

# SW Verification

201211387 하헌규

201211337 김재현

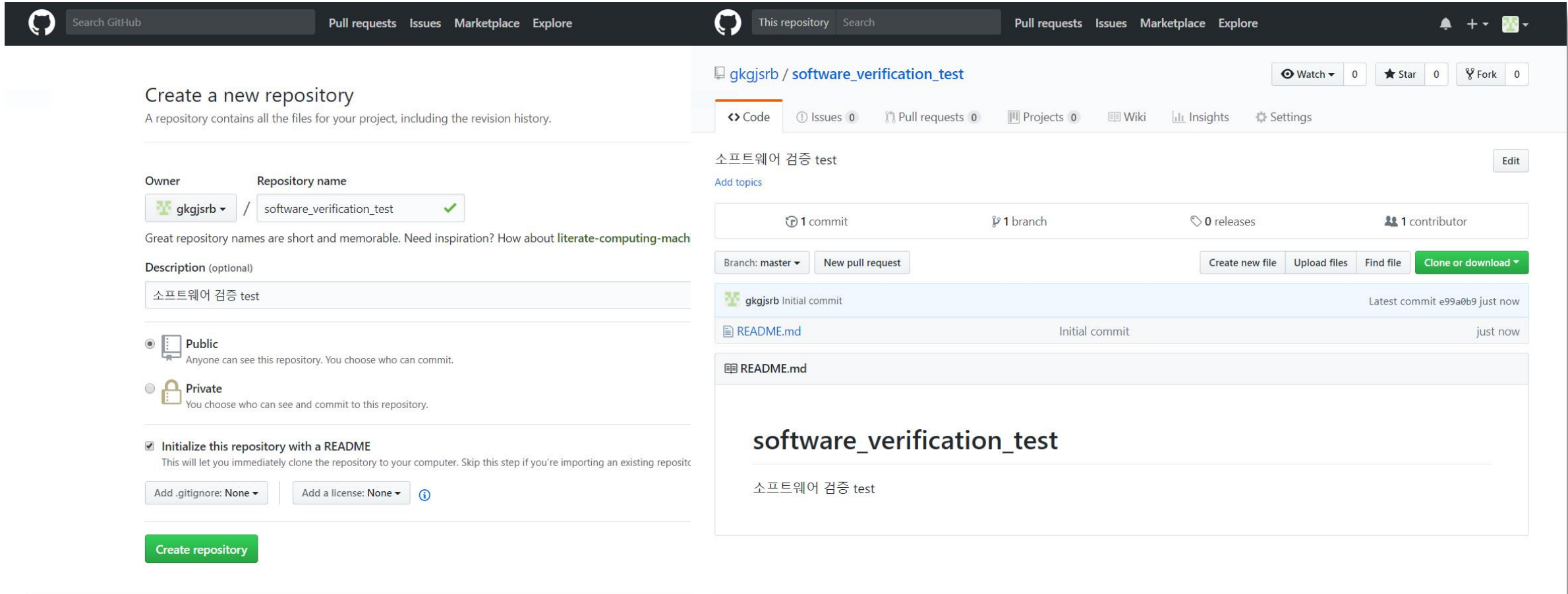
201211354 성현구

201211369 이병찬

# 목차

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- 형상관리
- Travis CI
- 프로젝트관리
- 요구사항관리



The screenshot displays the GitHub web interface. On the left, the 'Create a new repository' page is shown, with the owner 'gkgjsrb' and repository name 'software\_verification\_test'. The description is '소프트웨어 검증 test'. The repository is set to be public, and the 'Initialize this repository with a README' checkbox is checked. On the right, the repository overview for 'gkgjsrb / software\_verification\_test' is shown. It features a commit history table with one entry: 'gkgjsrb Initial commit' (README.md) from 'Initial commit' at 'just now'. The repository statistics show 1 commit, 1 branch, 0 releases, and 1 contributor. A 'Clone or download' button is visible at the top right of the repository overview.

# GitHub



GitHub navigation bar with repository name, search, and navigation links.

Repository breadcrumb: gkgjsrb / software\_verification\_test

Navigation tabs: Code, Issues (0), Pull requests (0)

- Options
- Collaborators**
- Branches
- Webhooks
- Integrations & services
- Deploy keys

### Collaborators

Push access to the repository

jaehyun739

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

### Collaborators

This repository

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

# Github

This screenshot shows the top navigation bar of a GitHub repository page. The repository name is 'gkgjsrb / software\_verification\_test'. The navigation bar includes links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below the navigation bar, there are buttons for 'Code', 'Issues 0', 'Pull requests 0', 'Projects 1', 'Wiki', 'Insights', and 'Settings'. A search bar is visible with the filter 'is:issue is:open'. There are also buttons for 'Labels' and 'Milestones', and a prominent green 'New issue' button.

This screenshot shows a 'Welcome to Issues!' message. It features a large exclamation mark icon and the text: 'Welcome to Issues! Issues are used to track todos, bugs, feature requests, and more. As issues are added, they will appear in a filterable list. To get started, you should c...

This screenshot shows the GitHub issue creation form. It includes a 'Title' field, a 'Write' tab, a 'Preview' tab, and a 'Leave a comment' text area. There are also options for 'Assignees' and 'Labels'. A 'Submit' button is visible at the bottom right of the form.

This screenshot shows the 'Apply labels to this issue' dialog. It features a search bar labeled 'Filter or create labels'. Below the search bar, there is a list of labels with their corresponding colors and descriptions:

- bug** (red square): Something isn't working
- duplicate** (grey square): This issue or pull request already exists
- enhancement** (cyan square): New feature or request
- good first issue** (purple square): Good for newcomers
- help wanted** (teal square): Extra attention is needed
- invalid** (yellow square): This doesn't seem right
- question** (magenta square): Further information is requested
- wontfix** (dark grey square): This will not be worked on

