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Partner



2019.11.14 • SAMSUNG SDS Tower B1F  
{ Magellan Hall / Pascal Hall }

Foresee

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Tutorial Session

# 초급개발자를위한 GitHub기반 협업개발 방식 워크샵

유병현 프로 (코드품질그룹) / 삼성SDS

# 과정에서 얻을 수 있는 것

1. Github 이란 무엇인지
2. Github Branch에 대한 지식 습득
3. Github Pull Request에 대한 지식 습득
4. Github 을 활용한 코드리뷰
5. Github 을 활용한 버전관리

# AGENDA

1. 코드의 문제점 파악 (Code Smell)
2. 나만의 작업공간 만들기 (Fork)
3. 코드수정 (Development)
4. 코드반영 요청 (Pull Request)
5. 코드리뷰 (Code Review)
6. 코드합치기 (Merge)
7. 릴리즈 (Release)

0

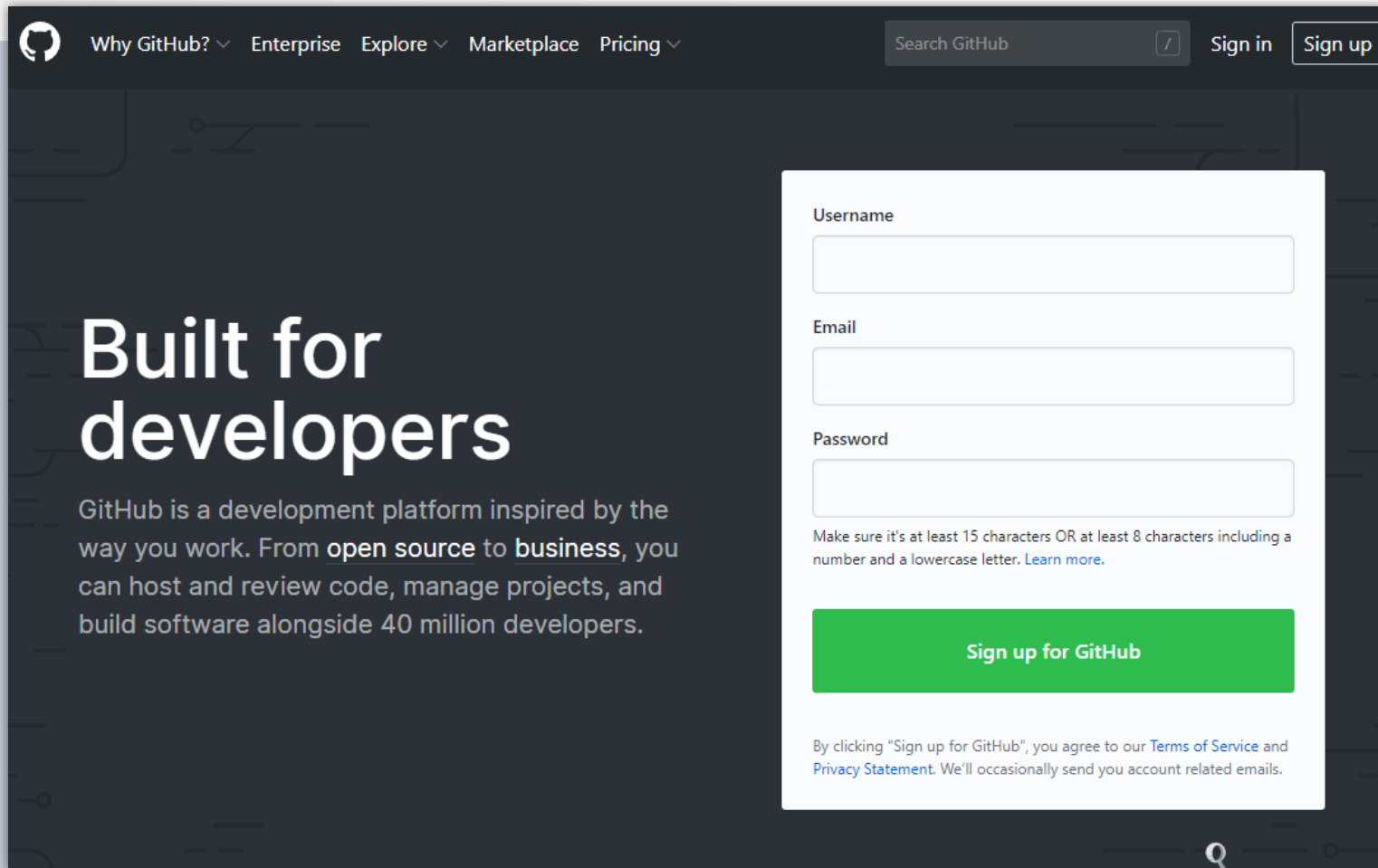
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# Github 계정 및 권한확인

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# Github (깃헙) 이란?

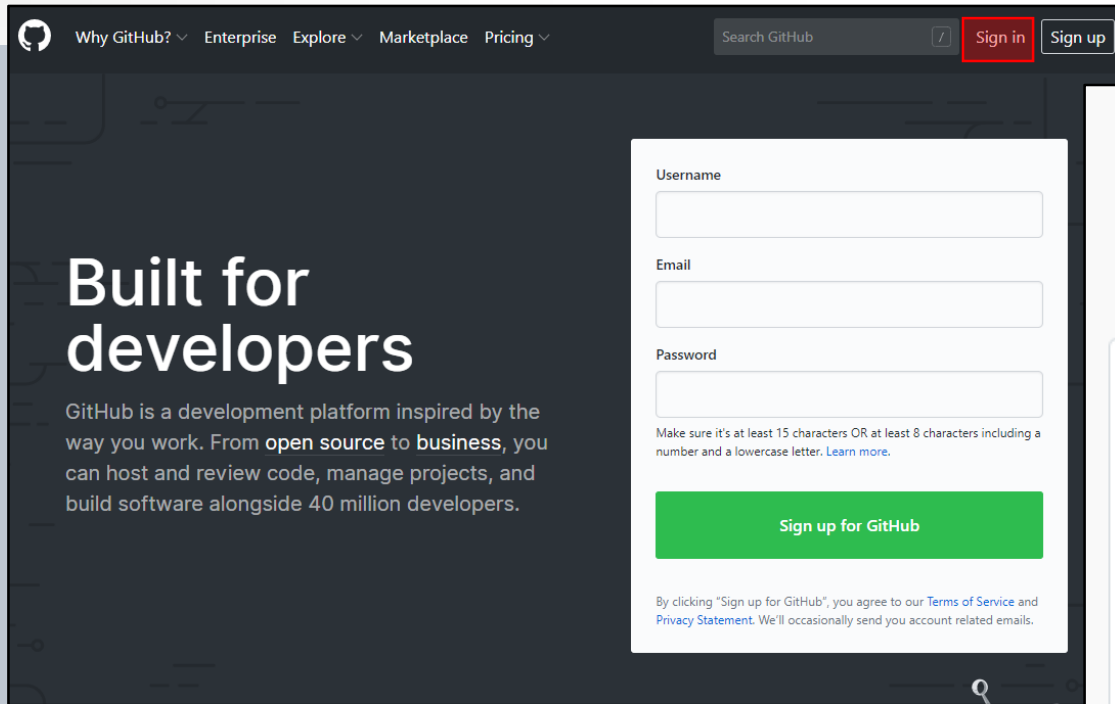
The world's leading software development platform.

A screenshot of the GitHub website's sign-up page. The page has a dark header with the GitHub logo, navigation links like 'Why GitHub?', 'Enterprise', 'Explore', 'Marketplace', and 'Pricing', a search bar, and 'Sign in' and 'Sign up' buttons. The main content area has a dark background with the text 'Built for developers' and a description of GitHub as a development platform. On the right, there is a white sign-up form with fields for 'Username', 'Email', and 'Password'. Below the password field is a note about password requirements and a link to 'Learn more'. A large green button labeled 'Sign up for GitHub' is at the bottom of the form. At the very bottom, there is a small disclaimer about agreeing to terms of service and privacy statement.

- **Management**  
개발코드 및 관련 이슈를 관리할 수 있는 온라인 Platform
- **Share**  
프로젝트 관련내용을 손쉽게 공유할 수 있음
- **Commuication**  
프로젝트 이해관계자들의 소통을 도와줌

# Github 로그인

ID, PW 입력하여 Github 로그인



The screenshot shows the GitHub homepage with a dark theme. The navigation bar at the top includes links for 'Why GitHub?', 'Enterprise', 'Explore', 'Marketplace', and 'Pricing'. A search bar and 'Sign in'/'Sign up' buttons are also present. The main content area features the text 'Built for developers' and a description of GitHub as a development platform. A white login form is overlaid on the right side of the page, containing fields for 'Username', 'Email', and 'Password', a 'Sign up for GitHub' button, and a link to the 'Terms of Service' and 'Privacy Statement'.

Why GitHub? ▾ Enterprise Explore ▾ Marketplace Pricing ▾

Search GitHub 🔍 [Sign in](#) [Sign up](#)

## Built for developers

GitHub is a development platform inspired by the way you work. From **open source** to **business**, you can host and review code, manage projects, and build software alongside 40 million developers.

**Username**

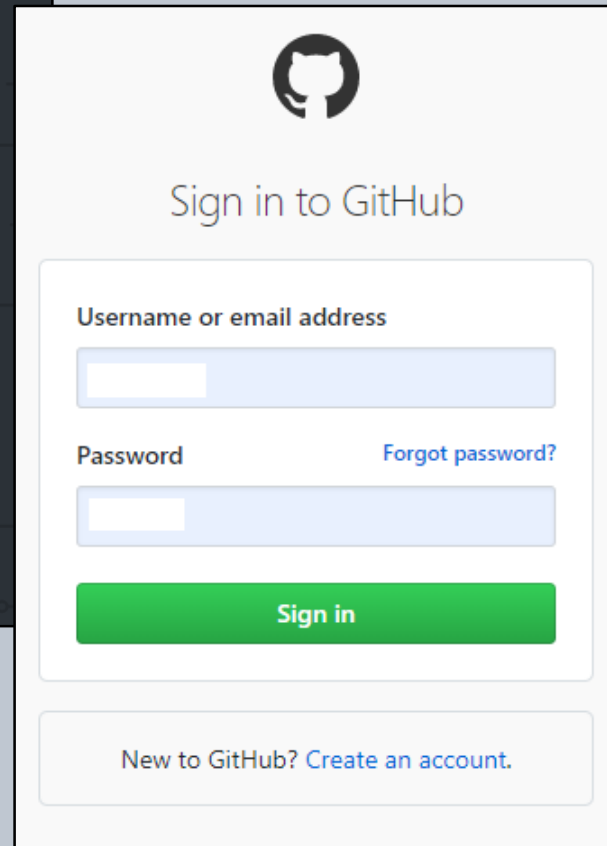
**Email**

**Password**


Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter. [Learn more.](#)

[Sign up for GitHub](#)

By clicking "Sign up for GitHub", you agree to our [Terms of Service](#) and [Privacy Statement](#). We'll occasionally send you account related emails.



This is a close-up of the login form. It features the GitHub logo at the top, followed by the text 'Sign in to GitHub'. Below this are two input fields: 'Username or email address' and 'Password'. A 'Forgot password?' link is located next to the password field. A green 'Sign in' button is positioned below the password field. At the bottom, there is a link to 'Create an account' for new users.



