Introduction to Git

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What is a VCS?

- Version Control System (VCS) is a software that helps software developers to work together and maintain a complete history of their work.

Git History

- Originally written for Linux kernel development.
- All Linux kernel developers used to be able to use the proprietary Bitkeeper version control system for free.
- In 2005 there were further restrictions put on Bitkeeper so that it wasn’t as free as it used to be.
- Linus Torvalds was uneasy with the situation and decided to write his own tool.

Git Design

- Distributed development
- Scalable up to thousands of developers
- Fast and efficient
- Maintain integrity and privacy
- Support and promote development with branches
- Clean design
- Free as in freedom

Git Commands and concepts that we will cover today

- Git config
- Git init
- Git status
- Git branch
- Git checkout <filename>
- Git log
- Git add, git commit
- Git push, git pull
- Git clone
- Repository
- Branches, master
- Pull Request
- Merge
- Fork
- .gitignore
- etc

Configure Git

- Git config
- Important for the history of a file: Who made a change and when?

```
$ git config --global user.name "Your name"
```

```
$ git config --global user.email "Your Email"
```

```
$ git config --list
```

Create a local git repository

```
$ mkdir introductiontogit
$ cd introductiontogit
$ git init
```

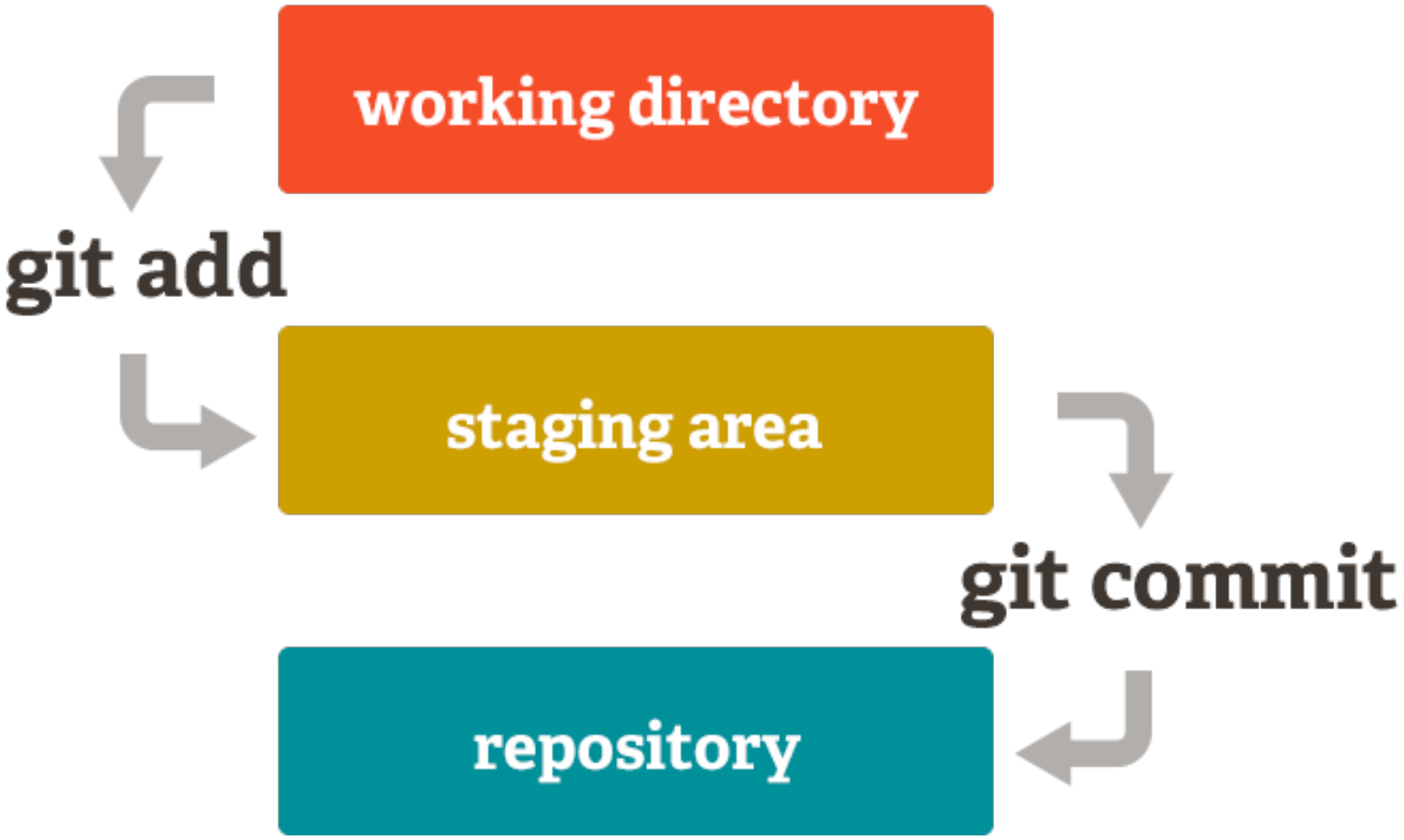
Add a new file to the repo

```
$ touch text.txt
```

```
$ git status
```

