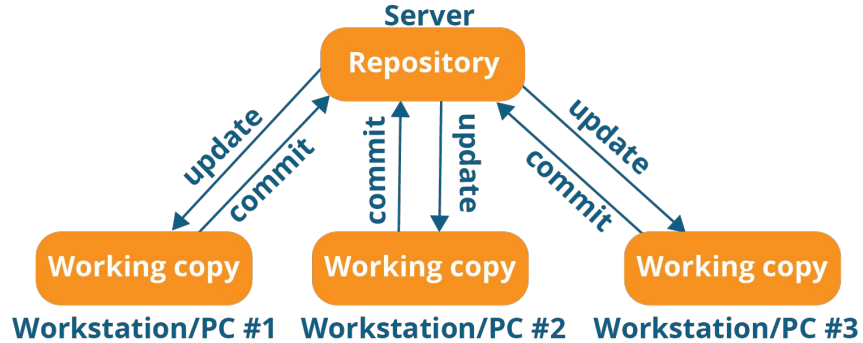
Oksana

```
>>>>>>>>>>>>>>>>
The snow glows white on the
mountain tonight
<<<<<<<<<<<<<<<<
```

Not a footprint to
be seen

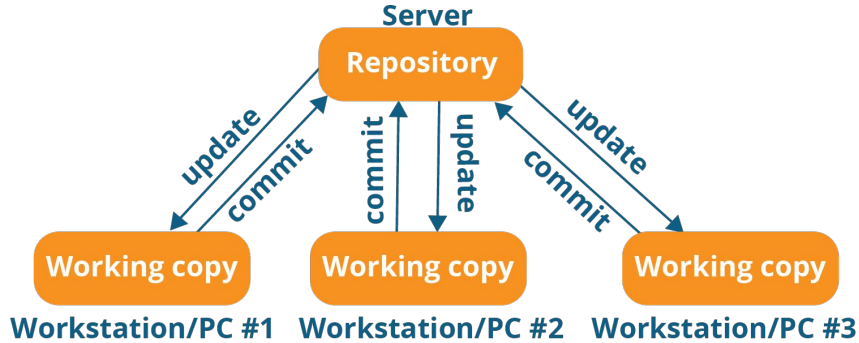
Centralized vs Distributed

Centralized version control system

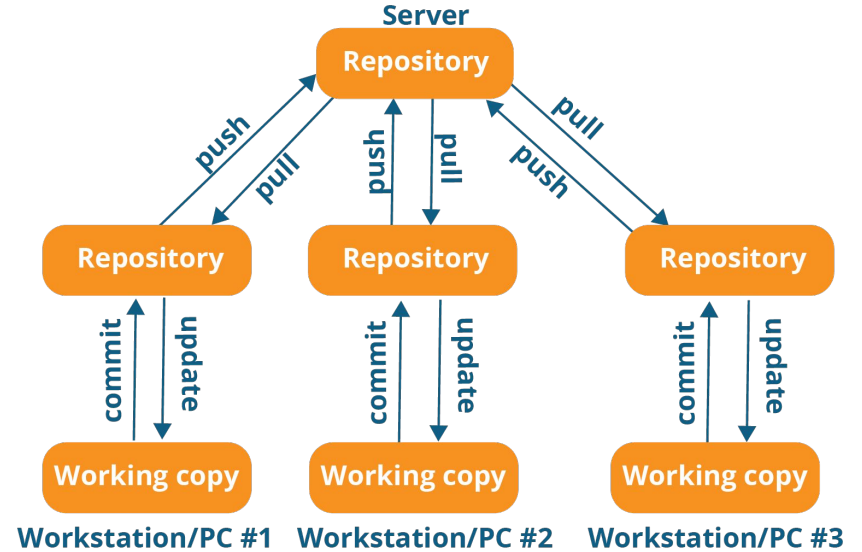


Centralized vs Distributed

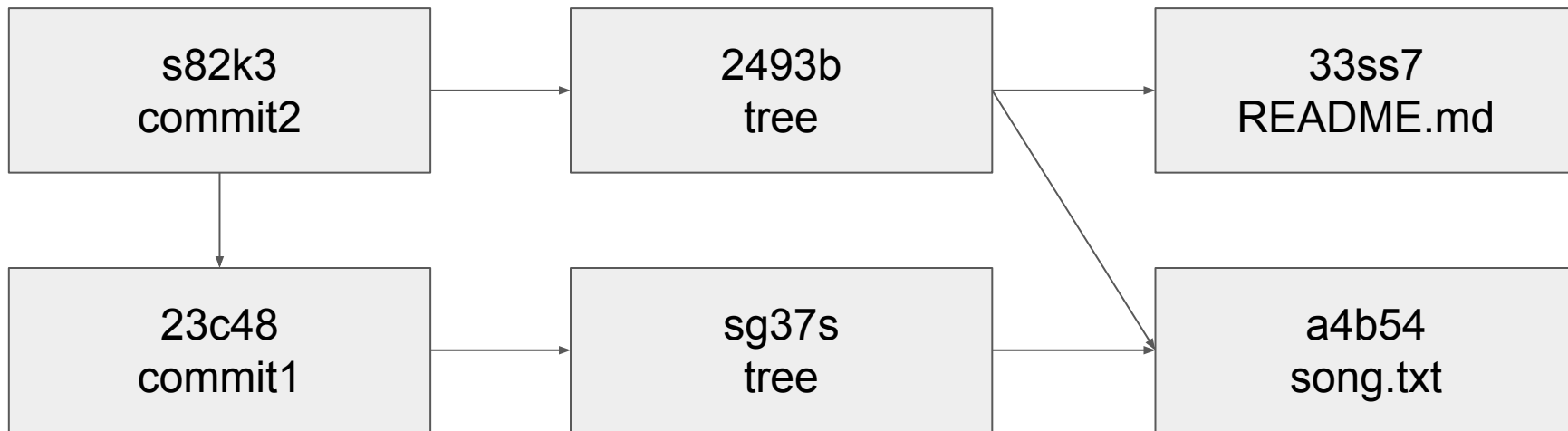
Centralized version control system



Distributed version control system



Commit, tree, blob



- `git show -s --pretty=raw s82k3`
- `git ls-tree 2493b`
- `git show a4b54`

Undoing changes

Working directory

```
git checkout -- file.txt
```

```
git checkout .
```

```
git clean -xdf
```

Staging area (index)

```
git reset -- file.txt
```

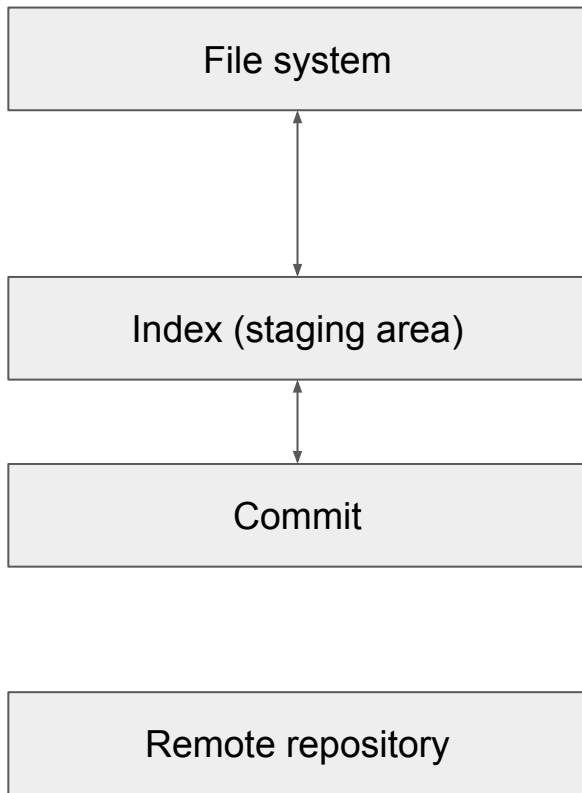
Local branch

```
git reset HEAD^^ (HEAD~2)
```