## Sign in to GitHub

**Username or email address**

**Password** [Forgot password?](#)

[Sign in](#)

New to GitHub? [Create an account.](#)

# Github 권한부여

관리자는 Settings의 Collaborators & teams에서 Social Coding Team 에 참가자들 권한 부여

The screenshot shows the GitHub organization settings page for 'cleancodeclass / social-coding'. The 'Settings' tab is highlighted in the top navigation bar. On the left sidebar, the 'Collaborators & teams' option is highlighted. The main content area shows the 'Default repository permission' section, which states that the default permission is set to 'read'. Below this, the 'Teams' section is visible, showing a list of teams. The 'Social Coding' team is highlighted, showing it has 'Write' permissions and 1 member. The 'Social Coding Admin' team is also visible, showing it has 'Admin' permissions and 2 members. An 'Add a team' button is at the bottom of the teams list.

The screenshot shows the GitHub team settings page for 'Social Coding'. The 'Members' tab is selected in the top navigation bar. The page shows a search bar for finding members. Below the search bar, it indicates there is 1 member and 0 child team members. A list of members is shown, with 'nubang7' listed as a 'Maintainer'. An 'Add a member' button is highlighted in the top right corner of the page.



1

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# 코드의 문제점 파악 (Code Smell)

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# 코드스멜 (CodeSmell) 이란?

코드 스멜은  
컴퓨터 프로그래밍 코드에서

더 심오한 문제를 일으킬 가능성이 있는  
프로그램 소스 코드의 증상을 가리킨다. <sup>[1]</sup>

1. Tufano, M.; Palomba, F.; Bavota, G.; Oliveto, R.; Di Penta, M.; De Lucia, A.; Poshyvanyk, D. (2015년 5월 1일). ["When and Why Your Code Starts to Smell Bad"](#) (PDF). 《2015 IEEE/ACM 37th IEEE International Conference on Software Engineering (ICSE)》 1: 403–414. [doi:10.1109/ICSE.2015.59](#).

# 코드스멜 목록 확인해 보기

The screenshot shows the GitHub repository page for `cleancodeclass / social-coding`. The repository description is "Project for collaborative practice using Github". It has 44 commits and is on the `master` branch. A yellow box labeled '1' highlights the 'Issues' tab, which shows 5 open issues. A red box labeled '2' highlights the list of 5 open issues, each with a 'Code Smell' label.

Issues list:

- 5 Open 0 Closed
- Magic number 제거 Code Smell (#6 opened 2 days ago by nubang7)
- If문 부정형을 긍정형으로 변경 Code Smell (#5 opened 2 days ago by nubang7)
- if문 안의 메소드 추출 Code Smell (#4 opened 2 days ago by nubang7)
- If절 안의 로직 메소드 추출 Code Smell (#3 opened 2 days ago by nubang7)
- If절 밖의 로직 메소드 추출 Code Smell (#2 opened 2 days ago by nubang7)

① 이슈확인 하기  
cleancodeclass/social-coding  
저장소의 Issues 아이콘 클릭

② 5개의 코드스멜 확인

2

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# 나만의 작업공간 만들기 (Fork)

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# Git을 활용한 작업 방식

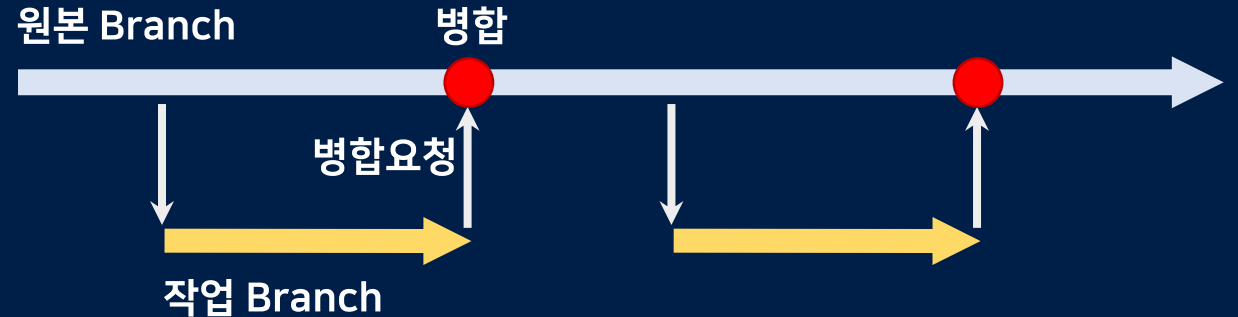
Git을 활용한 개발 환경에서

어떠한 이유로  
코드를 수정할 일이 발생하게 되면

수정을 위한 Branch를 만들어 작업을 하고

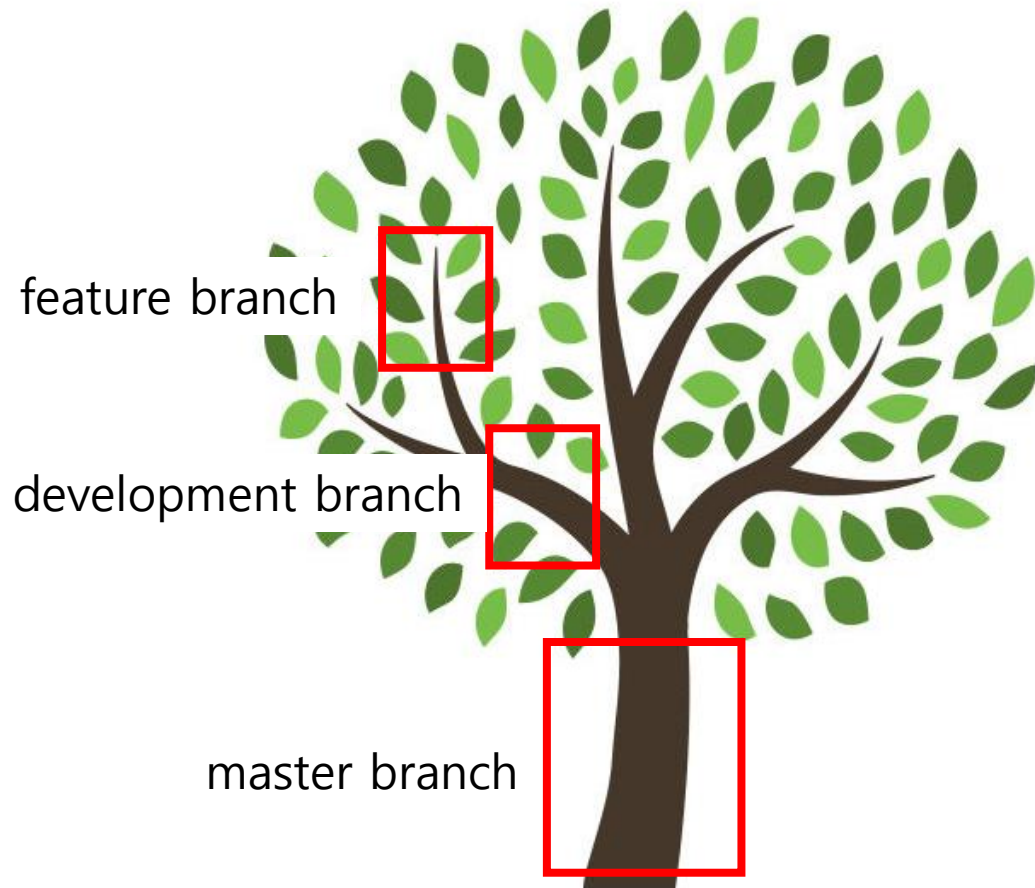
작업이 끝나게 되면 원래 Branch로 작업내용 반영요청을 합니다.

Branch를 생성하고, 반영요청하고, 코드리뷰를 하는 과정을 거쳐 어플리케이션을 만들어 갑니다.



# Branch 생성하기

Github (Git) 에서는 관리의 단위 또는 기능개발 단위로 branch를 생성하여 개발하고 병합(Merge)하는 프로세스를 지원함.



- ① **방법 1**  
cleancodeclass/social-coding  
에서 새로운 Branch를 생성 후 개발하기

---

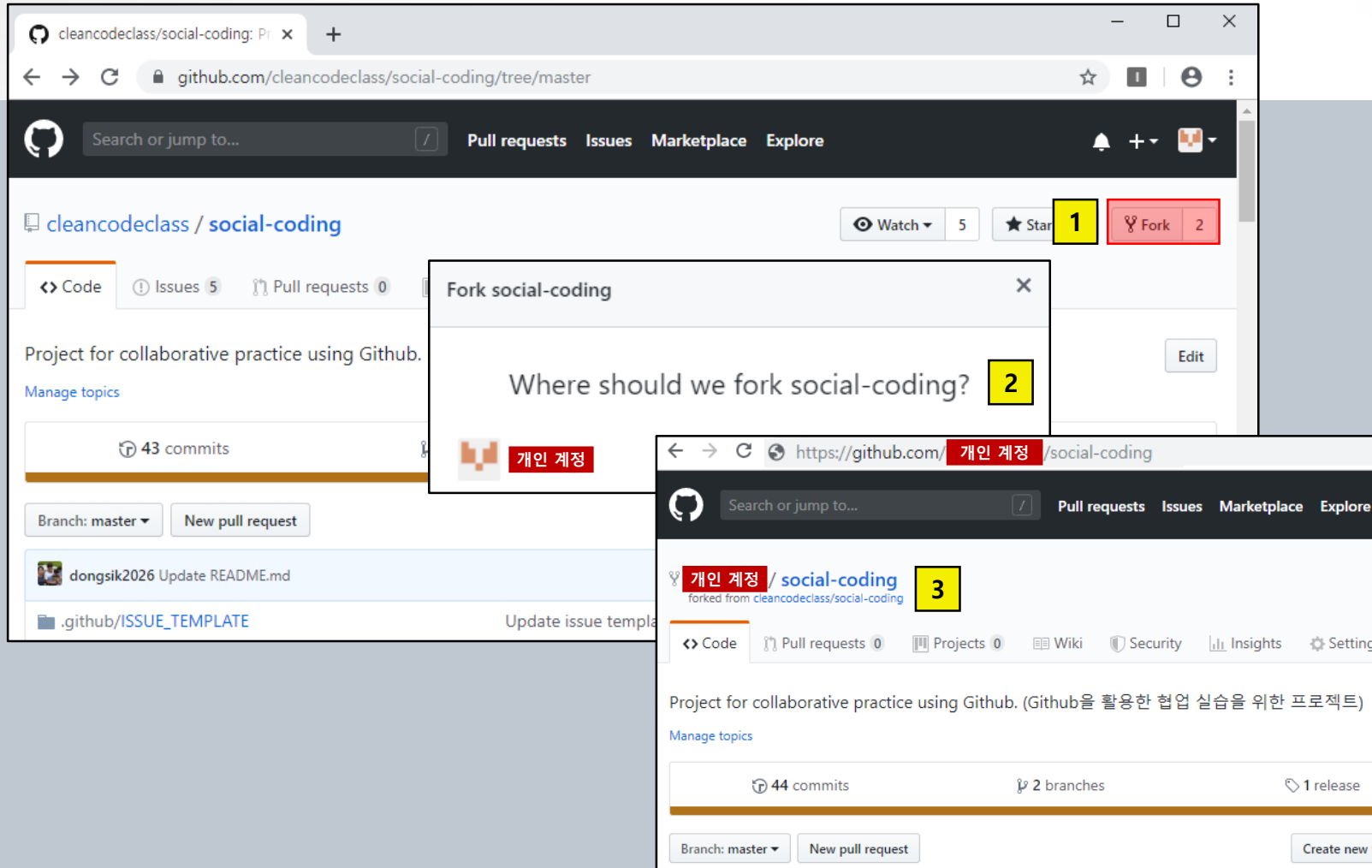
- ② **방법 2**  
자신의 github 계정에서  
Branch를 생성하고 개발하기  
(Fork)

# Branch 전략

Git을 활용하는 협업전략의 형태는 다양하여, Git Flow를 기반으로 여러가지 방법이 있다.  
개인과 조직, 프로젝트의 상황에 맞게 사용하는 것이 중요하다.

