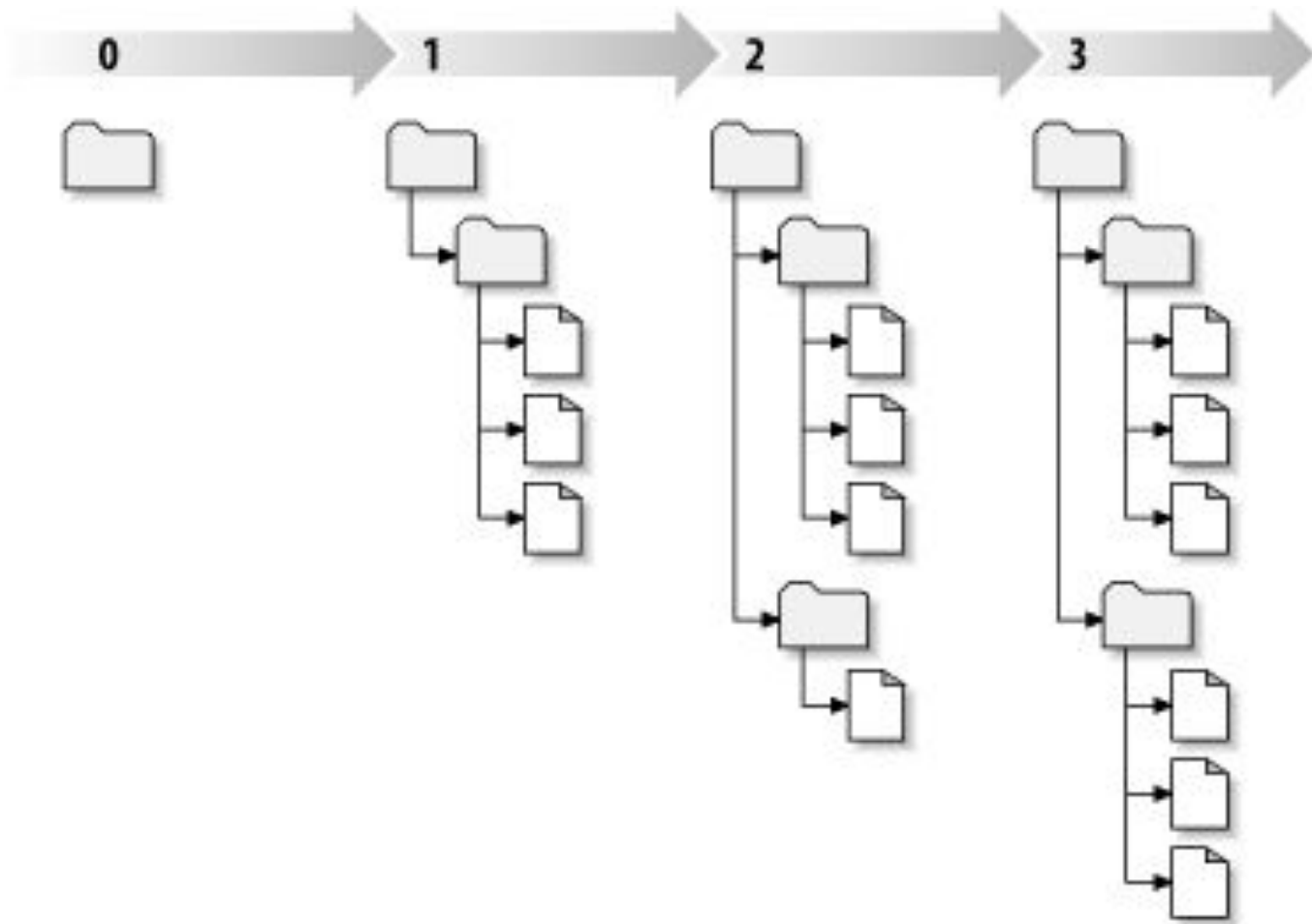


# Системы контроля версий

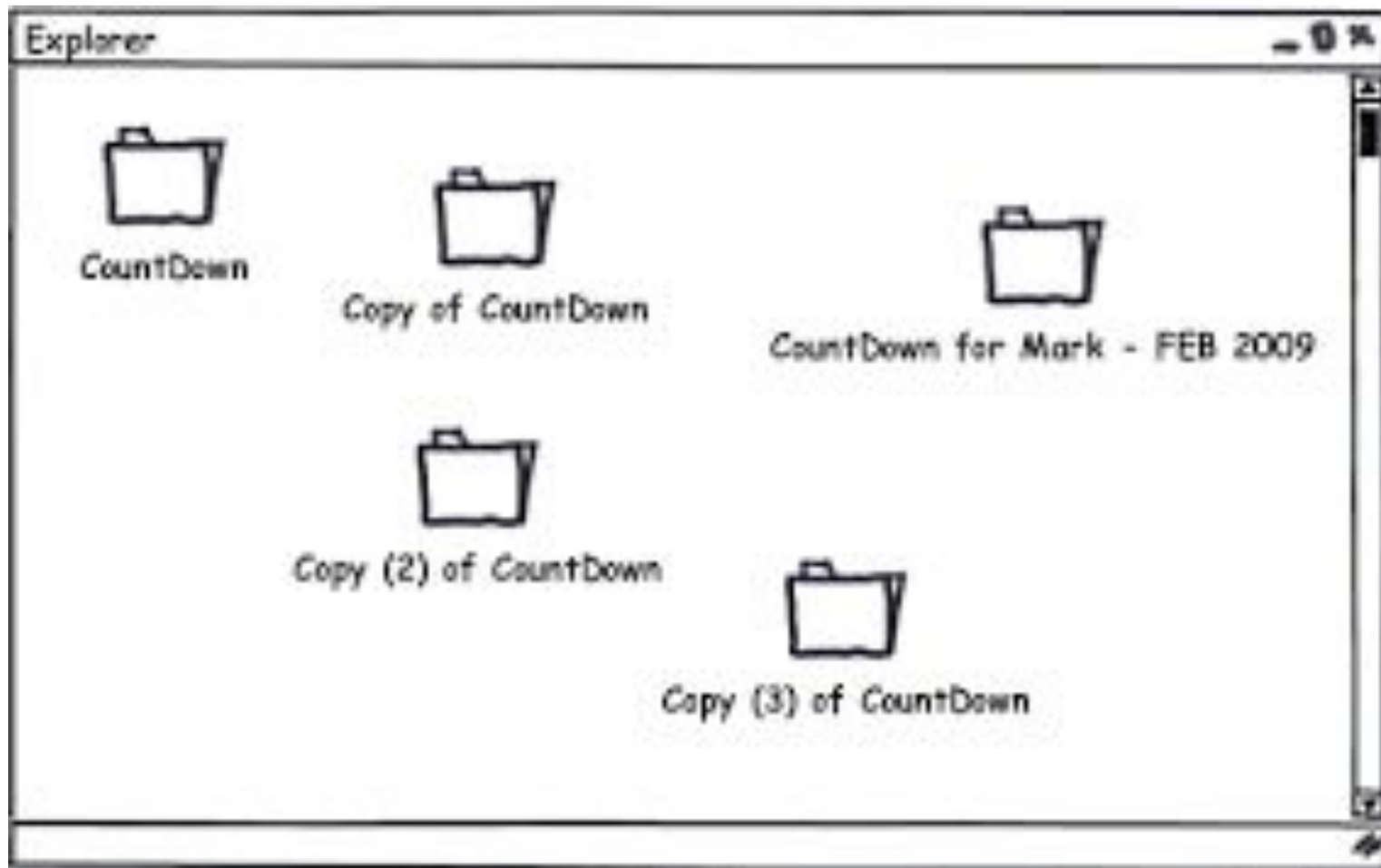
Git, GitHub



# Зачем контролировать версии?



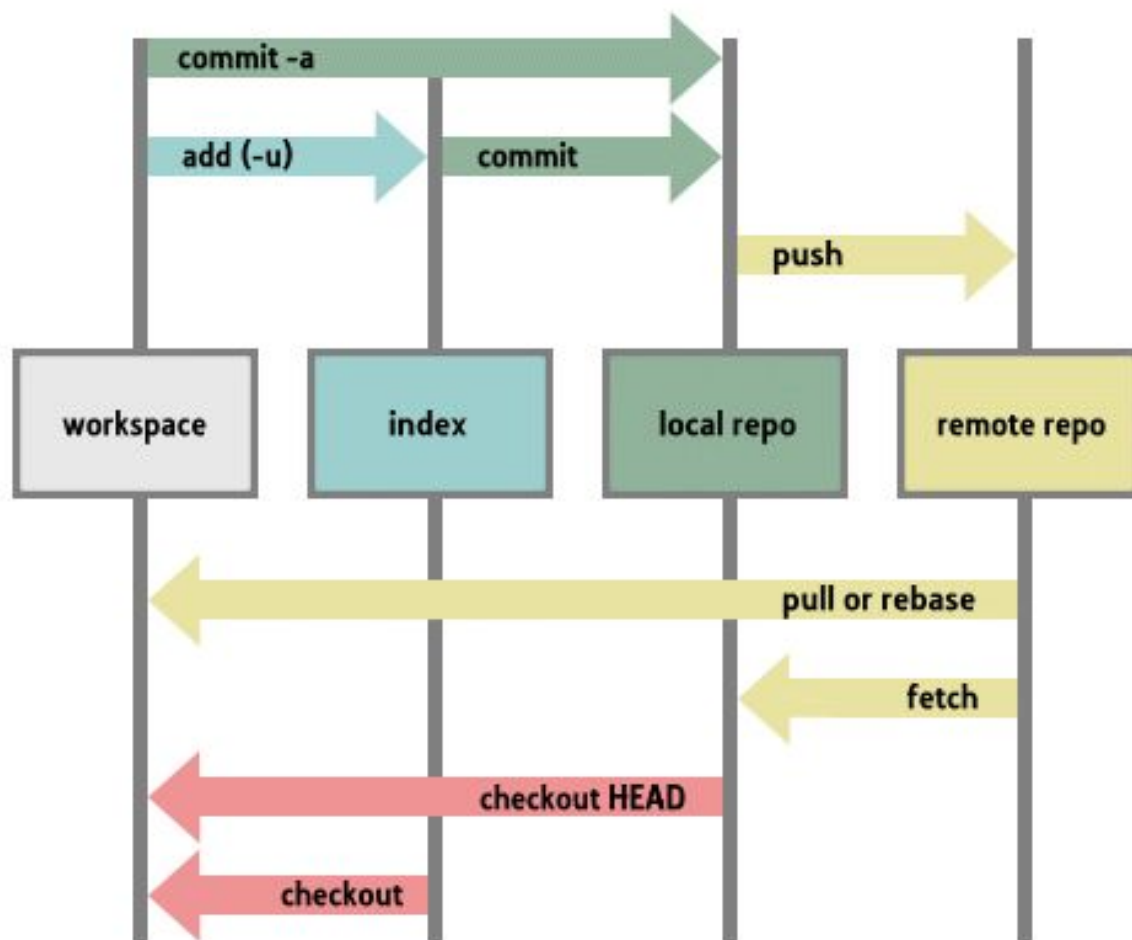
Как происходит контроль версий в ручном режиме?