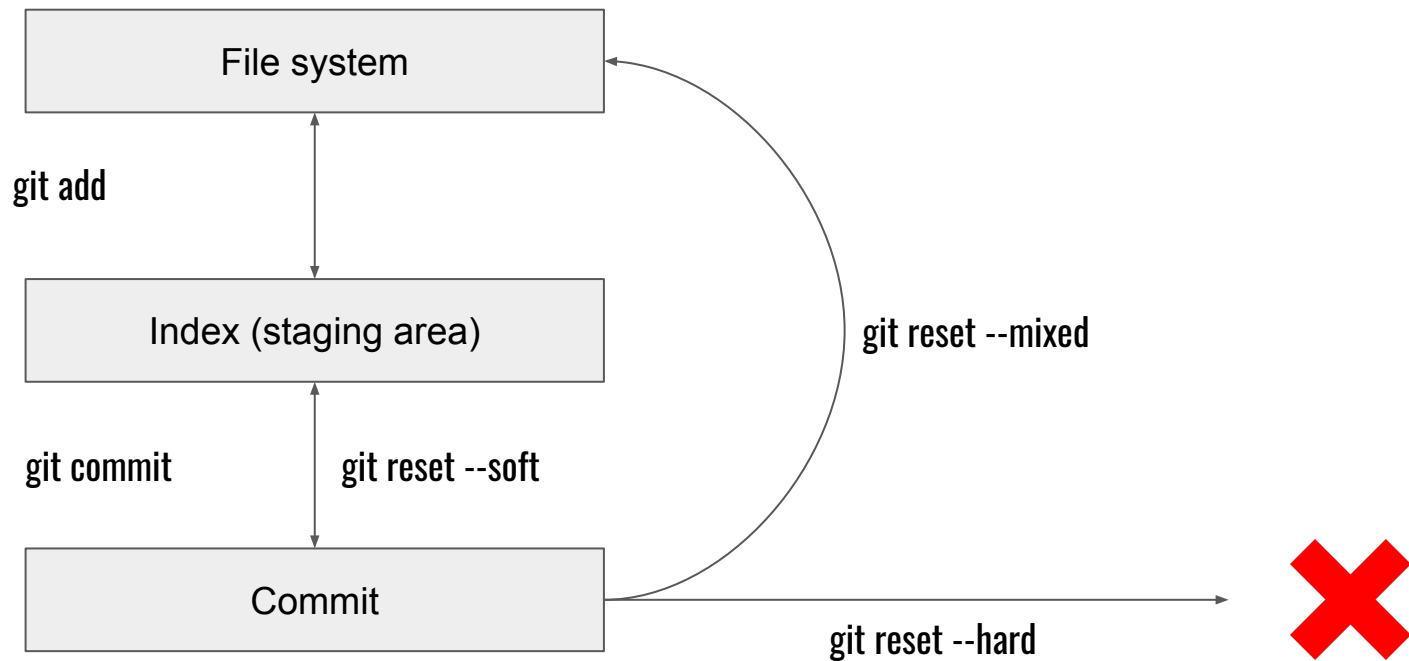
```
git commit --amend -m "commit message"
```

Remote repository

```
git revert <sha1>
```



Git reset



Undoing changes

Working directory

```
git checkout -- file.txt
```

```
git checkout .
```

```
git clean -xdf
```

Staging area (index)

```
git reset -- file.txt
```

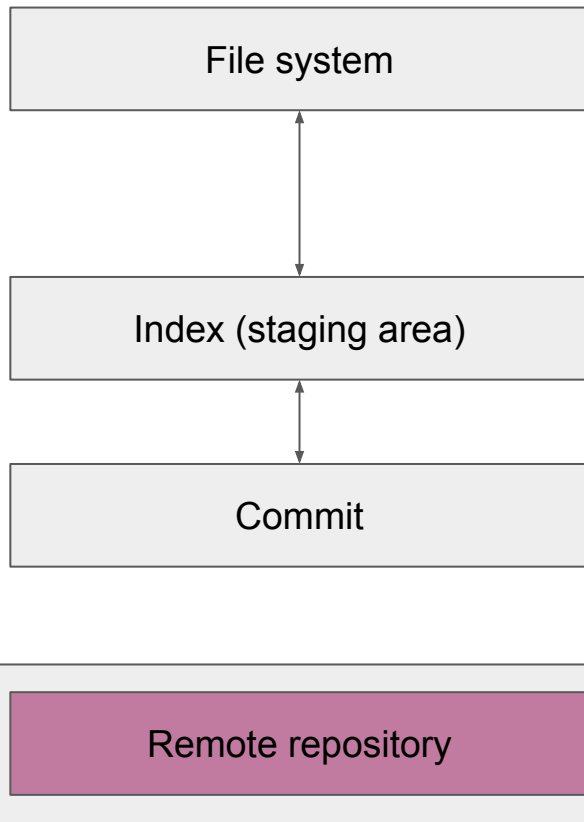
Local branch

```
git reset HEAD^ (HEAD~2)
```

```
git commit --amend -m "commit message"
```

Remote repository

```
git revert <sha1>
```



.gitignore

```
# no .log files  
*.log
```

```
# but do track error.log, even though you're ignoring .log files above  
!error.log
```

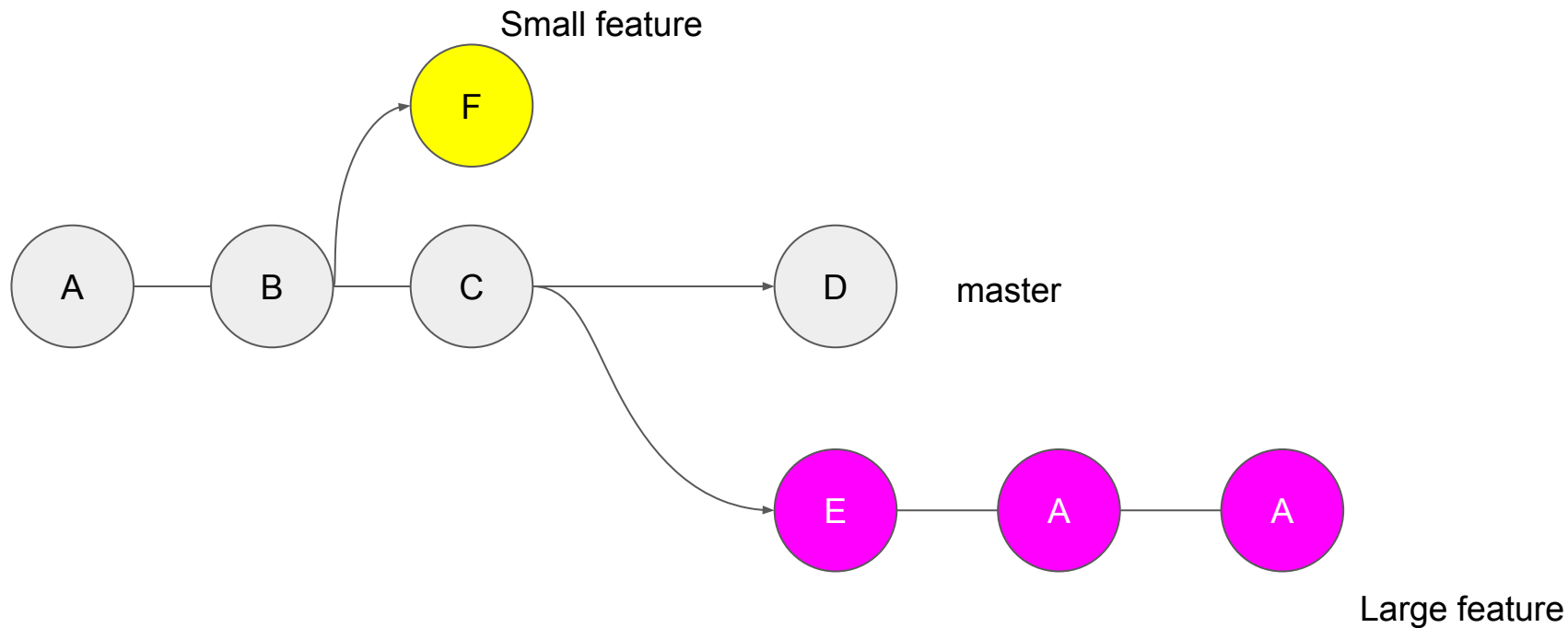
```
# only ignore the TODO file in the current directory, not subdir/TOD  
/TODO
```

```
# ignore all file in the build/ directory  
build/
```

