



SSW-555: Agile Methods for Software Development

Collaboration via GitHub
Week 3

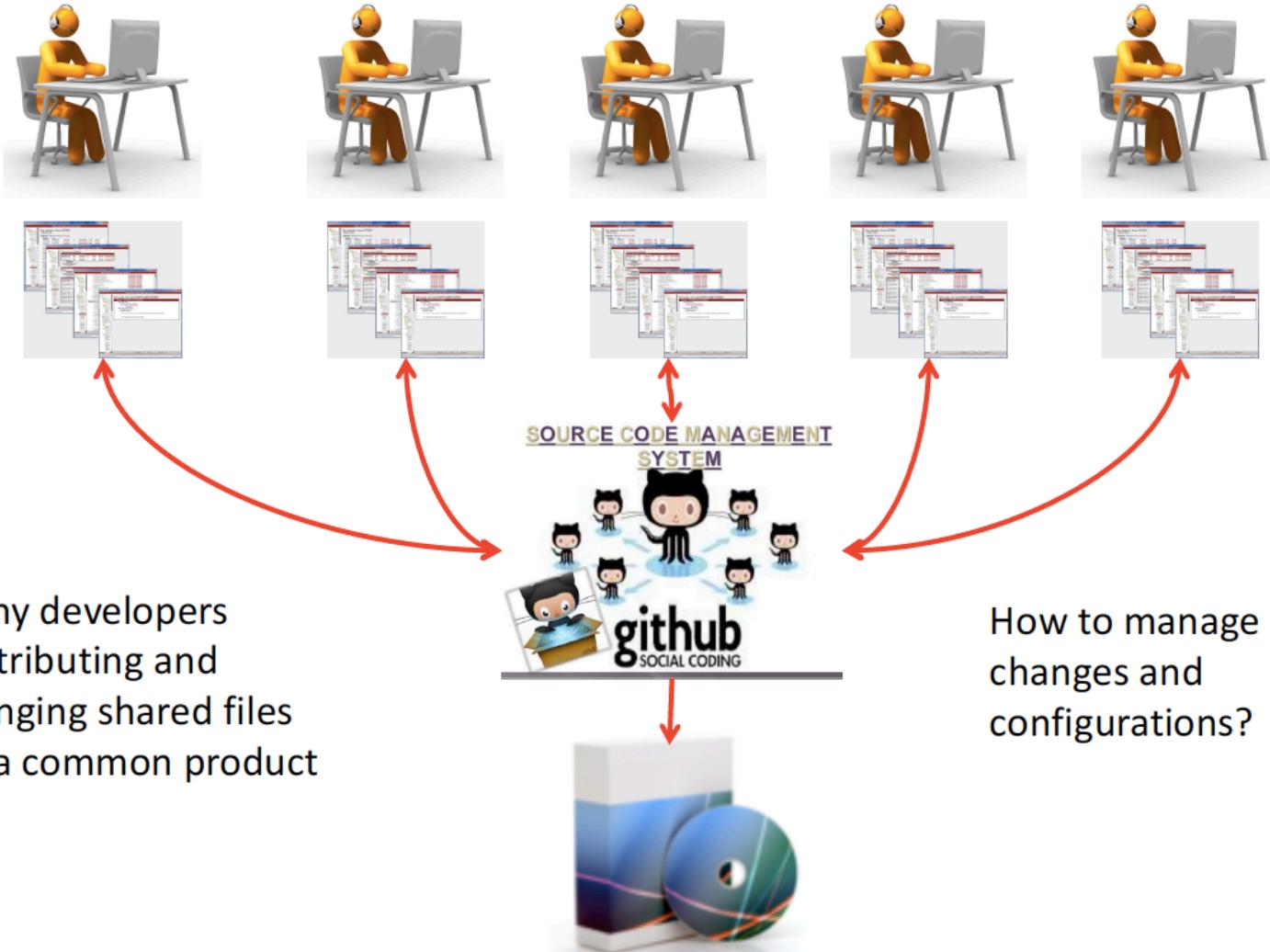




Acknowledgements

- This lecture includes material from
- Getting started with GitHub
- <https://guides.github.com/activities/hello-world/>
- <https://guides.github.com/>
- <https://git-scm.com/docs>
- <https://services.github.com/on-demand/downloads/github-git-cheat-sheet.pdf>

Why GitHub?