Какие есть СКВ?



# Какие основные понятия СКВ?



# Какой простейший алгоритм использования СКВ?

```
cd project/
```

```
git init
```

```
git add main.py
```

```
git commit -m "Initial commit"
```

```
. . .
```

```
git commit -m "New feature added"
```

# Как СКВ меняет рабочий процесс?

```
95b8f5a2 (woc2006 2013-11-14 > wrappedCallback.call(that)
6c260e78 (Thomas Fuchs 2013-11-24 > }, (duration * 1000) + 25)
e4c44636 (woc2006 2013-06-04 > }
ec559a4b (Sasha Koss 2011-07-14 >
2ed0123e (Mislav Marohnić 2012-09-11 > // trigger page reflow so new elements can animate
2ed0123e (Mislav Marohnić 2012-09-11 > this.size() && this.get(0).clientLeft
2ed0123e (Mislav Marohnić 2012-09-11 >
2ed0123e (Mislav Marohnić 2012-09-11 > this.css(cssValues)
2ed0123e (Mislav Marohnić 2012-09-11 >
2ed0123e (Mislav Marohnić 2012-09-11 > if (duration <= 0) setTimeout(function() {
2ed0123e (Mislav Marohnić 2012-09-11 > that.each(function(){ wrappedCallback.call(this) })
68cbe1f4 (Thomas Fuchs 2012-03-28 > }, 0)
272513b0 (Sasha Koss 2011-07-14 >
68cbe1f4 (Thomas Fuchs 2012-03-28 > return this
68cbe1f4 (Thomas Fuchs 2012-03-28 > }
<itiveblame] master 110/123[89%] 1[0x32] src/fx.js [javascript] master
tree 9e11ca42fdc7776a949e2286c0462355ff4707f6
parent e37098c56c709e3597675db81fa4782e8f86b6c8
author Mislav Marohnić <mislav.marohnic@gmail.com> Tue Sep 11 21:01:58 2012 +0200
committer Mislav Marohnić <mislav.marohnic@gmail.com> Tue Sep 11 23:52:14 2012 +0200
```

fix animate() for elements just added to DOM

Activating CSS transitions for an element just added to the DOM won't work in either Webkit or Mozilla. To work around this, we used to defer setting CSS properties with setTimeout (see 272513b).

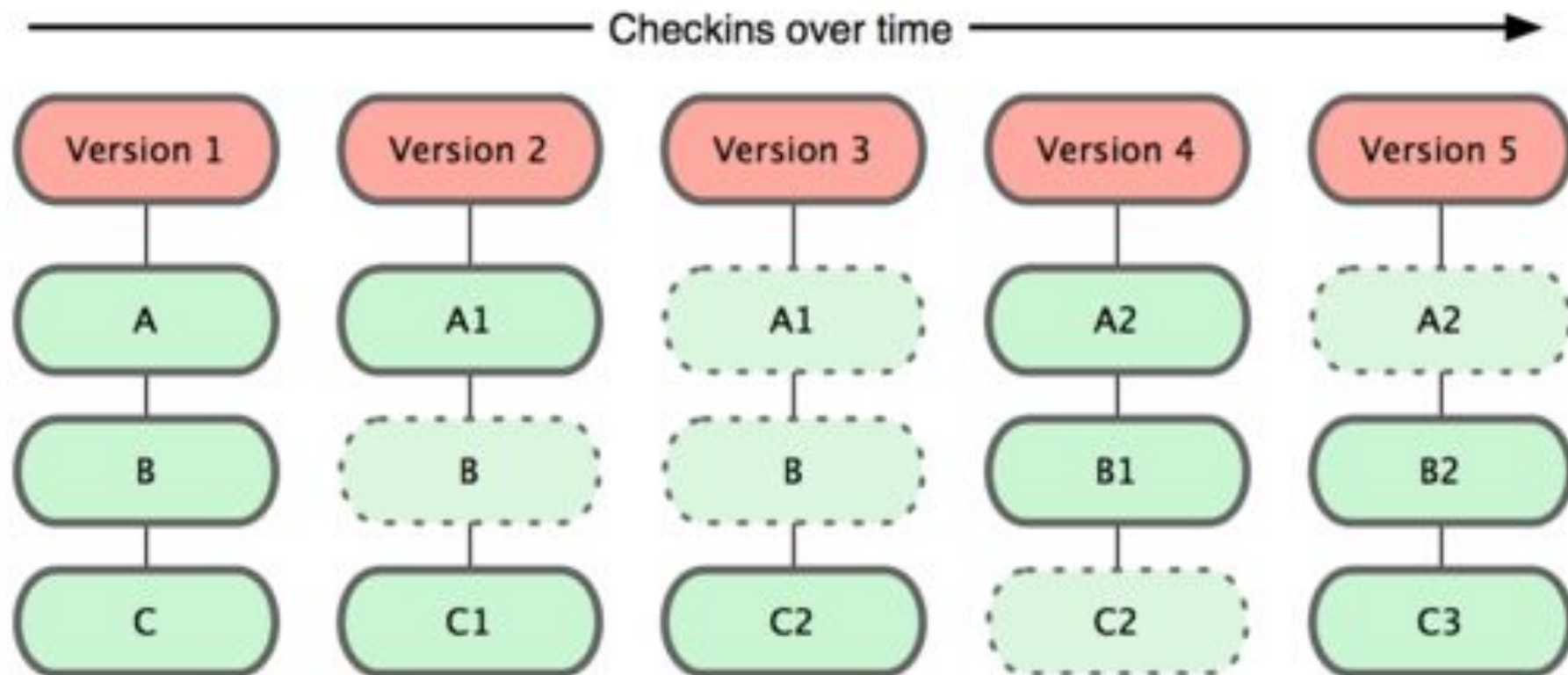


# Основы работы с Git

# Как установить и настроить git?

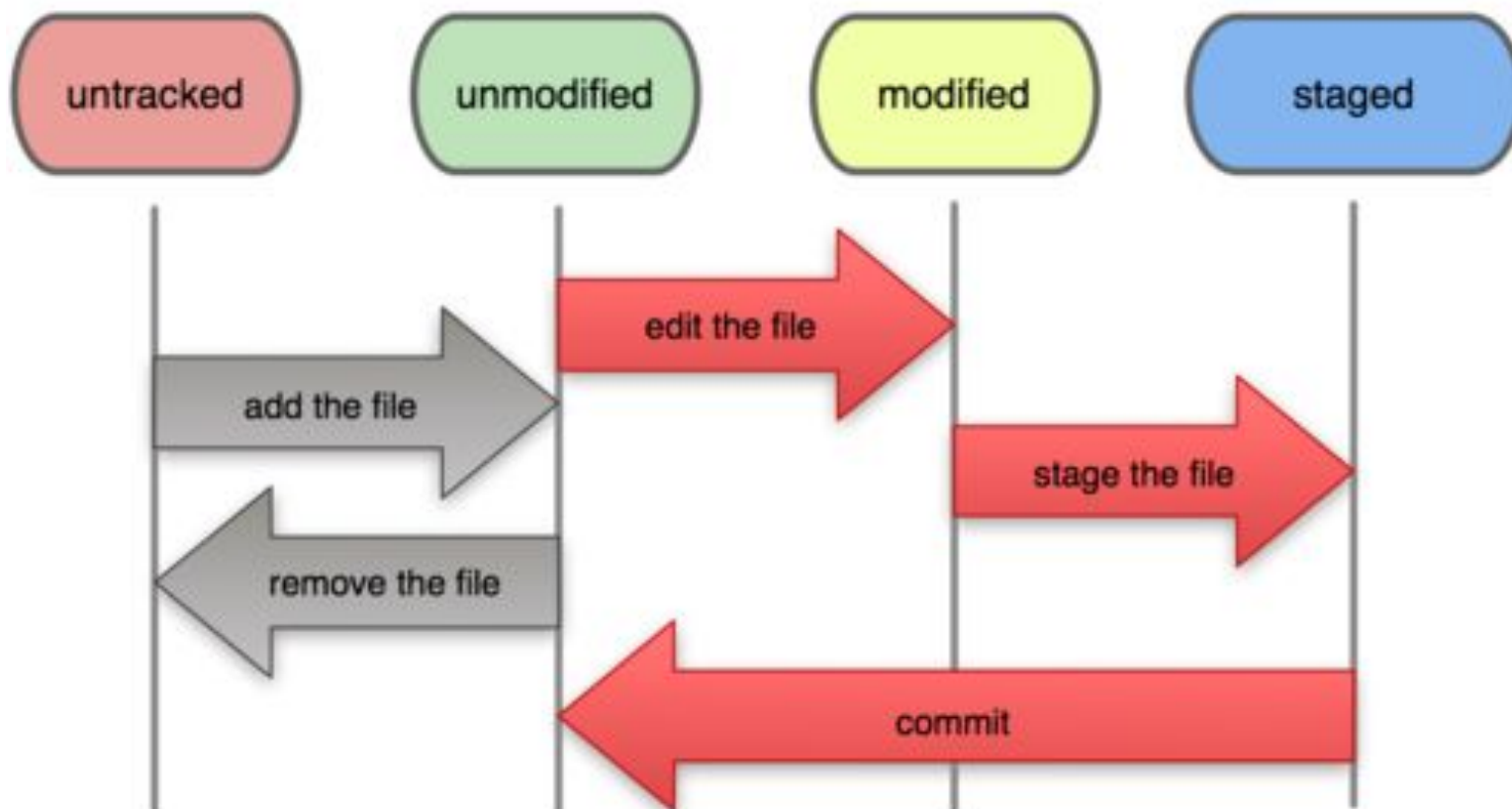


# Как Git хранит состояния?



Каков жизненный цикл файла в git?