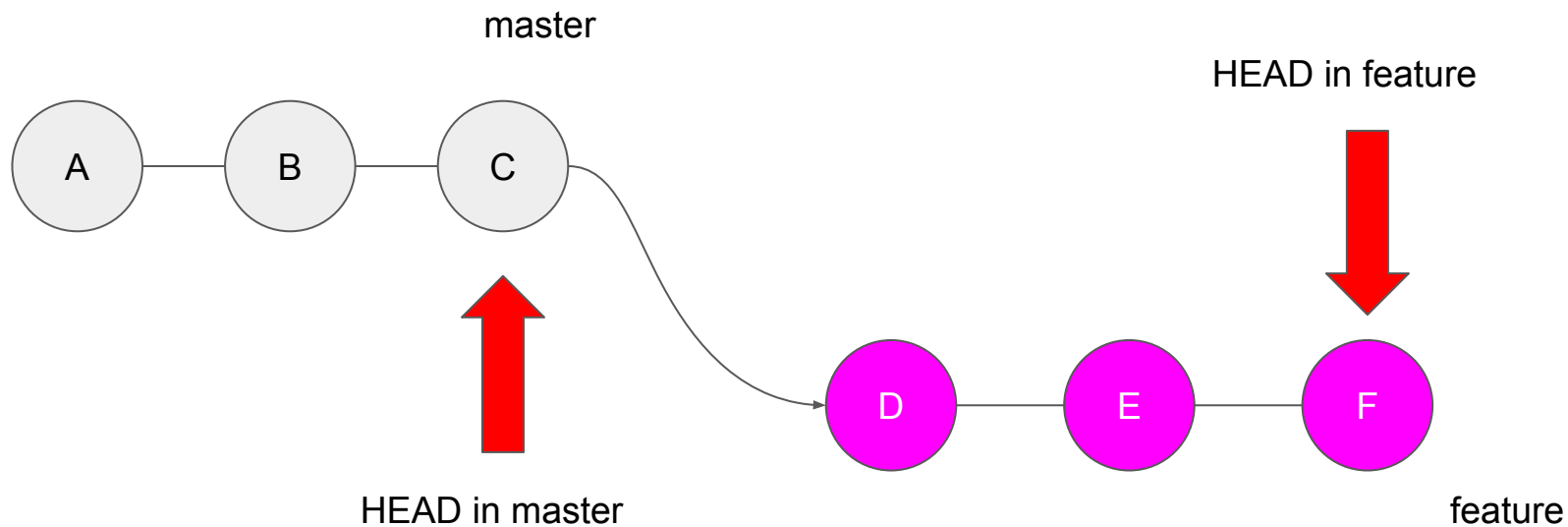
```
# ignore doc/notes.txt, but not doc/server/arch.txt  
doc/*.txt
```

```
#ignore all .pdf files in the doc/ directory  
doc/**/*.*pdf
```