GitHub Concepts

Repository

- Collection of project files

Branches

- Create a branch in a repository
- Includes changes to files for versions or features

Commits

- Commit changes to the repository

Pull Requests

- Propose and discuss commits to merge into the master branch

Merge

- Merge changes into a branch



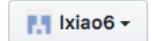
Create a new repository

A screenshot of the GitHub interface showing the search bar, navigation links (Pull requests, Issues, Marketplace, Explore), and user profile dropdown.

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner



Repository name

HelloWorld



Great repository names are short and memorable. Need inspiration? How about `ideal-umbrella`.

Description (optional)

This shows you how to use GitHub



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 let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None** ▾

Add a license: **None** ▾



Create repository



Invite collaborators

This repository Search Pull requests Issues Marketplace Explore + ⌂ ⌂

Ixiaog6 / HelloWorld Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

Options Collaborators Webhooks Integrations & services Deploy keys

Collaborators Push access to the repository

This repository doesn't have any collaborators yet. Use the form below to add a collaborator.

Search by username, full name or email address You'll only be able to find a GitHub user by their email address if they've chosen to list it publicly. Otherwise, use their username instead.

Add collaborator

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Add files to the new repository

This screenshot shows a GitHub repository named "lxiao6 / HelloWorld". The repository has 1 commit, 1 branch, 0 releases, and 1 contributor. The README.md file contains the text "This shows you how to use GitHub".

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

Watch 0 Star 0 Fork 0

This shows you how to use GitHub Edit

Add topics

1 commit 1 branch 0 releases 1 contributor

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

lxiao6 committed on GitHub Create README.md Latest commit 73950bf 41 seconds ago

README.md Create README.md 41 seconds ago

README.md

HelloWorld

This shows you how to use GitHub



Add files to the new repository

This screenshot shows a GitHub repository page for "HelloWorld".

The repository details are as follows:

- Owner: lxiao6
- Name: HelloWorld
- Code: 2 commits
- Issues: 0
- Pull requests: 0
- Projects: 0
- Wiki: 0
- Settings: 0
- Insights: 0
- Watch: 0
- Star: 0
- Fork: 0
- Contributors: 1

The repository contains the following files:

- >HelloWorld.java (Create HelloWorld.java, 2 minutes ago)
- README.md (Create README.md, 5 minutes ago)

The repository description is: "This shows you how to use GitHub".



Add files to the new repository

The screenshot shows a GitHub repository page for the user 'Ixiao6' named 'HelloWorld'. The repository has 0 issues, 0 pull requests, 0 projects, and 0 wiki pages. It has 0 stars and 0 forks. The 'Code' tab is selected. The file 'HelloWorld.java' is displayed, showing the following Java code:

```
1 public class HelloWorld {  
2     public static void main(String[] args) {  
3         System.out.println("Hello World!");  
4     }  
5 }  
6  
7 }  
8  
9 }
```

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Create a new branch

This screenshot shows a GitHub repository page for the user 'lxiao6' with the repository name 'HelloWorld'. The repository has 2 commits, 1 branch, 0 releases, and 1 contributor. A modal window titled 'Switch branches/tags' is open, showing the current branch 'master' and a new branch 'branch_lu' being typed. Below the branches list, there is a button to 'Create branch: branch_lu from 'master''. The main repository page displays the file 'HelloWorld.java' with its contents and a commit message 'Create HelloWorld.java' made 7 minutes ago. There is also a commit message 'Create README.md' made 10 minutes ago. The repository description 'This shows you how to use GitHub' is visible at the top of the page.

This shows you how to use GitHub

Add topics

2 commits 1 branch 0 releases 1 contributor

Branch: master New pull request

Switch branches/tags

branch_lu

Create branch: branch_lu from 'master'

HelloWorld.java

Create HelloWorld.java 7 minutes ago

Create README.md 10 minutes ago

This shows you how to use GitHub



Work on your branch

This repository Search Pull requests Issues Marketplace Explore + - Fork

lxiao6 / HelloWorld Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

HelloWorld / HelloWorld.java or cancel

Edit file Preview changes Tabs 8 No wrap

```
1 public class HelloWorld {  
2     public static void main(String[] args) {  
3         while(true){  
4             System.out.println("Hello World!");  
5         }  
6     }  
7 }
```

Commit changes

Update HelloWorld.java

make it a deadlock!