- Git Flow
- Github Flow
- Gitlab Flow
- 당신만의 Flow

# 나의 저장소로 프로젝트를 가져오기 (Fork)



## ① Fork 하기

cleancodeclass 에서  
로그인된 내 Github 저장소로  
프로젝트를 가져오기  
버튼 클릭

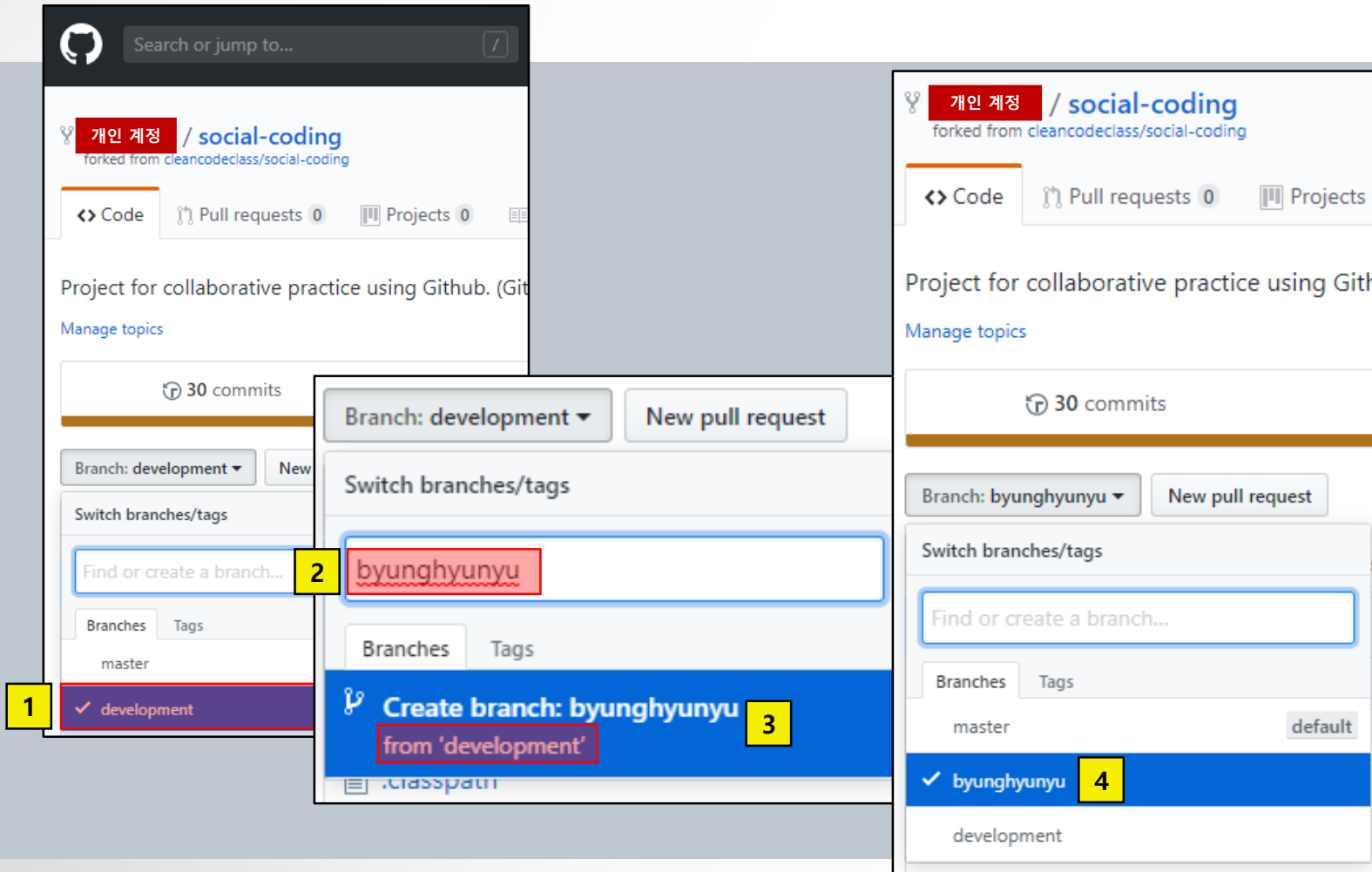
## ② 내 계정 선택

## ③ Fork 확인

내 Github 저장소에서 Fork 한  
프로젝트 확인하기

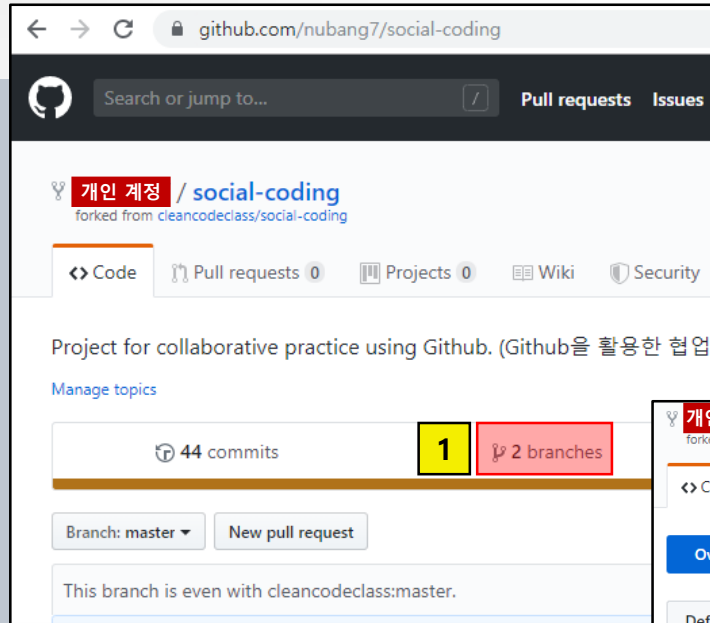


# Branch 만들어 보기



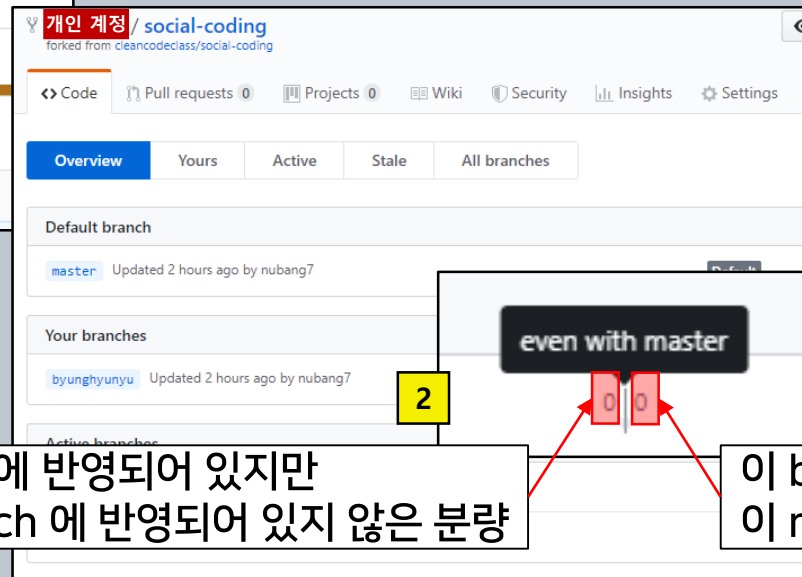
- ① **Branch 생성 준비**  
개인 계정의 development Branch 선택
- ② **Branch 이름 입력**  
자신의 이름이나 계정명을 입력
- ③ **Branch 생성**  
Form 'development' 확인 후 클릭  
**Create branch: byunghyunyu from 'development'**
- ④ **Branch 생성확인**  
개인 계정의 Github 저장소에 생성된 Branch 확인

# Branch 간의 차이점 보기



① Branch 아이콘 클릭

② Master Branch와 소스 차이점 확인



master에 반영되어 있지만  
이 branch 에 반영되어 있지 않은 분량

이 branch에 반영되어 있지만  
이 master 에 반영되어 있지 않은 분량

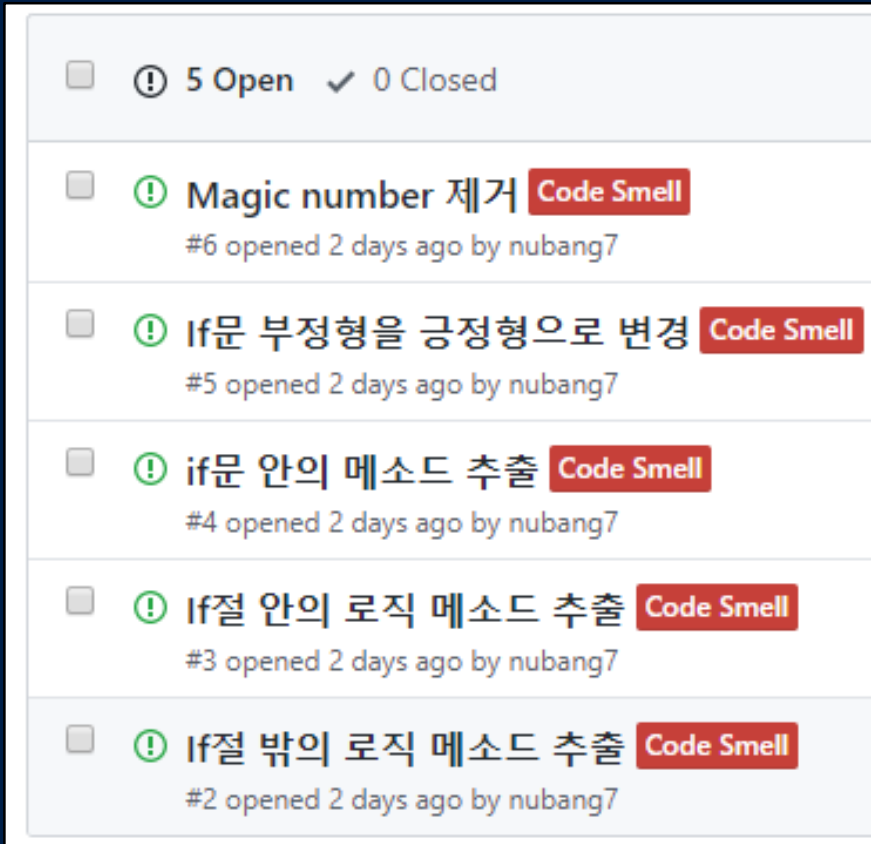
3

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# 코드수정 (Development)