## File Status Lifecycle




# Как начать работу с репозиторием?

In case of fire



 1. git commit

 2. git push

 3. leave building

# Git Cheat Sheet

## Git: configurations

```
$ git config --global user.name "FirstName LastName"
$ git config --global user.email "your-email@email-provider.com"
$ git config --global color.ui true
$ git config --list
```

## Git: starting a repository

```
$ git init
$ git status
```

## Git: staging files

```
$ git add <file-name>
$ git add <file-name> <another-file-name> <yet-another-file-name>
$ git add .
$ git add --all
$ git add -A
$ git rm --cached <file-name>
$ git reset <file-name>
```

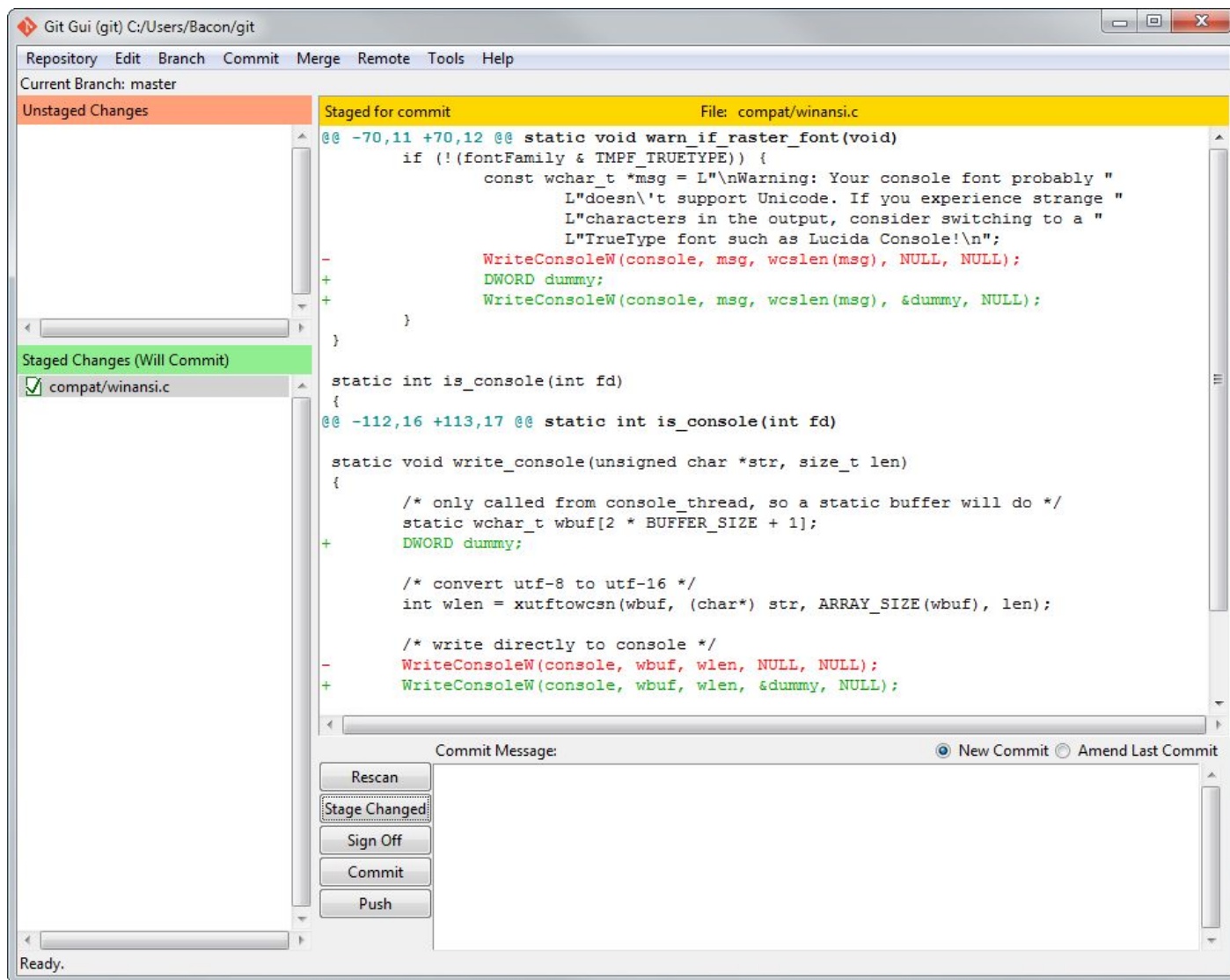
## Git: committing to a repository

```
$ git commit -m "Add three files"
$ git reset --soft HEAD^
$ git commit --amend -m <enter your message>
```

## Git: pulling and pushing from and to repositories

```
$ git remote add origin <link>
$ git push -u origin master
$ git clone <clone>
$ git pull
```

# Как посмотреть изменения?





# Как посмотреть изменения?

/home/joshua/dev el/cpp/cps111/bigcalc/apstring	/home/joshua/dev el/cpp/cps111/bigcalc/apstring.h
234 apstring operator + ( char ch, const apstring &	43
235 // postcondition: returns concatenation of ch w	44 // indexing
236 {	45
237     apstring result; // make string equivalent	46     char operator[ ]( int k )      const;
238     result = ch;	47     char & operator[ ]( int k );
239     result += str;	48
240     return result;	49 // modifiers
241 }	50
242	51     const apstring & operator += ( const apstr
243 apstring operator + ( const apstring & str, cha	52     const apstring & operator += ( char ch );
244 // postcondition: returns concatenation of str	53
245 {	54
246     apstring result(str);	55     private:
247     result += ch;	56         int myLength;           // leng
248     return result;	57         int myCapacity;        // cap
249 }	58         char * myCString;      // stoo
250	59 };
251	60
252 apstring apstring::substr(int pos, int len) con	61 // The following free (non-member) functions of
253 //description:  extract and return the substr	62 //
254 //              at index pos	63 // I/O functions
255 //precondition: this string represents c0, c1,	64
256 //              0 <= pos <= pos + len - 1 < n.	



commit cad69d14c185129a60b1c1400c8aeb33ae6e8462

Author: Eric Young <eric.young@possible.com>

Date: Mon Aug 15 11:31:21 2016 -0600

Add commit inteded for develop

commit 8fd47795d38f55f87e54deac1258763b2164ce4d

Author: Eric Young <eric.young@possible.com>

Date: Mon Aug 15 11:26:34 2016 -0600

Make commit targeted at bad branch

commit a688407ea357882d78820f255bb7c18b07b10675

Author: Eric Young <eric.young@possible.com>

Date: Mon Aug 15 10:55:41 2016 -0600

Make good commit

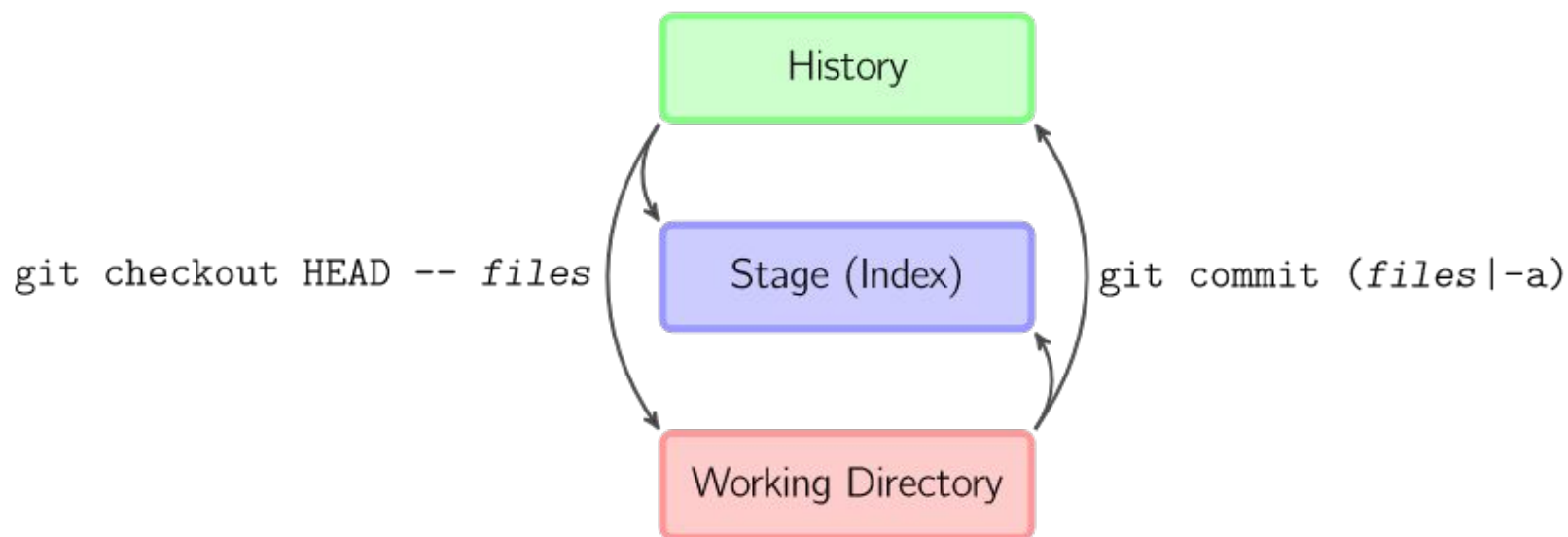
commit cd6e07f080ed98a16c5b2aa528a059701d3558ec

Author: Eric Young <eric.young@possible.com>

Date: Mon Aug 15 10:49:22 2016 -0600

Initial commit

# Как перейти к другому состоянию?



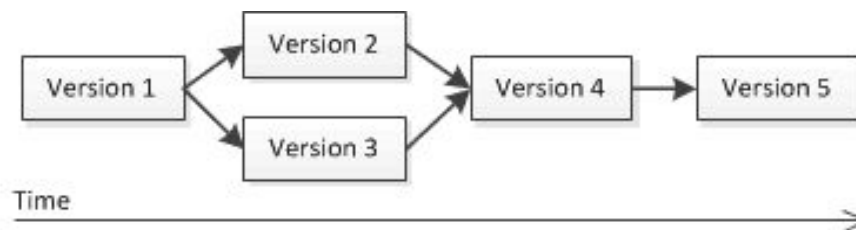
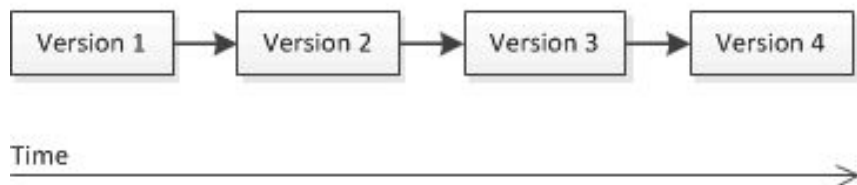
```
$ git help
usage: git [--version] [--help] [-C <path>] [-c name=value]
        [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
        [-p|--paginate|--no-pager] [--no-replace-objects] [--bare]
        [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
        <command> [<args>]
```