# Github Desktop

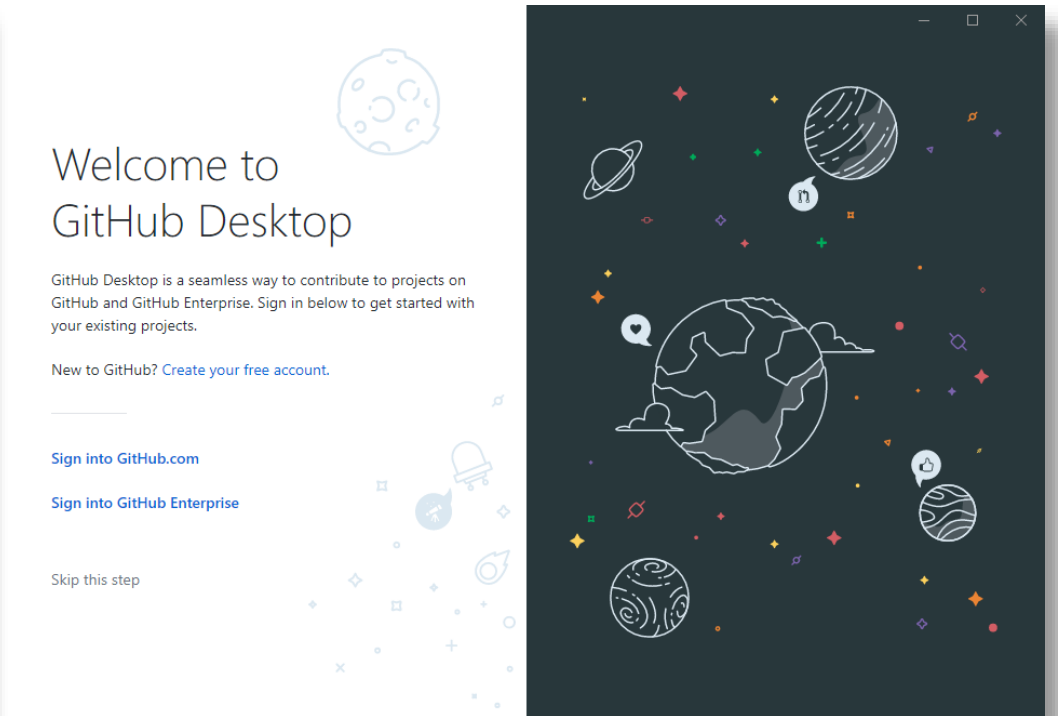
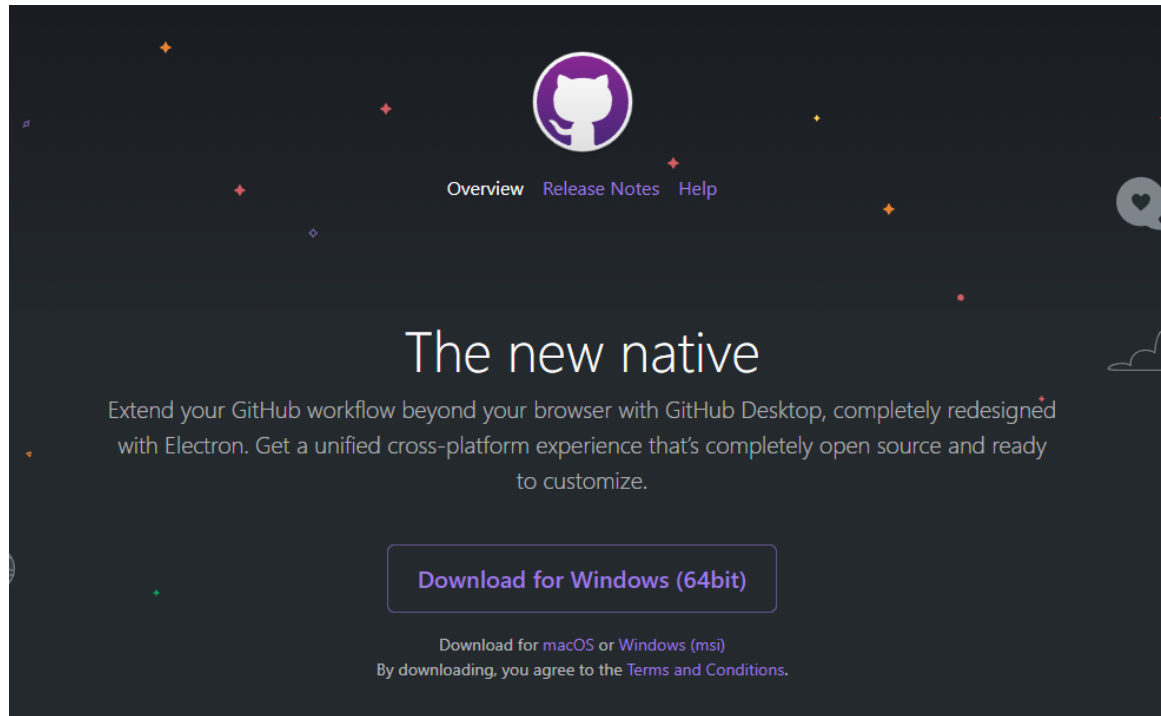


# Git : Git GUI, Git Bash, Git CMD

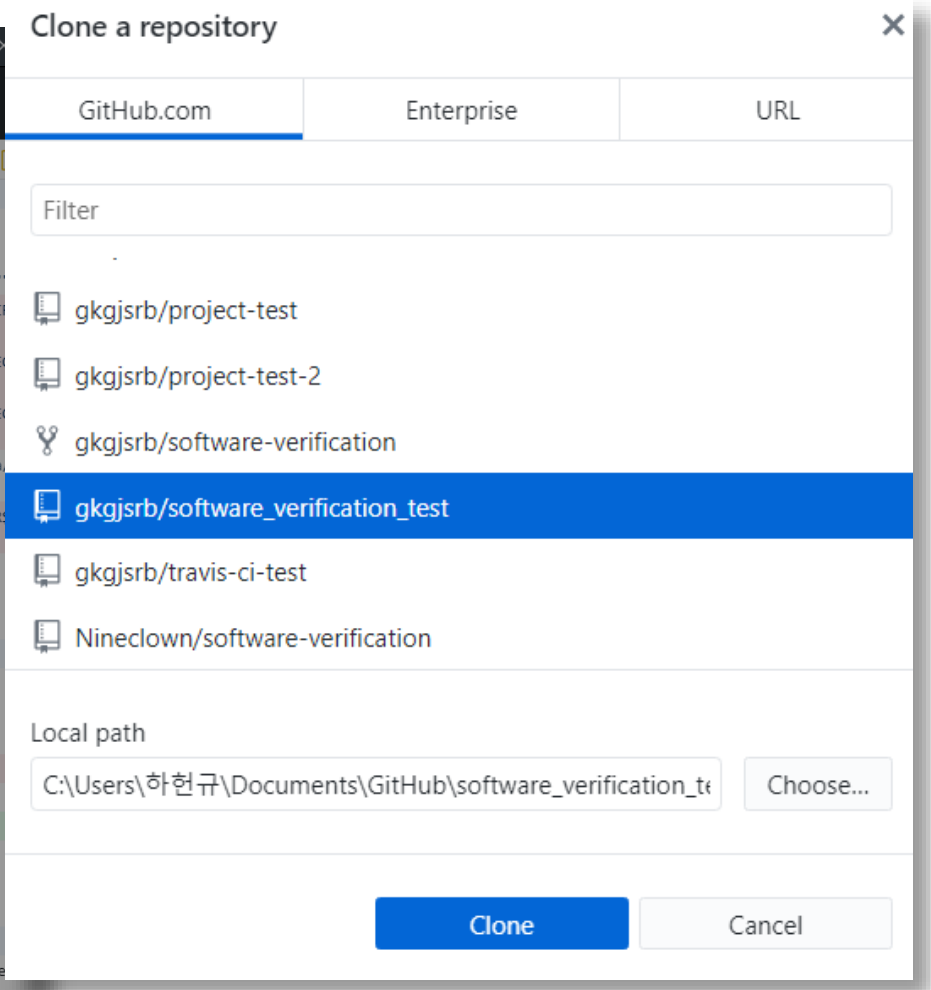
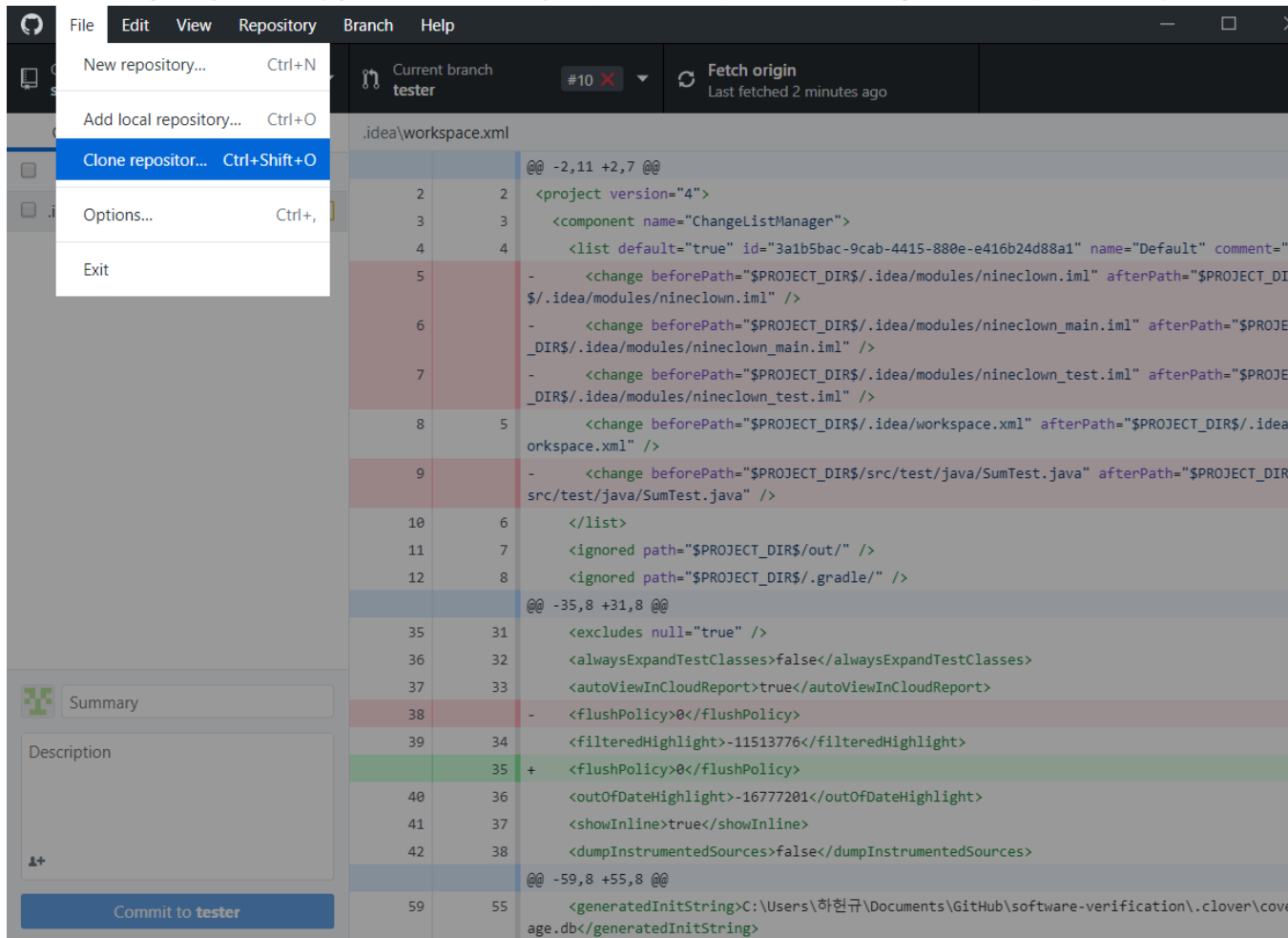


