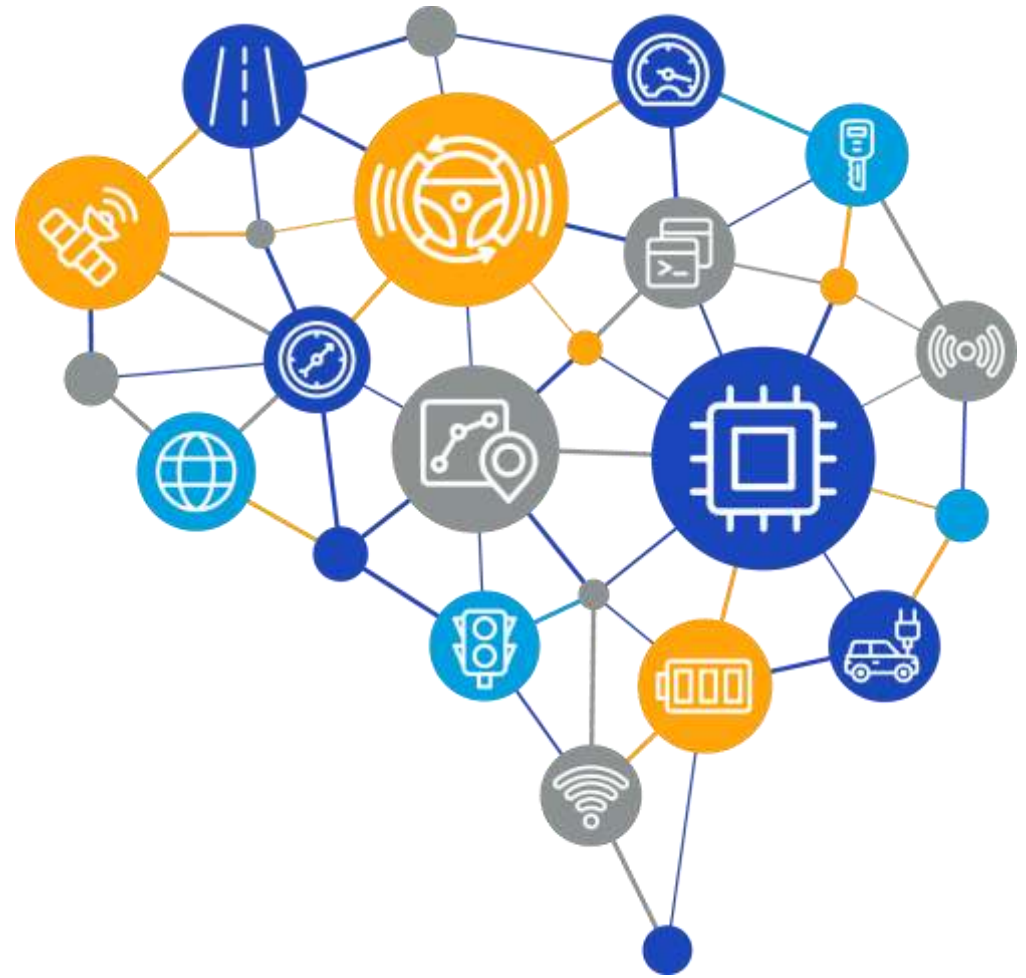


# 풀 리퀘스트 기초

Git & Github  
for pull request

강환수 교수

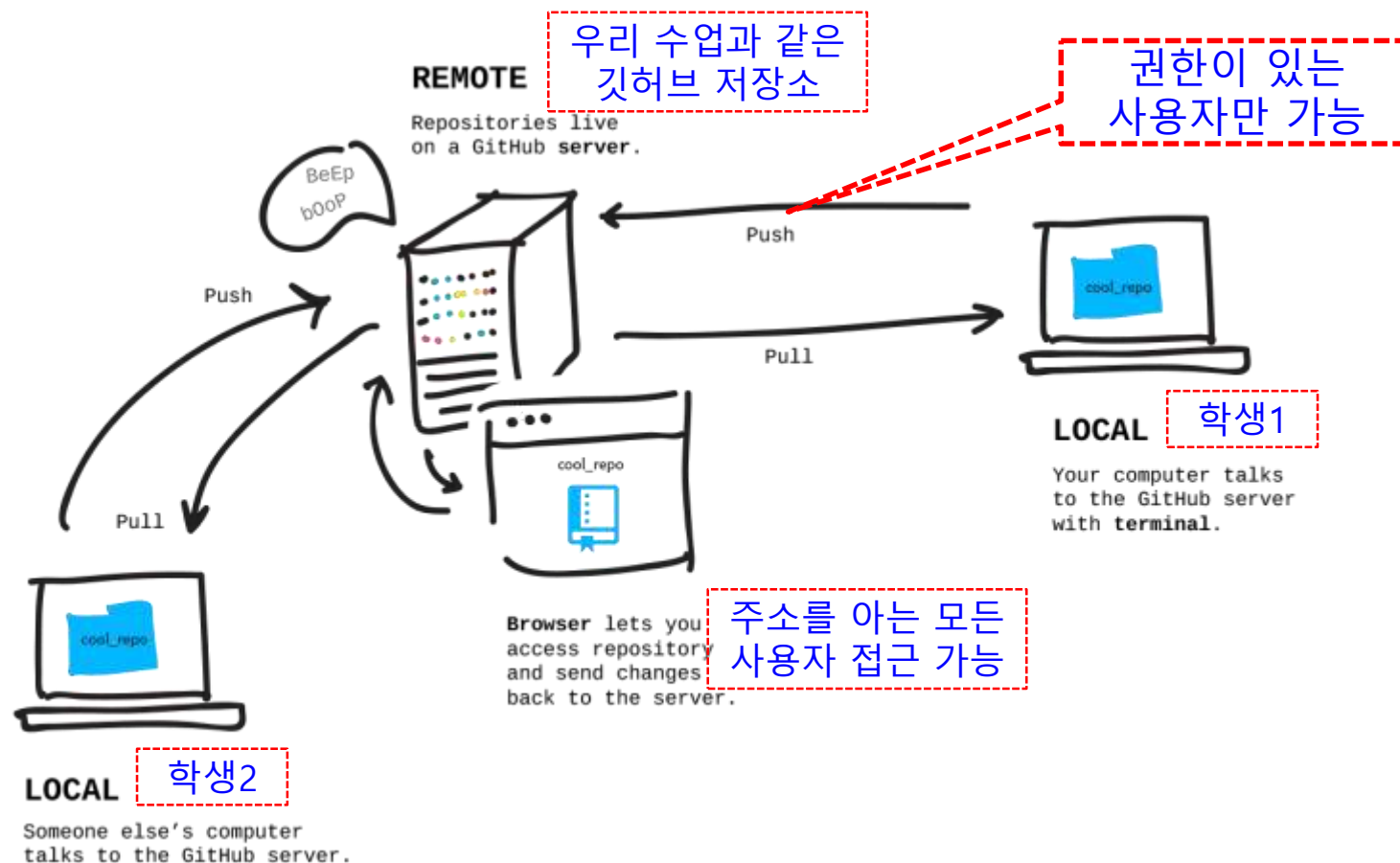


AI Experts  
Who Lead  
The Future

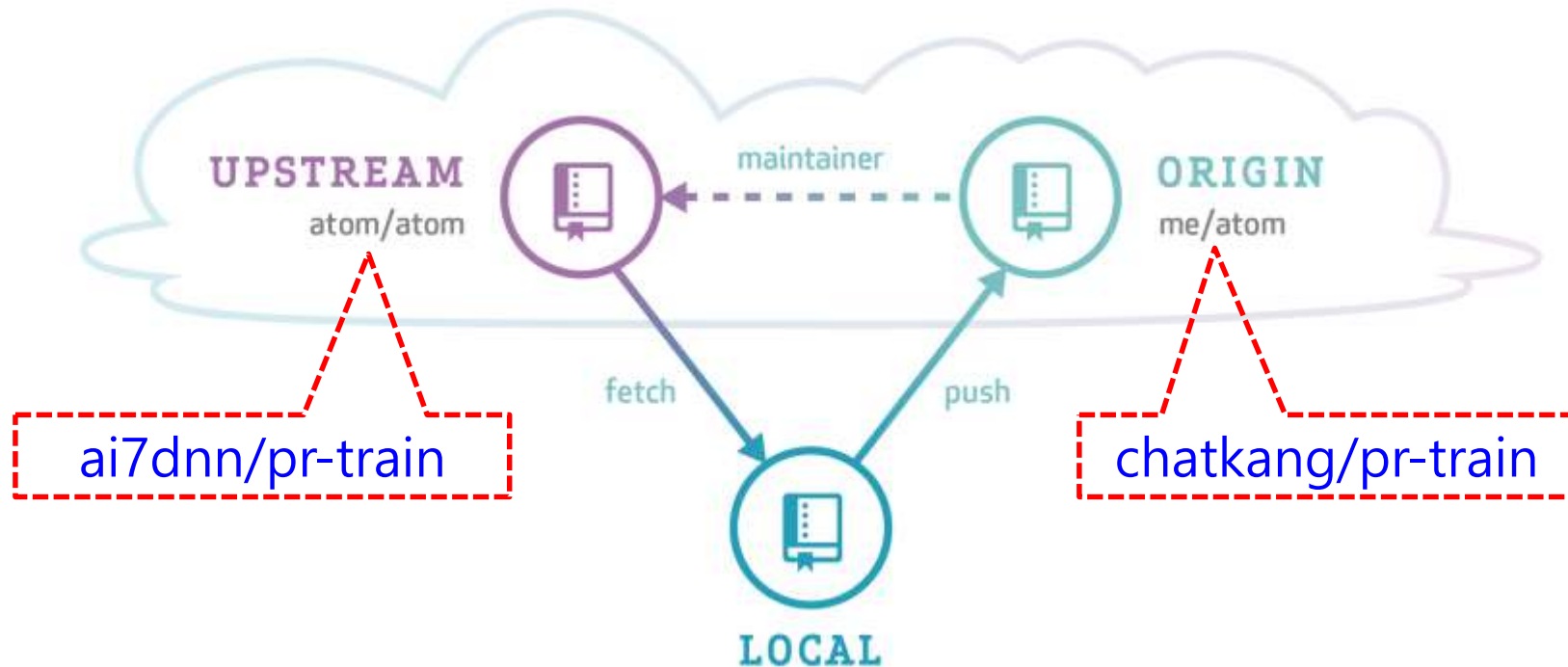
# 01

## Pull과 Push, Pull Request 이해

- 지역 저장소(local repo) 관점에서
  - Push
    - 원격 저장소(remote)로 올리기
  - Pull
    - 지역 저장소(local)로 내리기



- 원격 서버(remote)가 2개
  - Upstream
    - 오픈소스(프로젝트) 또는 타인의 저장소
  - Origin(또는 remote)
    - Upstream을 내 계정으로 Fork한 자신의 저장소