The most commonly used git commands are:

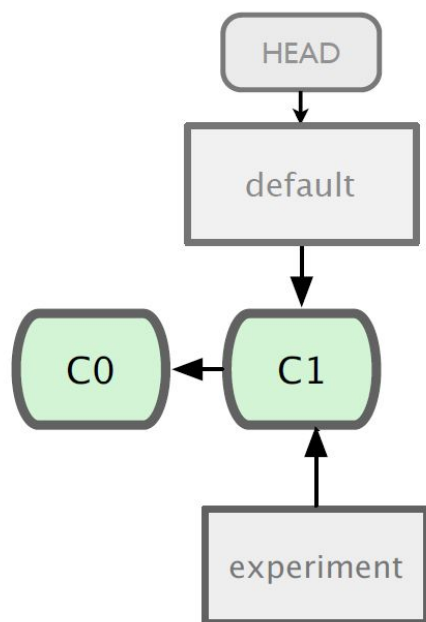
add	Add file contents to the index
bisect	Find by binary search the change that introduced a bug
branch	List, create, or delete branches
checkout	Checkout a branch or paths to the working tree
clone	Clone a repository into a new directory
commit	Record changes to the repository
diff	Show changes between commits, commit and working tree, etc
fetch	Download objects and refs from another repository
grep	Print lines matching a pattern
init	Create an empty Git repository or reinitialize an existing one
log	Show commit logs
merge	Join two or more development histories together
mv	Move or rename a file, a directory, or a symlink
pull	Fetch from and integrate with another repository or a local branch
push	Update remote refs along with associated objects
rebase	Forward-port local commits to the updated upstream head
reset	Reset current HEAD to the specified state
rm	Remove files from the working tree and from the index
show	Show various types of objects
status	Show the working tree status
tag	Create, list, delete or verify a tag object signed with GPG

# Работа с ветвлением

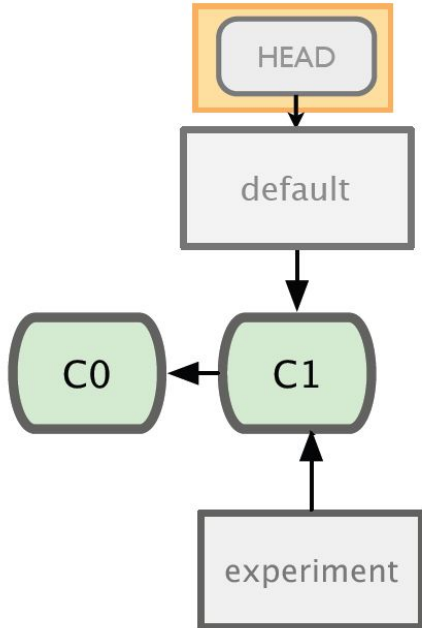
# Зачем нужны ветки?



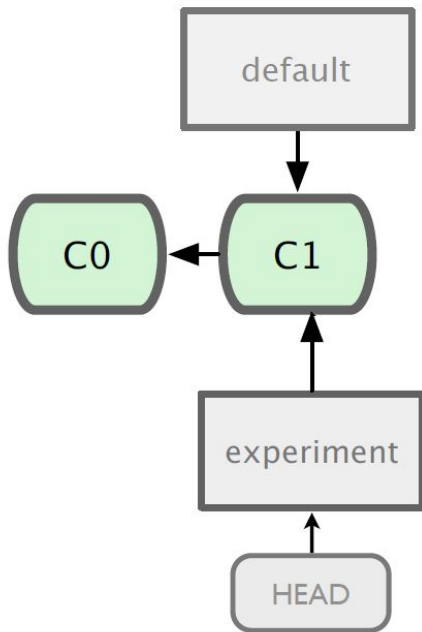
# Как создать новую ветку?



git branch experiment

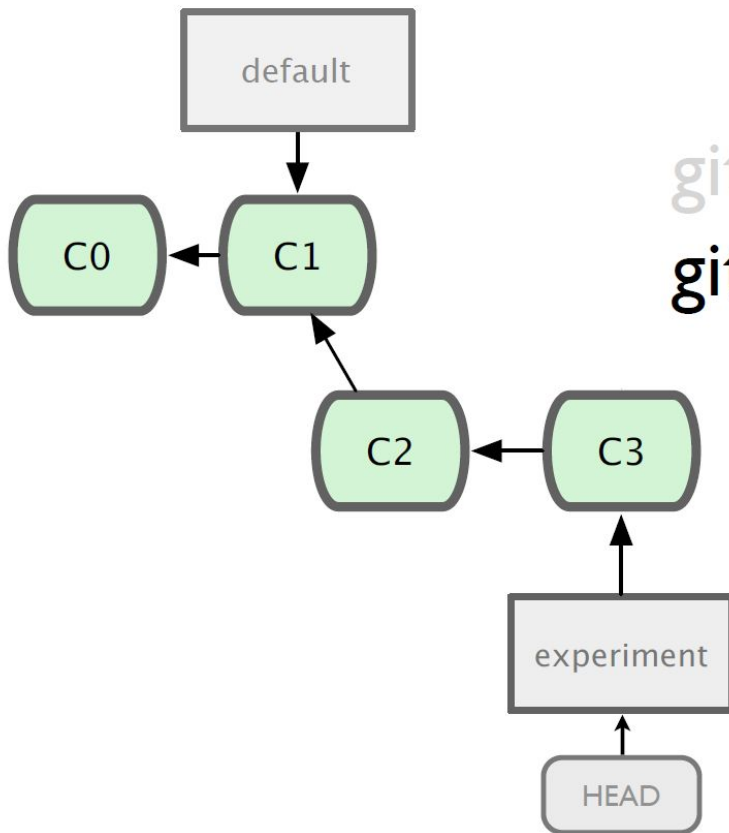


```
$ git branch  
* default  
experiment
```