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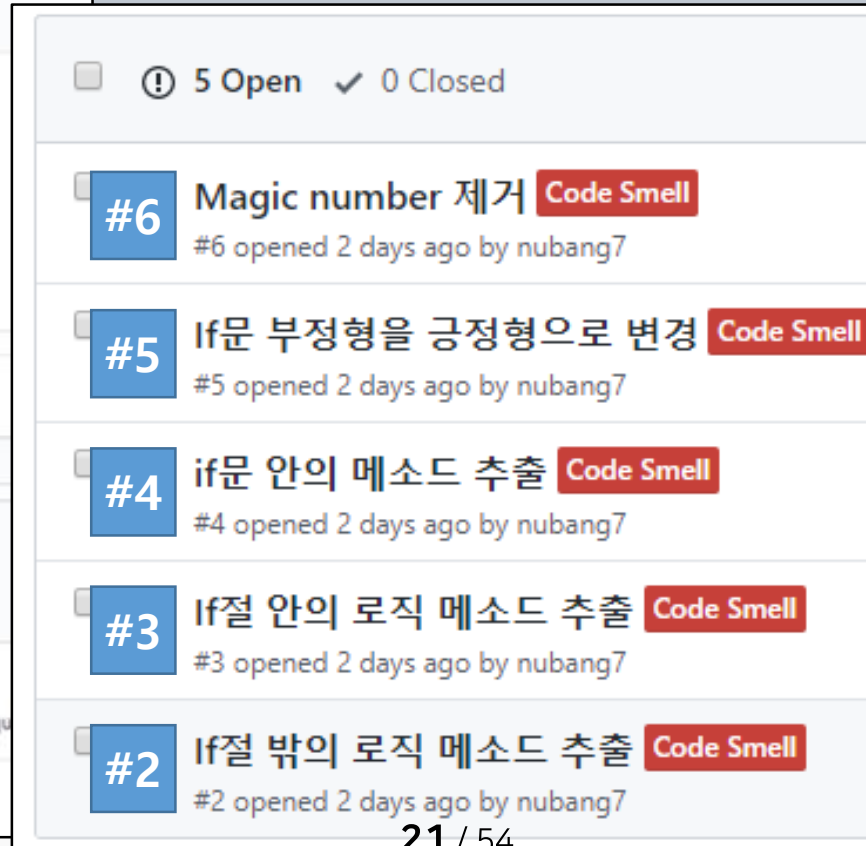
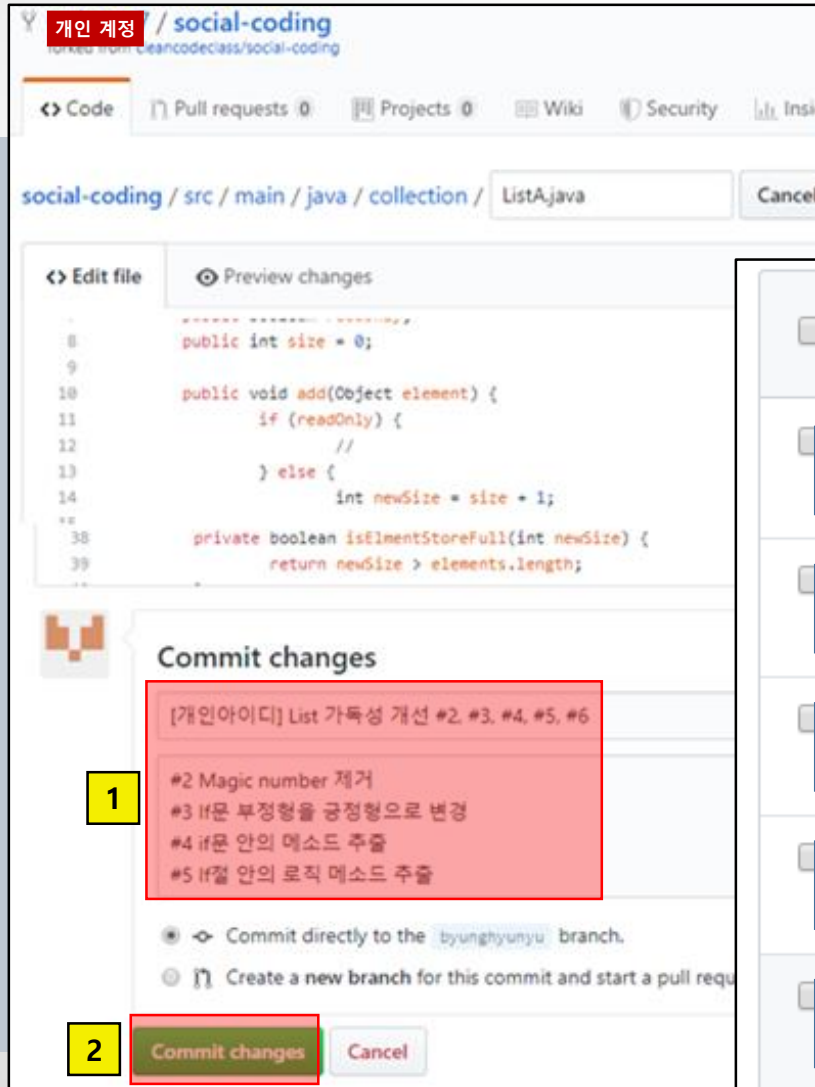
# 이슈사항 확인 후 코드 수정



앞서 확인한 5개의 이슈 중에서  
수정하고 싶은 이슈를 선택하여  
내용 확인 후 수정합니다.  
코드 수정은 생성한  
자신의 Branch 에서 합니다.

# Commit Message 작성하는 법

Commit Message 작성시 # 태그를 확인하여 Issue Number를 달아주세요.



- ① 이슈 번호 달기  
#이슈번호 형태로 이슈번호를 작성하기
- ② commit  
수정한 소스코드 반영하기

# Magic number 제거

## AS - IS

- 숫자에 대한 의미를 알기 어려운 Magic Number

```
if ( newSize > elements.length ) {  
    Object[] newElements =  
        new Object[elements.length + 10];  
  
    for (int i = 0; i < size; i++) {  
        newElements[i] = elements[i];  
    }  
  
    elements = newElements;  
}
```

## TO - BE

- Magic Number를 Text로 변수 처리하여 코드의 가독성을 개선

```
private static final int STORE_SIZE_INCREMENT = 10;
```

...

```
if ( newSize > elements.length ) {  
    Object[] newElements =  
        new Object[elements.length + STORE_SIZE_INCREMENT];  
  
    for (int i = 0; i < size; i++) {  
        newElements[i] = elements[i];  
    }  
  
    elements = newElements;
```

# If문 부정형을 긍정형으로 변경



## AS - IS

부정문은 인지적인 측면에서 긍정문에 비해 코드를 해석하는데 비용이 많이 듭니다

```
if (!readOnly) {  
    int newSize = size + 1;  
  
    ...  
}
```

## TO - BE

▶ 긍정문으로 변환하여 코드의 가독성을 개선

```
if (readOnly) {  
    //  
} else {  
    int newSize = size + 1;  
  
    ...  
}
```

# if문 안의 메소드 추출

## AS - IS

- 분기문 안에서의 연산로직은 가독성을 떨어트림

```
if ( newSize > elements.length ) {  
    ...  
}
```

## TO - BE

- 분기문 내의 연산로직을 메서드로 추출

```
public void add(Object element) {  
    if (readOnly) {  
        //  
    } else {  
        int newSize = size + 1;  
  
        if (isElementStoreFull(newSize)) {  
            ...  
            for (int i = 0; i < size; i++) {  
                newElements[i] = elements[i];  
            }  
  
            elements = newElements;  
        }  
        ...  
    }  
}
```

```
private boolean isElementStoreFull(int newSize) {  
    return newSize > elements.length;  
}
```



# If절 안의 로직 메소드 추출

## AS - IS

- 이해하기 어려운 비즈니스 코드가 존재

```
public void add(Object element) {  
    if (readOnly) {  
        //  
    } else {  
        int newSize = size + 1;  
  
        if (isElementStoreFull(newSize)) {  
            Object[] newElements = new  
                Object[elements.length + STORE_INCREMENT_SIZE];  
            for (int i = 0; i < size; i++) {  
                newElements[i] = elements[i];  
            }  
  
            elements = newElements;  
        }  
  
        elements[size] = element;  
        size++;  
    }  
}
```

## TO - BE

- 비즈니스 로직을 알기쉬운 이름의 메서드로 추출

```
public void add(Object element) {  
    if (readOnly) {  
        //  
    } else {  
        int newSize = size + 1;  
  
        if (isElementStoreFull(newSize)) {  
            increaseElementStore();  
        }  
  
        elements[size] = element;  
        size++;  
    }  
}
```

```
private void increaseElementStore() {  
    Object[] newElements =  
        new Object[elements.length + STORE_SIZE_INCREMENT];  
    for (int i = 0; i < size; i++) {  
        newElements[i] = elements[i];  
    }  
    elements = newElements;  
}
```

# If절 밖의 로직 메소드 추출

## AS - IS

- 이해하기 어려운 비즈니스 코드가 존재

```
public void add(Object element) {  
    if (readOnly) {  
        //  
    } else {  
        ...  
        elements[size] = element;  
        size++;  
    }  
}
```

## TO - BE

- 비즈니스 로직을 알기쉬운 이름의 메서드로 추출

```
public void add(Object element) {  
    if (readOnly) {  
        //  
    } else {  
        ...  
        addElementAtEnd(element);  
    }  
}
```

```
private void addElementAtEnd(Object element) {  
    elements[size] = element;  
    size++;  
}
```

# Commit - Issue 연결확인

The screenshot shows the GitHub interface for the repository 'nubang7 / social-coding', which is a fork of 'cleancodeclass/social-coding'. The repository has 0 Watchers, 0 Stars, and 2 Forks. The main navigation bar includes links for Code, Pull requests (0), Projects (0), Wiki, Security, Insights, and Settings. Below the navigation bar, there is a description of the project as a collaborative practice using GitHub. The 'Commits' tab is selected, showing a list of recent commits. A dropdown menu for switching branches is open, showing the 'master' branch as the current selection and the 'byunghyunyu' branch as the selected option. The commit history shows several commits by 'nubang7' on November 13, 2019, with the first commit being the most recent. The commit messages are in Korean and mention 'cleancodeclass#2' through 'cleancodeclass#6'. A red box highlights the commit history, and a yellow box highlights the 'byunghyunyu' branch in the dropdown menu.

① 코드 수정한 Branch 선택

② commits 클릭

③ base 프로젝트 Issue 연결 확인

4

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# 코드반영요청 (Pull Request)

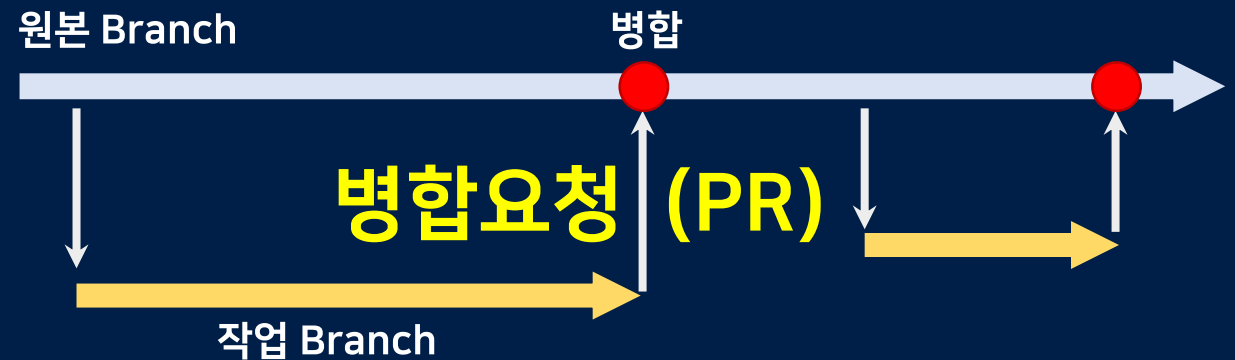
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# 내 코드를 원본 브랜치에 반영 요청하기

Git을 활용한 개발 환경에서

수정을 위한 Branch에서 작업이 끝나면

원래 Branch로 작업내용 반영요청을 합니다.