Commit directly to the branch_lu branch.
 Create a new branch for this commit and start a pull request. Learn more about pull requests.

Commit changes Cancel



New pull request

This repository Search Pull requests Issues Marketplace Explore + ⌂

Ixiao6 / HelloWorld Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

This shows you how to use GitHub Edit Add topics

2 commits 2 branches 0 releases 1 contributor

Your recently pushed branches:

branch_lu (2 minutes ago) Compare & pull request

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

Ixiao6 committed on GitHub Create HelloWorld.java Latest commit 1695d6d 18 minutes ago

HelloWorld.java Create HelloWorld.java 17 minutes ago

README.md Create README.md 20 minutes ago

README.md

HelloWorld

This shows you how to use GitHub



New pull request

Ixiao6 / HelloWorld

Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings 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: master ... compare: branch_lu ✓ Able to merge. These branches can be automatically merged.

Update HelloWorld.java

Write Preview

make it a deadlock

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

Styling with Markdown is supported

Create pull request

-o 1 commit 1 file changed 0 commit comments 1 contributor

Commits on Sep 19, 2017

Ixiao6 Update HelloWorld.java ... 0b88072

Reviewers No reviews—request one

Assignees No one—assign yourself

Labels None yet

Projects None yet

Milestone No milestone



Resolve pull request

The screenshot shows the GitHub interface for the repository `Ixiao6 / HelloWorld`. The top navigation bar includes links for This repository, Search, Pull requests (which is the active tab), Issues, Marketplace, and Explore. Below the navigation, there are buttons for Watch (0), Star (0), and Fork (0). The main content area shows a list of pull requests. A search bar at the top allows filtering by the query `is:pr is:open`. A green button labeled "New pull request" is visible. The list shows one open pull request:

- 1 Open ✓ 0 Closed
- Update `HelloWorld.java`
#1 opened a minute ago by Ixiao6

A pro tip message at the bottom suggests adding `no:assignee` to see everything that's not assigned.

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Resolve pull request

This screenshot shows a GitHub pull request page for a repository named `Ixiao6 / HelloWorld`. The pull request is titled `Update HelloWorld.java #1` and is currently open. It shows one commit from the user `Ixiao6` merging into the `master` branch from the `branch_lu` branch. A comment from `Ixiao6` says `make it a deadlock`. The commit hash is `0b88072`. The interface includes tabs for Conversation (0), Commits (1), and Files changed (1). On the right, there are sections for Reviewers, Assignees, Labels, Projects, Milestone, and Notifications. The Notifications section shows that the user is receiving notifications because they authored the thread. There is also a link to `Explore GitHub Marketplace`. At the bottom, there is a text input field for writing a message to close the pull request, with a note that styling with Markdown is supported. A ProTip! is provided to add `.patch` or `.diff` to URLs for plaintext views.



Changed Merged to Master Branch

Screenshot of a GitHub repository page for "lxiao6 / HelloWorld".

The repository has 1 issue, 0 pull requests, 0 projects, and 0 wiki pages. It has 0 stars, 0 forks, and 0 contributors.

The file "HelloWorld.java" is displayed, showing a Java code snippet:

```
1 public class HelloWorld {  
2  
3     public static void main(String[] args) {  
4         while(true){  
5             System.out.println("Hello World!");  
6         }  
7     }  
8 }  
9  
10 }  
11 }  
12 }  
13 }
```

The code prints "Hello World!" to the console in an infinite loop.



Check commit history

This screenshot shows a GitHub repository page for the user 'lxiao6' named 'HelloWorld'. The repository has 4 commits, 2 branches, 0 releases, and 1 contributor.