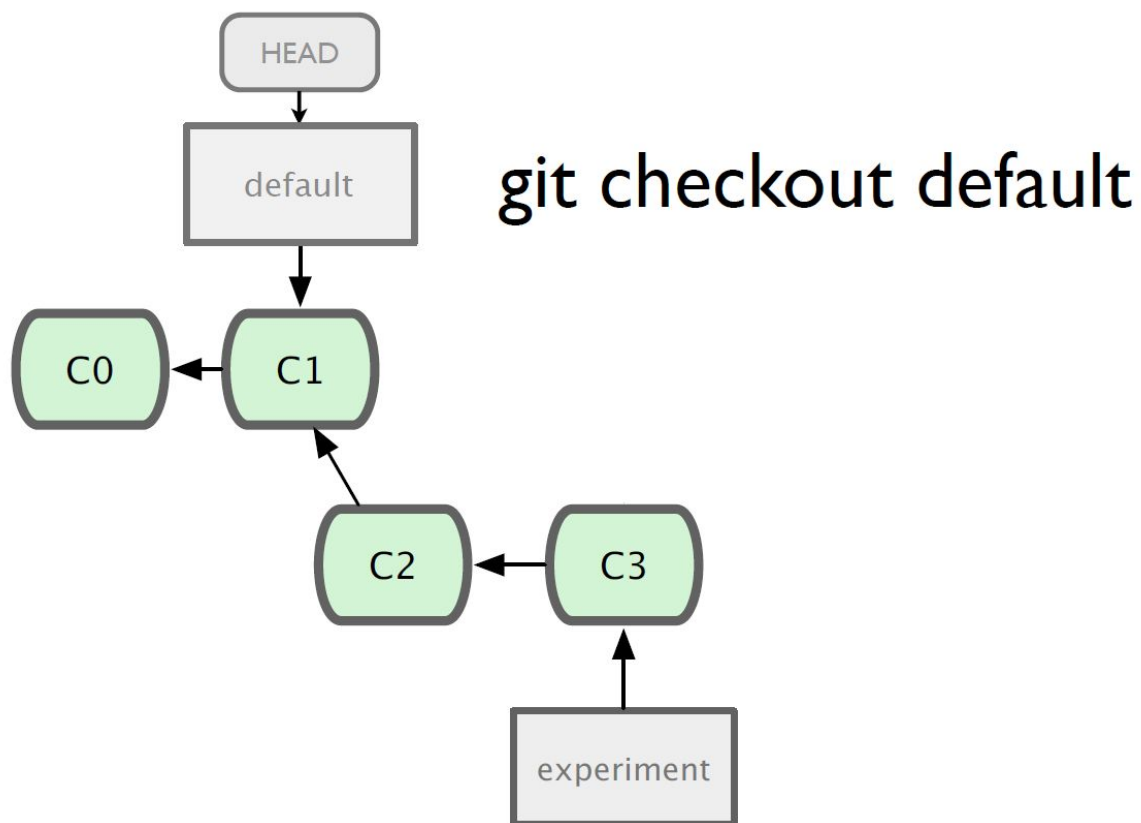
git checkout experiment



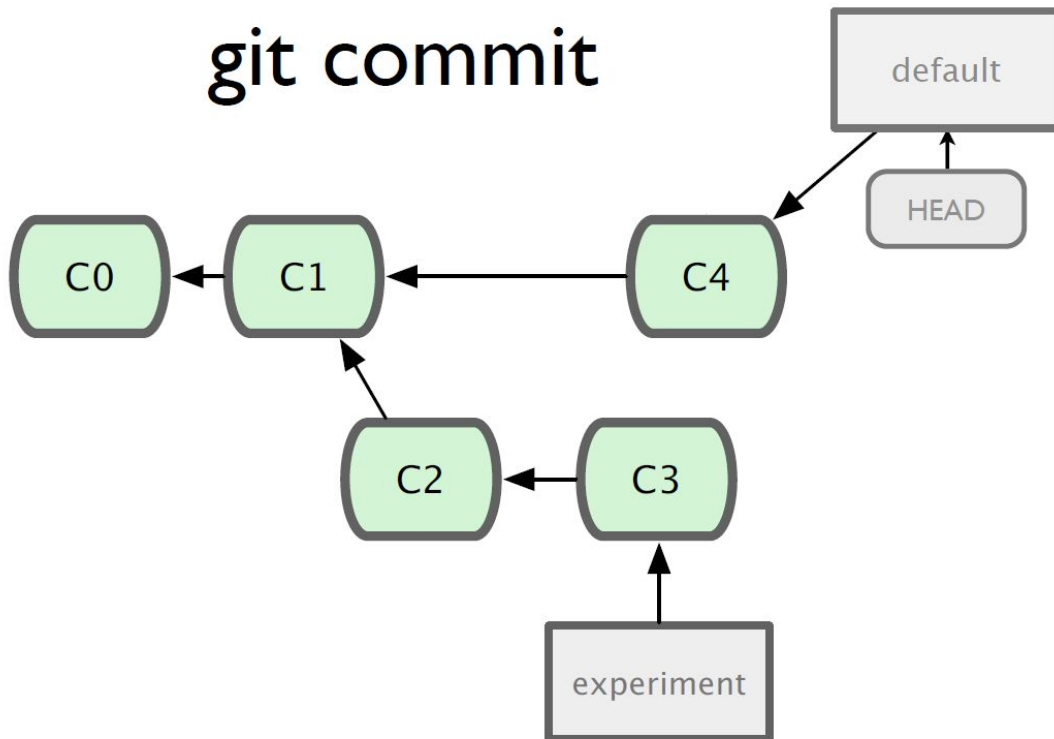


git commit  
git commit

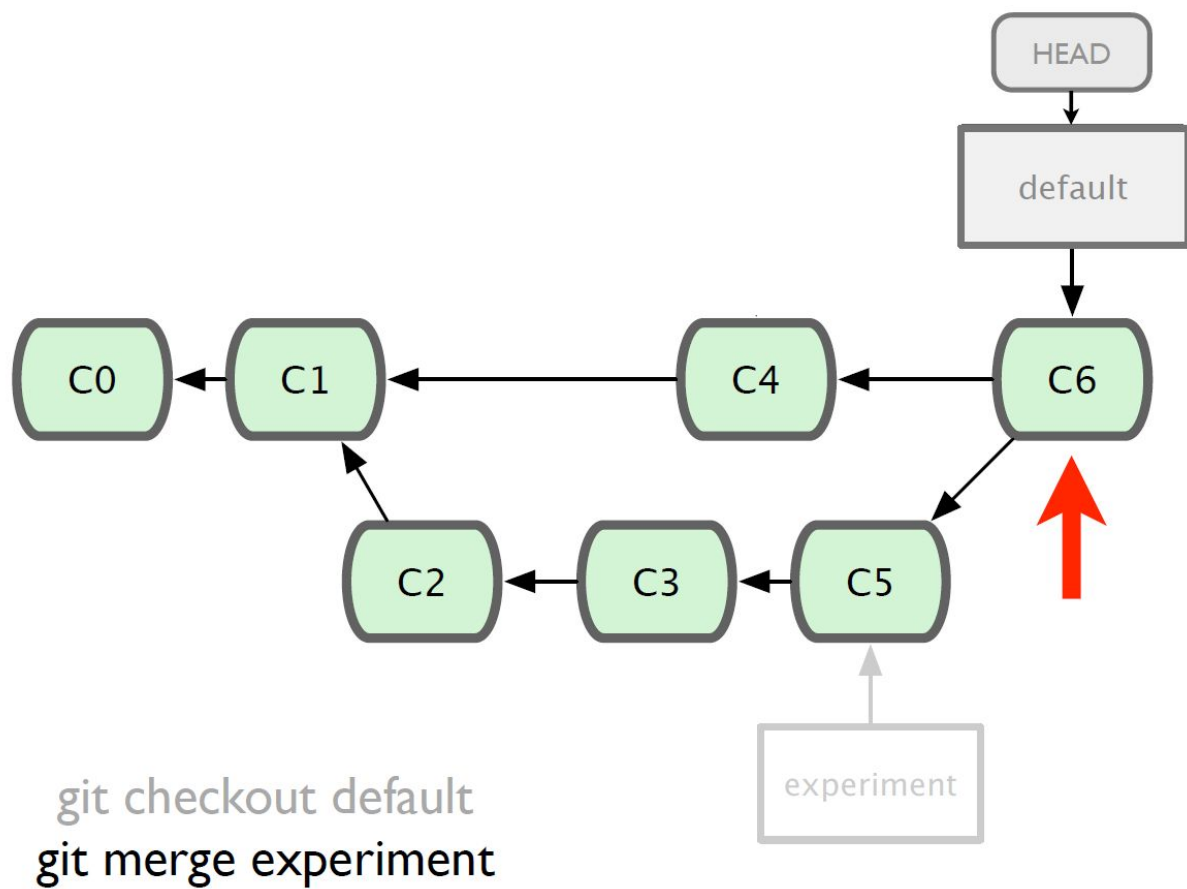
# Как переключиться на другую ветку?