# Github Desktop : Github에서 제공하는  
GUI 기반 형상관리 도구

# Github Desktop

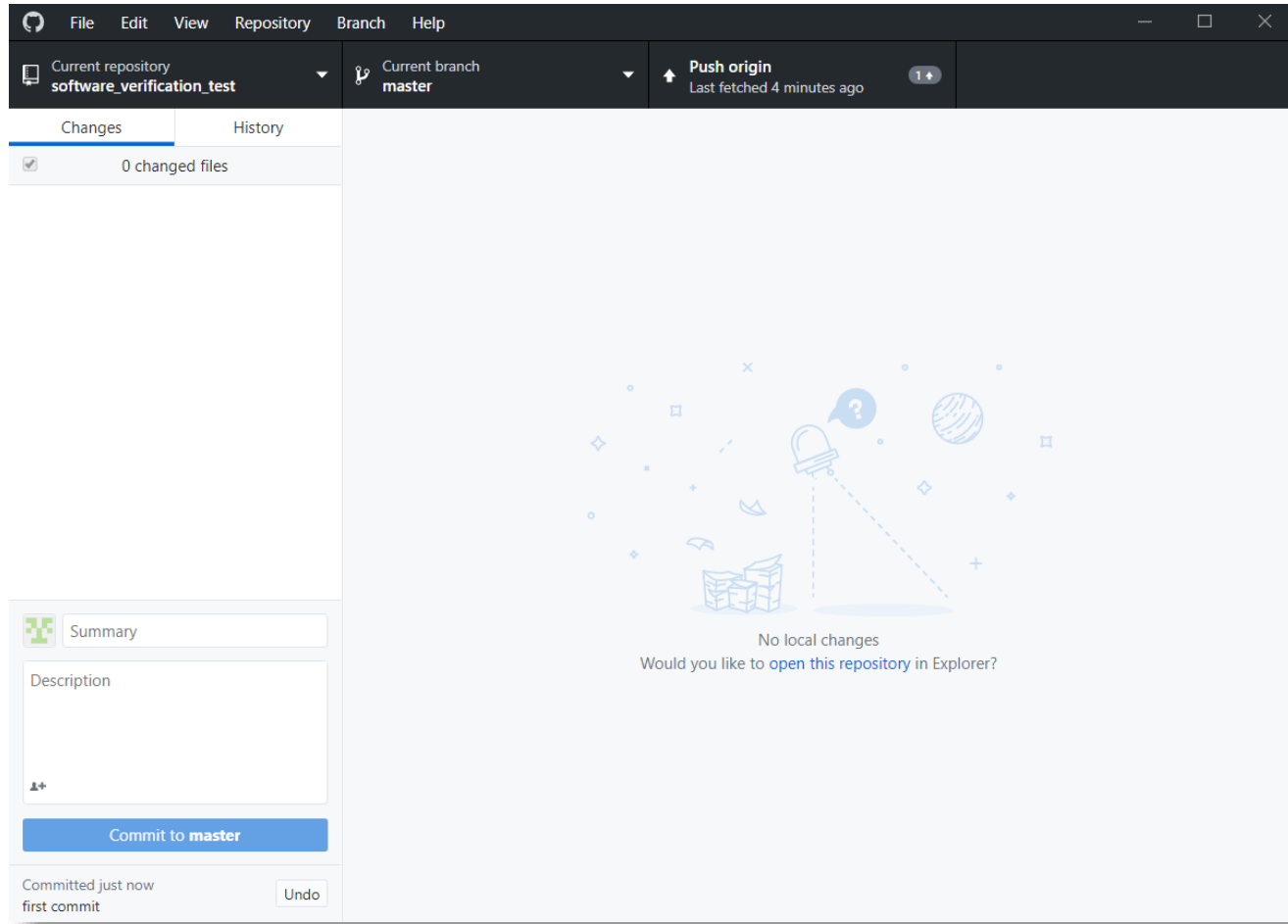


# Github Desktop



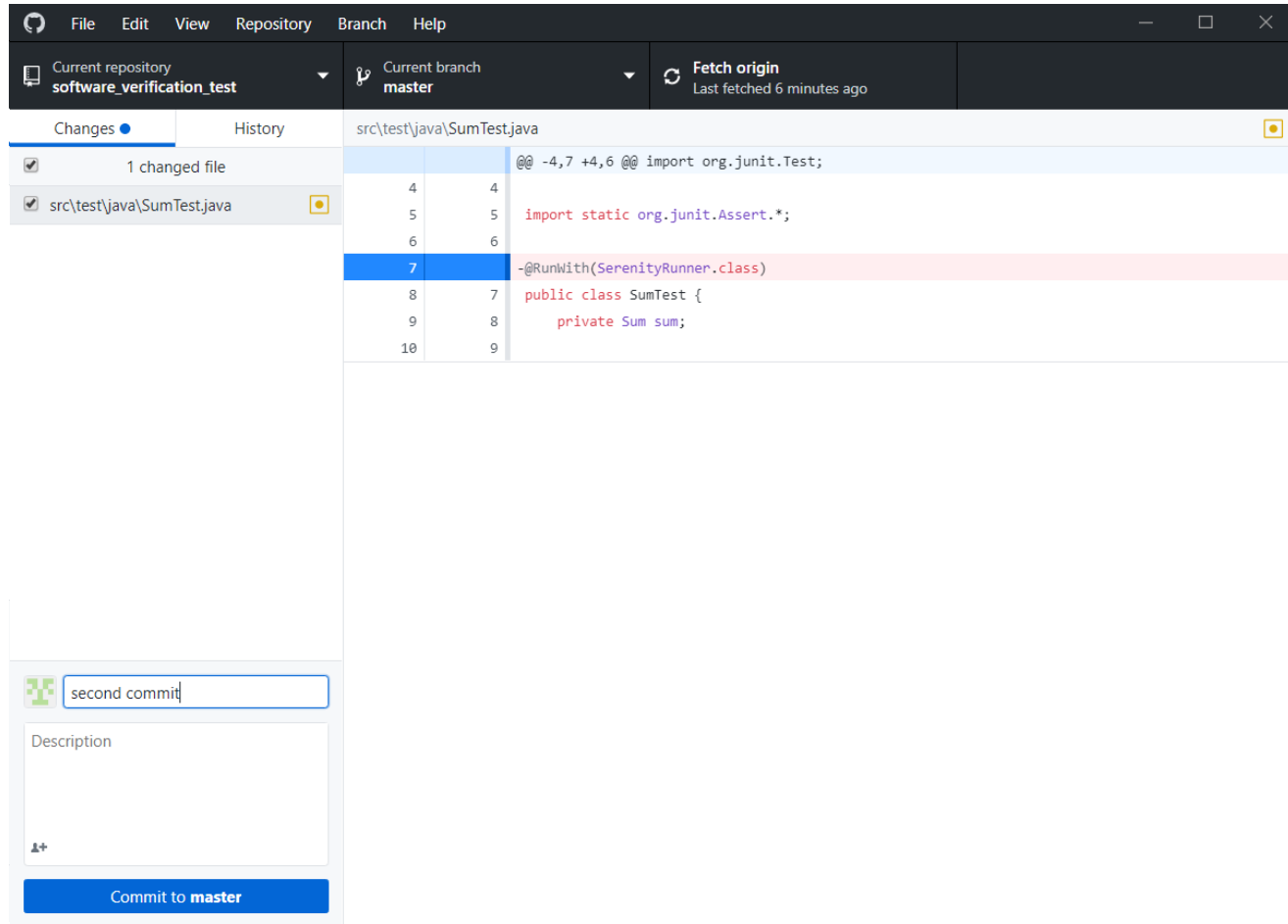


# Github Desktop



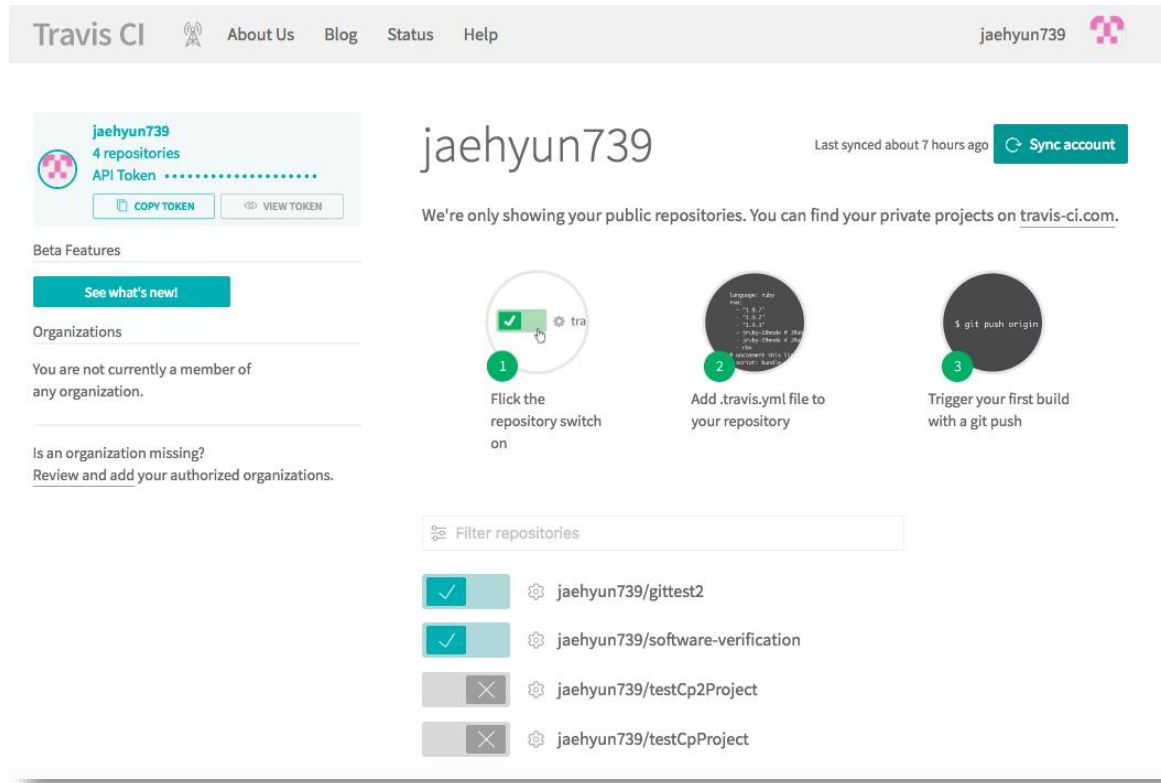
◀ 로컬 저장소 생성

# Github Desktop



◀ 코드 Add & Commit

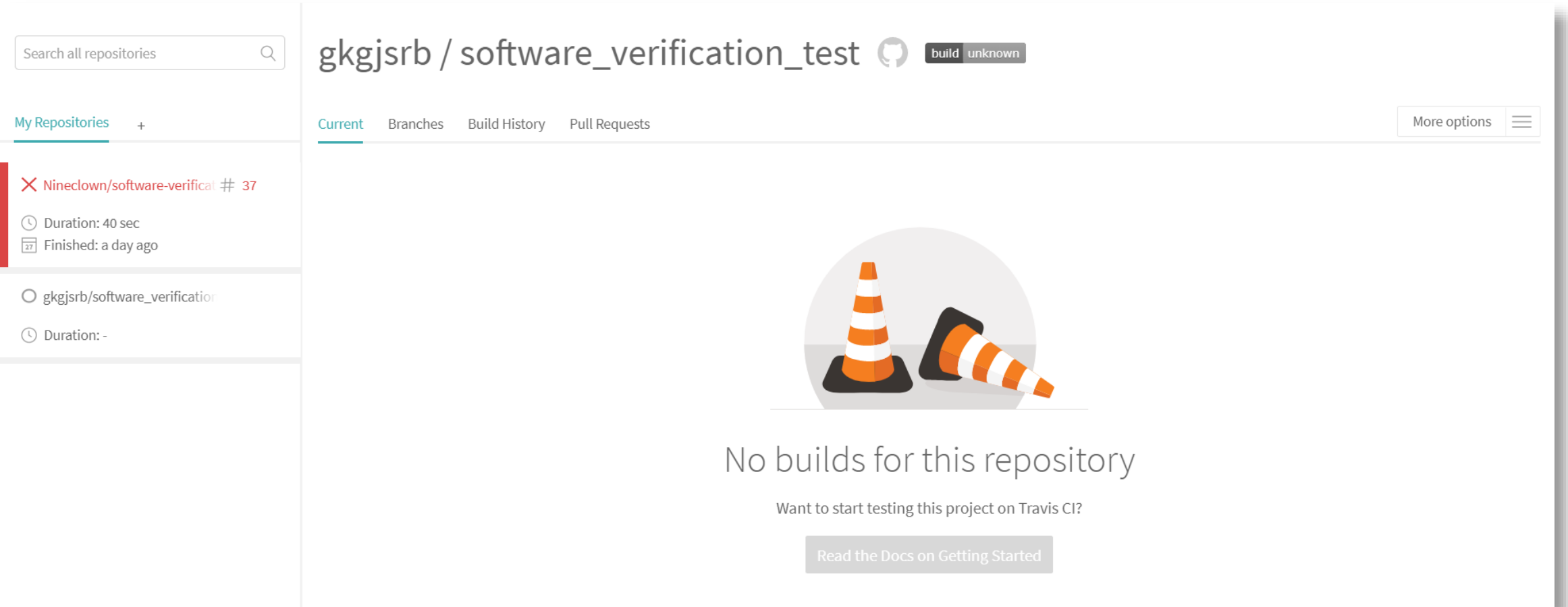
# Travis CI



# 서버를 제공해주는 Web 기반  
CI 도구

# .travis.yml을 통해 다양한 설정  
관리 가능

# Travis CI




The screenshot shows the Travis CI web interface. On the left is a sidebar with a search bar and a list of repositories. The main area displays the repository 'gkgjsrb / software\_verification\_test' with a 'build unknown' status. Below the repository name are tabs for 'Current', 'Branches', 'Build History', and 'Pull Requests'. A 'More options' menu is visible in the top right. The central content area features an illustration of two traffic cones and the message 'No builds for this repository'. Below this message is a link to 'Read the Docs on Getting Started'.

Search all repositories

My Repositories +

- ✗ Nineclown/software-verifical # 37
  - ⌚ Duration: 40 sec
  - 📅 Finished: a day ago
- gkgjsrb/software\_verification
  - ⌚ Duration: -

gkgjsrb / software\_verification\_test  build unknown

Current Branches Build History Pull Requests More options

No builds for this repository

Want to start testing this project on Travis CI?