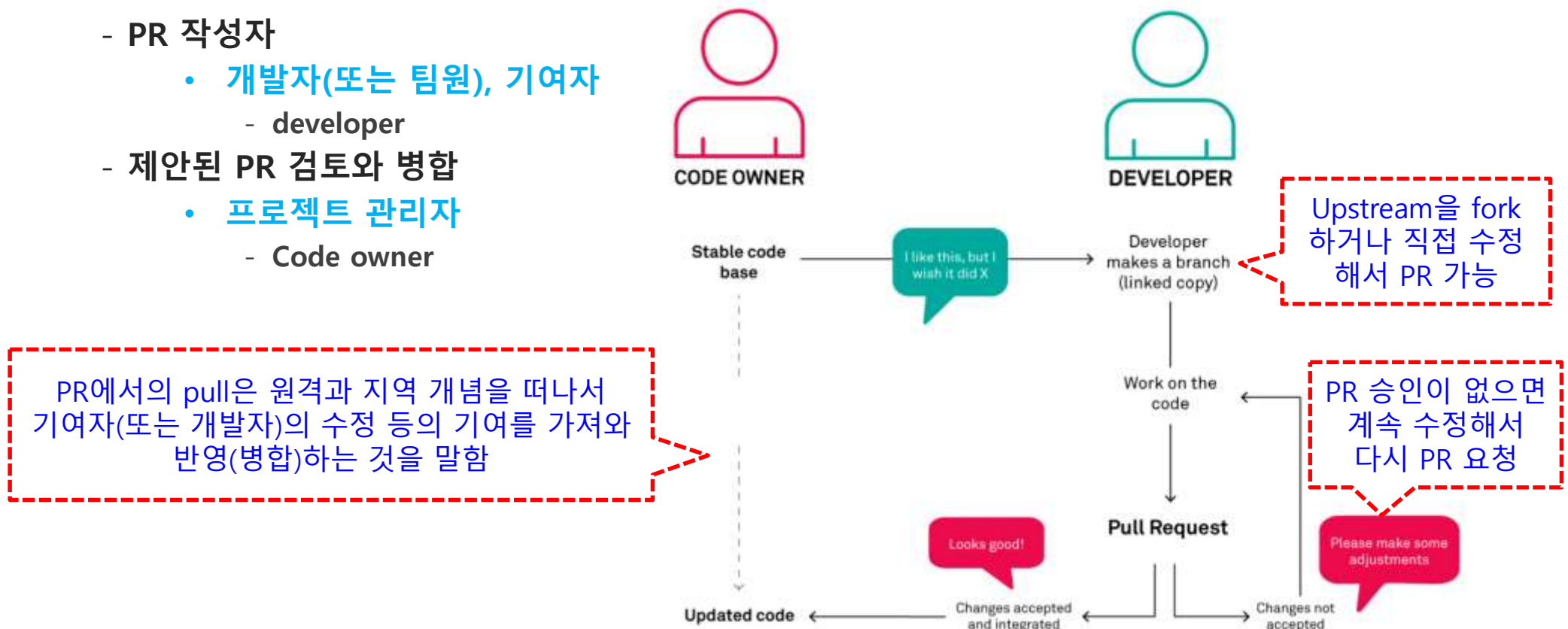


- 프로젝트 팀원, 또는 다른 프로젝트의 기여자로서의 기여(contribution)의 종류
  - 저장소(오픈 소스)에 도움이 될 만한 모든 활동
    - 기능 제안 및 추가
    - 기존 소스의 버그를 수정
    - 여러 다양한 방법의 기여
- 향후 여러분들의 오픈 프로젝트에 대한 기여 방안 사례
  - 초기, 특정 오픈 소스에 대해 공부하기 시작했을 경우
    - 오픈 소스에서 영문으로 작성된 README 파일의 한국어 번역에 기여
  - 해당 오픈 소스 프로젝트를 어느 정도 이해하고 있는 경우
    - 문서화 작업에 기여
      - 소스나 문서의 오타 수정
      - 잘못 번역된 한글 수정
  - 오픈 소스를 알고 있는 경우
    - 기능과 버그 수정에 기여
      - 소스 코드 수정에 기여
      - 오픈 소스의 버그를 찾고 수정
      - 추가 기능 제안과 코드 제안 및 추가

# Pull Request란?

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

- Pull request, 간단히 PR, 우리 말로는 “수정 요청”, “끌기 요청”
  - 수정 권한이 없는 타인의 오픈소스(저장소)에 저장소 수정 등의 기여 요청을 하는 알림
    - 프로젝트 수행 시 개발자로서 코드 수정을 알림
  - 저장소 소유자(또는 관리자) 관점에서, 소유자에게 “수정 내용의 pull 요청”하는 작업
    - 기여자의 수정 내용을 가져와(pull) 소유자의 저장소에 병합(merge)하는 작업을 요청
  - PR 작성자
    - 개발자(또는 팀원), 기여자
      - developer
  - 제안된 PR 검토와 병합
    - 프로젝트 관리자
      - Code owner



# PR(pull request) 처리 과정

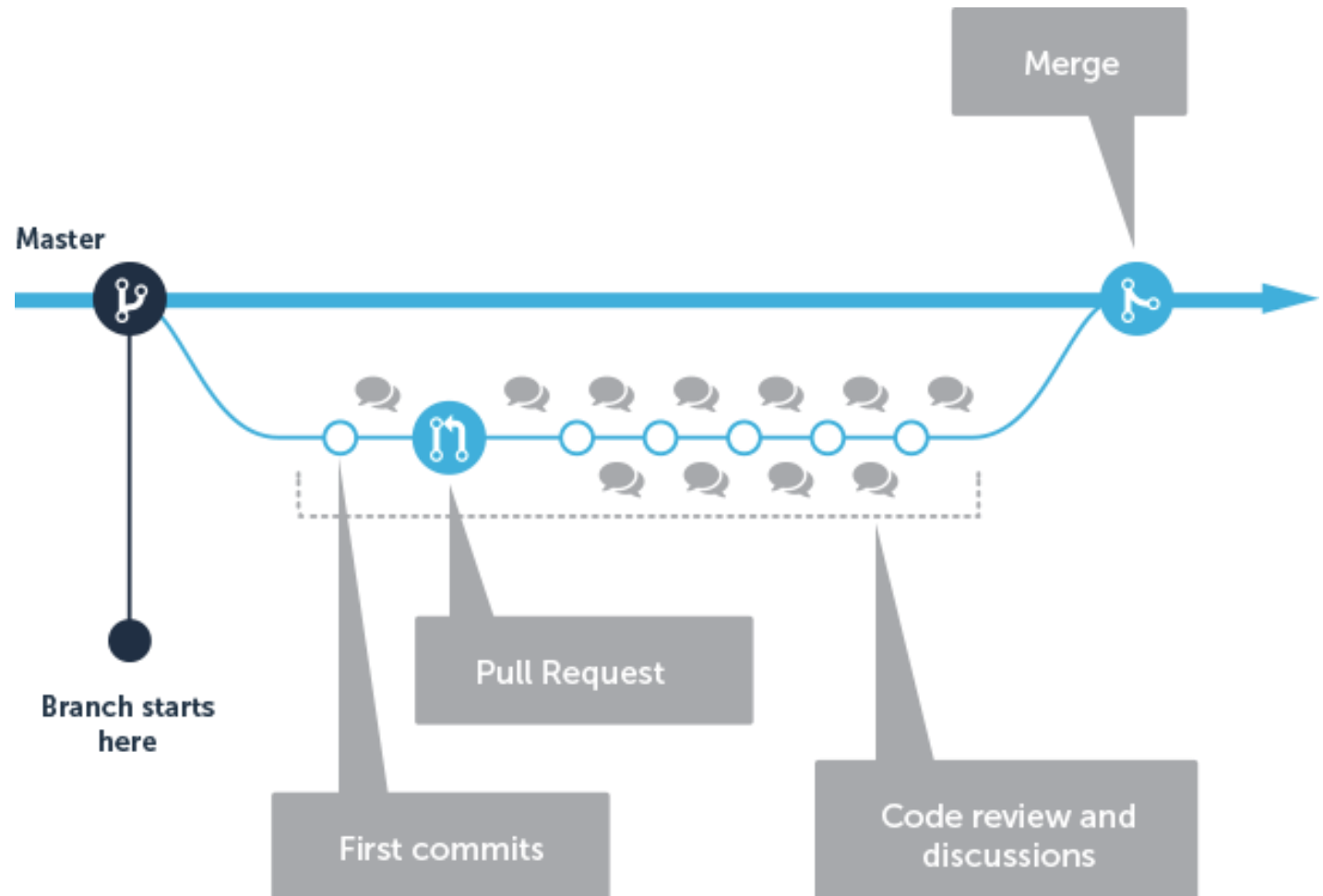
오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