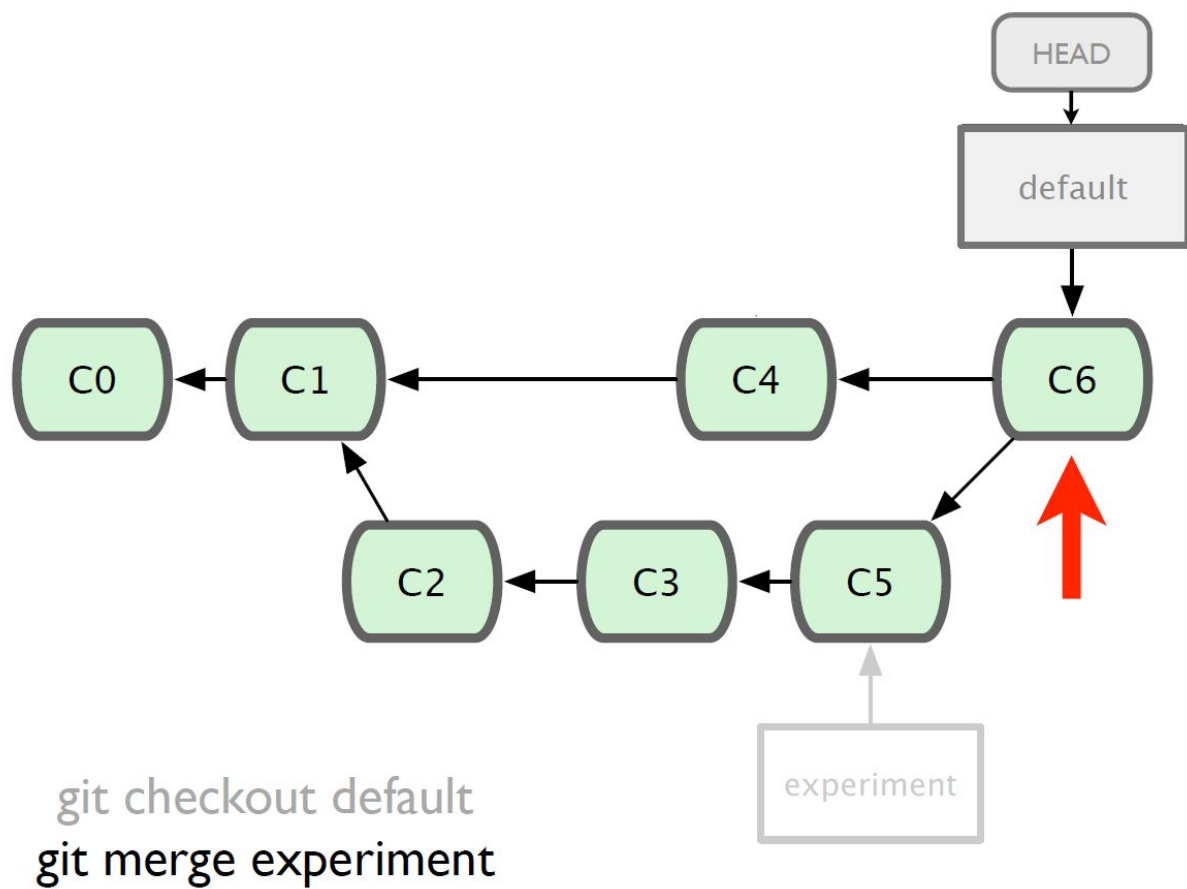
# git commit

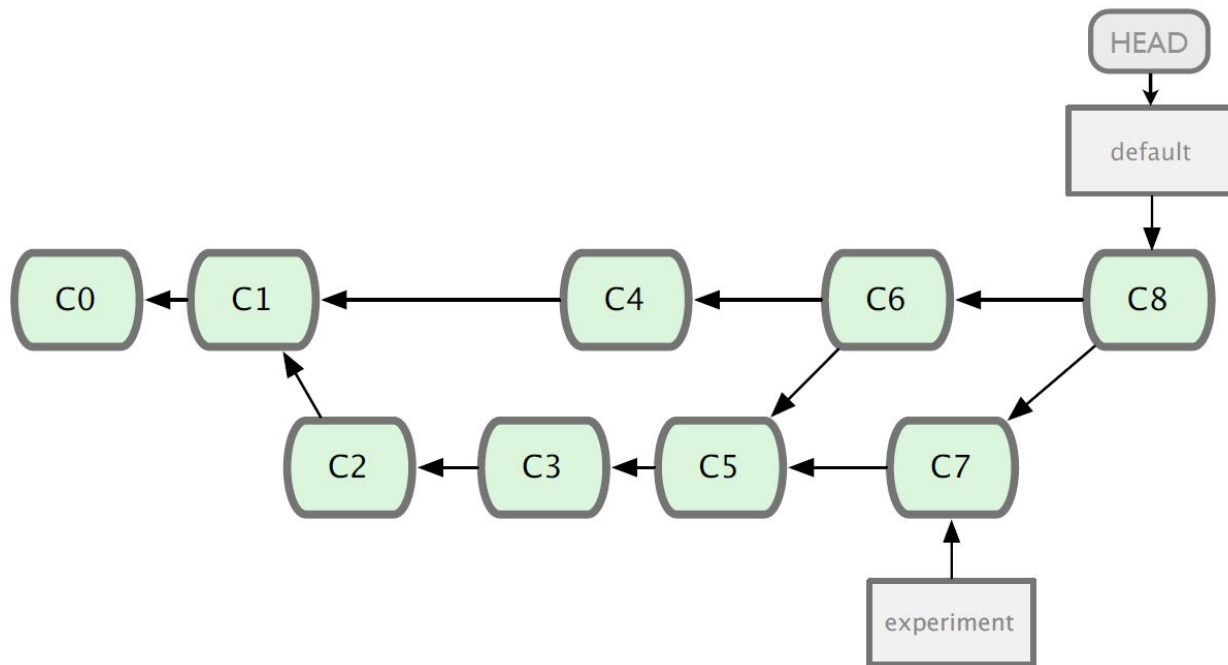


# Как объединять ветки?



# Как объединять ветки?





git merge experiment

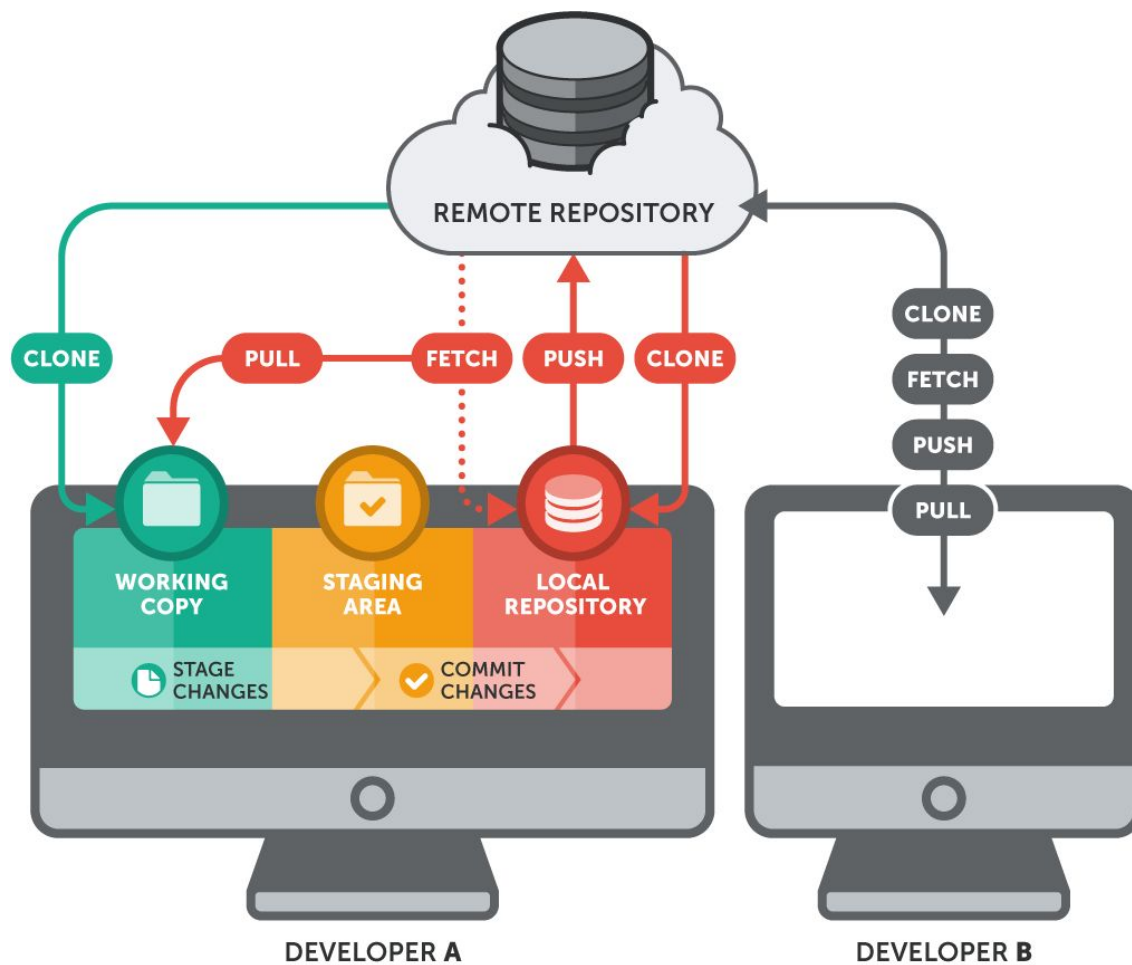
# Как разрешать конфликты слияния?

```
1  # How to create a merge conflict
2
3  <<<<<<< HEAD
4  First you add a file, but create a conflicting
5  • change
6  on another branch.
7  =====
8  First you add a file.
9
10 Then you add something on another branch and
11 • commit it.
12 >>>>>>> new_branch
```

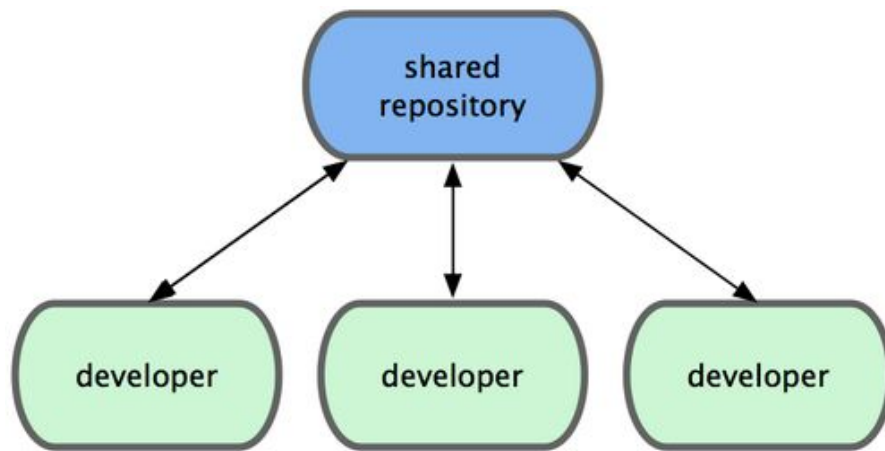
Работа с удаленными репозиториями



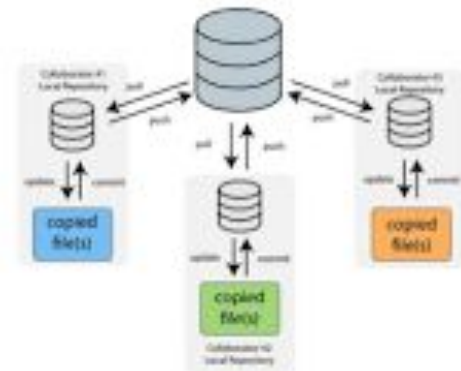
# Зачем нужны удаленные репозитории?



# Что такое DVCS?



DVCS: Distributed version control system



# Как связать текущий репозиторий с другим?

```
$ git remote
```

```
origin
```

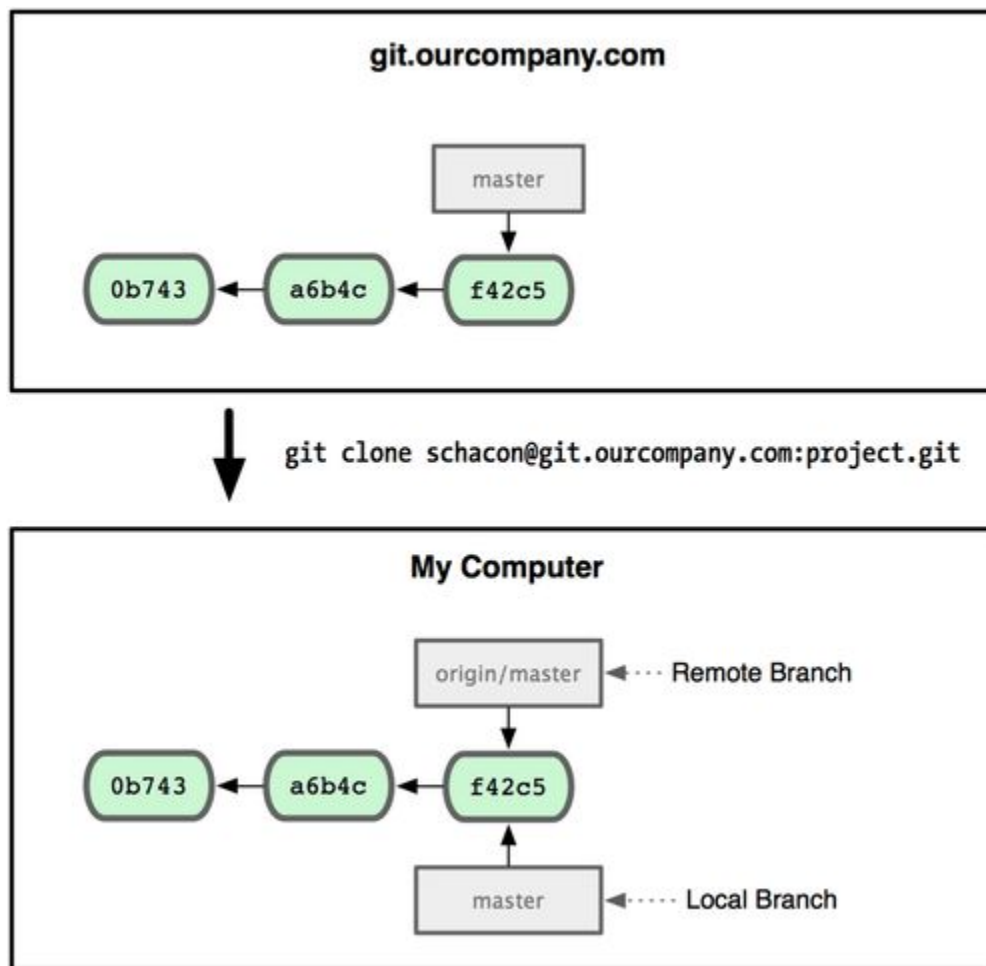
```
$ git remote add pb git://github.com/paulboone/ticgit.git
```

```
$ git remote -v
```