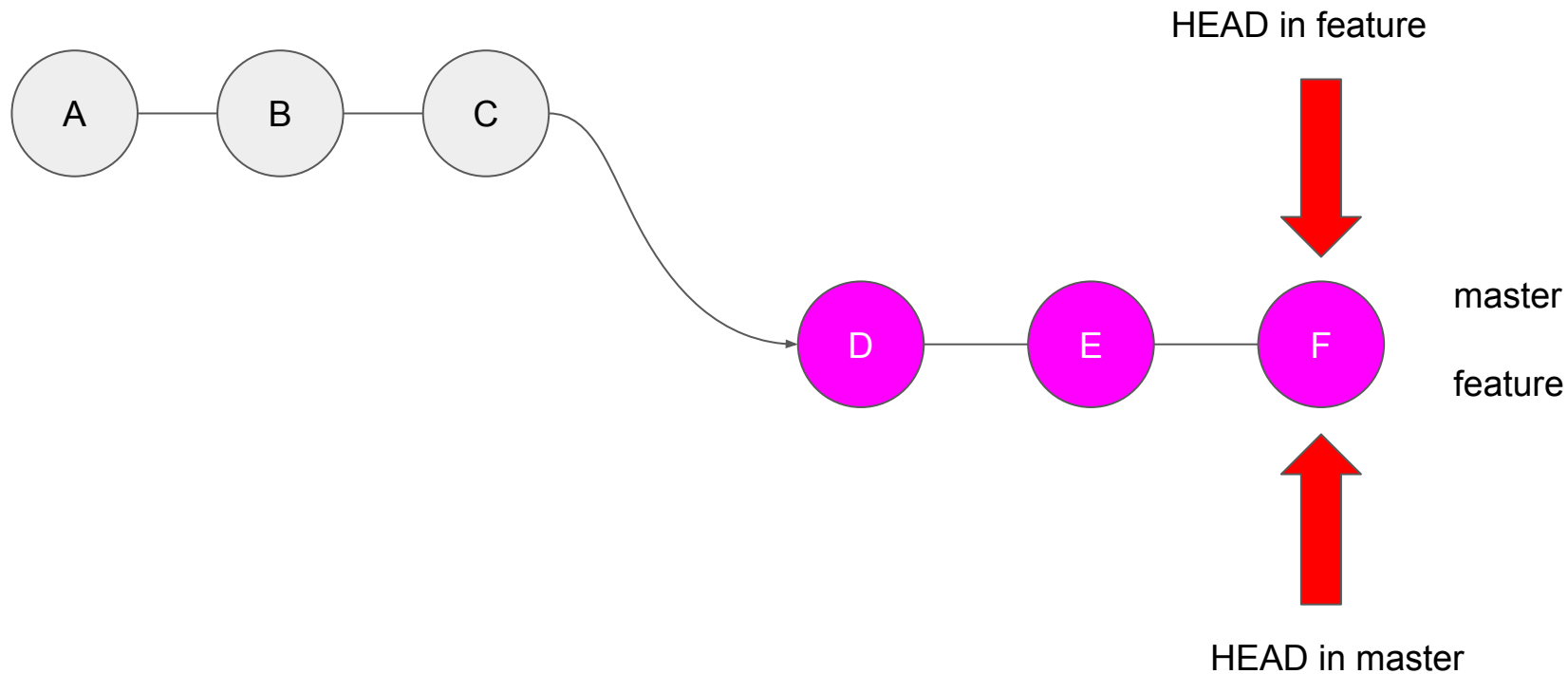
Branch concept



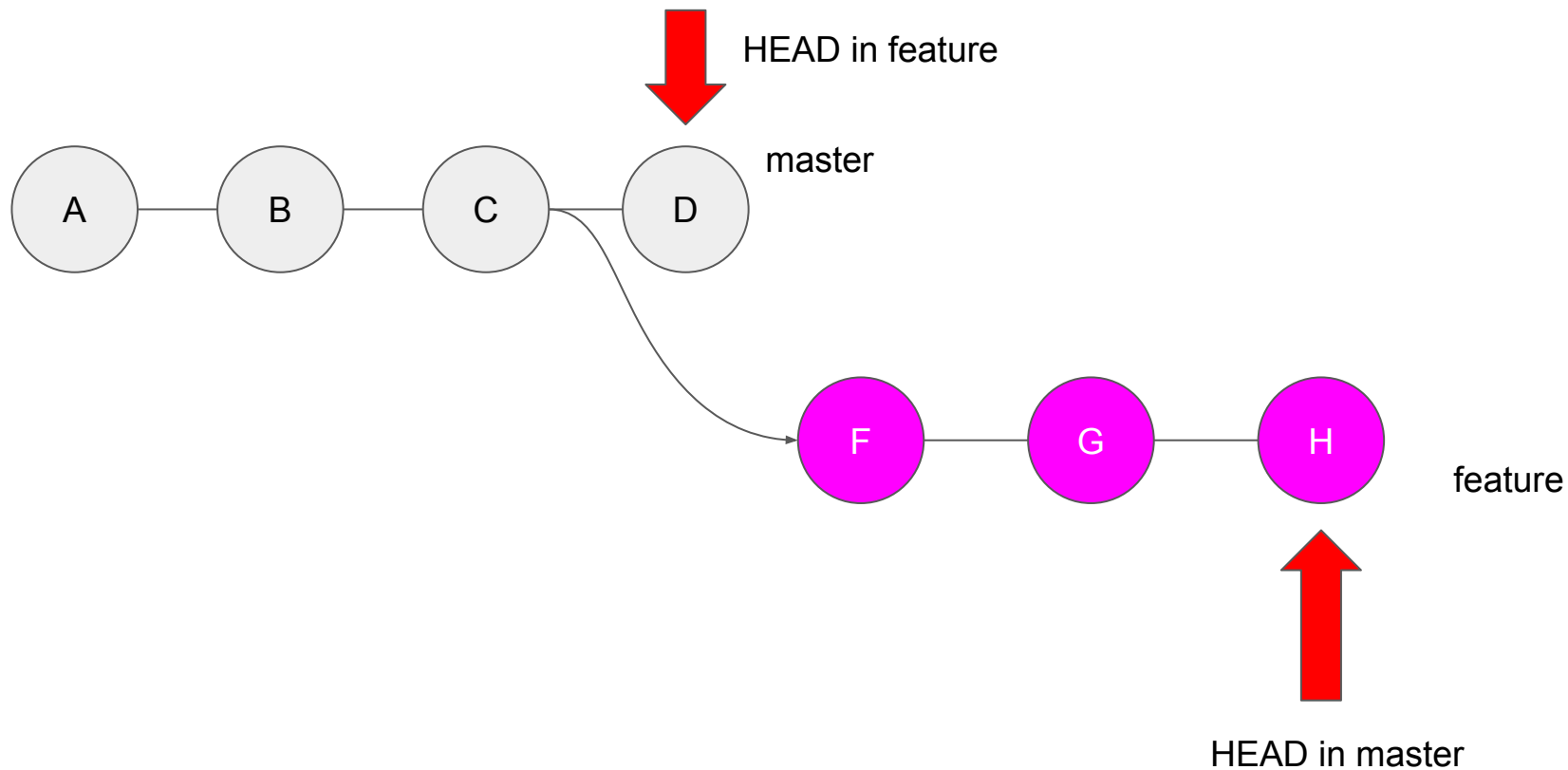
Fast-forward merge



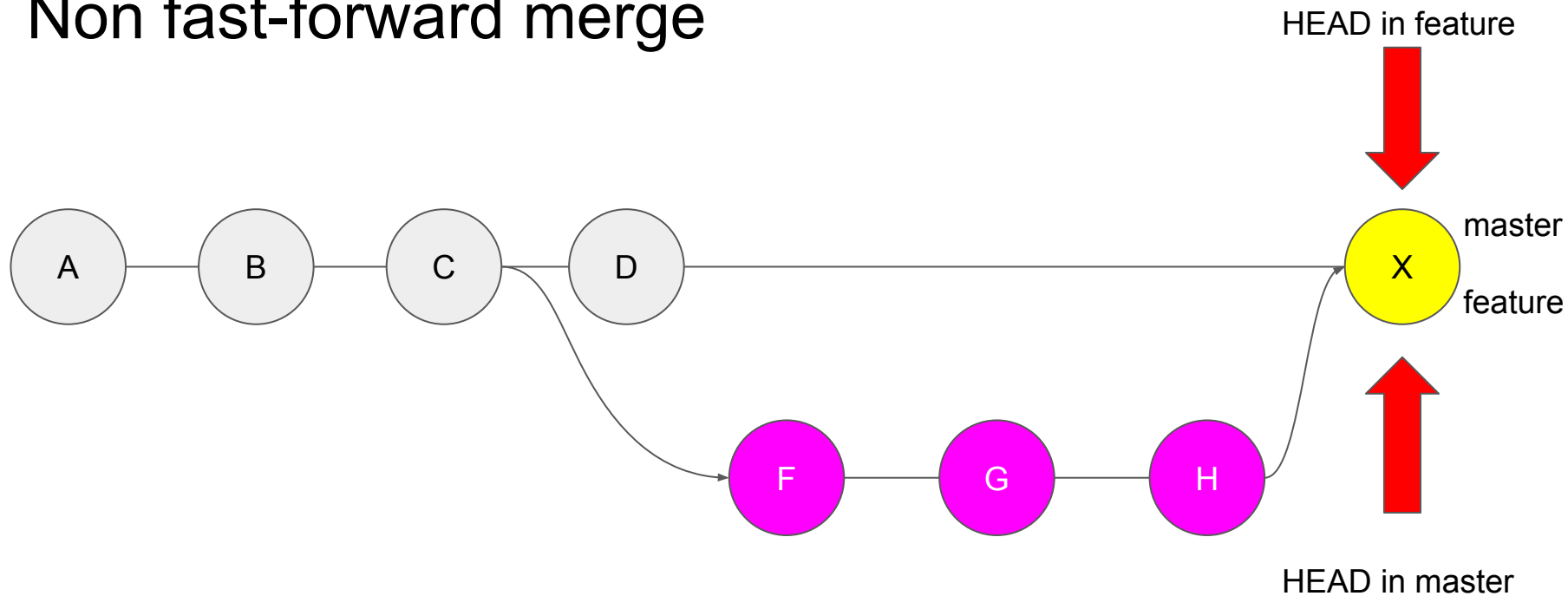
Fast-forward merge



Non fast-forward merge



Non fast-forward merge



Conflict resolving

SOLVE CONFLICT

Abort merge

`git merge --abort`

Resolve by selecting version

`git checkout --Xours --Xtheirs`

Resolve manually