- 기여자 관점

- Fork(New Branch)
- Discussion, develop
- Commit
- Pull request
- Sync

- 관리자 관점

- Request review
- discussion
- Accept PR
- Merge



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Who Lead  
The Future

## 02

### 깃허브의 PR(pull request) 실습



# GUI 깃허브로만 pull request 실습

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

- 두 개의 id로 실습

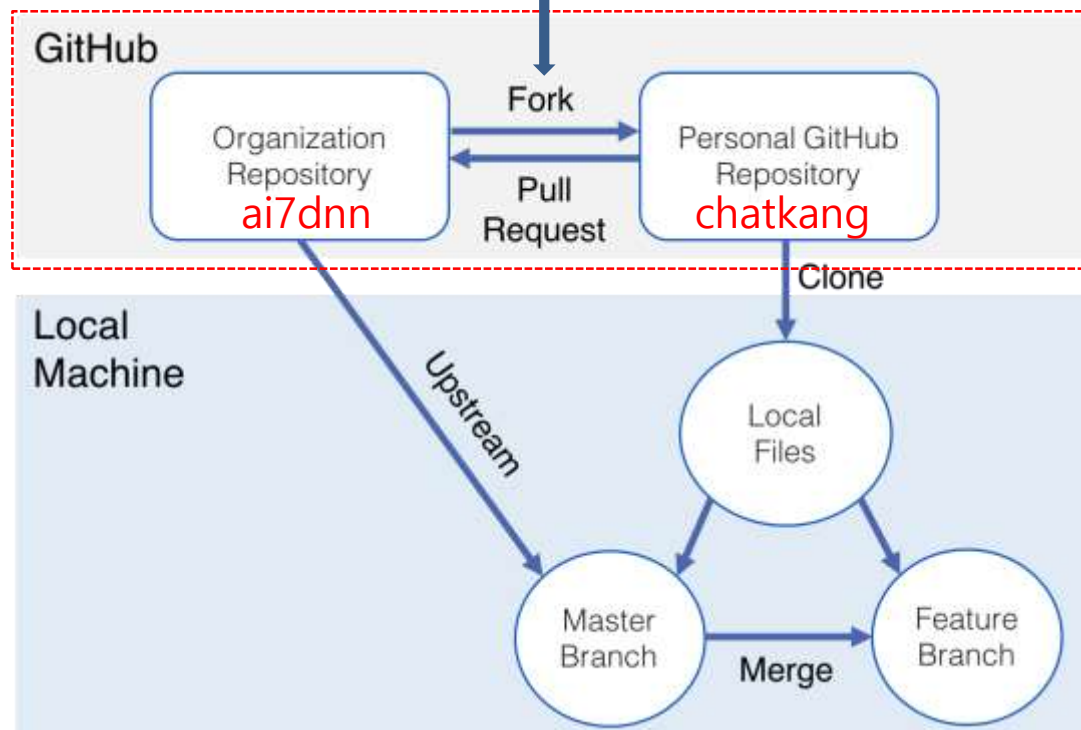
- 기여자(팀원, 개발자) chatkang(파랑색)
  - 기여자: Fork
  - 기여자: 파일 수정
  - 기여자: Pull request
- 관리자(PM, 팀장) ai7dnn(노란색)
  - 관리자: review 또는 merge



- Github에서만 Pull Request

- Upstream
  - 팀장, 관리자
    - 계정 ai7dnn
- Remote
  - 팀원, 기여자
    - 계정 chatkang

보시는 화면처럼 짝 중에 한명은 팀장(ai7dnn), 다른 한명은 팀원(chatkang)으로 실습



# 팀장, Upstream: 연습할 저장소 생성

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere?  
[Import a repository.](#)

Required fields are marked with an asterisk (\*).

### Repository template

No template ▾

Start your repository with a template repository's contents.

Owner \*



ai7dnn ▾

Repository name \*

PR-train

✓ PR-train is available.

Great repository names are short and memorable. Need inspiration? How about [friendly-octo-adventure](#) ?