[Read the Docs on Getting Started](#)

# Travis CI

 .travis - 메모장

파일(F) 편집(E) 서식(O) 보기(V)

```
language: java

before_install:
  - chmod +x gradlew

script : "gradle build"
```

## # 빌드 커스터마이징 가능

```
.travis.yml
language: ruby
```

```
.travis.yml
language: java
```

```
.travis.yml
os: osx
```

자세한 정보 : travis document (<https://docs.travis-ci.com/>)

# Travis CI - Build Automation



The screenshot displays the Travis CI web interface. At the top, the navigation bar includes 'Travis CI', 'About Us', 'Blog', 'Status', 'Help', and a user profile 'gkgjsrb'. A search bar is located on the left. The main content area shows the repository 'gkgjsrb / software\_verification\_test' with a 'build unknown' status. Below this, there are tabs for 'Current', 'Branches', 'Build History', and 'Pull Requests'. The 'Current' tab is active, showing a build for the 'master' branch, labeled 'first commit'. The build progress is shown as '#1 started' and 'Running for 6 sec'. A 'Cancel build' button is visible. The job log is expanded to show 'Worker information'. The footer of the interface includes 'Remove log' and 'Raw log' buttons.

# Travis CI - Build Automation



Travis CI [About Us](#) [Blog](#) [Status](#) [Help](#) gkgjsrb

Search all repositories

[My Repositories](#) +

- ✗** gkgjsrb/software\_verification # 1  
⌚ Duration: 53 sec  
📅 Finished: about a minute ago
- ✗** Nineclown/software-verificat # 37  
⌚ Duration: 40 sec  
📅 Finished: a day ago

## gkgjsrb / software\_verification\_test build unknown

[Current](#) [Branches](#) [Build History](#) [Pull Requests](#) > [Build #1](#) [Job #1.1](#) More options

**✗** master first commit -o- #1.1 failed Restart job

- o- Commit c6075df [↗](#)
- 🔗 Compare e99a0b9..c6075df [↗](#)
- 🔗 Branch master [↗](#)
- 🔄 gkgjsrb authored and committed

⌚ Ran for 53 sec  
📅 about a minute ago

[Job log](#) [View config](#)

```
1 Worker information
6 mode of '/usr/local/clang-5.0.0/bin' changed from 0777 (rwxrwxrwx) to 0775 (rwxrwxr-x)
```

Remove log Raw log worker\_info

# Travis CI - Build Automation



The screenshot displays the Travis CI web interface. At the top, the navigation bar includes 'Travis CI', 'About Us', 'Blog', 'Status', 'Help', and a user profile 'gkgjsrb'. A search bar is located on the left. The main content area shows the repository 'gkgjsrb / software\_verification\_test' with a 'build passing' status. Below this, there are tabs for 'Current', 'Branches', 'Build History', and 'Pull Requests'. The 'Current' tab is active, showing a build for the 'master' branch, 'second commit'. The build status is '#2 passed', with a duration of 58 seconds and completion 'less than a minute ago'. A 'Restart build' button is visible. Below the build summary, there are links for 'Job log' and 'View config'. At the bottom, a log viewer shows the following content:

```
1 Worker information
6 mode of '/usr/local/clang-5.0.0/bin' changed from 0777 (rwxrwxrwx) to 0775 (rwxrwxr-x)
```



# Travis CI - Build Automation



Travis CI [About Us](#) [Blog](#) [Status](#) [Help](#) gkgjsrb

Search all repositories

My Repositories +

- gkgjsrb/software\_verification # 4  
Duration: 7 sec
- Nineclown/software-verification # 37  
Duration: 40 sec  
Finished: a day ago

gkgjsrb / software\_verification\_test build passing

Current Branches Build History Pull Requests More options

tester	test1	#4 started	7 sec
jaehyun		f33d3c7	-
tester	second commit	#3 passed	47 sec
gkgjsrb		ecbd071	13 minutes ago
master	second commit	#2 passed	58 sec
gkgjsrb		ecbd071	19 minutes ago
master	first commit	#1 failed	53 sec
gkgjsrb		c6075df	24 minutes ago

# 프로젝트를 성공시키기 위해 모든 활동을 관리하는 것

# 기획, 위험(Rick)측정, 이용 가능한 자원 산정, 작업 분류체계 (WBS) 작성, 필요한 인적/물적 자원 확보, 비용 산정, 작업 할당, 진척 관리, 작업 방향성 유지, 결과 분석 등

# 프로젝트관리 - 이슈 관리란?

# 프로젝트를 진행하면서 관련된 '이슈'를 관리하는 것

※ 이슈(Issue) : 프로젝트 진행 도중 나타나는 모든 이벤트

# 이슈는 이미 발생했기 때문에 해결해야 하므로, 이슈를 목록으로 정리하고 해결할 담당자를 지정, 해결상황을 체크해야 함

# 프로젝트관리

 ZenHub

 unfuddle

 PivotalTracker

 asana

 backlog

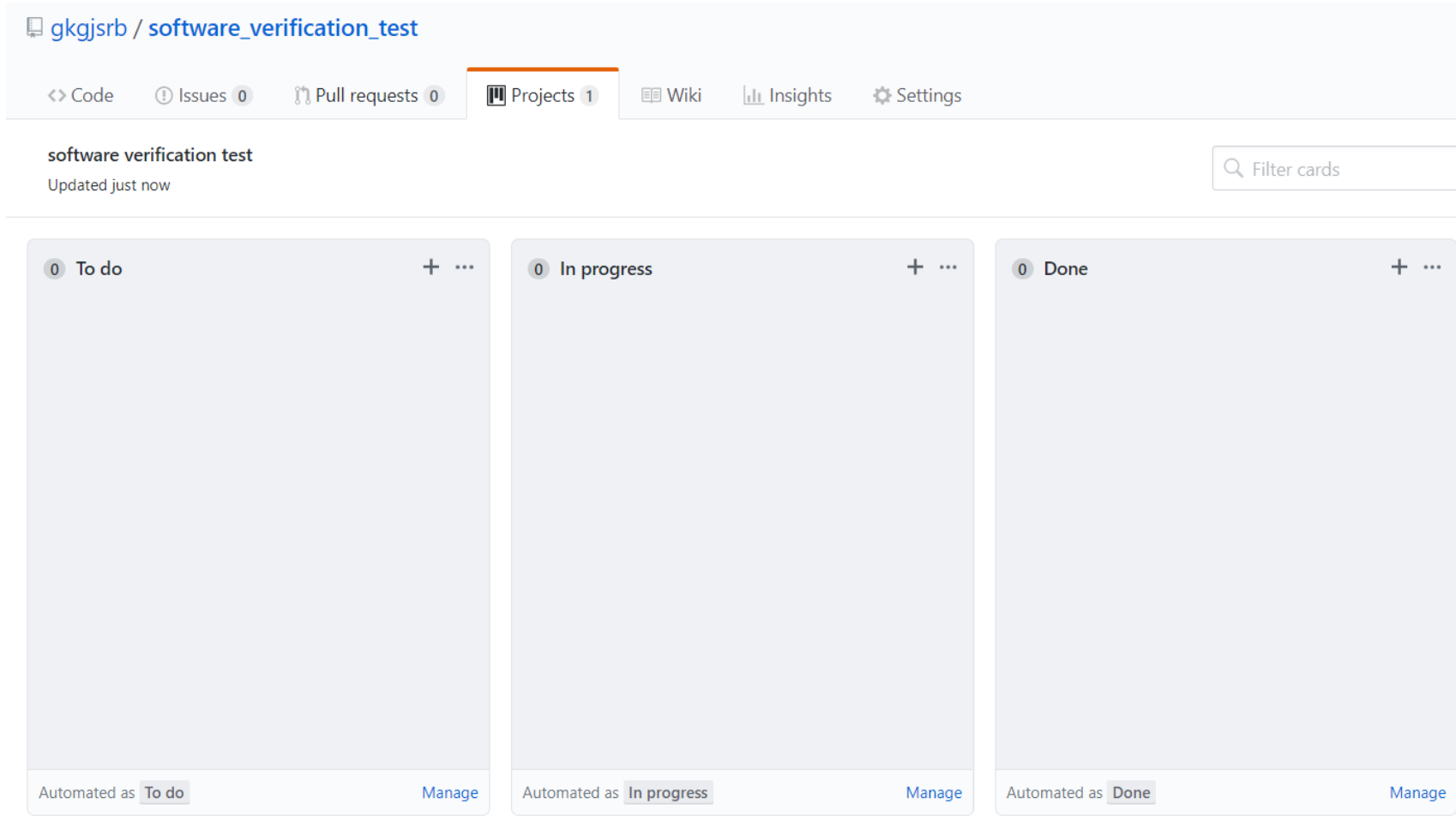
# 프로젝트관리 - Github Issue Tracker

# Github에서 제공하는 프로젝트 관리 기능

# MileStone, Label, Issue, Wiki, Analysis 등의 기능 지원

# 빌드 결과 확인 및 피드백 가능

# 프로젝트관리



The screenshot shows a GitHub project board for the repository 'gkgjsrb / software\_verification\_test'. The board is organized into three columns: 'To do', 'In progress', and 'Done'. Each column has a header with a count of items (0 for 'To do' and 'Done', 1 for 'In progress') and a '+ ...' menu icon. Below each column is a 'Manage' button. The board is currently empty of tasks.