`git diff`

Undo merge

`git revert 23d23`

User merge tool

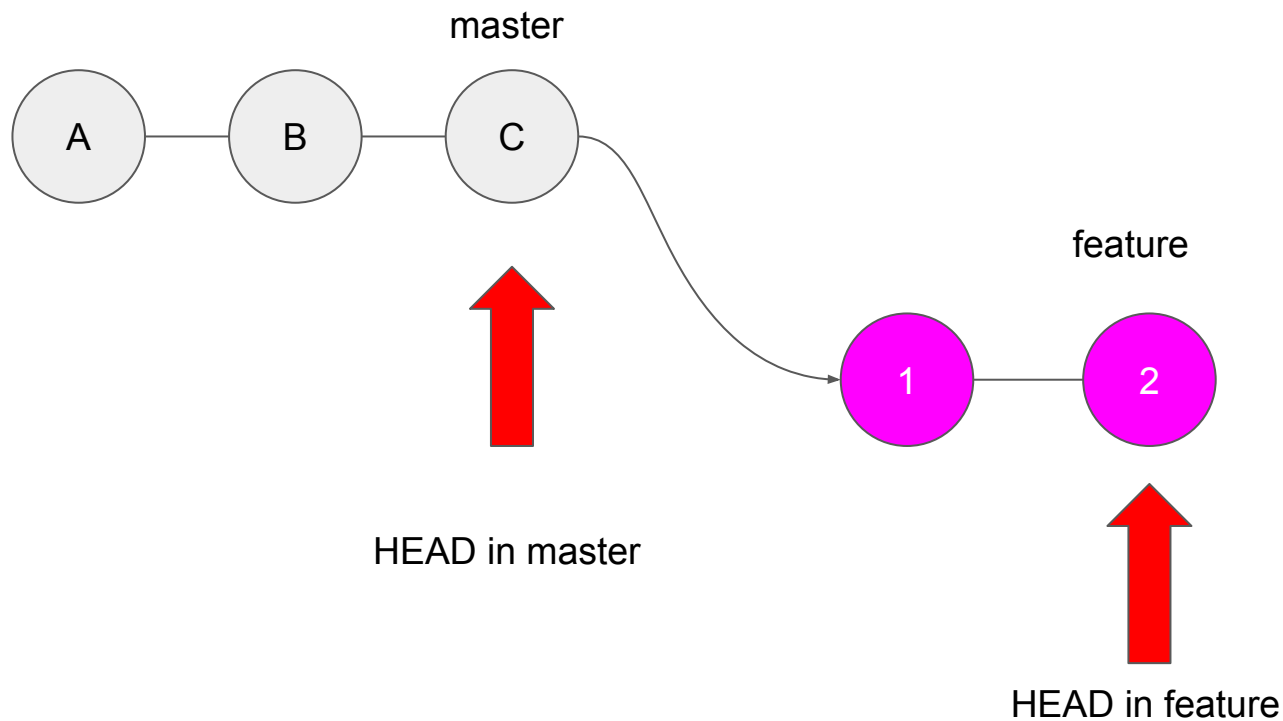
AVOID CONFLICT

Short commits

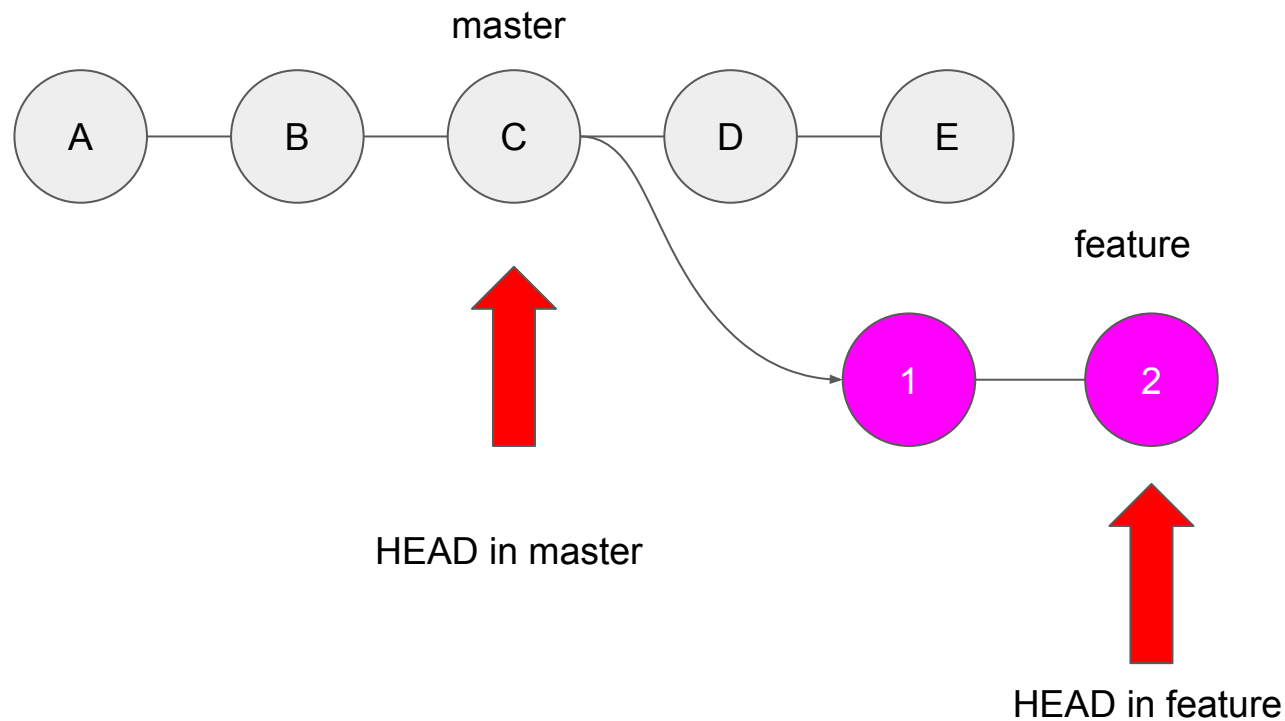
No edits to whitespaces

Merge often

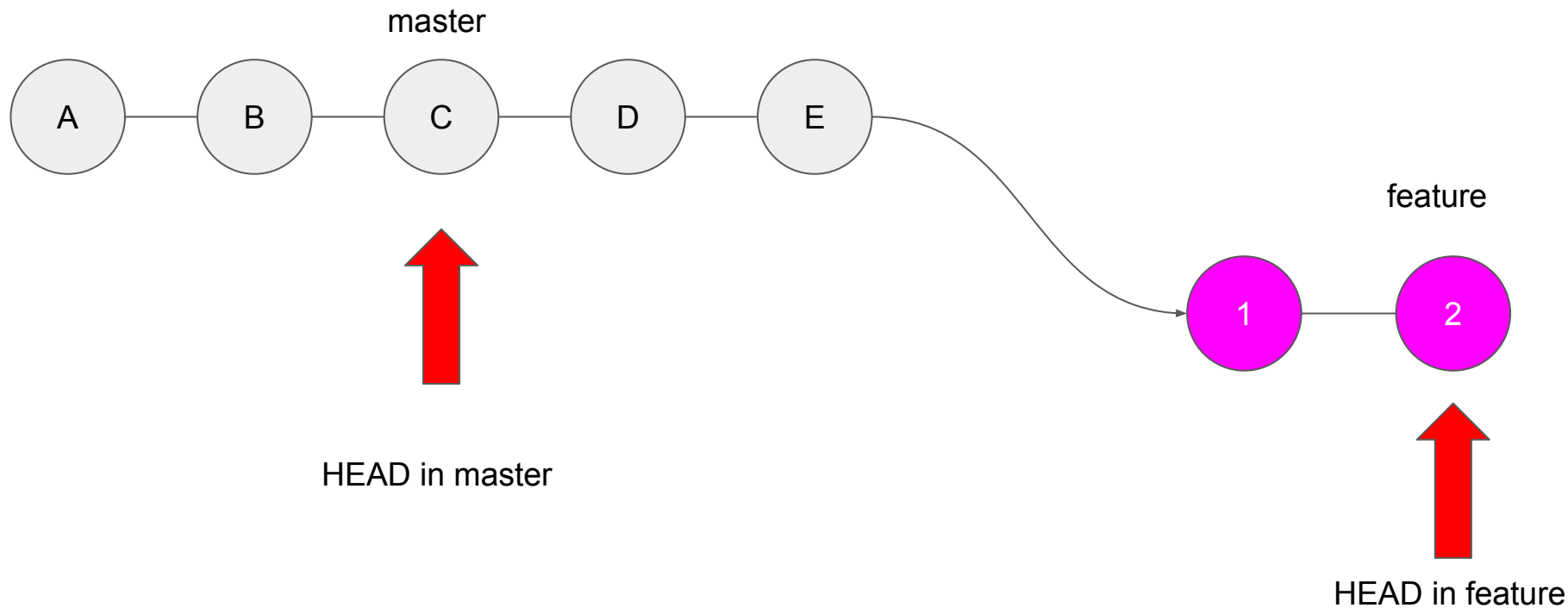
Rebase



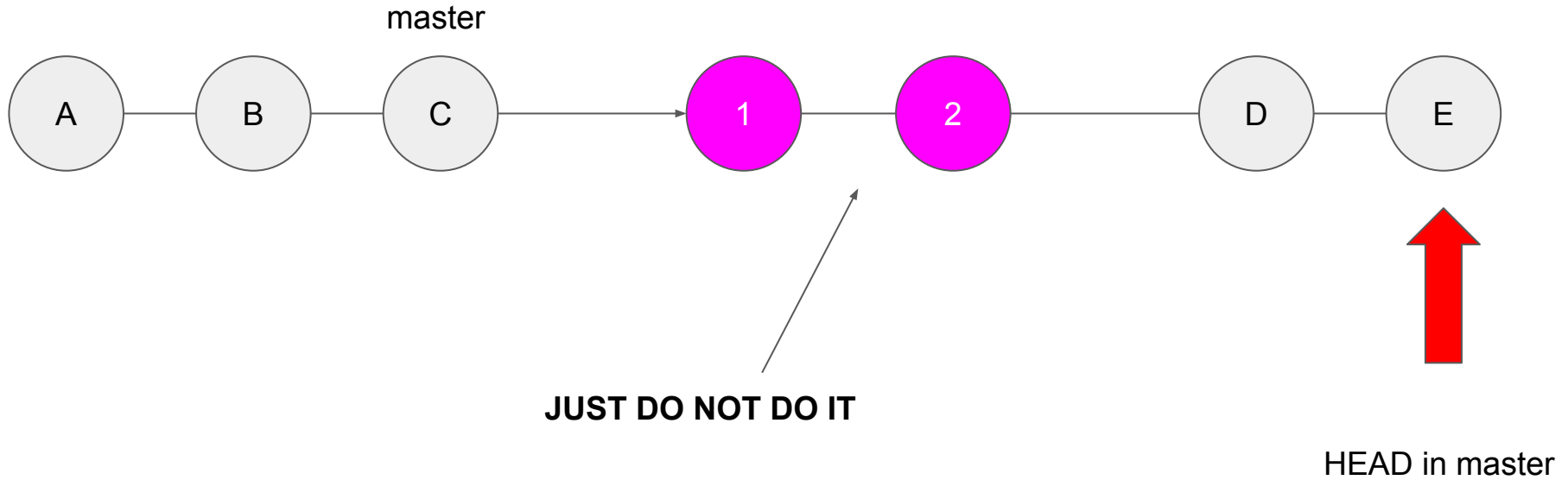
Rebase



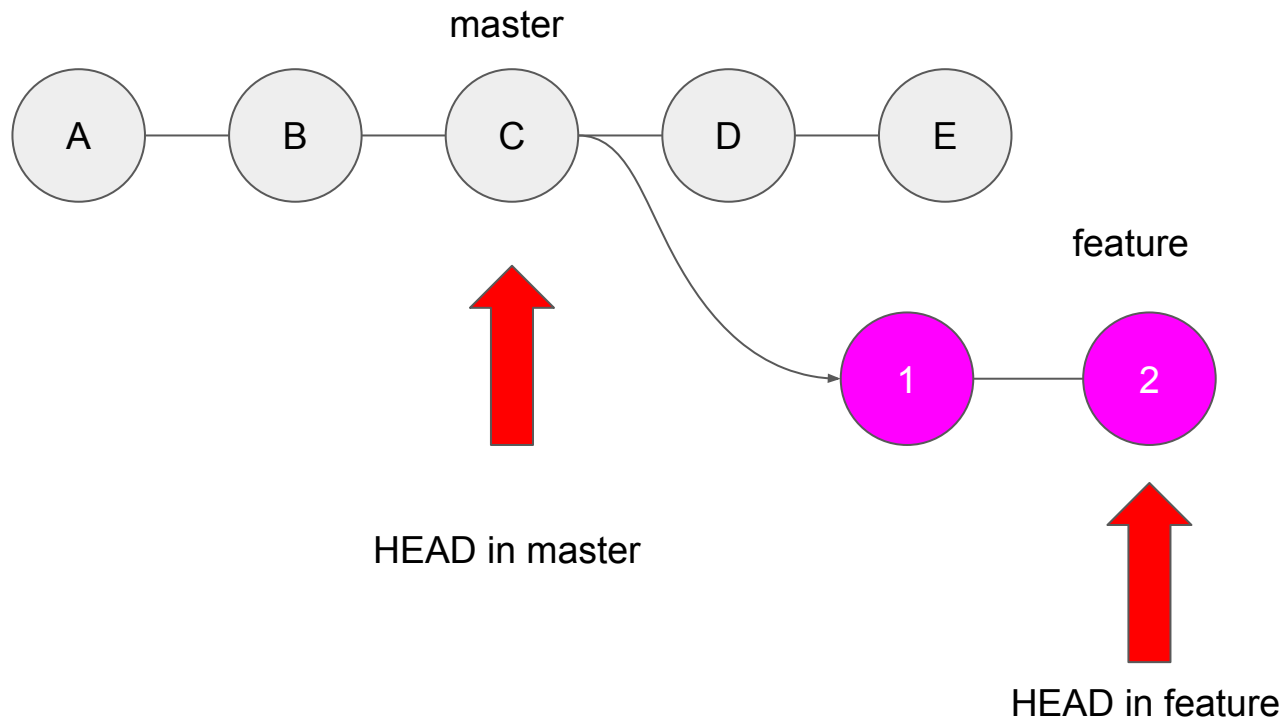
Rebase



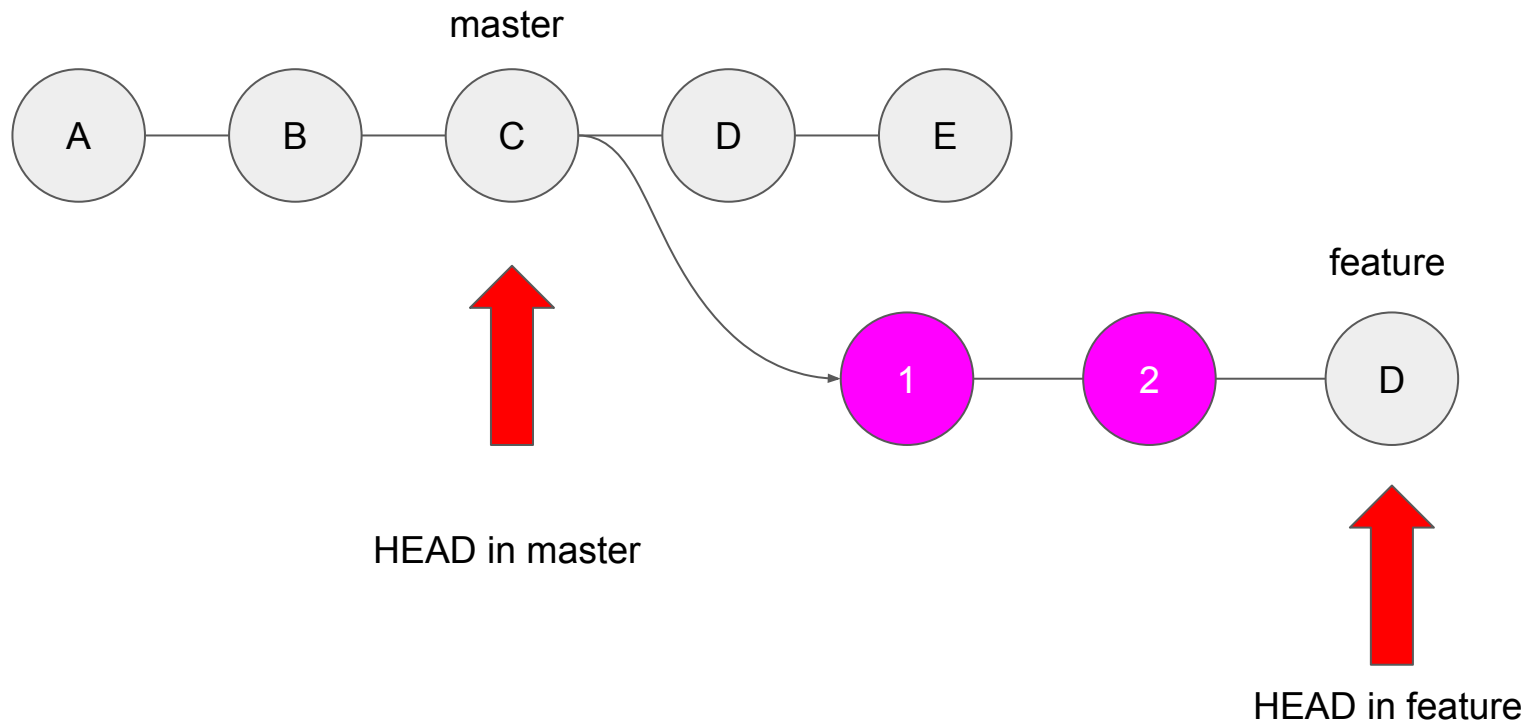