Description (optional)

PR 연습 저장소



Public

Anyone on the internet can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Initialize this repository with:

☒ Add a README file

This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

.gitignore template: Python ▾

Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)

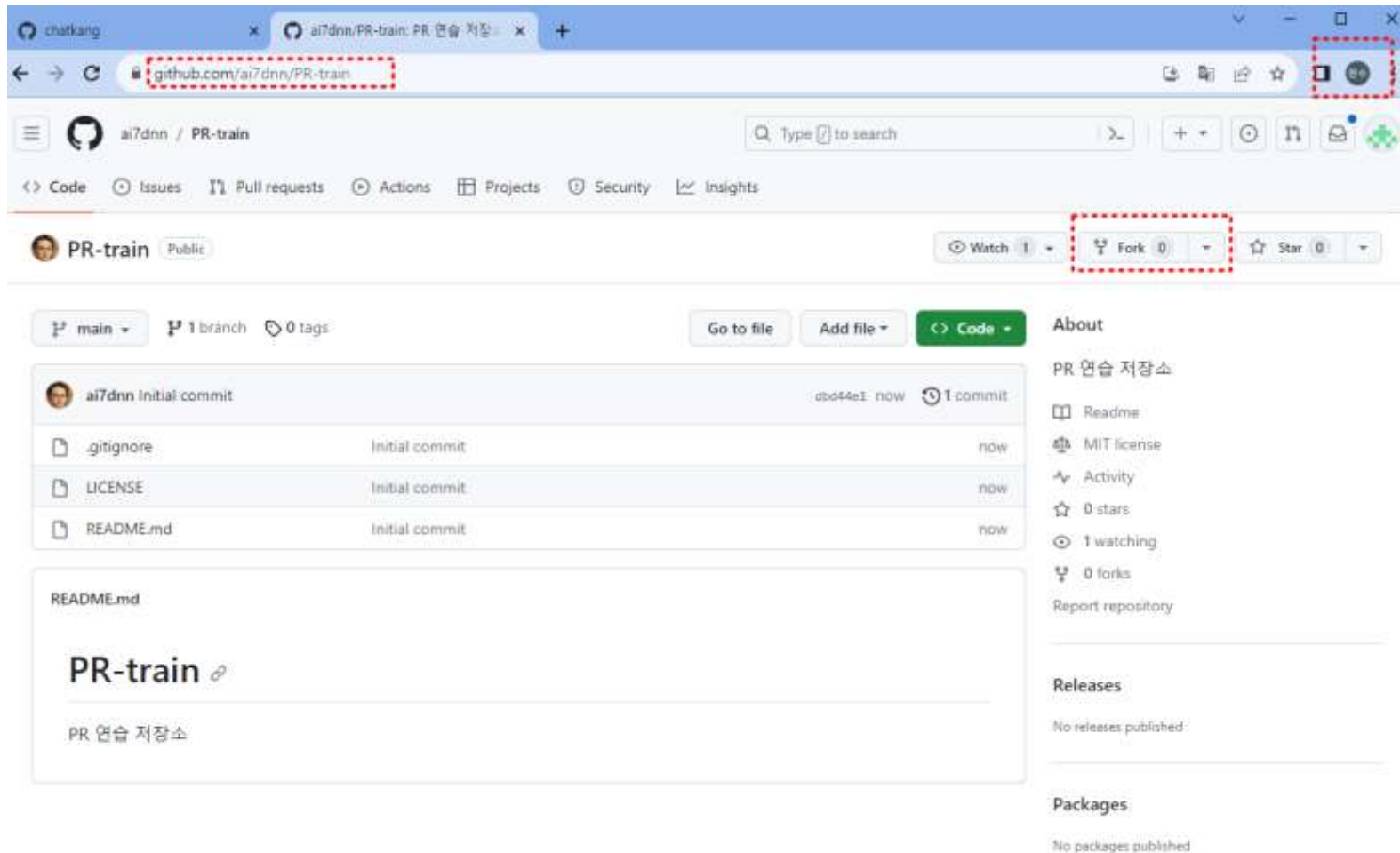
Choose a license

License: MIT License ▾

# 팀원, Remote: 저장소 fork

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang




chatkang

## Create a new fork

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

Required fields are marked with an asterisk (\*).

Owner \*

 chatkang ▾

Repository name \*

PR-train

✓ PR-train is available.


By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

PR 연습 저장소

☒ Copy the **main** branch only

Contribute back to ai7dnn/PR-train by adding your own branch. [Learn more.](#)

 You are creating a fork in your personal account.

Create fork

# 팀장, Upstream: 이슈 생성

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

5장 데이터 시각화 x 키보드 특수 문자 x 246292777-43cd7 x Colaboratory에 오 x matplotlib-한글치 x New Issue - ai7dnn x

github.com/ai7dnn/PR-train/issues/new

ai7dnn / PR-train

Type to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

코드를 작성하세요!

Write Preview

코드 작성

팀장의 저장소(ai7dnn/PR-train)에서는 이슈가 보이며  
누구나 이슈 생성 가능하나, Forked된 저장소  
(chatkang/PR-train)에서는 이슈 자체가 안 보임

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

Styling with Markdown is supported

Submit new issue

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Assignees  
No one—assign yourself

Labels  
None yet

Projects  
None yet

Milestone  
No milestone

Development  
Shows branches and pull requests linked to this issue.

Helpful resources  
[GitHub Community Guidelines](#)

# 팀장, Upstream: 이슈 생성 2

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

The screenshot shows the GitHub 'New Issue' page for the repository `ai7dnn / PR-train`. The page is titled 'New Issue' and shows the URL `github.com/ai7dnn/PR-train/issues/new`. The repository name `ai7dnn / PR-train` is displayed at the top. The page has tabs for `Code`, `Issues`, `Pull requests`, `Actions`, `Projects`, `Wiki`, `Security`, `Insights`, and `Settings`. The `Issues` tab is selected. The 'Create new issue' section is visible, with the 'Add a title' field containing the placeholder text '코드를 작성하세요!' and the 'Add a description' text area containing the placeholder text '기여할 수 있는 코드를 작성해 주세요~~~'. The 'Create' button is highlighted with a red dashed box. The right sidebar shows options for Assignees, Labels, Projects, and Milestones, all of which are currently empty.

# 팀원, Remote: Upstream의 저장소에서 이슈 확인

이전 소스: 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

- <https://github.com/ai7dnn/PR-train/> 에서 이슈 확인

chatkang

github.com/ai7dnn/PR-train/issues

ai7dnn / PR-train

Type to search

Code Issues 1 Pull requests Actions Projects Security Insights

Want to contribute to ai7dnn/PR-train? Dismiss

If you have a bug or an idea, browse the open issues before opening a new one. You can also take a look at the [Open Source Guide](#).