The staging environment, the commit, and you

- A commit is a record of what files you have changed since the last time you made a commit.
- So, how do you tell git which files to put into a commit? This is where the staging environment or index come in.
- Commits allow you to go back to the state of a project at any point.


working directory
git add
staging area
git commit
repository

Add a file to the staging environment

```
$ git add text.txt
```

```
$ git add .
```

. to add all the files

Create a commit

```
$ git commit -m "new file added"
```

```
$ git log
```

to see all git commits history

Create a new branch

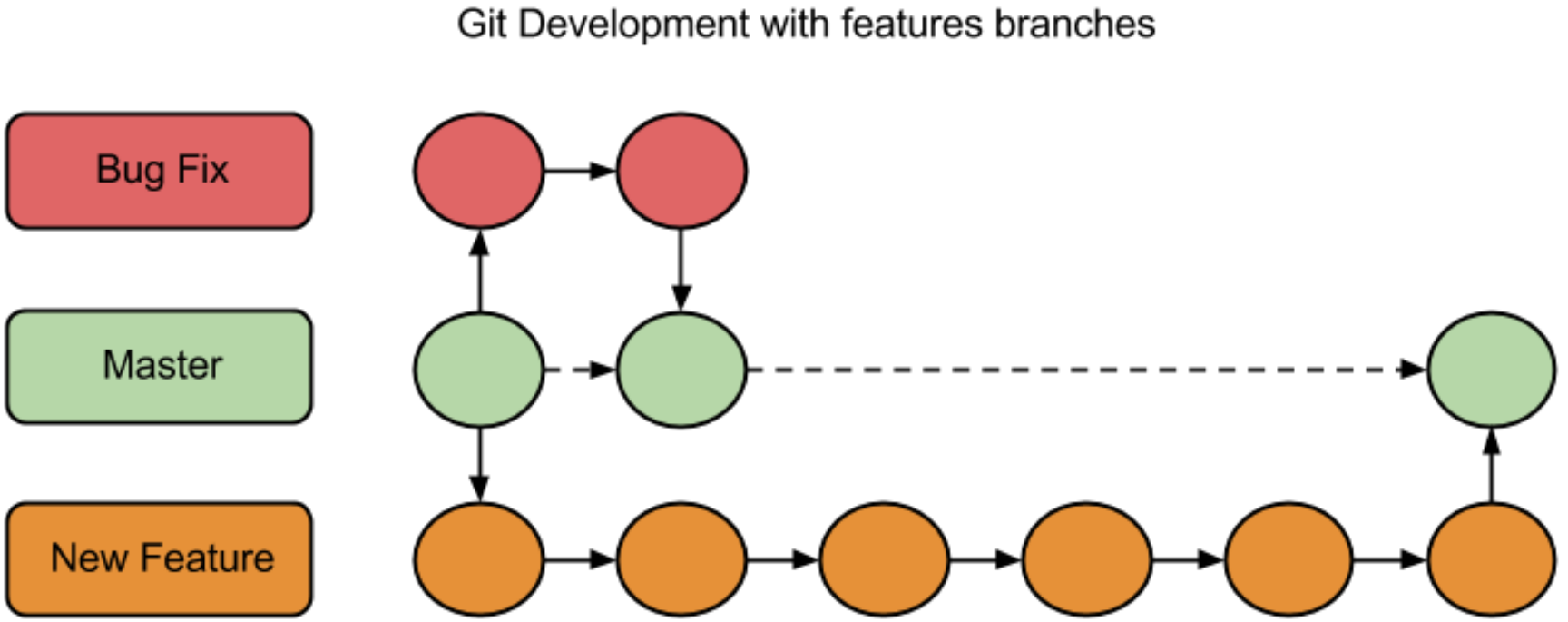
```
$ git branch branchname
```

```
$ git branch
```