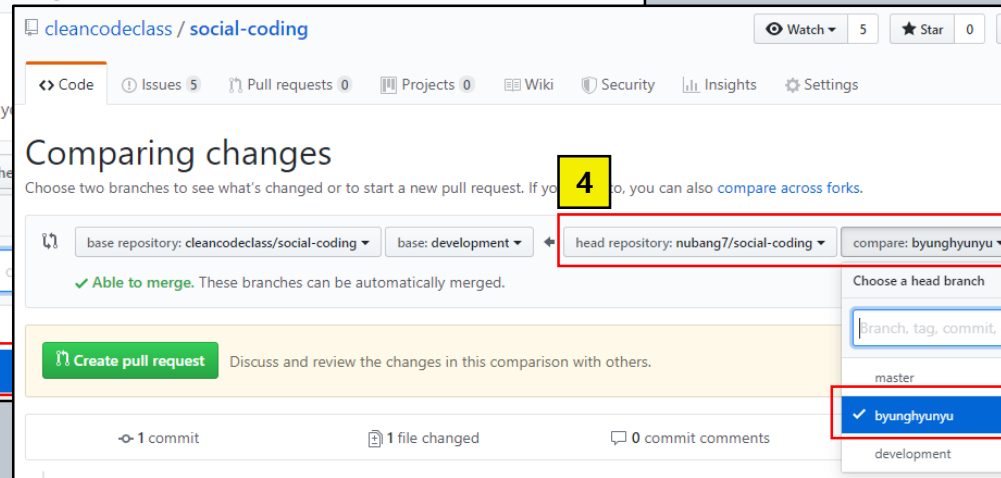
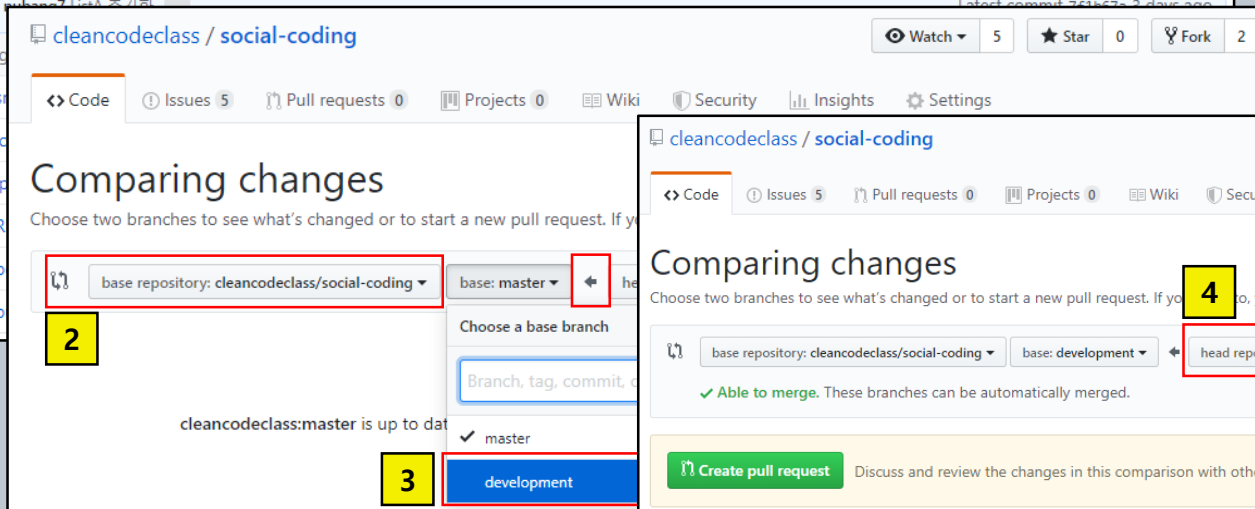
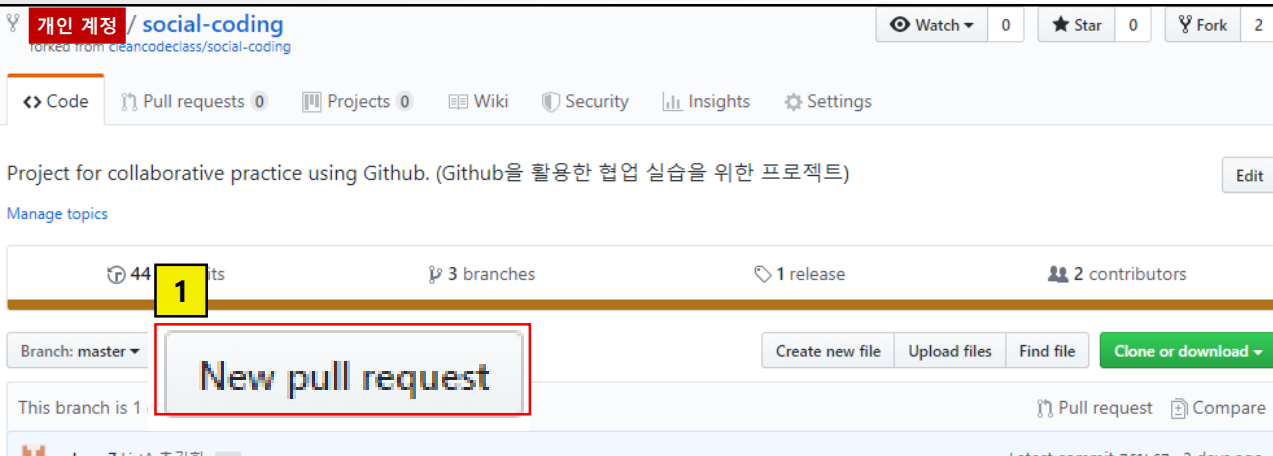
# 원본 Branch에 반영요청 하기위해 base, head 설정

① New Pull Request 버튼 클릭하기

② base repository 설정  
base repository를  
cleancodeclass/social-coding으로 설정

③ base repository, base branch 설정  
base repository의 branch를  
development 로 설정

④ head repository, base branch 설정  
head repository의 branch를  
작업한 branch 로 설정



# 수정 내용 확인 후 Pull Request

base repository: cleancodeclass/social-coding base: development head repository: nubang7/social-coding compare: byunghyunyu

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

Create pull request Discuss and review the changes in this comparison with others.

1 commit 1 file changed 0 commit comments 1 contributor

Commits on Nov 11, 2019

nubang7 Update ListA.java Verified 3c35a17

Showing 1 changed file with 19 additions and 13 deletions. Unified Split

```
32 src/main/java/collection/ListA.java
... @@ -1,39 +1,45 @@
1 package collection;
2
3 public class ListA {
4 - private static final int _10 = 10;
5 + private static final int STORE_SIZE_INCREMENT = 10;
6 public Object[] elements = new Object[10];
7 public boolean readOnly;
8 public int size = 0;
9
10 public void add(Object element) {
11 if (readOnly) {
12 - return;
12 + //
13 } else {
14 int newSize = size
15 if (newSize > 10) {
```

## ① 변경된 코드 내용 확인

삭제된 내용 (-)

추가된 내용 (+)

## ② Create pull request 클릭

Create pull request

### Comparing changes

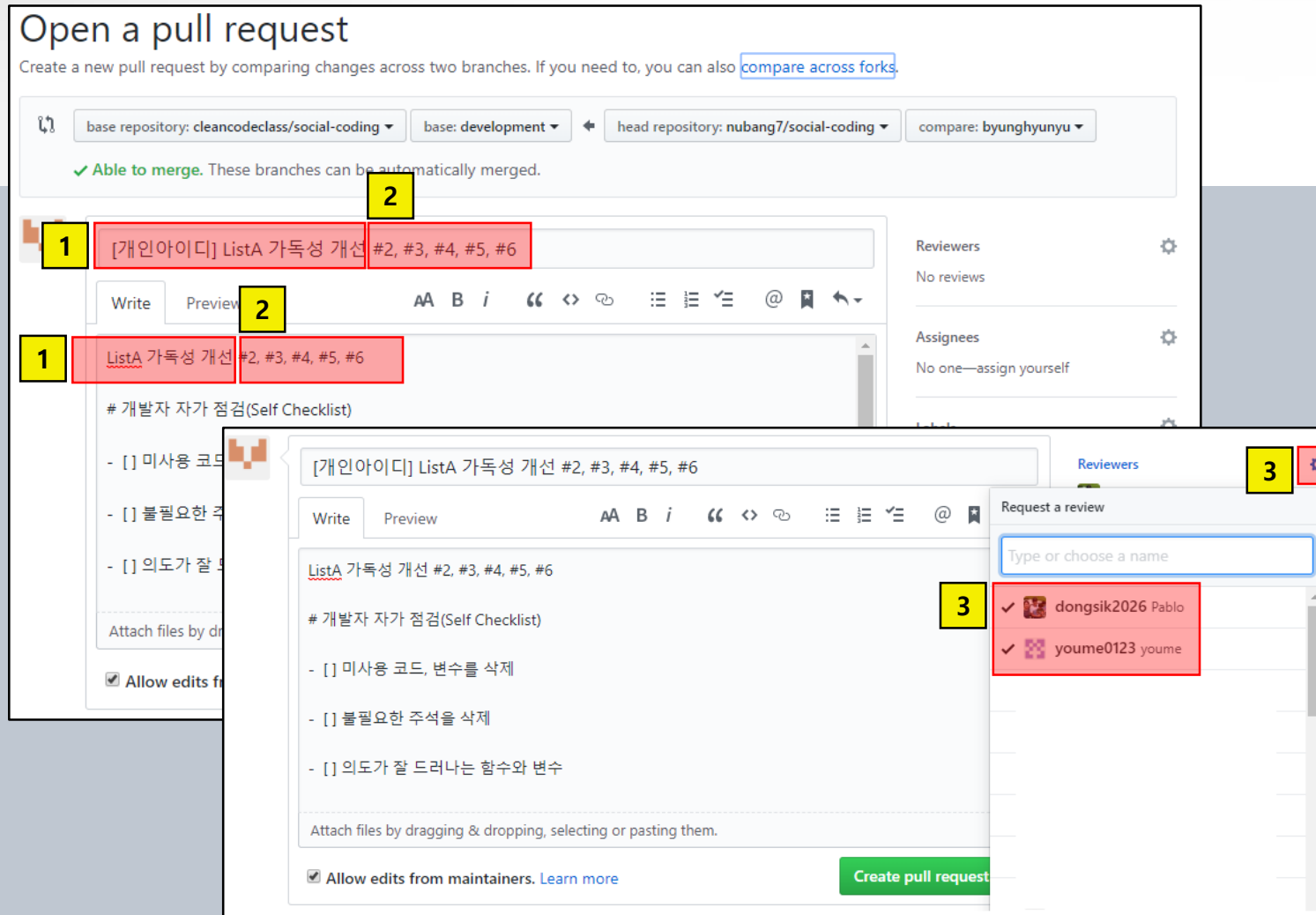
Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

base repository: cleancodeclass/social-coding base: development head repository: nubang7/social-coding compare: byunghyunyu

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

Create pull request Discuss and review the changes in this comparison with others.

# Issue 연결 및 코드리뷰어 지정



## ① Pull Request 명 작성

Pull Request 를 요청받는 담당자가 PR 의 목적과 내용을 이해하기 쉽도록 제목 및 메시지 작성

## ② Issue ID 작성

PR 제목과 내용에 수정한 코드에 해당되는 Issue ID 를  
# Issue ID 조합으로 작성

## ③ Reviewer 지정

Reviewer 아이콘 클릭하여  
정해진 Reviewer를 등록



# Pull Request 생성

[개인아이디] ListA 가독성 개선 #2, #3, #4, #5, #6

Write Preview

ListA 가독성 개선 #2, #3, #4, #5, #6

# 개발자 자가 점검(Self Checklist)

- [ ] 미사용 코드, 변수를 삭제
- [ ] 불필요한 주석을 삭제
- [ ] 의도가 잘 드러나는 함수와 변수

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

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

1 Create pull request

Request a review

Type or choose a name

- ✓ dongsik2026 Pablo
- ✓ youme0123 youme

① Create pull request 버튼 클릭

# 체크리스트 확인 및 Merge 비활성화 확인

github.com/cleancodeclass/social-coding/pull/20

[개인아이디] ListA 코드 가독성 개선 #2, #3, #4, #5, #6 #20

Open nubang7 wants to merge 2 commits into cleancodeclass:development from nubang7:byunghyunyu

Conversation 0 Commits 2 Checks 0 Files changed 1 +21 -15

nubang7 commented 4 minutes ago • edited Member

1 ListA 코드 가독성 개선 #2, #3, #4, #5, #6

2 개발자 자가 점검(Self Checklist)

- ☒ 미사용 코드, 변수를 삭제
- ☒ 불필요한 주석을 삭제
- ☒ 의도가 잘 드러나는 함수와 변수

Reviewers

- dongsik2026
- youme0123

At least 1 approving review is required to merge this pull request.