Golden rule of Rebase



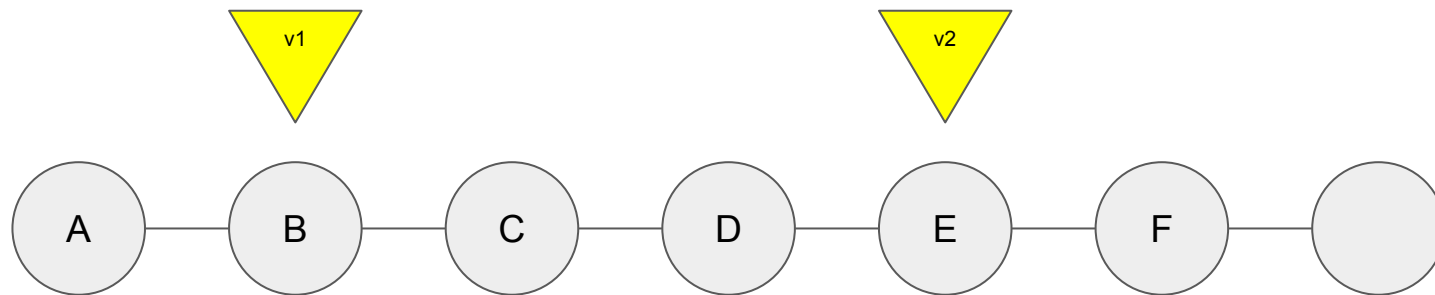
Cherry-pick



Cherry-pick



Tags



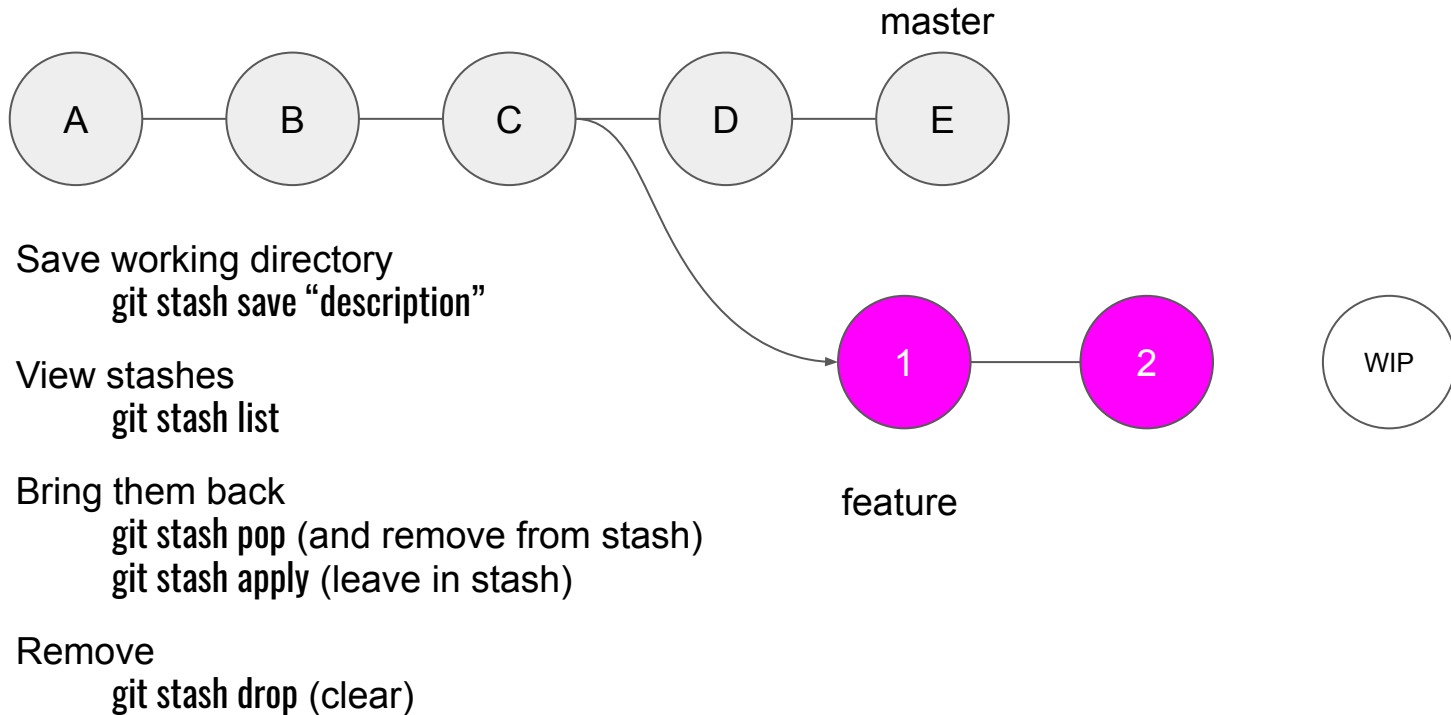
Mark commit with tag
`git tag v1`

View tags
`git tag -list`

Push
`git push --tags`

Check it out
`git checkout v1`

Stash



Remotes



Add

```
git remote add <name> <url>
```

```
git remote add origin git@github.com:user/repo.git
```