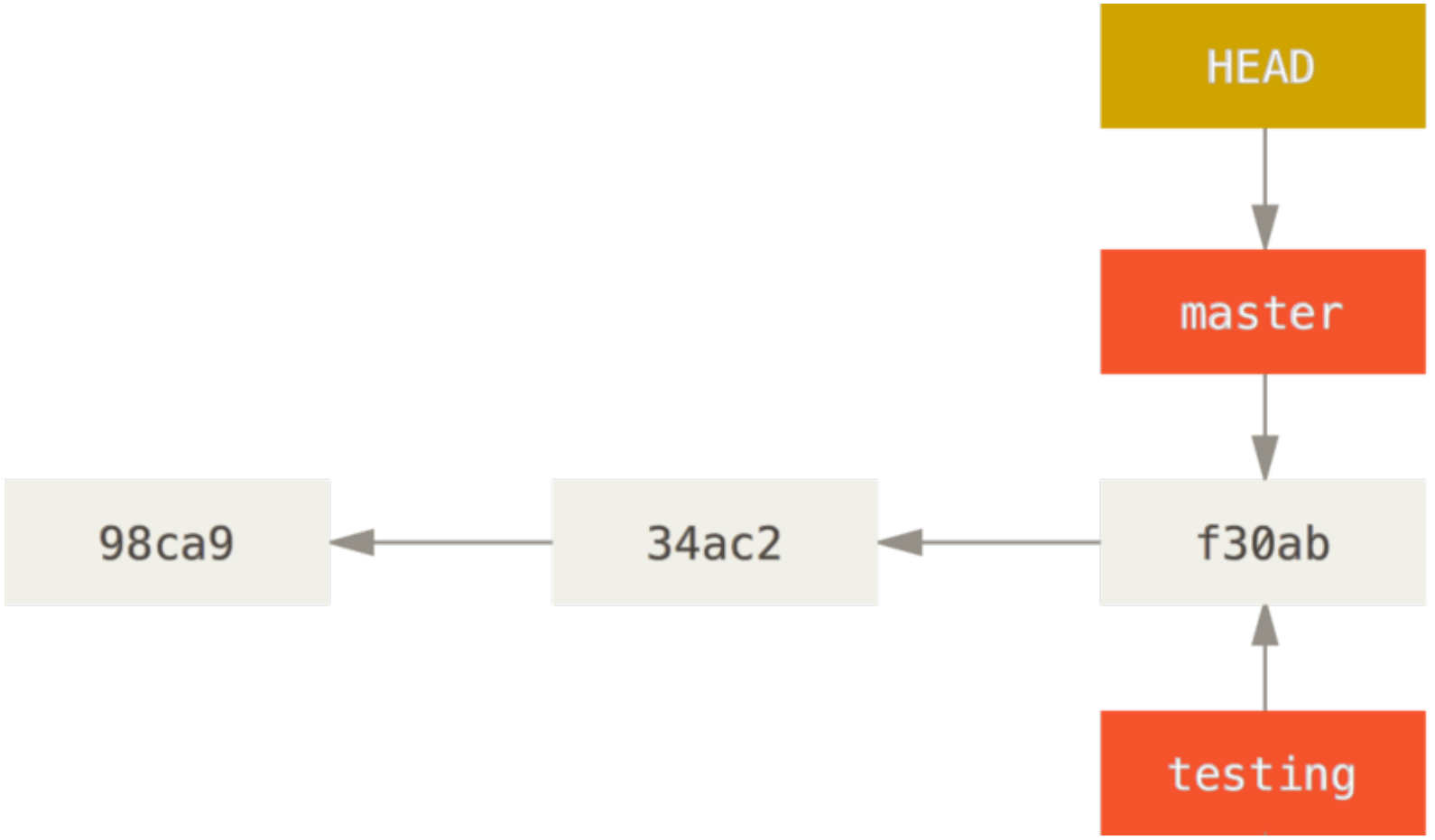
```
$ git checkout branchname
```

```
$ git branch -d branchname
```