Filters is:issue is:open Labels 9 Milestones 0 New issue

1 Open 0 Closed

Author Label Projects Milestones Assignee Sort

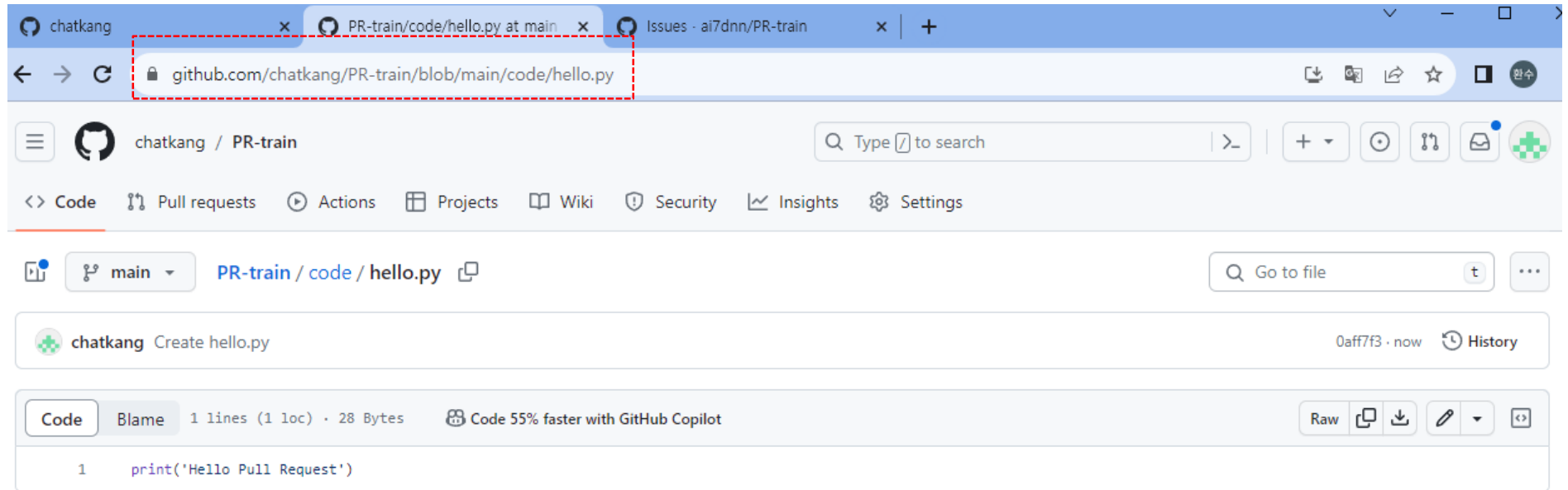
코드를 작성하세요!  
#1 opened 1 minute ago by ai7dnn

ProTip! Notify someone on an issue with a mention, like: @chatkang.

# 팀원, Remote: Forked 된 자신의 저장소에서 코드 작성

chatkang

- 파일 작성 후 커밋





# 팀원, Remote: PR 생성

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

- 복제된 저장소에서 **Contribute > Open pull request** 클릭

The screenshot shows a web browser with three tabs: 'chatkang', 'chatkang/PR-train: PR 연습 저장소', and 'Issues - ai7dnn/PR-train'. The address bar shows 'github.com/chatkang/PR-train/'. The repository page for 'chatkang / PR-train' is displayed, indicating it is a public repository forked from 'ai7dnn/PR-train'. The 'main' branch is selected, showing it is 1 commit ahead of 'ai7dnn:main'. A 'Contribute' button is visible, which has triggered a modal dialog. The modal contains the text 'This branch is 1 commit ahead of ai7dnn:main. Open a pull request to contribute your changes upstream.' and a prominent green 'Open pull request' button. The repository's file list includes 'code', '.gitignore', 'LICENSE', and 'README.md'. The right sidebar shows repository statistics and links to 'About', 'Releases', and 'Packages'.

# 팀원, Remote: Open a PR

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

- Create PR

주소가 팀장(Upstream)의 주소로 바뀌어서 작업이 됨

적당한 곳에 #issue-number를 삽입

The screenshot shows the GitHub interface for creating a pull request. The browser address bar is annotated with a red dashed box, showing the URL: `github.com/a7dnn/PR-train/compare/main...chatkang:PR-train:main?expand=1`. The main content area is titled 'Open a pull request' and includes a form to create a new pull request by comparing changes across two branches. The 'base repository' is set to 'a7dnn/PR-train' and the 'head repository' is 'chatkang/PR-train'. The 'compare' dropdown is set to 'main'. A red dashed box highlights the 'Create hello.py #1' title field. Another red dashed box highlights the 'create hello.py' file name in the 'Write' tab. A third red dashed box highlights the 'Create pull request' button. Below the form, the commit history is shown, including a commit by 'chatkang' titled 'Create hello.py'. The file diff section shows a single file 'code/hello.py' with a change: `1 + print('Hello Pull Request')`, which is also highlighted with a red dashed box.

# 팀원, Remote: PR 작성 성공 확인

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

The screenshot shows a GitHub Pull Request (PR) page for the repository 'ai7dnn / PR-train'. The PR is titled 'Create hello.py #1 #2' and is created by 'chatkang'. The PR description shows a commit 'create hello.py' with a verified diff. The PR is currently open and has no reviews or assignments. The right sidebar shows various metadata fields: Reviewers (No reviews), Assignees (No one assigned), Labels (None yet), Projects (None yet), Milestone (No milestone), Development (Successfully merging this pull request may close these issues), and Notifications (Unsubscribe). The bottom of the page shows a comment box and a 'Close pull request' button.