Assignees

No one—assign yourself

nubang7 added 2 commits 9

- Update ListA.java
- Update ListA.java

nubang7 requested review

Add more commits by pushing to the byunghyunyu branch on nubang7/social-coding.

3

Review required

At least 1 approving review is required by reviewers with write access. [Learn more.](#)

2 pending reviewers

- dongsik2026 was requested for review
- youme0123 was requested for review

Merging is blocked

Merging can be performed automatically with 1 approving review.

As an administrator, you may still merge this pull request.

Merge pull request You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

- ① Pull Request 체크리스트 확인
- ② Reviewer 지정확인  
지정한 리뷰어에 리뷰요청 확인하기
- ③ Reviewer Required  
지정한 리뷰어가 리뷰 및 승인을 해주기 전까지는  
Code Merge를 할 수 없음

5

---

# 코드리뷰 (Code Review)

---

# 코드리뷰는 정중하게 해주세요

코드리뷰는 개발협업 중 하나입니다.

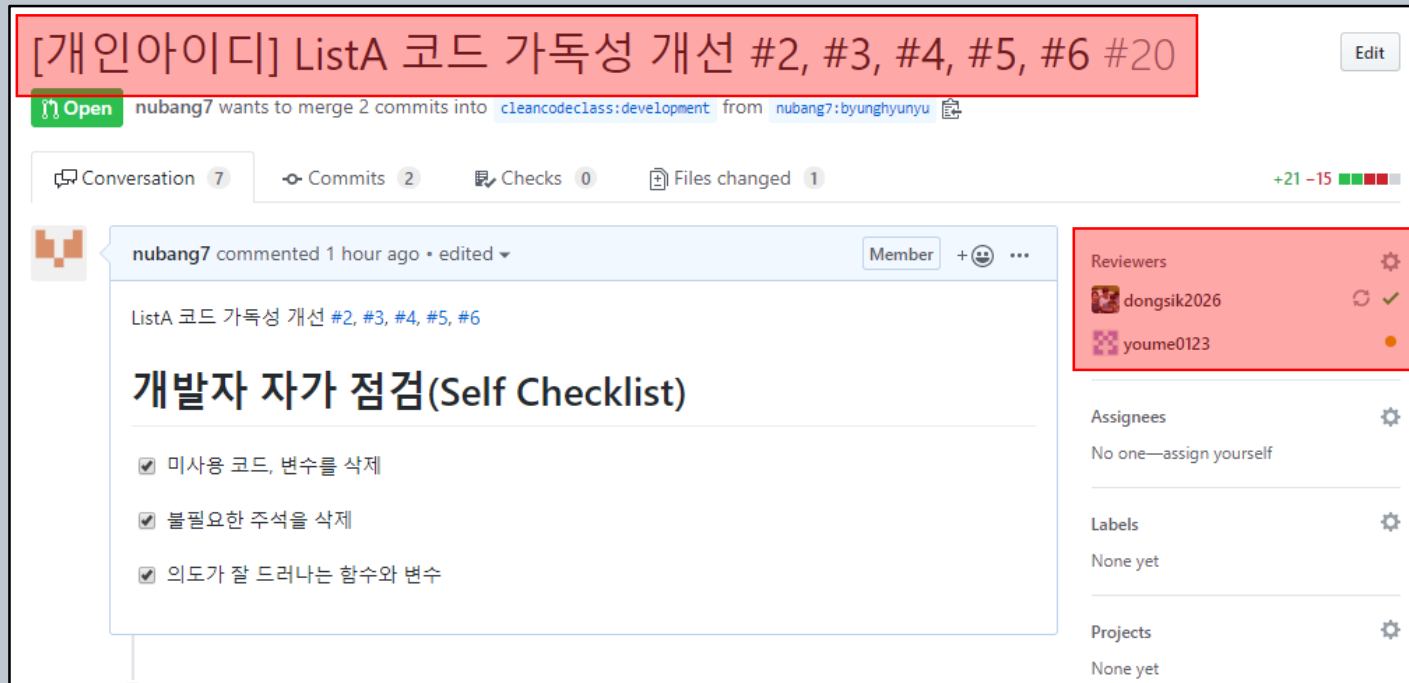
과격한 코드리뷰는

코드 관련인의 마음을 상하게 할 수 있습니다.

코드를 작성한 사람에 대한 리뷰가 아닌

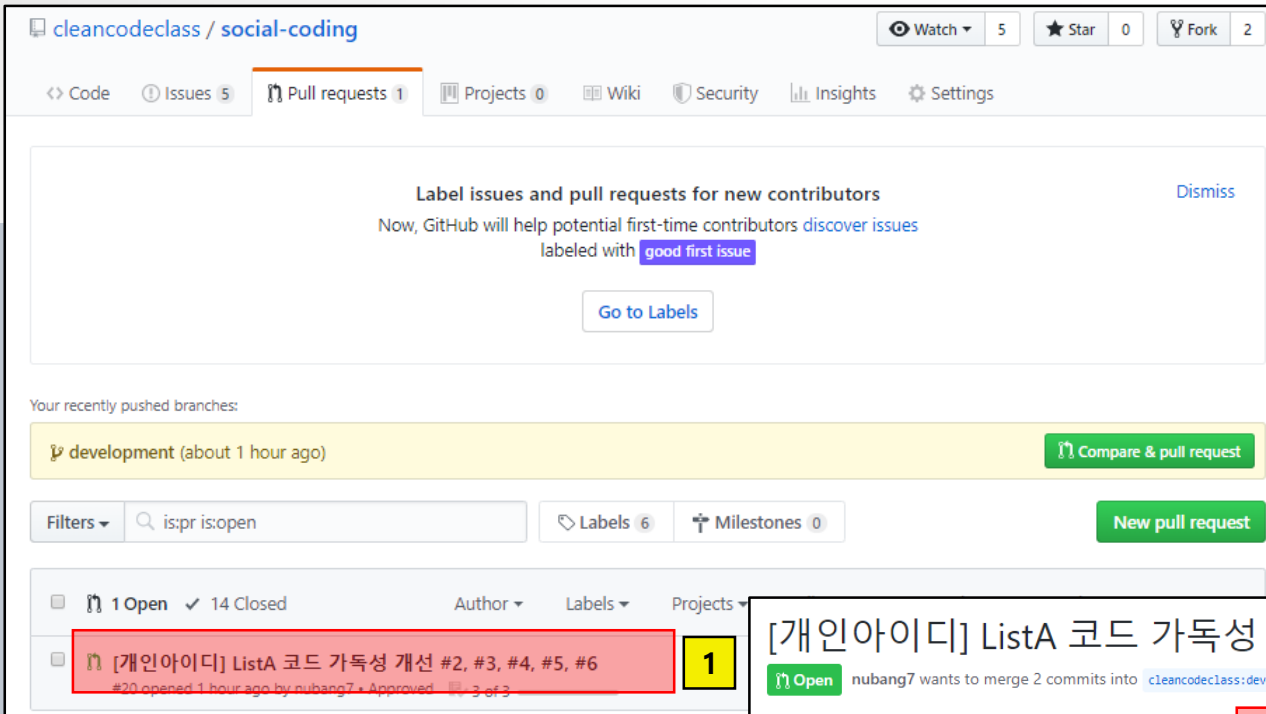
코드자체에 대한 리뷰를 해주세요.

# 코드리뷰 요청 알려주기



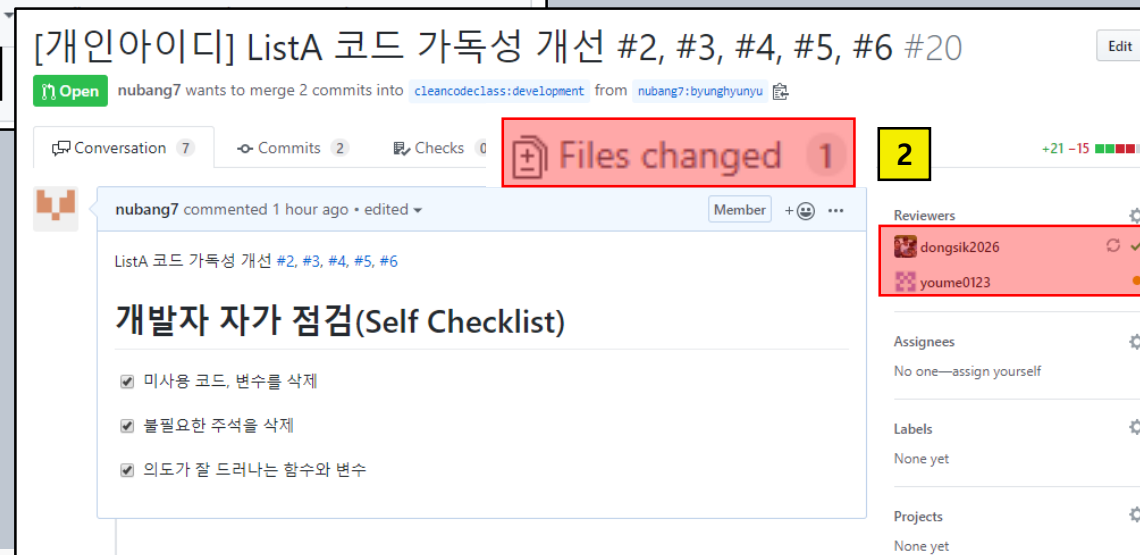
- ① 코드리뷰 할 사람에게 통지  
PR 생성자는  
코드리뷰 수행할 동료에게 PR 명과 내용을  
공유해 주기

# 코드리뷰 해주기



① 코드리뷰 대상 PR 확인  
리뷰요청해준 사람으로 부터 PR 이름 확인하기

② Files Changed 확인  
내가 요청온 코드리뷰 확인 (내 아이디 확인)



# 코드리뷰 해주기 (Line Comment)

github.com/cleancodeclass/social-coding/pull/20/files

Conversation 7 Commits 2 Checks 0 Files changed 1

Changes from all commits File filter... Jump to... 0 / 1 files viewed Review changes

36 src/main/java/collection/ListA.java

```
@@ -1,39 +1,45 @@
package collection;

public class ListA {
-   private static final int _10 = 10;
+   private static final int STORE_SIZE_INCREMENT = 10;
    public Object[] elements = new Object[10];
    public boolean readOnly;
    public int size = 0;
-   public void add(Object element) {
+   public void add(Object element) {
        private void addElements(Object element) {
        private void addElementAtEnd(Object element) {
            elements[size] = element;
            size++;
        }
    }
    public boolean setR
    private void increa
```

2 +

3

dongsik2026 1 hour ago Member

함수 이름이 가독성 있게 잘 작성되었네요.

① Filde Chaged에서 변경코드 확인하기

삭제된 내용  
추가된 내용

② Line Comment 작성  
코드리뷰 할 라인에 Mouse Over 하여

+ 클릭 후 코드리뷰 의견 작성

② 의견 작성시코드작성자의 기분을 상하지 않게 ^^

# Pull Request 요청 승인 해주기 (Approve)

[개인아이디] ListA 코드 가독성 개선 #2, #3, #4, #5, #6 #20

Open nubang7 wants to merge 2 commits into cleancodeclass:development from nubang7:byunghyunyu

Conversation 7 Commits 2 Checks 0 Files changed 1 +21 -15

Changes from all commits File filter... Jump to... 0 / 1 files viewed 1 Review changes

Write Preview AA B i “ <> ☰ ☷ ☹ @ 📌 ↶

Leave a comment

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

☐ Comment

☒ **Approve** 2 Submit feedback and approve merging these changes.