Git Branches



How does Git know what branch you're currently on?



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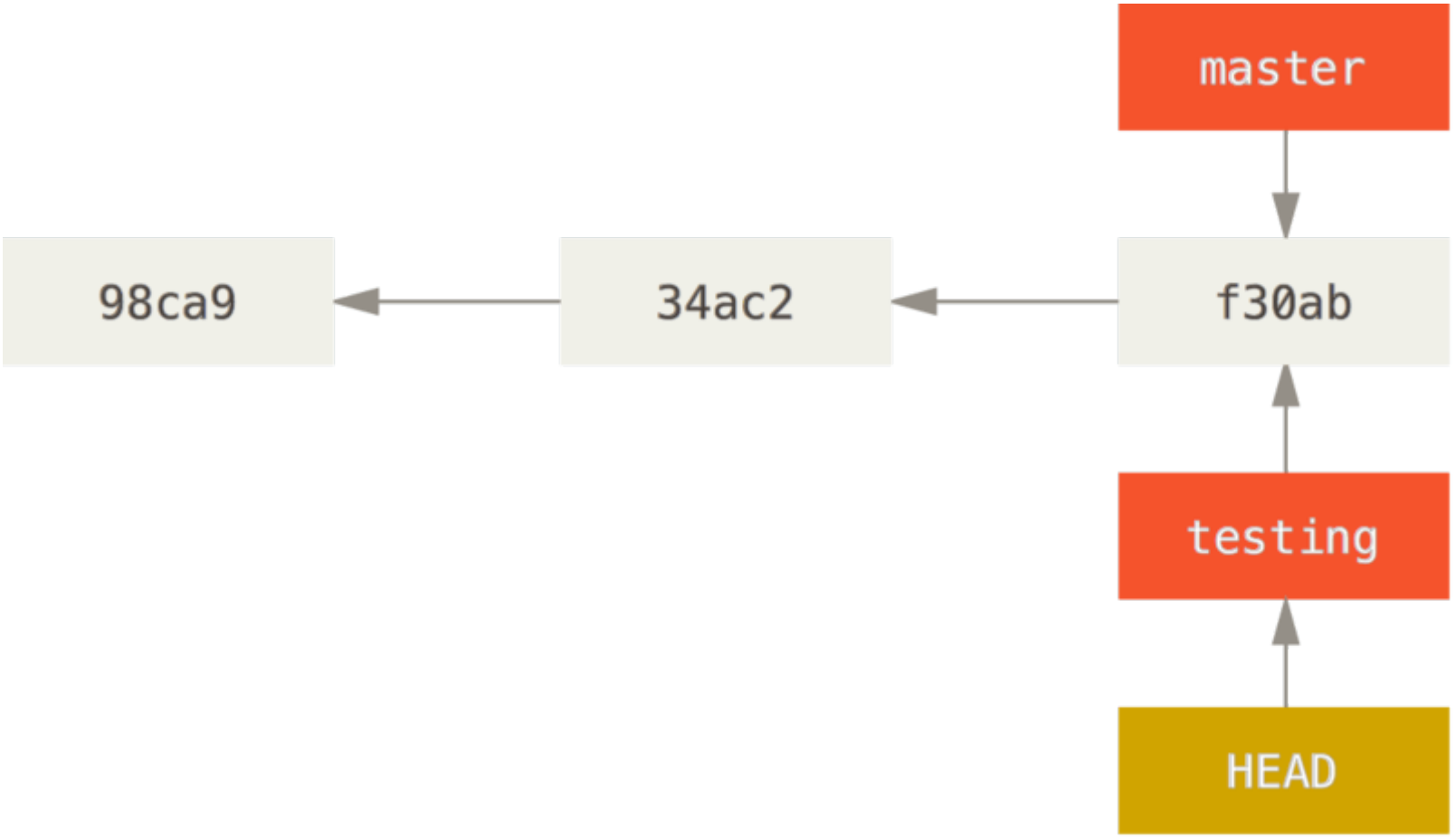