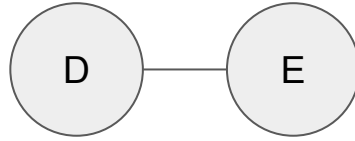
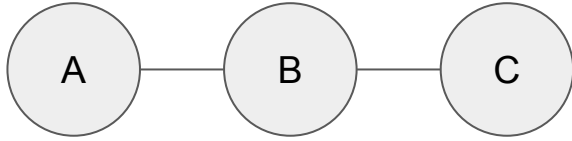
View

```
git remote -v
```

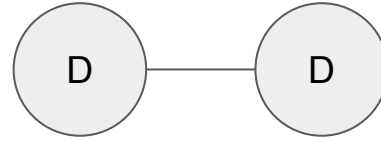
```
git remote show <name>
```


Centralized strategy

master

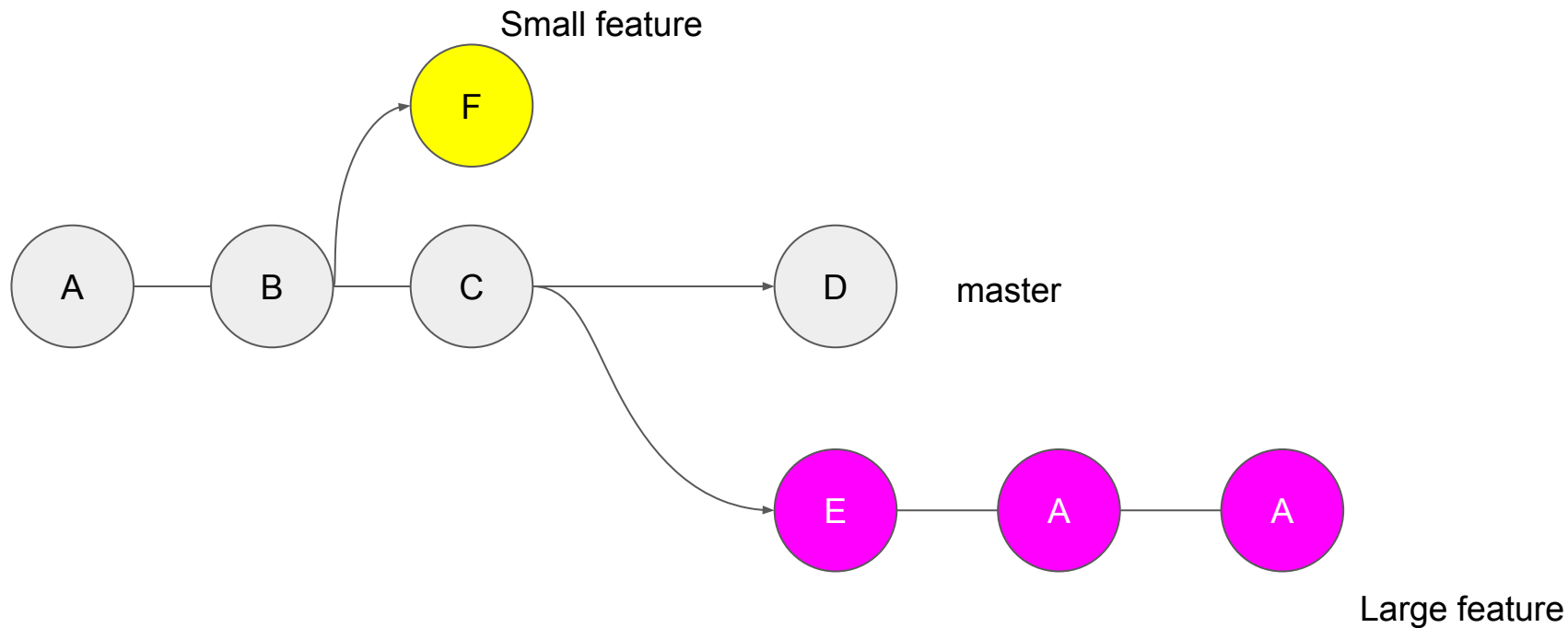


Maksym's commit

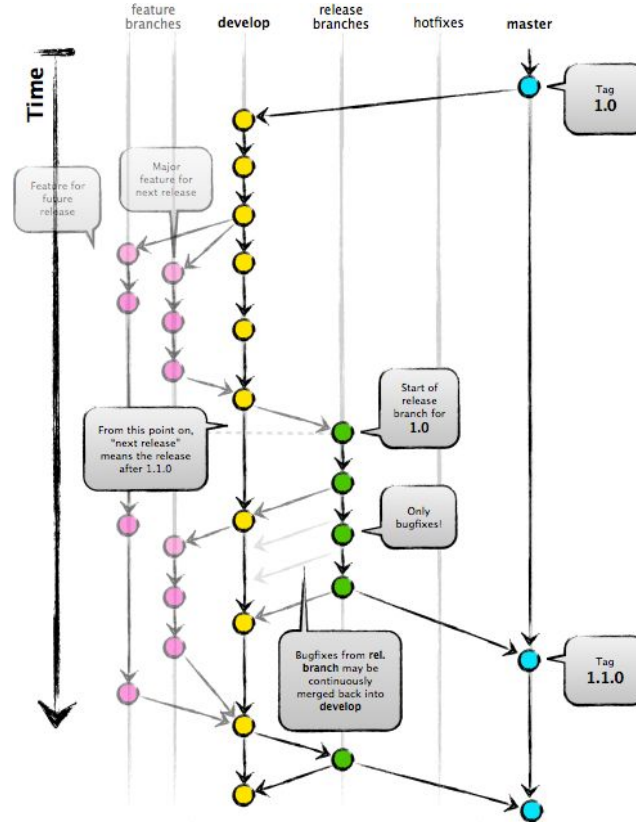


Oksana's commit

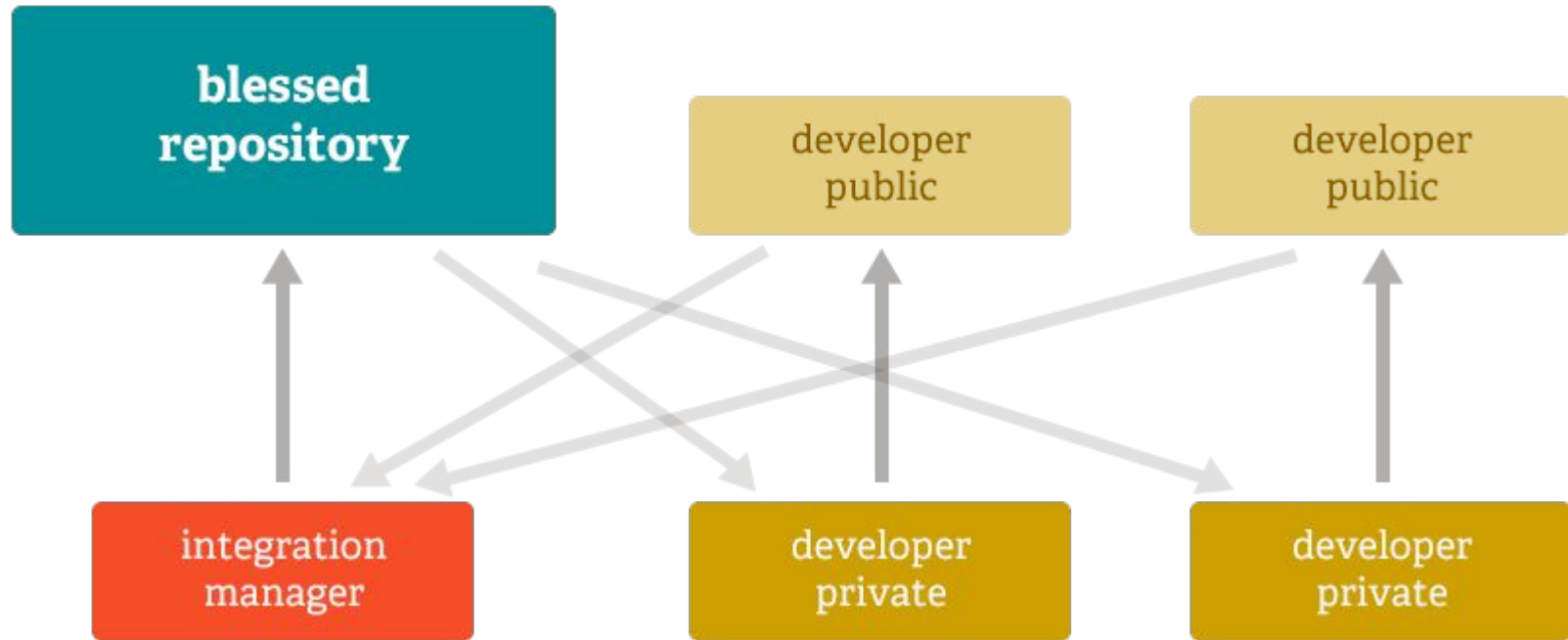
Feature-branch workflow



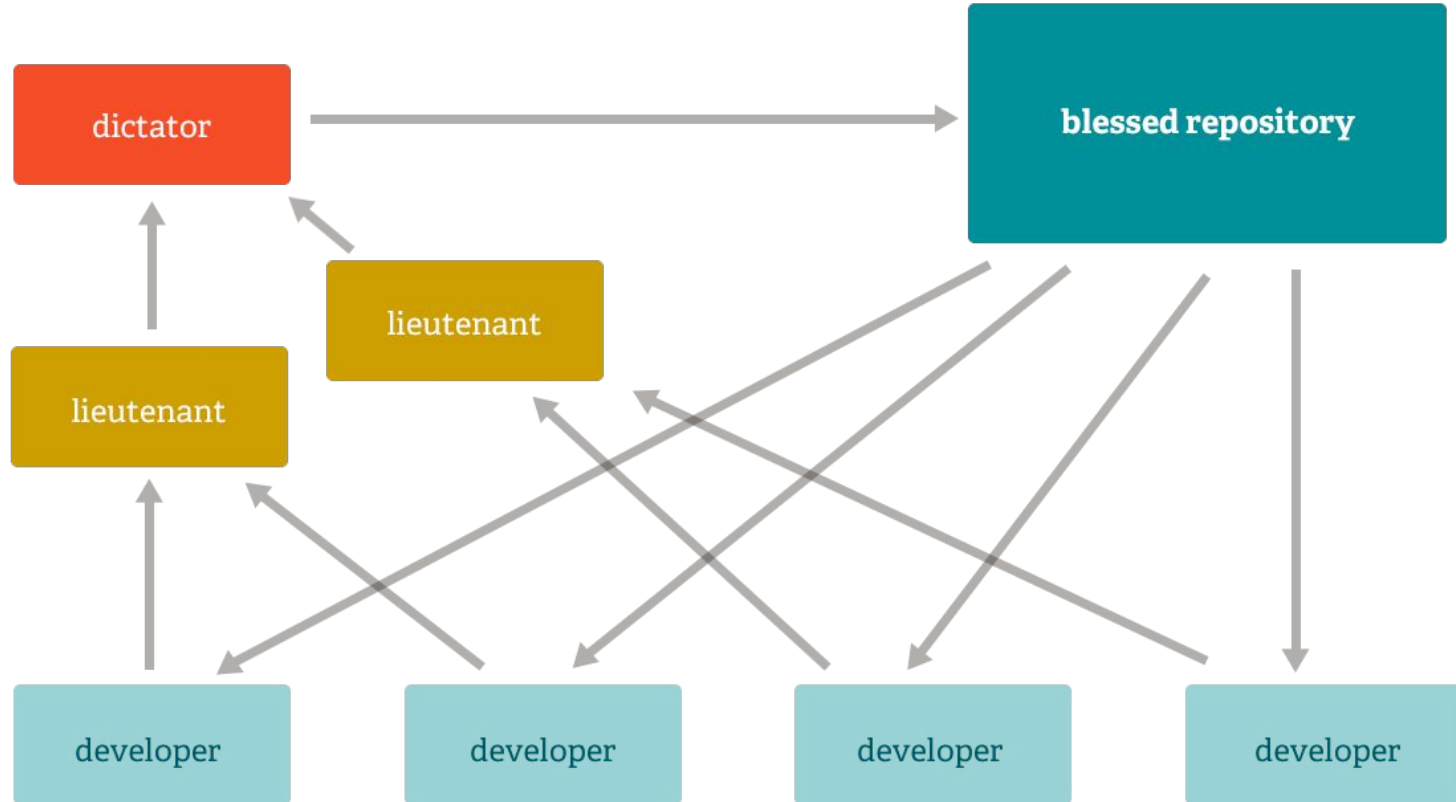
Gitflow



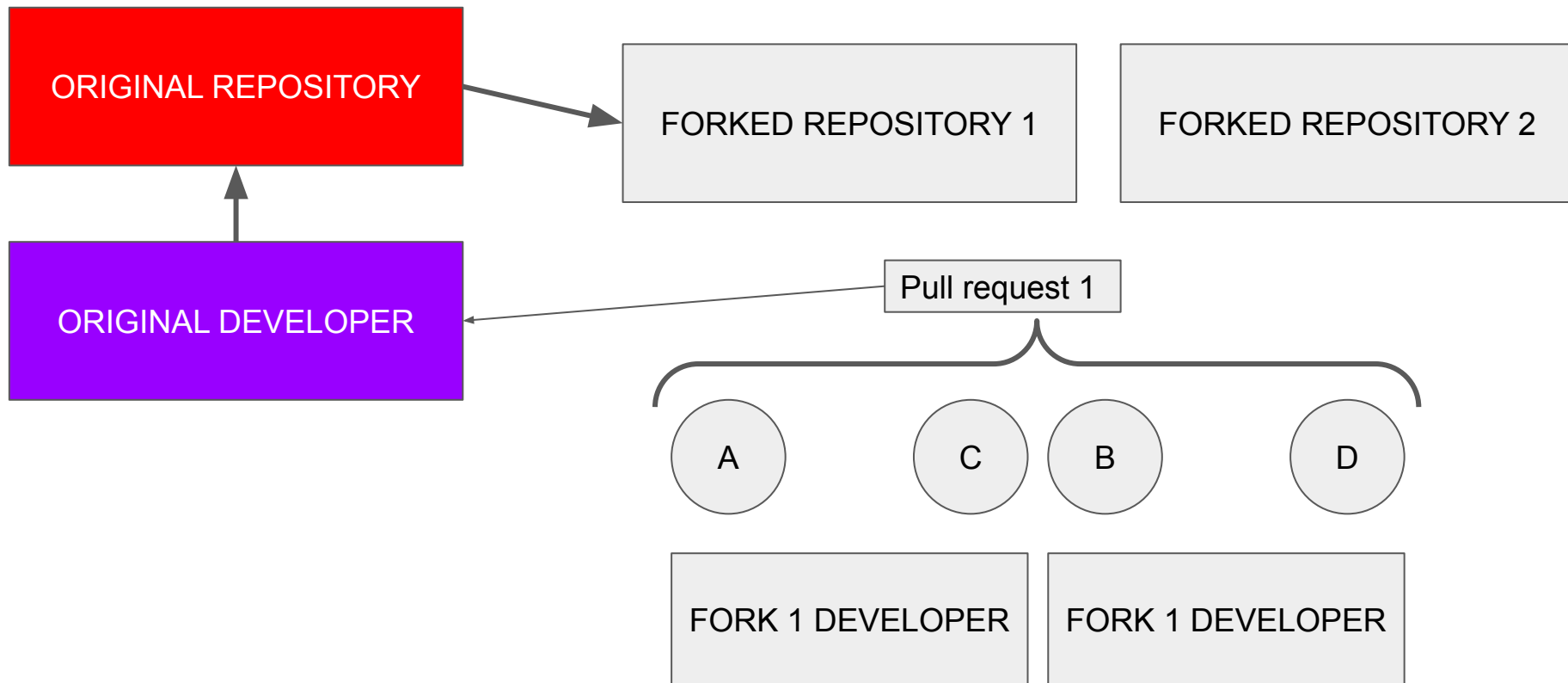
Integration manager workflow



Dictator and Lieutenants workflow



Foking workflow



Advanced

```
git init
git config -- global user.name "Your name"
git config -- global user.email "your.email@site.com"
git config --global core.editor "path to editor"
git blame
git bisect
git log --pretty=oneline
git log --pretty=format:"%h %s" --graph
git config --global alias.last 'log -1 HEAD'
git last
git log master..experiment
git filter-branch --tree-filter 'rm -f passwords.txt' HEAD
git rerere
git submodule
```

Pro Git by Scott Chacon and Ben Straub
Version Control with Git by Jon Loeliger, Matthew McCullough