☐ Request changes Submit feedback that must be addressed before merging.

**Submit review** 3

36 src/main/java/collection/

```
... @@ -1,39 +1,45 @@
1 1 package collection;
2 2
3 3 public class ListA {
4 - private static fir
5 4
6 5 + private static fir
7 6 public Object[] el
8 7 public boolean rea
9 8 public int size =
10 -
11 9 +
12 - public void add(O
13 10 + public void ad
14 11 if (reado
15 12 return;
16 12 +
17 13 } else {
18 14 int newSize = size + 1;
19 15
```

## ① 종합의견 작성

Review changes

버튼 클릭하여 PR 코드리뷰

## ② PR 승인 (Approve)

종합의견 작성 후 체크

## ③ Submit review 버튼 클릭

Submit review

버튼 클릭하여 코드 Merge 요청 승인 (Approve)



# 코드리뷰 의견 확인 및 피드백 하기 (Feedback)

The screenshot shows a GitHub pull request for 'ListA 코드 가독성 개선 #2, #3, #4, #5, #6 #20'. The pull request is from 'nubang7' to 'cleancodeclass:development'. The 'Conversation' tab is active, showing a comment from 'nubang7' and a review from 'dongsik2026'. The review comment is highlighted with a red box and a yellow '2' in the corner. The review comment text is: '함수 이름이 가독성 있게 잘 작성되었네요.' Below the review comment is a 'Reply...' button. The 'Self Checklist' section is also visible, with items like '미사용 코드, 변수를 삭제', '불필요한 주석을 삭제', and '의도가 잘 드러나는 함수와 변수'.

The screenshot shows a GitHub pull request for 'ListA 코드 가독성 개선 #2, #3, #4, #5, #6 #20'. The pull request is from 'nubang7' to 'cleancodeclass:development'. The 'Files changed' tab is active, showing a diff for 'src/main/java/collection/ListA.java'. The diff shows changes to the 'setReadOnly' and 'increaseElementStore' methods. A review comment from 'dongsik2026' is visible, with a red box highlighting the comment text: '함수 이름이 가독성 있게 잘 작성되었네요.' Below the review comment is a 'Reply...' button. The 'Conversation' tab is also visible, showing a comment from 'nubang7' and a review from 'dongsik2026'.

- ① 리뷰 해준 Reviewer 확인하기  
리뷰를 작성해준 Reviewer는 표시됨
- ② 리뷰내용 확인하기  
리뷰내용 확인하기
- ③ 피드백 주기  
리뷰를 작성해준 Reviewer에게 피드백 주기

6

---

# 코드합치기 (Merge)

---

# 코드반영 요청 확인 후 Merge 하기

Code Owner는 (때로는 코드를 작성한 개발자 본인이 될 수도 있습니다.)

코드수정 내용 및 코드리뷰 내용을 확인하고,

코드를 원본 Branch에 Merge 합니다.

# 나의 코드를 원본 Branch에 Merge

The screenshot shows a GitHub Pull Request (PR) for the repository 'cleancodeclass / social-coding'. The PR is titled '[개인아이디] ListA 코드 가독성 개선 #2, #3, #4, #5, #6 #20' and is created by 'nubang7'. The PR is currently open and has 2 commits. The PR description includes a '개발자 자가 점검(Self Checklist)' with three items: '미사용 코드, 변수를 삭제', '불필요한 주석을 삭제', and '의도가 잘 드러나는 함수와 변수'. The PR has 1 approval from 'dongsik2026' and 1 pending reviewer. The PR is ready to be merged, as indicated by the 'Merge pull request' button. The PR is also ready to be merged, as indicated by the 'Merge pull request' button. The PR is also ready to be merged, as indicated by the 'Merge pull request' button.

1 Changes approved  
1 approving review by reviewers with write access. Learn more.  
1 approval  
dongsik2026 approved these changes

2 Merge pull request

3 Confirm merge

4 Pull request successfully merged and closed  
You're all set — the nubang7:byunghyunyu branch can be safely deleted.  
If you wish, you can also delete this fork of cleancodeclass/social-coding.

① PR을 승인해준 Reviewer 확인하기

② 코드합치기 (Merge) 수행하기

Merge pull request

버튼을 클릭하여 Merge 실행하기

③ Confirm merge 버튼을 클릭하여 Merge 실행하기

④ Merge 성공 메시지 확인하기

# 원본 Branch에서 코드 반영 확인해보기

cleancodeclass / social-coding

Watch 5 Star 0 Fork 2

Code 1 Issues 5 Pull requests 0 Projects 0 Wiki Security Insights Settings

Branch: development social-coding / src / main / java / collection / ListA.java

nubang7 Update ListA.java 38c4898 10 hours ago

2 contributors

46 lines (34 sloc) 852 Bytes

```
1 package collection;
2
3 public class ListA {
4
5     private static final int STORE_SIZE_INCREMENT = 10;
6     public Object[] elements = new Object[10];
7     public boolean readOnly;
8     public int size = 0;
9
10    public void add(Object element) {
11        if (readOnly) {
12            //
13        } else {
14            int newSize = size + 1;
15
16            if (isElementStoreFull(newSize)) {
17                increaseElementStore();
18            }
19
20            addElementAtEnd(element);
21        }
22    }
23
24    private void addElementAtEnd(Object element) {
25        elements[size] = element;
26        size++;
27    }
28 }
```

- ① 원본 repository에서 반영 코드 확인  
원본 repository의 development  
브랜치에서 반영된 코드 확인하기

# Pull Request Conflict 확인

github.com/cleancodeclass/social-coding/pull/22

## PR 2 #22

Open nubang7 wants to merge 1 commit into cleancodeclass:development from nubang7:byunghyunyu\_2

Conversation 0 Commits 1 Checks 0 Files changed 1

nubang7 commented 36 seconds ago

### 개발자 자가 점검(Self Checklist)

- ☐ 미사용 코드, 변수를 삭제
- ☐ 불필요한 주석을 삭제
- ☐ 의도가 잘 드러나는 함수와 변수

Update ListA.java Verified 99dcc52

Add more commits by pushing to the byunghyunyu\_2 branch on nubang7/social-coding.

**Review required**  
At least 1 approving review is required by reviewers with write access. [Learn more.](#)

**This branch has conflicts that must be resolved**  
Use the [web editor](#) or the [command line](#) to resolve conflicts.

**Conflicting files**  
src/main/java/collection/ListA.java

Merge pull request You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

## ① PR Conflict

소스코드의 같은 Line을 수정한 경우에 Merge Conflict가 발생하여 Resolve Conflict 아이콘이 나타남

Resolve conflicts

## ② Conflict 부분 확인

Resolve Conflict 버튼 클릭하여 Conflict 확인

PR 2 #22

Resolving conflicts between nubang7:byunghyunyu\_2 and cleancodeclass:development

Resolve conflicts

1 conflicting file

src/main/java/collection/ListA.java 1 conflict Prev Next

ListA.java  
src/main/java/collection/ListA.java

```
1 package collection;
2
3 public class ListA {
4
5     <<<<<< byunghyunyu_2
6     public Object[] elements = new Object[10];
7     =====
8     private static final int STORE_SIZE_INCREMENT = 10;
9     public Object[] elements = new Object[10];
10    >>>>>> development
11    public boolean readOnly;
12    public int size = 0;
```

# Pull Request Conflict 확인

## PR 2 #22

Resolving conflicts between `nubang7:byunghyunyu_2` and `cleancodeclass:development` and committing changes → `nubang7:byunghyunyu_2`

1 conflicting file

src/main/java/collection/ListA.java

1 conflict

Prev

Next



ListA.java

src/main/java/collection/ListA.java

1

```
1 package collection;
2
3 public class ListA {
4
5     <<<<<< byunghyunyu_2
6         public Object[] elements = new Object[10];
7     =====
8     private static final int STORE_SIZE_INCREMENT = 10;
9     public Object[] elements = new Object[10];
10    >>>>>> development
```

src/main/java/collection/ListA.java

1 conflict

Prev

Next



2

Mark as resolved

```
1 package collection;
2
3 public class ListA {
4
5     private static final int STORE_SIZE_INCREMENT = 10;
6     public Object[] elements = new Object[10];
7
8     public boolean readOnly;
9     public int size = 0;
```

## PR 2 #22

Resolving conflicts between `nubang7:byunghyunyu_2` and `cleancodeclass:development` and committing changes → `nubang7:byunghyunyu_2`

3

Commit merge

1 conflicting file

src/main/java/collection/ListA.java

✓ Resolved

ListA.java

src/main/java/collection/ListA.java



```
1 package collection;
2
3 public class ListA {
4
```

### ① Conflict 해결

===== 부분 위, 아래를 확인하여  
내가 작업한 브랜치와  
Merge 대상이 되는 브랜치의 Conflict  
부분 확인 후  
어떤 내용으로 Merge 할 것인지 편집

### ② Mark as resolved

Conflict 해결 후 Mark as resolved 클릭

Mark as resolved

### ③ Commit merge

Commit merge 버튼 클릭

Commit merge

7

---

# 릴리즈 (Release)

---



# 개발된 Application 버전 관리

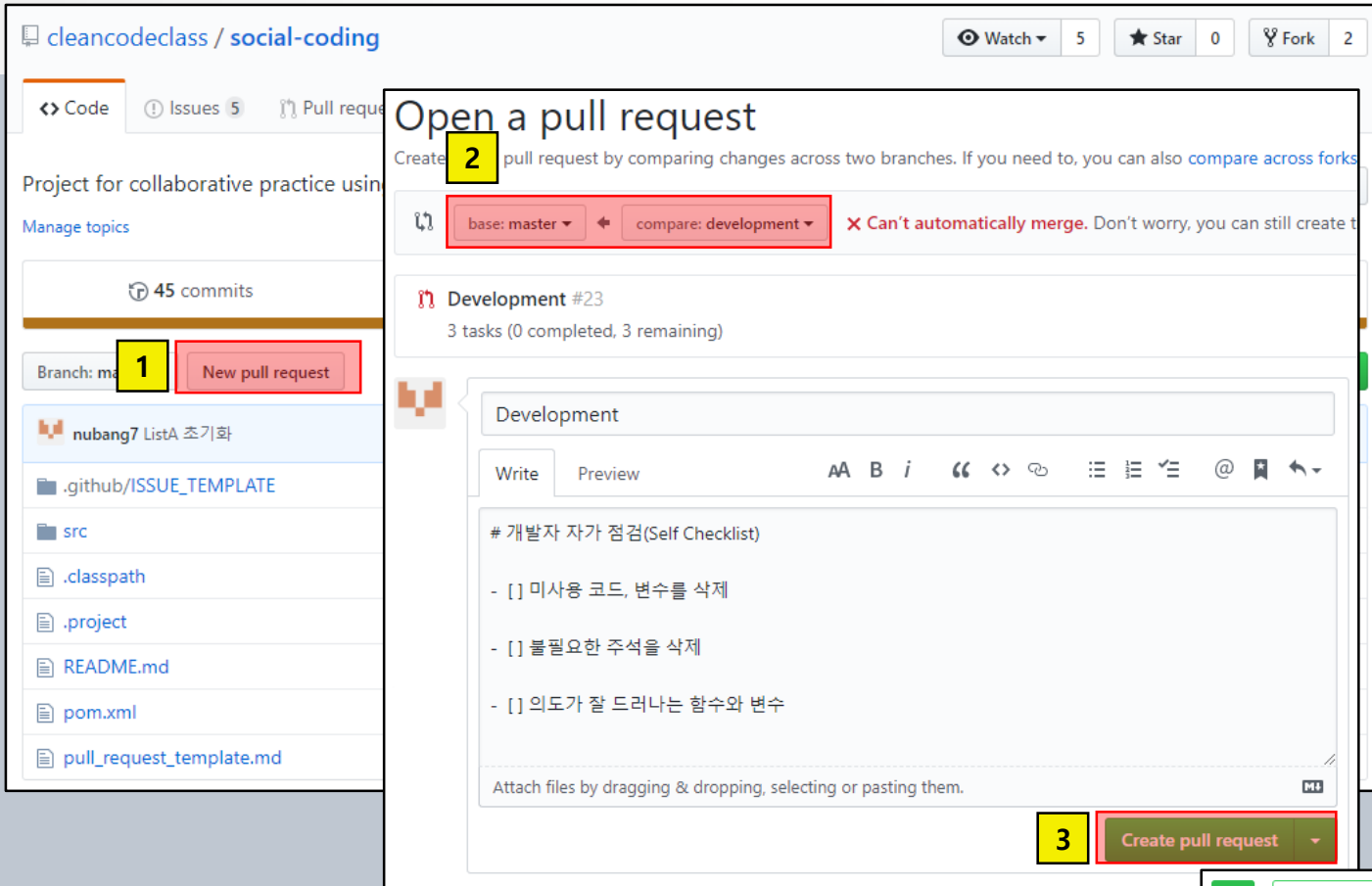
개발이 완료되면 특정 시점마다

Release를 하여,

버전 관리를 합니다.