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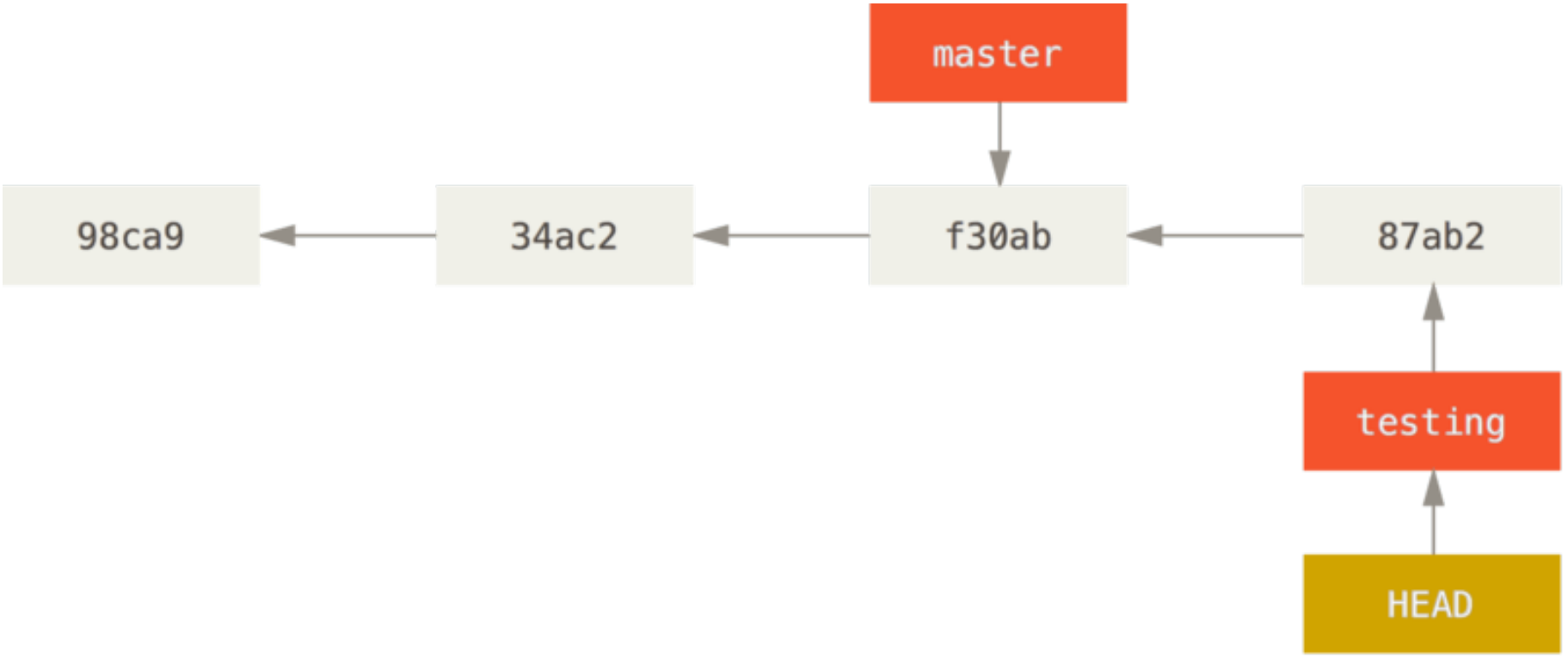