The commit history shows:

- Ixiao6 committed on GitHub Merge pull request #1 from lxiao6/branch_lu ... Latest commit 6ceeb16 2 minutes ago
- HelloWorld.java Update HelloWorld.java 11 minutes ago
- README.md Create README.md 29 minutes ago

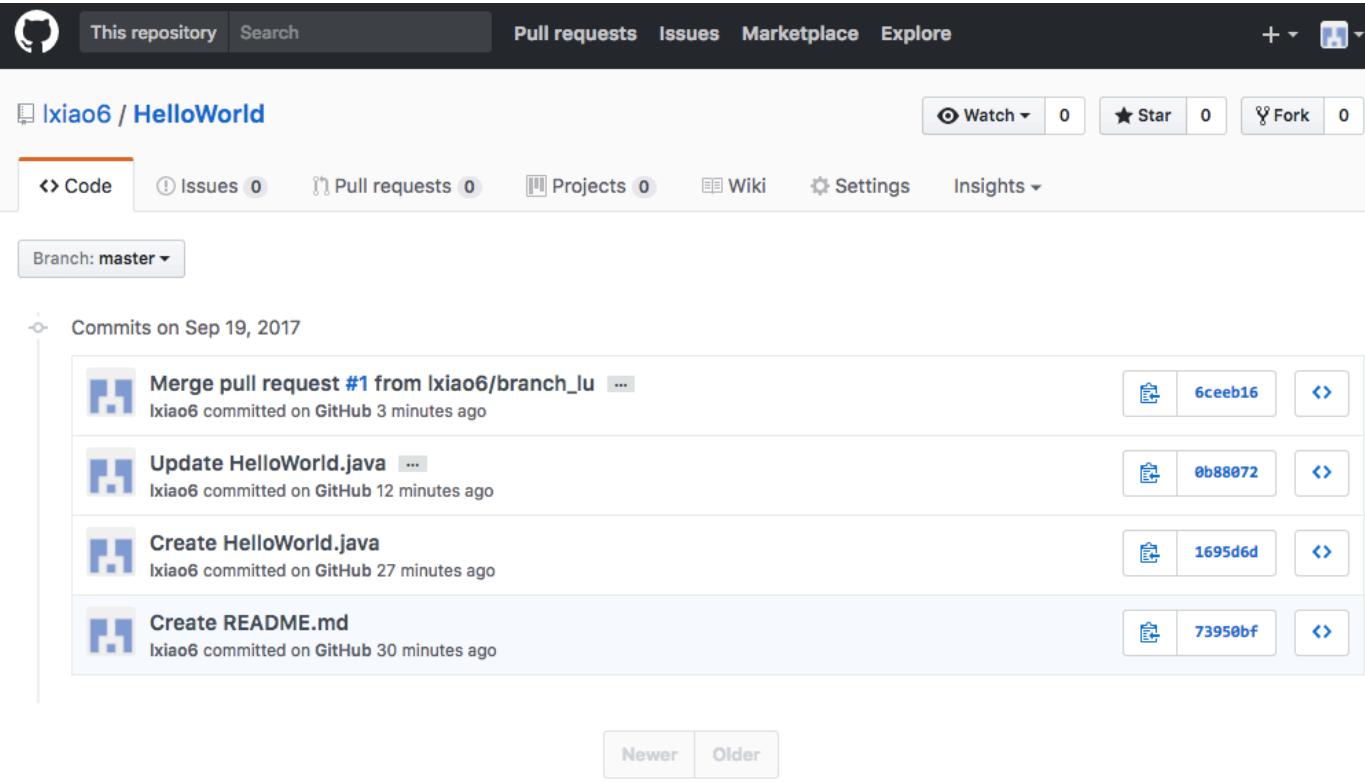
The README.md file content is as follows:

HelloWorld

This shows you how to use GitHub



Check commit history



The screenshot shows the GitHub repository page for `Ixiao6 / HelloWorld`. The repository has 0 issues, 0 pull requests, 0 projects, and 0 wiki pages. It is set to watch mode with 0 stars and 0 forks. The current branch is master. The commit history for Sep 19, 2017, shows four commits:

- Merge pull request #1 from Ixiao6/branch_lu ... by Ixiao6 committed on GitHub 3 minutes ago. Commit hash: 6ceeb16
- Update HelloWorld.java ... by Ixiao6 committed on GitHub 12 minutes ago. Commit hash: 0b88072
- Create HelloWorld.java by Ixiao6 committed on GitHub 27 minutes ago. Commit hash: 1695d6d
- Create README.md by Ixiao6 committed on GitHub 30 minutes ago. Commit hash: 73950bf

Navigation buttons at the bottom are Newer and Older.