# 팀장, Upstream: Upstream에서 PR 확인 후 클릭

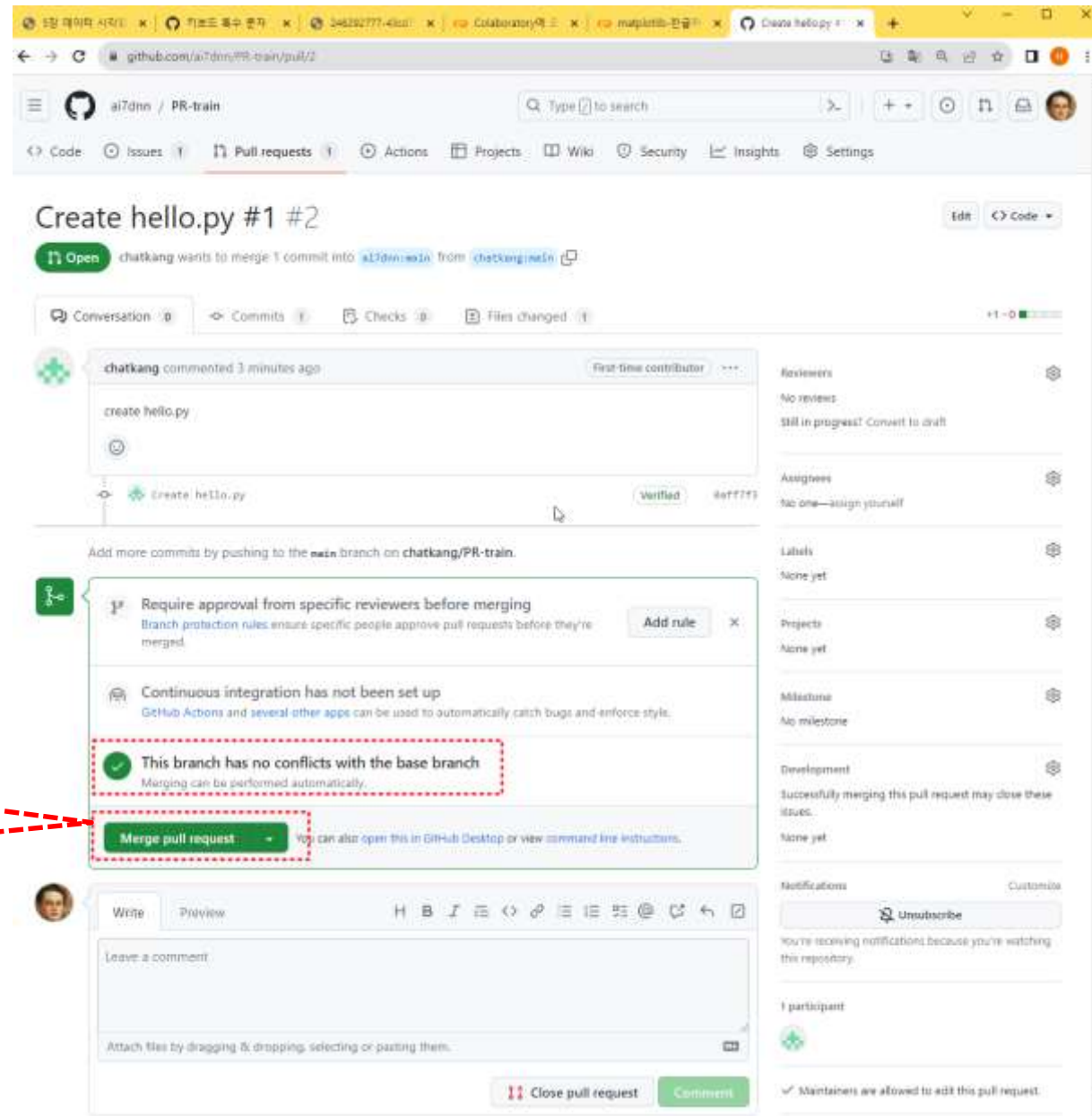
ai7dnn

The screenshot shows a web browser with multiple tabs open. The active tab is 'ai7dnn/PR-train: P'. The browser address bar shows 'github.com/ai7dnn/PR-train'. The GitHub repository page for 'ai7dnn / PR-train' is displayed. The 'Pull requests' tab is highlighted with a red dashed box. The repository is public and has 1 branch (main) and 0 tags. The commit history shows an initial commit by ai7dnn 15 minutes ago. The files listed are .gitignore, LICENSE, and README.md, all from the initial commit. The README.md content is visible, showing the title 'PR-train' and the subtitle 'PR 연습 저장소'. The right sidebar shows repository statistics: 0 stars, 1 watching, and 1 fork. There are no releases or packages published.