◀ 프로젝트 생성

# 프로젝트관리

Add more commits by pushing to the **tester** branch on `gkgjsrb/software_verification_test`.




**Some checks were not successful**

1 failing and 1 pending checks

[Hide all checks](#)



 `continuous-integration/travis-ci/push` — The Travis CI build failed

[Details](#)



 `continuous-integration/travis-ci/pr` — The Travis CI build is in progress

[Details](#)



**This branch has no conflicts with the base branch**

Merging can be performed automatically.

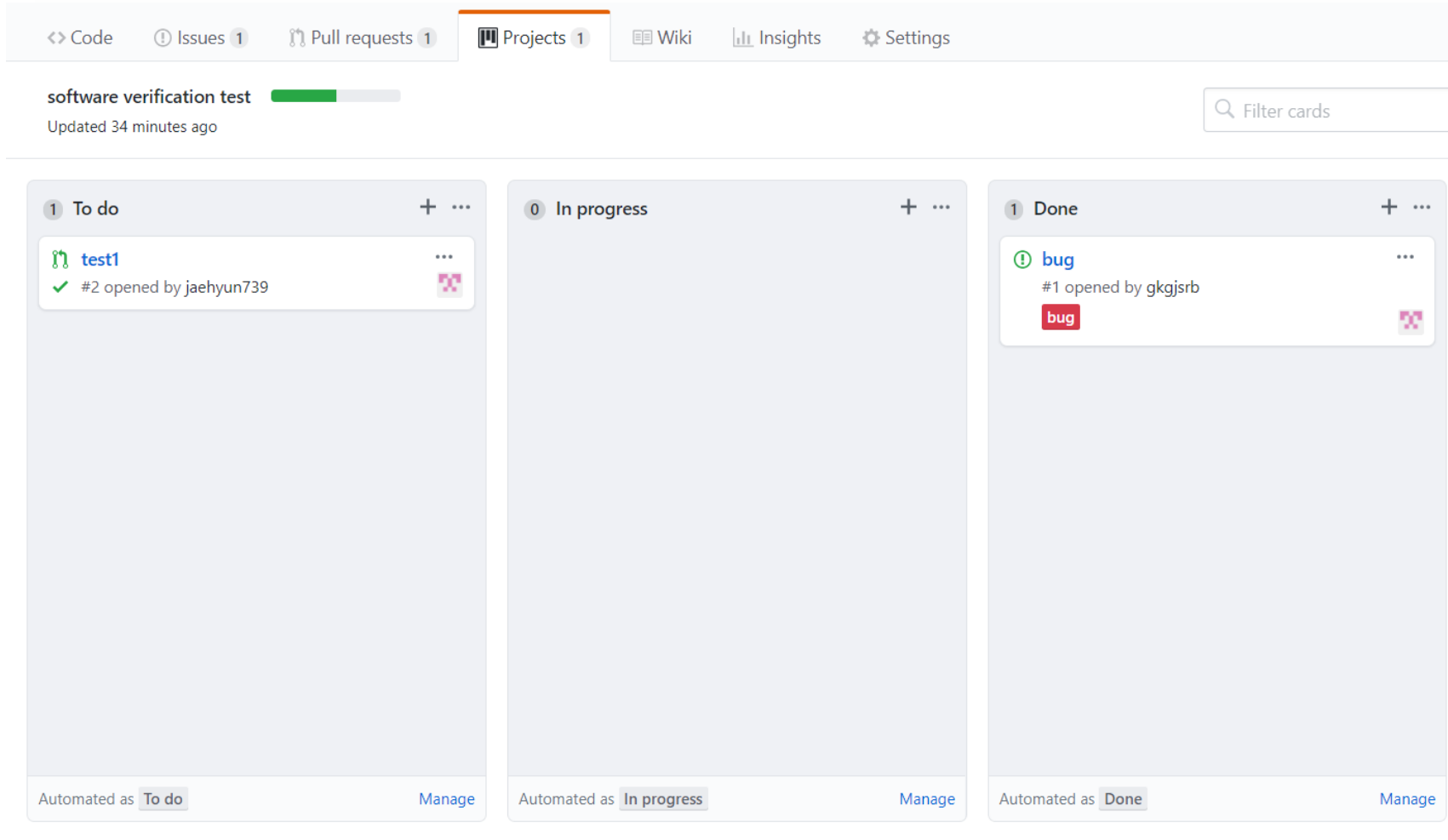
Merge pull request



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

▲ Commit & Build Automation

# 프로젝트관리



The screenshot shows a GitHub Project board for the repository 'software verification test'. The board is organized into three columns: 'To do', 'In progress', and 'Done'. The 'To do' column contains one card titled 'test1' with a green checkmark icon and the text '#2 opened by jaehyun739'. The 'In progress' column is currently empty. The 'Done' column contains one card titled 'bug' with a red exclamation mark icon and the text '#1 opened by gkgjsrb'. At the bottom of each column, there is a label 'Automated as' followed by the column name and a 'Manage' link.

◀ Project에 이슈 등록



# 프로젝트관리

Add more commits by pushing to the **tester** branch on [gkgjsrb/software\\_verification\\_test](#).



**✖ All checks have failed**  
2 failing checks

**✖** [continuous-integration/travis-ci/pr](#) — The Travis CI build failed

**✖** [continuous-integration/travis-ci/push](#) — The Travis CI build failed

**✔ This branch has no conflicts with the base branch**  
Merging can be performed automatically.

Merge pull request



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

Reviewers



Suggestions

gkgjsrb

[Request](#)

Assignees



No one—assign yourself

Labels



None yet

Projects



None yet

Milestone



No milestone

# 프로젝트관리

Add more commits by pushing to the **tester** branch on `gkgjsrb/software_verification_test`.



All checks have passed

2 successful checks



This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request



You can also [open this in GitHub Desktop](#) or view [command line](#)