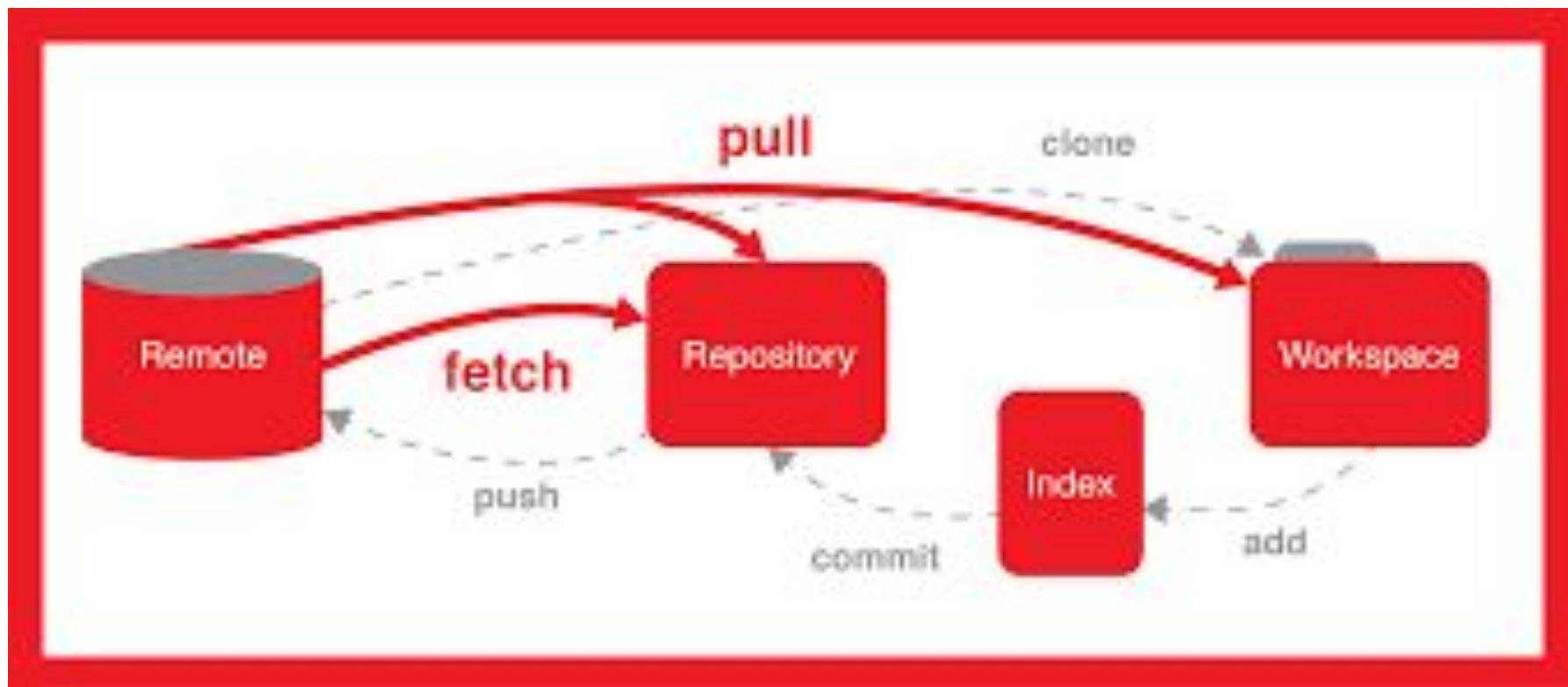
```
origin git://github.com/schacon/ticgit.git
```

```
pb git://github.com/paulboone/ticgit.git
```

# Как клонировать репозиторий?



Как получить изменения из апстрима?



# Как отправить изменения в апстрим?

```
$ git push origin master
```

# Работа с GitHub

# Что это такое и зачем это нужно?

The screenshot shows the GitHub repository for TensorFlow. At the top, there's a navigation bar with links to Pull requests, Issues, Marketplace, and Explore. Below this, the repository name 'tensorflow / tensorflow' is displayed along with statistics: 8,597 Watchers, 120,065 Stars, and 71,824 Forks. A black arrow points from the 'Fork' button to the text 'Click here to fork'. Below the repository name, there are tabs for Code, Issues (1,750), Pull requests (321), Projects (1), and Insights. The description reads 'An Open Source Machine Learning Framework for Everyone' with a link to 'https://tensorflow.org'. Below this, there are tags for tensorflow, machine-learning, python, deep-learning, deep-neural-networks, neural-network, ml, and distributed. A progress bar shows 48,516 commits, 38 branches, 75 releases, 1,822 contributors, and Apache-2.0 license. Below the progress bar, there are buttons for 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find file', and 'Clone or download'. A black arrow points from the 'Clone or download' button to the text 'Click here to clone'. Below these buttons, there's a list of files and folders with their commit messages and timestamps. The files include .github/ISSUE\_TEMPLATE, tensorflow, third\_party, tools, .bazelrc, .gitignore, ACKNOWLEDGMENTS, ADOPTERS.md, AUTHORS, BUILD, and CODEOWNERS.

is:issue is:closed

Pull requests Issues Marketplace Explore

tensorflow / tensorflow

Watch 8,597 Star 120,065 Fork 71,824

Code Issues 1,750 Pull requests 321 Projects 1 Insights

An Open Source Machine Learning Framework for Everyone <https://tensorflow.org>

tensorflow machine-learning python deep-learning deep-neural-networks neural-network ml distributed

48,516 commits 38 branches 75 releases 1,822 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

caisq and tensorflow-gardener tfdbg: start deprecating invoke\_stepper ... Latest commit 441fb2b 21 minutes ago

.github/ISSUE_TEMPLATE	Ambiq squashed commits	2 months ago
tensorflow	tfdbg: start deprecating invoke_stepper	15 minutes ago
third_party	Fixes for hwloc build files.	4 days ago
tools	Update to bazel-0.18.0 and use try-import	2 months ago
.bazelrc	Add a new bazel config option for C++ 17	4 days ago
.gitignore	Update to bazel-0.18.0 and use try-import	2 months ago
ACKNOWLEDGMENTS	TensorFlow: Improve performance of Alexnet	3 years ago
ADOPTERS.md	Internal file cleanup.	2 years ago
AUTHORS	Merge changes from github.	a year ago
BUILD	Export 'configure' and 'configure.py' to allow inverse dependent repo...	3 months ago
CODEOWNERS	Fix tensorflow nccl CODEOWNERS	2 months ago

Click here to fork

Click here to clone



# Как создать репозиторий?

Your repositories 0

[+ New repository](#)

You don't have any repositories yet!  
[Create your first repository](#) or [learn more about Git and GitHub](#).

**Owner** **Repository name**

PUBLIC   ben / iOSApp 

Great repository names are short and memorable. Need inspiration? How about **drunken-dubstep**.

**Description** (optional)

iOS project for our mobile group

☒  **Public**  
Anyone can see this repository. You choose who can commit.

☐  **Private**  
You choose who can see and commit to this repository.

☐ **Initialize this repository with a README**

This will allow you to `git clone` the repository immediately. Skip this step if you have already run `git init` locally.

Add .gitignore: **None** ▾

Add a license: **None** ▾



[Create repository](#)

# Как клонировать репозиторий?

**Clone with HTTPS** 

[Use SSH](#)

Use Git or checkout with SVN using the web URL.

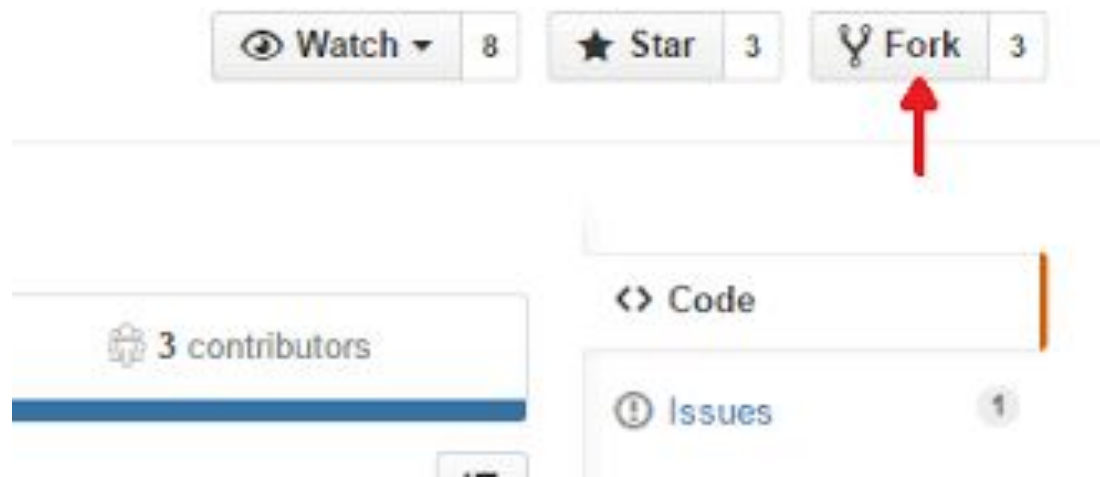
`https://github.com/octo-org/octo-repo.git`




[Open in Desktop](#)

[Download ZIP](#)

# Что такое форк?



# Что такое пулл реквест?


 **mgienow / TNS-Pull-Request-Practice**

Watch 1 Star 0 Fork 1


[Code](#) [Issues 0](#) [Pull requests 0](#) [Projects 0](#) [Wiki](#) [Insights](#)

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

 base fork: mgienow/TNS-Pull-Request-Practice base: master ← head fork: LuluBijou/TNS-Pull-Request-Practice compare: master

✓ **Able to merge.** These branches can be automatically merged.



Add Lulu Bijou to list

Write Preview

AA B i “ <> ↻ ⋮ ⋮ ✓ @ 📌 ↶

Leave a comment

Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

☒ Allow edits from maintainers. [Learn more](#)