# 팀장, Upstream: PR 내용 확인 후, 병합

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn



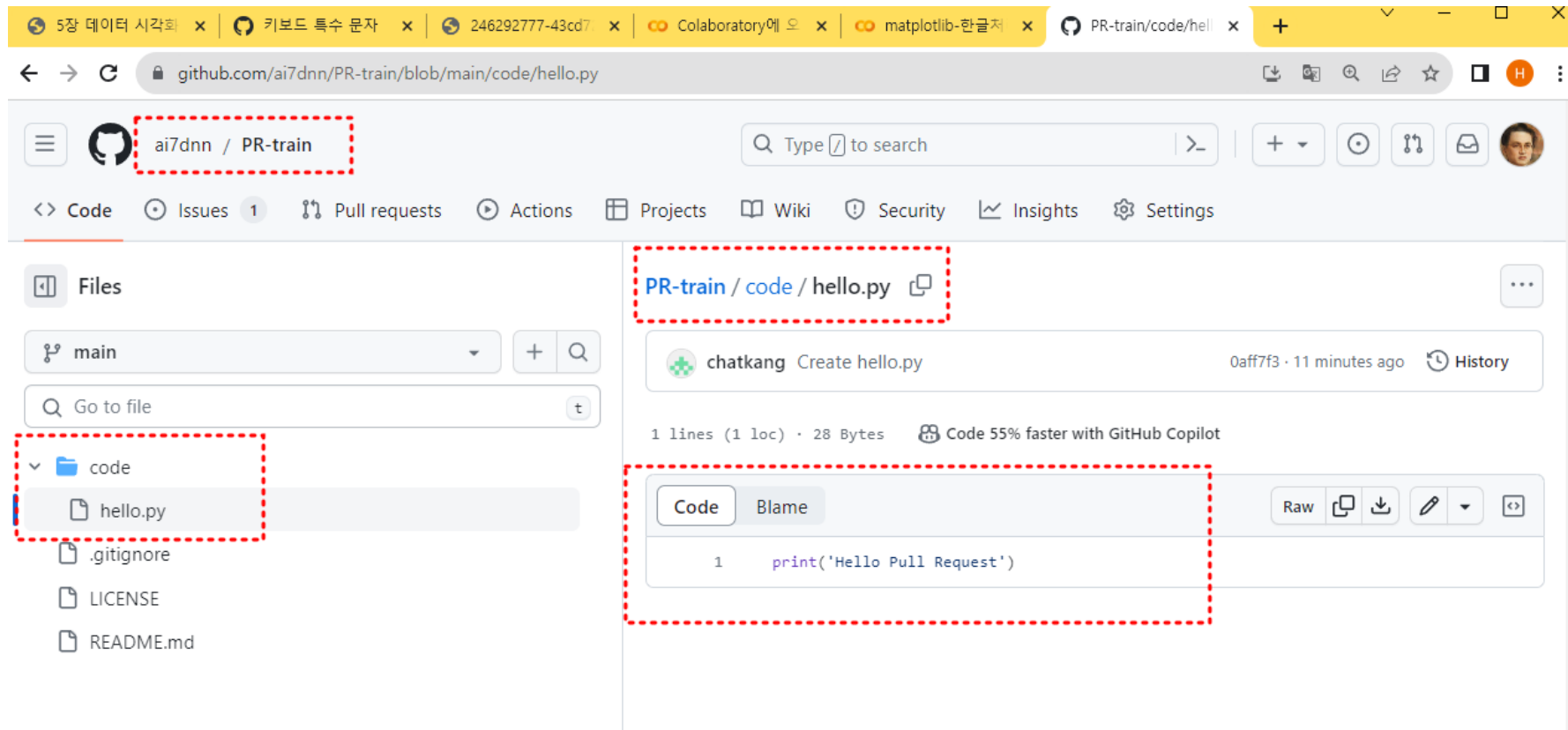
이후 보이는  
Confirm 버튼도 클릭

# 팀장, Upstream: PR의 병합 확인

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

- 결과적으로 팀원이 작성한 파일이 보임



# 팀원, Remote: Remote에서도 PR 병합 확인

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

- 커밋의 수가 Upstream보다 하나 적음

chatkang / PR-train

PR-train Public  
forked from ai7dnn/PR-train

main 1 branch 0 tags

This branch is 1 commit behind ai7dnn:main.

Contribute Sync fork

chatkang Create hello.py 0aff7f3 14 minutes ago 2 commits

File	Commit	Time
code	Create hello.py	14 minutes ago
.gitignore	Initial commit	22 minutes ago
LICENSE	Initial commit	22 minutes ago
README.md	Initial commit	22 minutes ago

README.md

PR-train

PR 연습 저장소

Upstream에서 PR은 되었으나 아직 remote 와 sync는 안된 상태

# Upstream과 Remote commit 비교

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

chatkang

Commits

main

Commits on Oct 3, 2023

- Merge pull request #2 from chatkang/main  
ai7dnn committed 8 minutes ago
- Create hello.py  
chatkang committed 19 minutes ago
- Initial commit  
ai7dnn committed 27 minutes ago

Newer Older

Upstream에서 PR이 병합되어  
n회의 커밋 발생

Commits

main

Commits on Oct 3, 2023

- Create hello.py  
chatkang committed 19 minutes ago
- Initial commit  
ai7dnn committed 27 minutes ago

Newer Older

Remote에서는 Upstream에서  
PR이 병합된 커밋이 반영되지  
않아 n-1회의 커밋 발생



# 팀원, Remote: 다시 sync fork

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

chatkang

The screenshot shows a GitHub repository page for 'chatkang / PR-train'. The repository is a fork of 'ai7dnn/PR-train'. The main branch is 'main', and it is 1 commit behind the upstream 'main' branch. A red dashed box highlights the message 'This branch is 1 commit behind ai7dnn:main.' Another red dashed box highlights the 'Update branch' button in the 'This branch is out-of-date' notification. A third red dashed box highlights the text 'Remote에서 Upstream과 동일하게 만듦' (Make it the same as Upstream on Remote) with an arrow pointing to the 'Update branch' button. The repository contains files: 'code' (Create hello.py), '.gitignore' (Initial commit), 'LICENSE' (Initial commit), and 'README.md' (Initial commit). The README.md file is visible at the bottom of the page.

chatkang / PR-train

Type to search

Code Pull requests Actions Projects Wiki Security Insights Settings

PR-train Public

forked from ai7dnn/PR-train

Pin Watch 0 Fork 1 Star 0

main 1 branch 0 tags

This branch is 1 commit behind ai7dnn:main.

Go to file Add file Code

Contribute Sync fork

This branch is out-of-date

Update branch to keep this branch up-to-date by syncing 1 commit from the upstream repository.

Learn more about syncing forks

Compare Update branch

chatkang Create hello.py

File	Commit
code	Create hello.py
.gitignore	Initial commit
LICENSE	Initial commit
README.md	Initial commit

README.md

## PR-train

PR 연습 저장소

Remote에서 Upstream과 동일하게 만듦

# 팀장, Upstream: 이슈 연결 확인

오픈소스 소프트웨어를 위한 깃과 깃허브 Python language

ai7dnn

The screenshot shows a GitHub repository page for 'ai7dnn / PR-train'. The issue title is '코드를 작성하세요! #1'. The issue was opened by ai7dnn 27 minutes ago. A comment from ai7dnn, posted 27 minutes ago, says '코드 작성'. Below the comment, a commit is shown: 'Merge pull request #2 from chatkang/main', which was added 12 minutes ago and is verified. The commit message is 'Merge pull request #2 from chatkang/main'. The right sidebar shows various settings for the issue, including Assignees (No one—assign yourself), Labels (None yet), Projects (None yet), Milestone (No milestone), Development (Create a branch for this issue or link a pull request), and Notifications (Unsubscribe). At the bottom, there is a note: 'Remember, contributions to this repository should follow our GitHub Community Guidelines.'