많은 오픈소스들이 Github의 Release 기능을 활용하여 Release 관리를 하고 있습니다.

# 릴리즈 브랜치에 Pull Request 발행



## ① PR 생성

development -> master 브랜치로  
merge 하기 위해 New pull request 클릭

New pull request

## ② base, compare 브랜치 설정

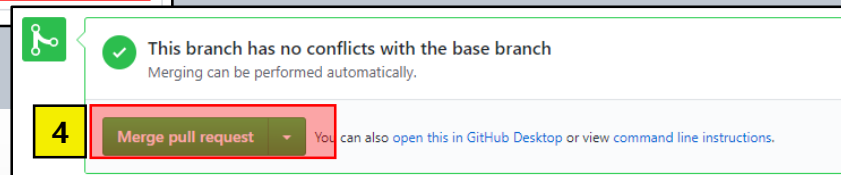
base: master compare: development X Can't automatically merge. Don't worry

## ③ Pull Request 생성

Create pull request 버튼 클릭하여 PR 생성

Create pull request

## ④ Merge pull request



# Release 실행

cleancodeclass / social-coding

Watch 5 Star 0 Fork 2

Code Issues 5 Pull requests 0 Projects 0 Wiki Security Insights Settings

Project for collaborative practice using Github. (Github을 활용한 협업 실습을 위한 프로젝트)

Manage topics

57 commits 2 branches 1 release 2 contributors

Branch: main

Releases

Releases Tags

v1.0.1 Target: master

Excellent! This tag will be created from the target when you publish this release.

릴리즈 테스트 1.0.1

Write Preview

기능명 작성

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

Attach binaries by dropping them here or selecting them.

☐ This is a pre-release

We'll point out that this release is identified as non-production ready.

Publish release Save draft

## ① Release 버튼 클릭

1 release

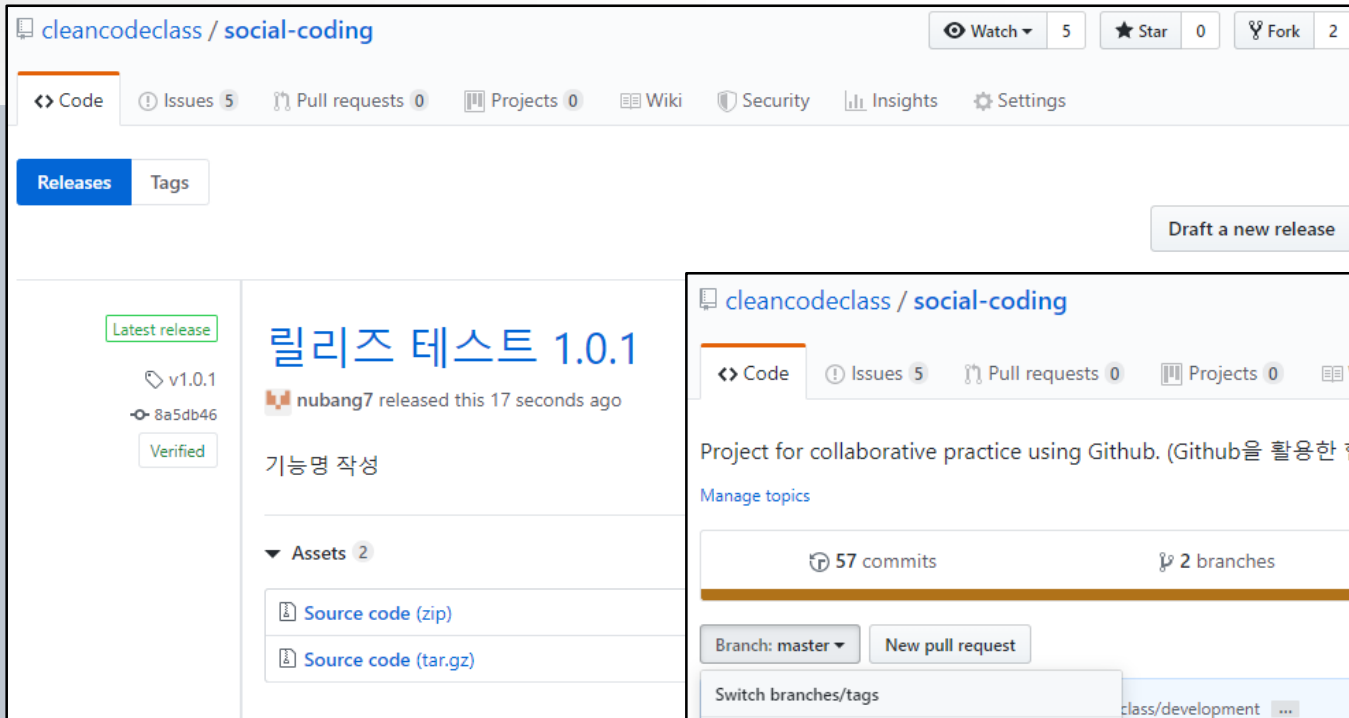
## ② Draft a new release

Draft a new release

## ③ 릴리즈 정보 작성 및 release 릴리즈 정보 작성 후 Publish release 버튼 클릭

Publish release

# Release 확인



cleancodeclass / social-coding

Watch 5 Star 0 Fork 2

Code Issues 5 Pull requests 0 Projects 0 Wiki Security Insights Settings

Releases Tags

Draft a new release

Latest release

v1.0.1

8a5db46

Verified

릴리즈 테스트 1.0.1

nubang7 released this 17 seconds ago

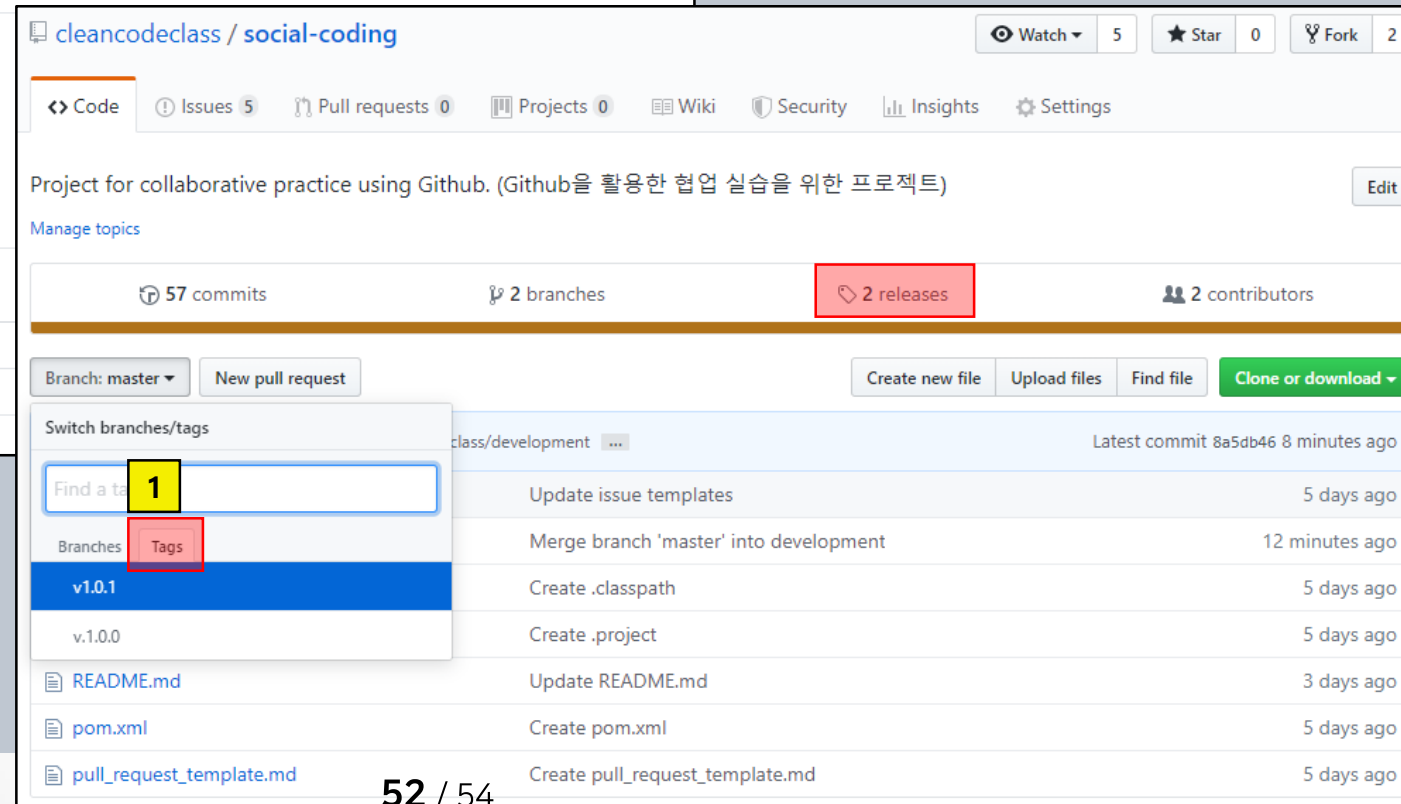
기능명 작성

Assets 2

Source code (zip)

Source code (tar.gz)

## ① Release 확인



cleancodeclass / social-coding

Watch 5 Star 0 Fork 2

Code Issues 5 Pull requests 0 Projects 0 Wiki Security Insights Settings

Project for collaborative practice using Github. (Github을 활용한 협업 실습을 위한 프로젝트)

Manage topics

57 commits 2 branches 2 releases 2 contributors

Branch: master New pull request

Create new file Upload files Find file Clone or download

Switch branches/tags

Find a tag 1

Branches Tags

v1.0.1

v.1.0.0

README.md

pom.xml

pull\_request\_template.md

class/development ... Latest commit 8a5db46 8 minutes ago

Update issue templates 5 days ago

Merge branch 'master' into development 12 minutes ago

Create .classpath 5 days ago

Create .project 5 days ago

Update README.md 3 days ago

Create pom.xml 5 days ago

Create pull\_request\_template.md 5 days ago

52 / 54

---

# Q & A

---

---

# 감사합니다.

---