gkgjsrb

Request

Assignees



jaehyun739

Labels



None yet

Projects



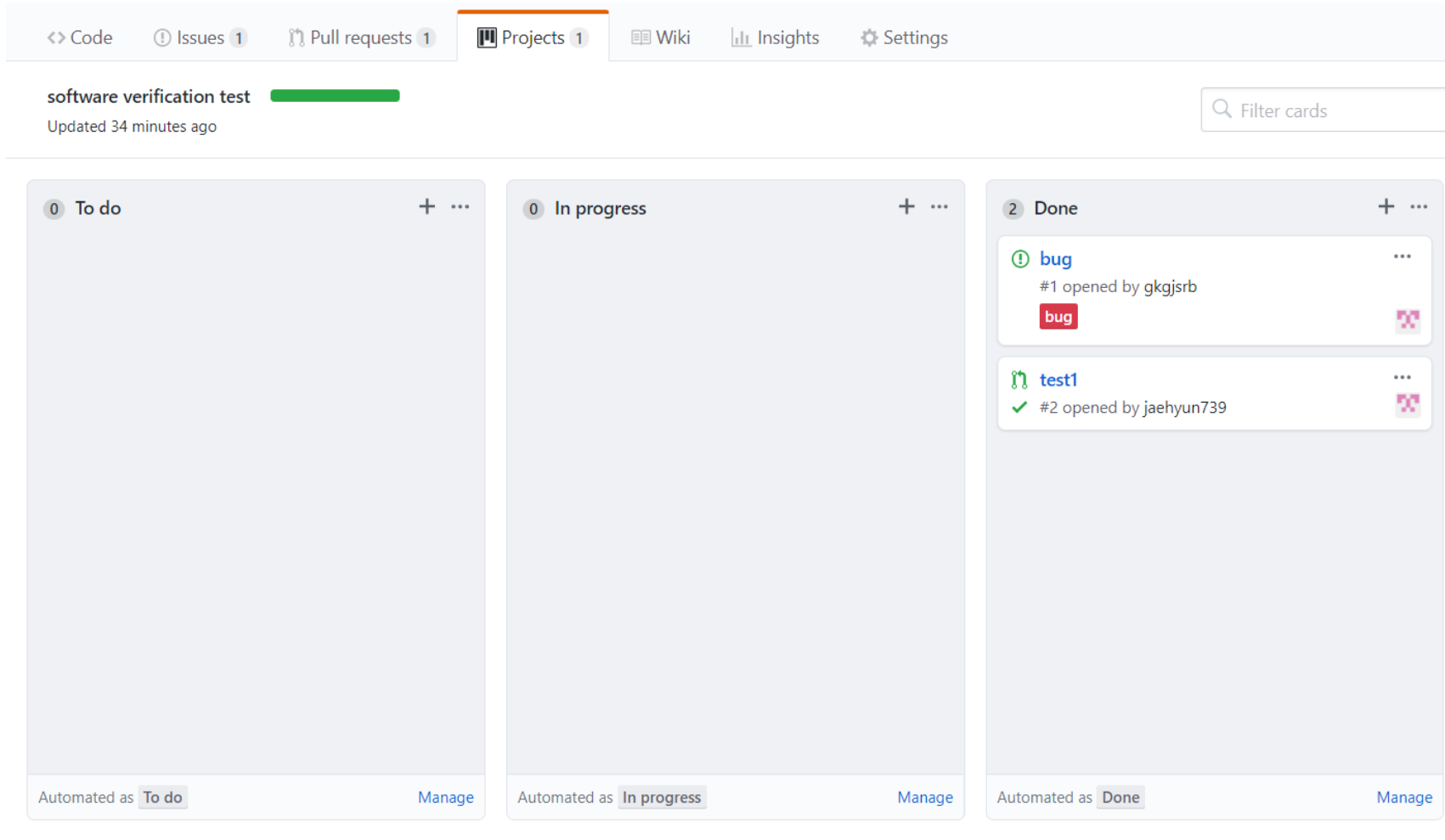
To do in software verification t...

Milestone



No milestone

# 프로젝트관리



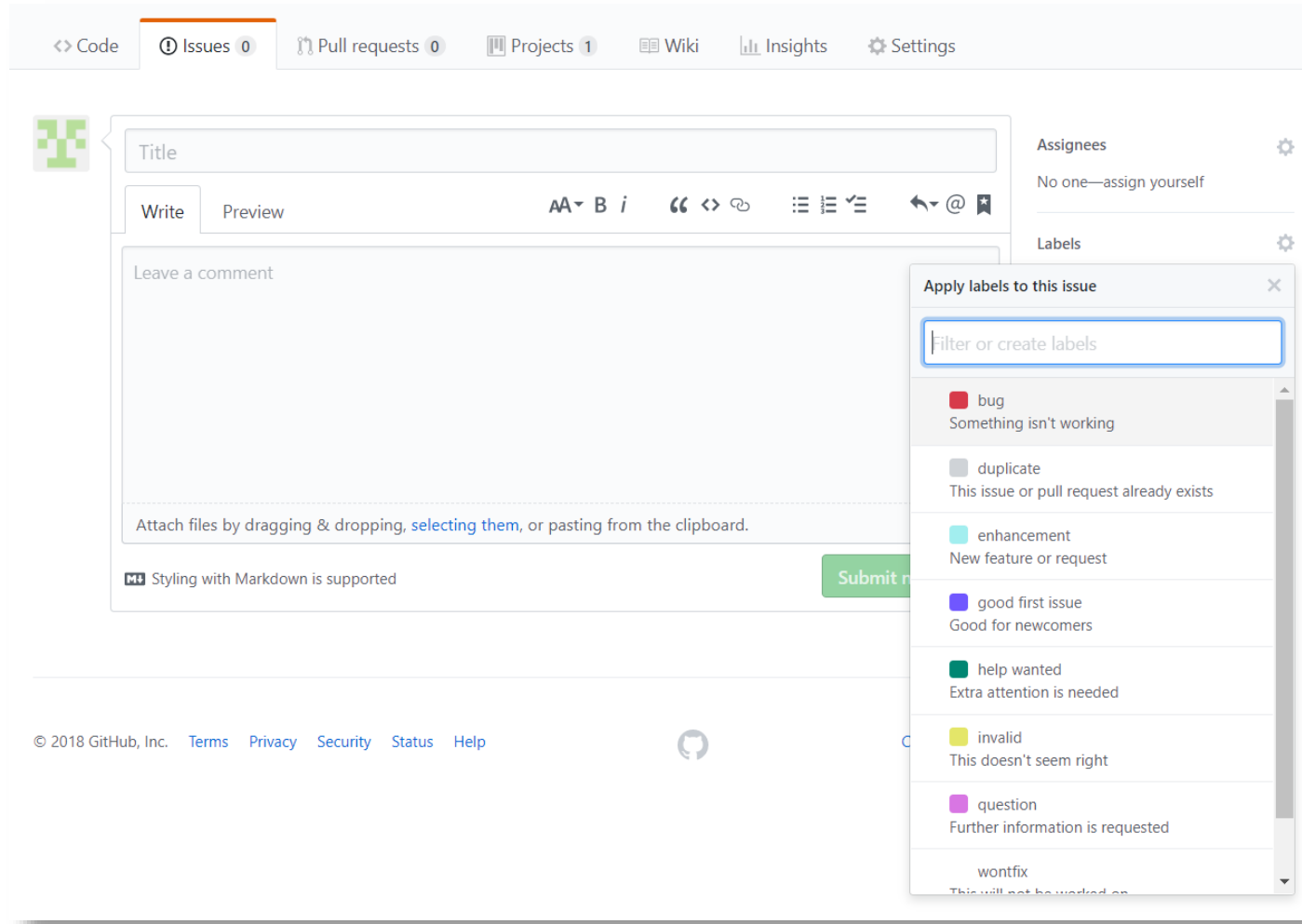
software verification test  
Updated 34 minutes ago

Filter cards

- To do** (0 items)
- In progress** (0 items)
- Done** (2 items)
  - bug #1 opened by gkgjsrb
  - test1 #2 opened by jaehyun739