Create pull request

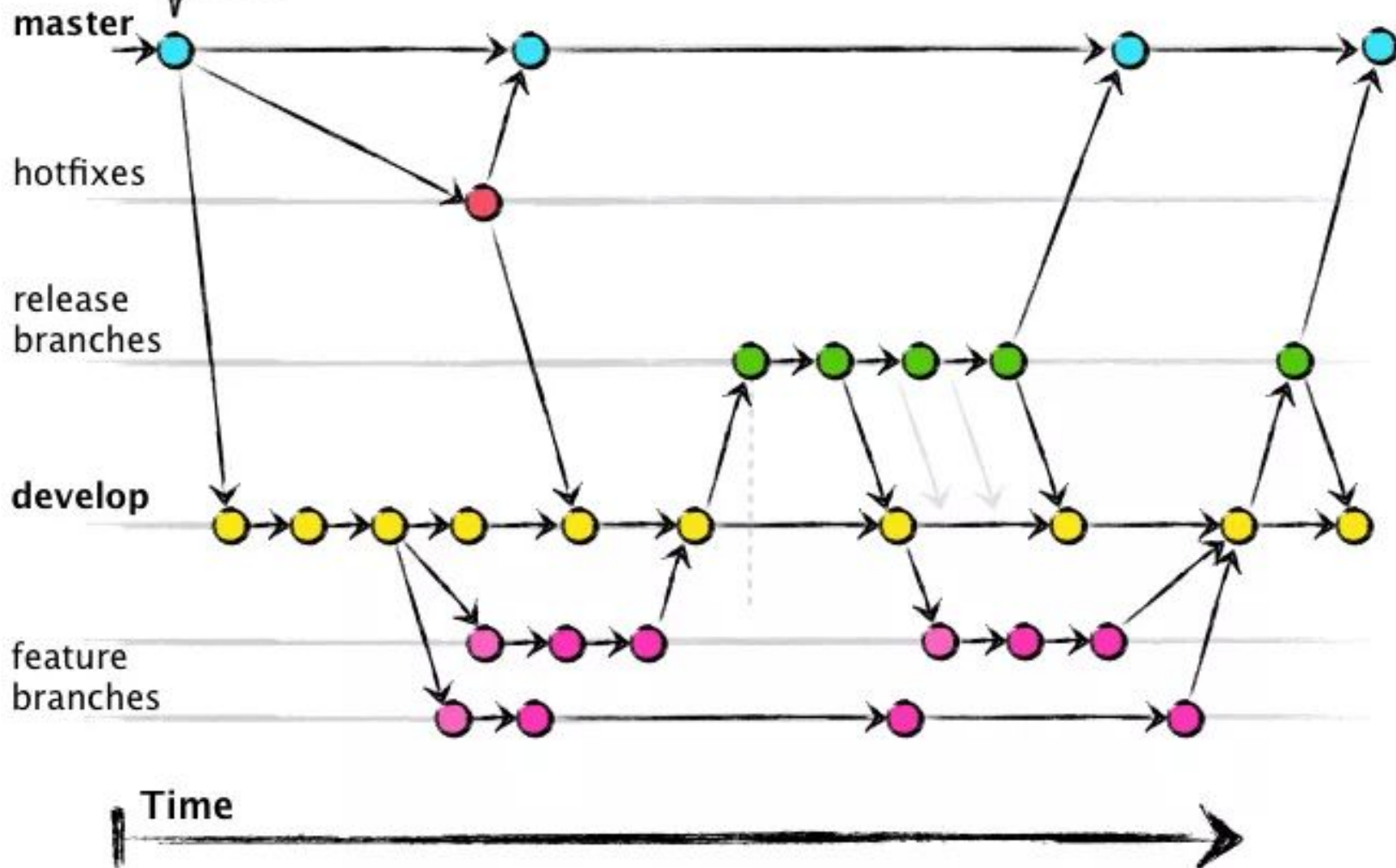
# Использование GitFlow

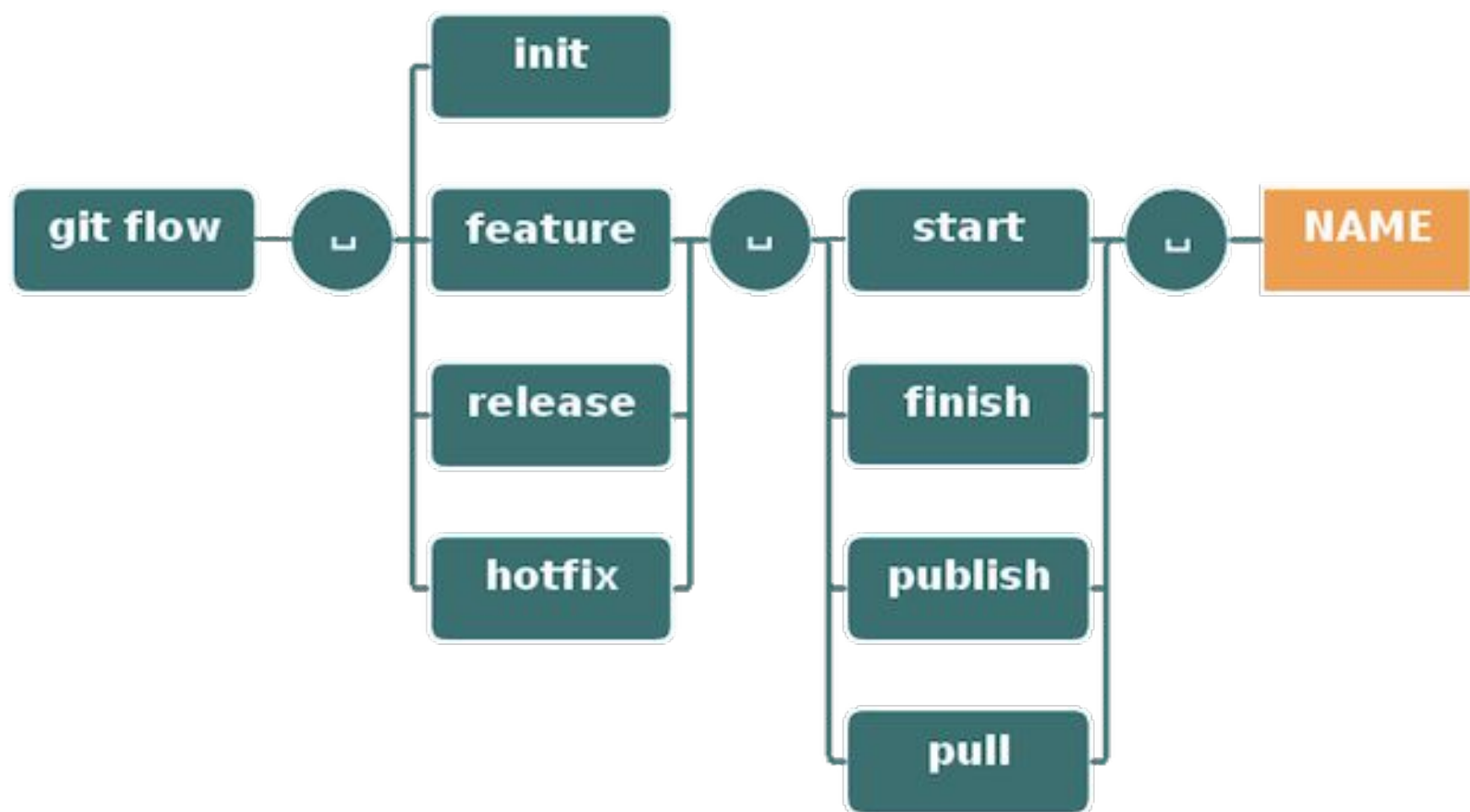
Tag  
0.1

Author: Vincent Driessen

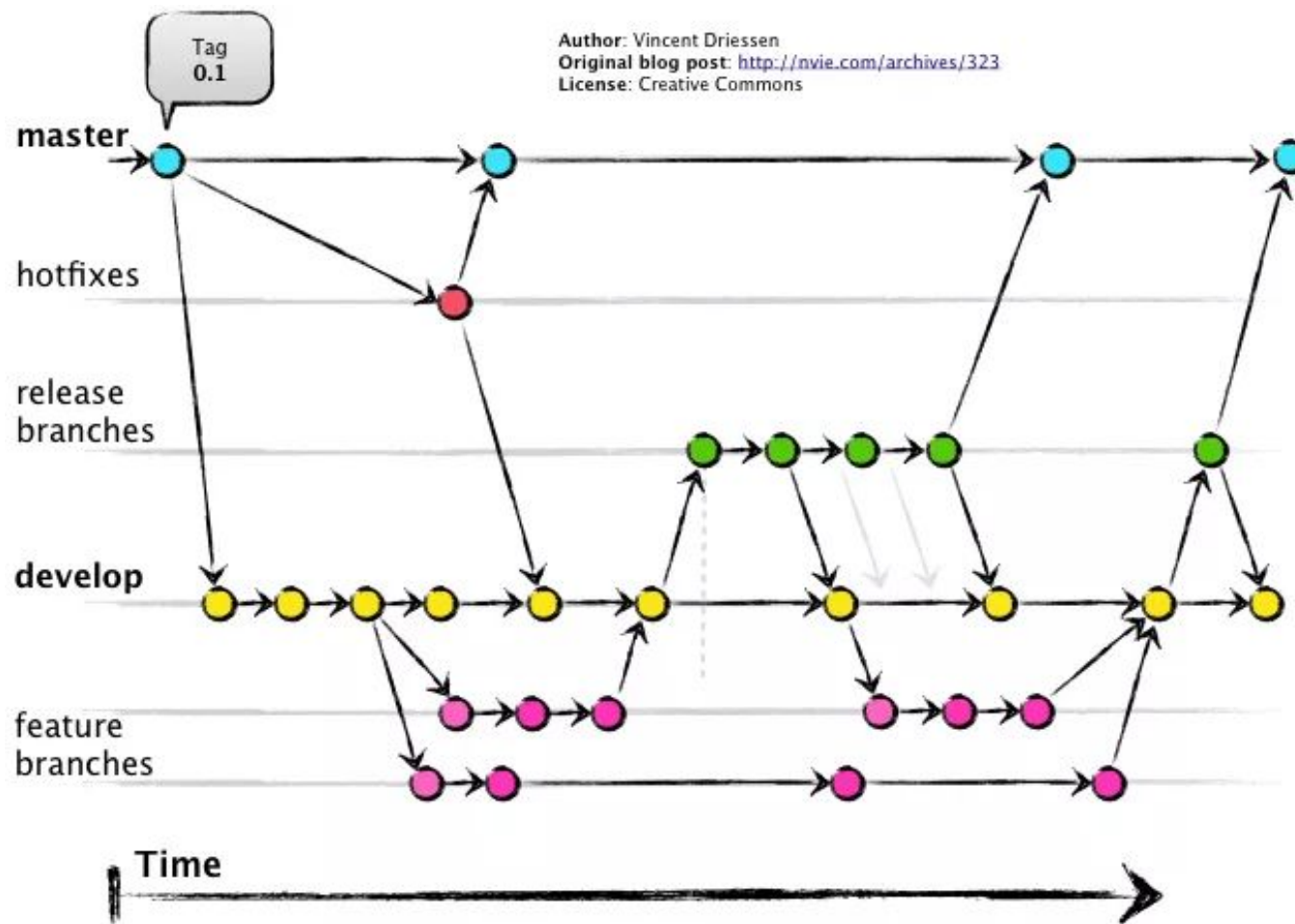
Original blog post: <http://nvie.com/archives/323>

License: Creative Commons





# Как работать с веткой develop?





# Как создавать фичи?

```
$ git checkout -b myfeature develop
```

Switched to a new branch "myfeature"

```
$ git checkout develop
```

Switched to branch 'develop'

```
$ git merge --no-ff myfeature
```

Updating ea1b82a..05e9557

(Отчёт об изменениях)

```
$ git branch -d myfeature
```

Deleted branch myfeature (was 05e9557).

```
$ git push origin develop
```

# Как происходит работа с релизами?

```
$ git checkout -b release-1.2 develop
```

Switched to a new branch "release-1.2"

...

```
$ git checkout master
```

Switched to branch 'master'

```
$ git merge --no-ff release-1.2
```

Merge made by recursive.

(Отчёт об изменениях)

```
$ git tag -a 1.2
```

# Литература

Git: наглядная справка

Gitflow

Pro Git