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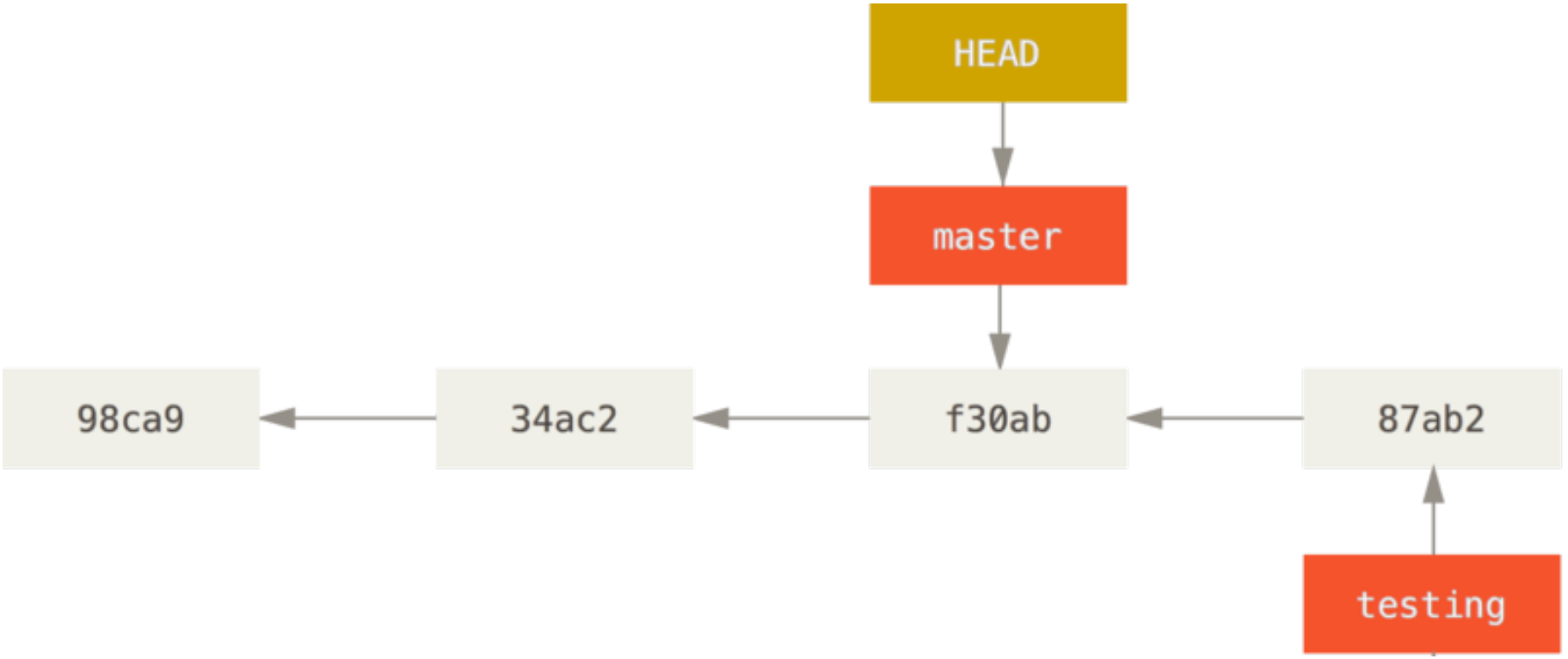

Create a new repository on GitHub

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

#set a new remote

$ git remote -v

#verify the new remote
```

Push a branch to GitHub

```
$ git push origin branchname
```

- **NEVER PUSH TO MASTER!**


GIT
straight
to master
quickmeme.com

Get changes on GitHub back to your computer

```
$ git pull origin master
```

Fork a Repo

A fork is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project

- Fork the repository.
- Make the fix.
- Submit a pull request to the project owner

Clone Repo

- $ git clone https://github.com/YOUR-USERNAME/reponame.git

PR &MERGE

- **A pull request (or PR)** is a way to alert a repo's owners that you want to make some changes to their code. It allows them to review the code and make sure it looks good before putting your changes on the master branch.
- **MERGE:** This will merge your changes into the master branch.


GIT MERGE
NO CONFLICTS
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Thank You!

Questions?