Create a new issue

This repository Search Pull requests Issues Marketplace Explore + ⌂ ⌂

Ixia6 / HelloWorld Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

Filters is:issue is:open Labels Milestones New issue

0 Open ✓ 0 Closed Author Labels Projects Milestones Assignee Sort

!

There aren't any open issues.

Use the links above to find what you're looking for, or try a new search query. The Filters menu is also super helpful for quickly finding issues most relevant to you.

💡 ProTip! Exclude everything labeled bug with -label:bug.



Create a new issue

This repository Search Pull requests Issues Marketplace Explore + ⌂ ⌂ ⌂

Ixiao6 / HelloWorld Watch 0 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Settings Insights

Please fix the deadlock in HelloWorld

Please go ahead and remove the deadlock because it is a bug.

Assignees Ixiao6

Labels bug

Projects None yet

Milestone No milestone

Write Preview AA B i “ “ “ “ ← → @

Attach files by dragging & dropping, selecting them, or pasting from the clipboard.

Styling with Markdown is supported Submit new issue



Create a new issue

Screenshot of a GitHub repository page titled "Ixiao6 / HelloWorld". The page shows one open issue: "Please fix the deadlock in HelloWorld" (bug). A green "New issue" button is visible on the right.

The GitHub interface includes a navigation bar with links for This repository, Search, Pull requests, Issues, Marketplace, Explore, Watch (0), Star (0), Fork (0), and Insights.

Filters: is:issue is:open

Issues: 1 Open, 0 Closed

Issue details:

- Please fix the deadlock in HelloWorld** (bug)
- #2 opened just now by Ixiao6

ProTip! Type `g` `i` on any issue or pull request to go back to the issue listing page.

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If you are a command line person...

GitHub GIT CHEAT SHEET

Git is the open source distributed version control system that facilitates GitHub activities on your laptop or desktop. This cheat sheet summarizes commonly used Git command line instructions for quick reference.

<https://services.github.com/on-demand/downloads/github-git-cheat-sheet.pdf>



Install Git

- **GitHub for Windows**
 - <https://windows.github.com>
- **GitHub for Mac**
 - <https://mac.github.com>
- Git distributions for Linux and POSIX systems are available on the official Git SCM web site.
- Git for All Platforms
 - <http://git-scm.com>



Create a new repository

```
echo "# HelloWorld" >> README.md  
git init  
git add README.md  
git commit -m "first commit"  
git remote add origin https://github.com/lxiao6>HelloWorld.git  
git push -u origin master
```



Make Changes

\$ git status

Lists all new or modified files to be committed

\$ git diff

Shows file differences not yet staged

\$ git add [file]

Snapshots the file in preparation for versioning

\$ git diff --staged

Shows file differences between staging and the last file version

\$ git reset [file]

Unstages the file, but preserve its contents

\$ git commit -m "[descriptive message]"

Records file snapshots permanently in version history



Group Changes

\$ git branch

Lists all local branches in the current repository

\$ git branch [branch-name]

Creates a new branch

\$ git checkout [branch-name]

Switches to the specified branch and updates the working directory

\$ git merge [branch]

Combines the specified branch's history into the current branch

\$ git branch -d [branch-name]

Deletes the specified branch



Sync Changes

```
$ git fetch [bookmark]
```

Downloads all history from the repository bookmark

```
$ git merge [bookmark]/[branch]
```

Combines bookmark's branch into current local branch

```
$ git push [alias] [branch]
```

Uploads all local branch commits to GitHub

```
$ git pull
```

Downloads bookmark history and incorporates changes



Get help on command line

```
[Lus-MacBook-Air:~ luxiao$ git version
git version 2.10.1 (Apple Git-78)
[Lus-MacBook-Air:~ luxiao$ 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>]
```

These are common Git commands used in various situations:

```
start a working area (see also: git help tutorial)
clone      Clone a repository into a new directory
init       Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
add        Add file contents to the index
mv         Move or rename a file, a directory, or a symlink
reset     Reset current HEAD to the specified state
rm         Remove files from the working tree and from the index

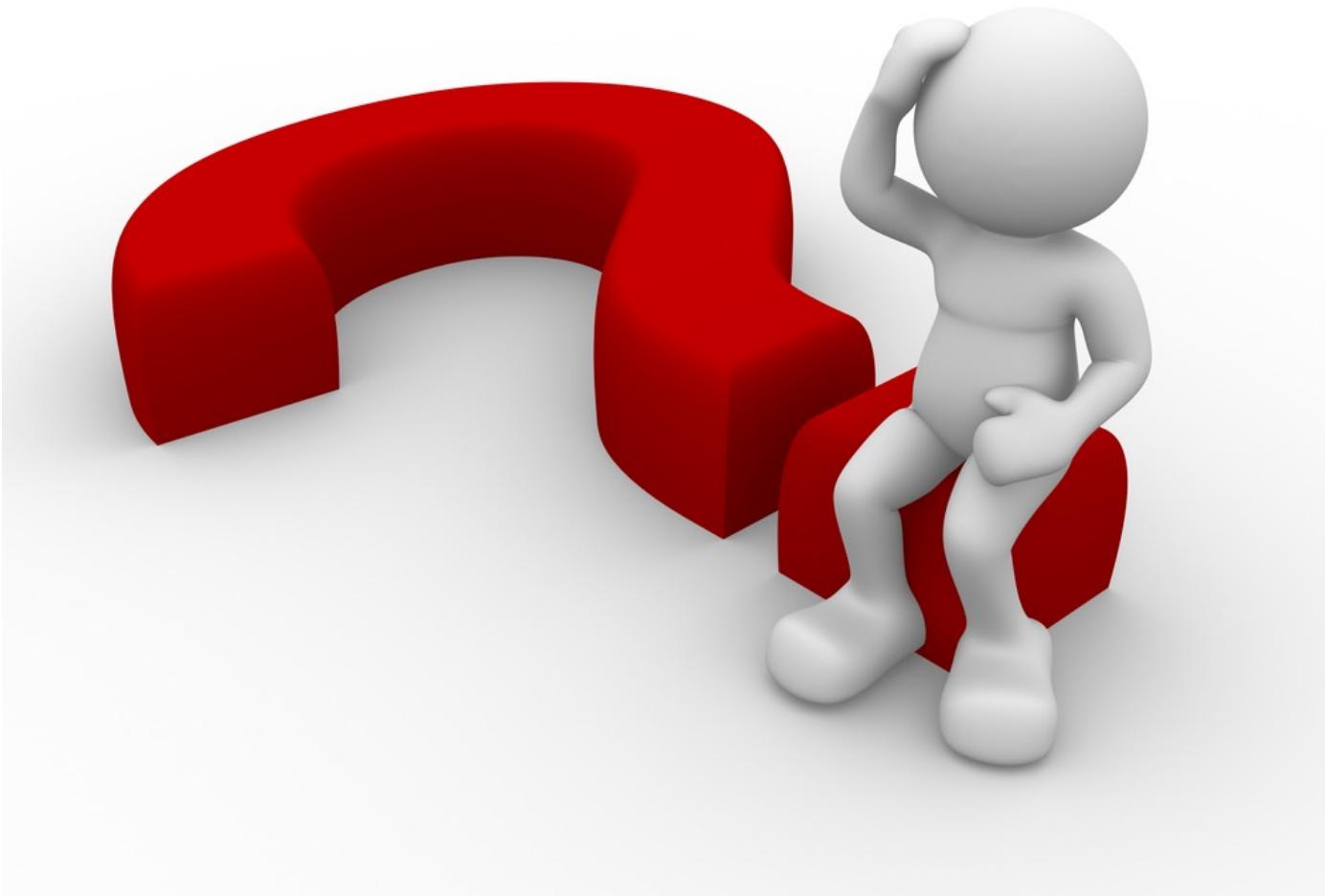
examine the history and state (see also: git help revisions)
bisect    Use binary search to find the commit that introduced a bug
grep      Print lines matching a pattern
log       Show commit logs
show      Show various types of objects
status    Show the working tree status

grow, mark and tweak your common history
branch   List, create, or delete branches
checkout Switch branches or restore working tree files
commit   Record changes to the repository
diff     Show changes between commits, commit and working tree, etc
merge   Join two or more development histories together
rebase   Reapply commits on top of another base tip
tag      Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
fetch    Download objects and refs from another repository
pull     Fetch from and integrate with another repository or a local branch
push     Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
```

Questions?





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Thank You