◀ 이슈 해결

# 프로젝트관리



◀ 이슈 직접 등록

# 프로젝트관리

Code Issues 1 Pull requests 0 **Projects 1** Wiki Insights Settings

software verification test Updated 37 seconds ago Filter cards

1 To do + ...

bug #1 opened by gkgjsrb

bug

Automated as To do Manage

0 In progress + ...

→

Automated as In progress Manage

1 Done + ...

bug #1 opened by gkgjsrb

bug

Automated as Done Manage

0 Open ✓ 1 Closed

**bug bug**

#1 by gkgjsrb was closed 13 seconds ago

# 요구사항관리

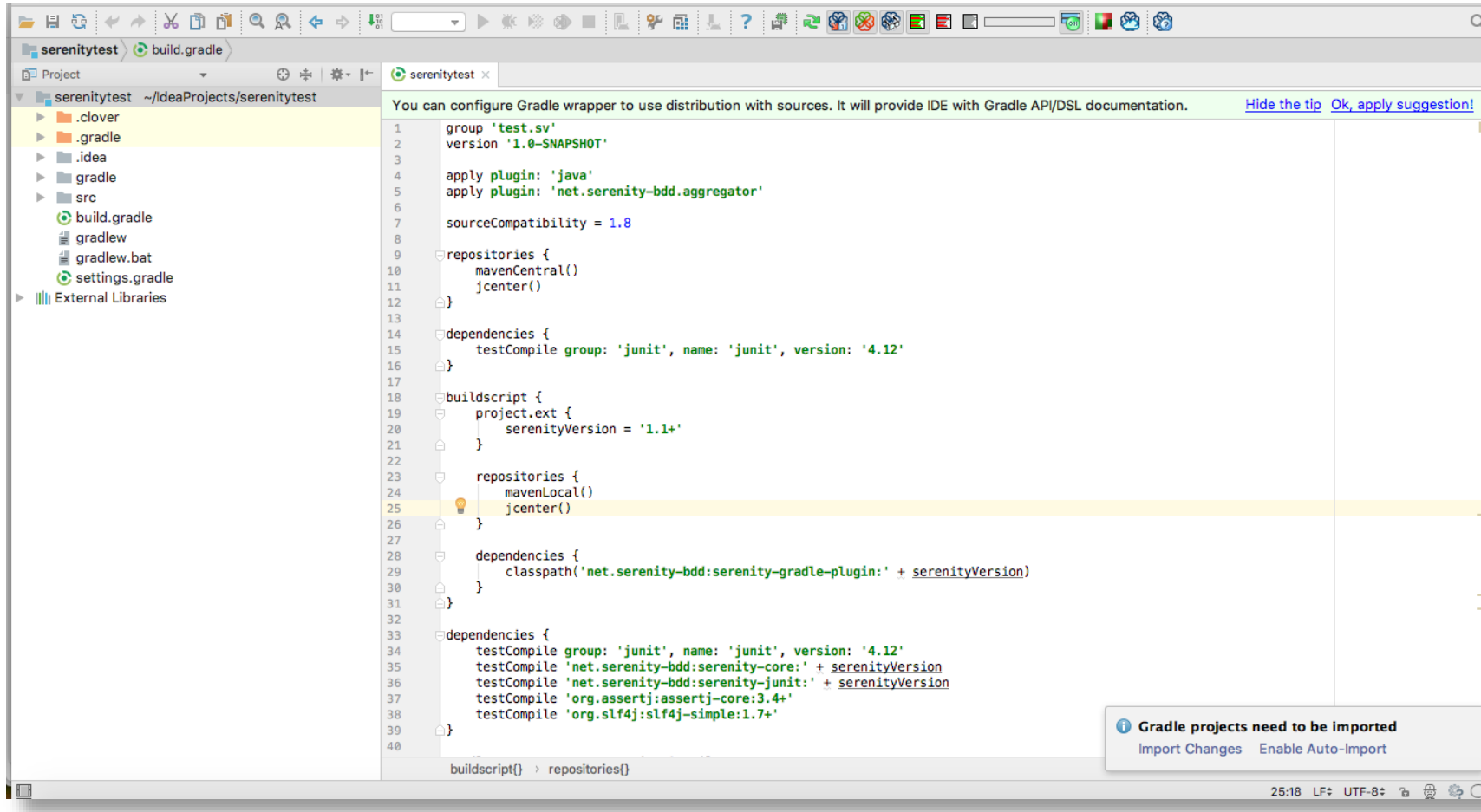
# 참여자들로부터 제시되는 요구에 대해 요구사항 집합을 추출  
/분석한 뒤 문서화하고 검증하는 활동

# Serenity BDD

# 시나리오 기반 테스트 가능

# Unit Test와 Requirement 간의 맵핑 가능

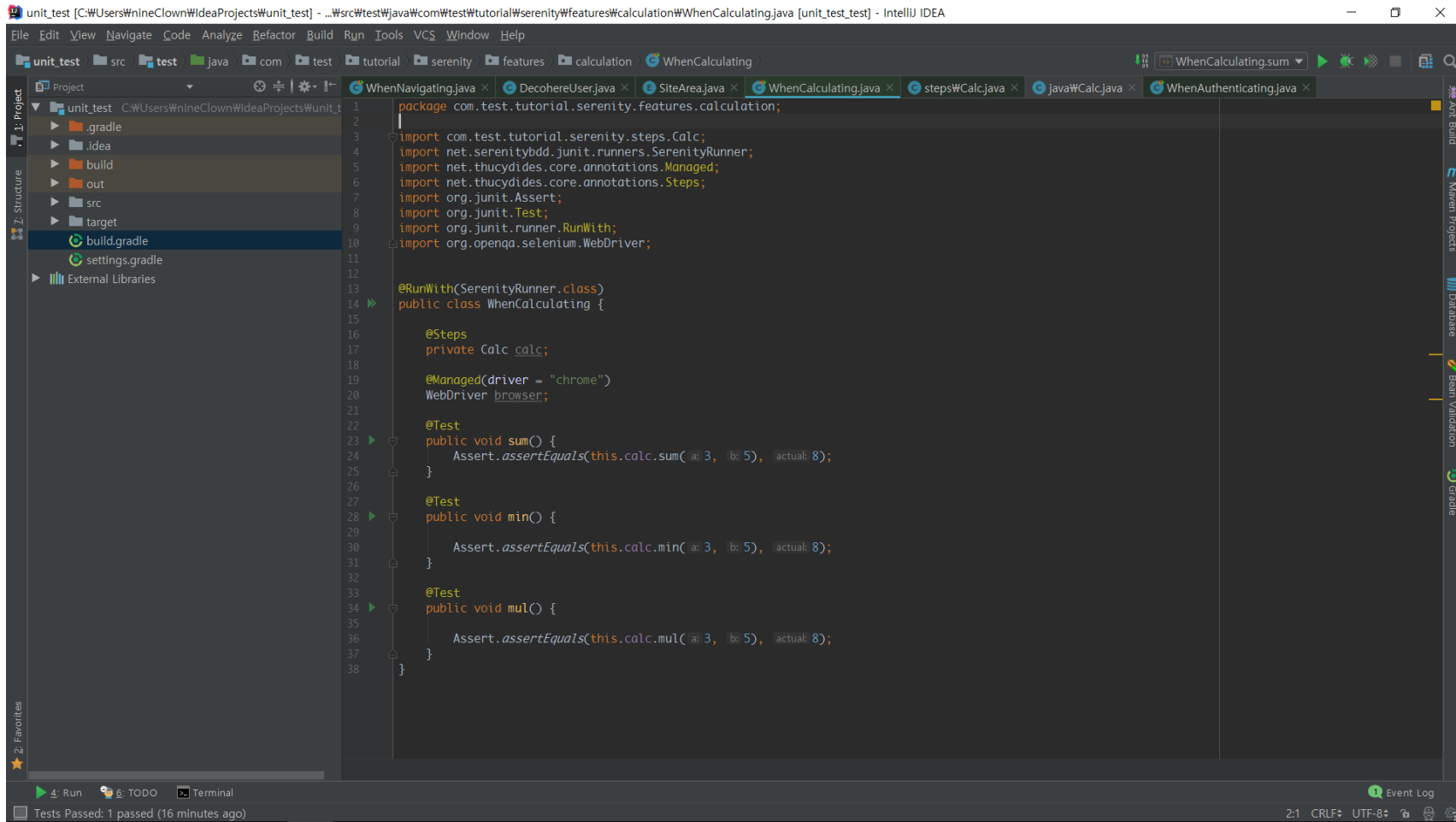
# Serenity BDD



◀ 플러그인 설치 화면



# Serenity BDD



```
package com.test.tutorial.serenity.features.calculation;

import com.test.tutorial.serenity.steps.Calc;
import net.serenitybdd.junit.runners.SerenityRunner;
import net.thucydides.core.annotations.Managed;
import net.thucydides.core.annotations.Steps;
import org.junit.Assert;
import org.junit.Test;
import org.junit.runner.RunWith;
import org.openqa.selenium.WebDriver;

@RunWith(SerenityRunner.class)
public class WhenCalculating {

    @Steps
    private Calc calc;

    @Managed(driver = "chrome")
    WebDriver browser;

    @Test
    public void sum() {
        Assert.assertEquals(this.calc.sum(a: 3, b: 5), actual: 8);
    }

    @Test
    public void min() {
        Assert.assertEquals(this.calc.min(a: 3, b: 5), actual: 8);
    }

    @Test
    public void mul() {
        Assert.assertEquals(this.calc.mul(a: 3, b: 5), actual: 8);
    }
}
```

◀ Test Code 작성

# Serenity BDD

## Story: com.test.tutorial.serenity.steps.Calc Test

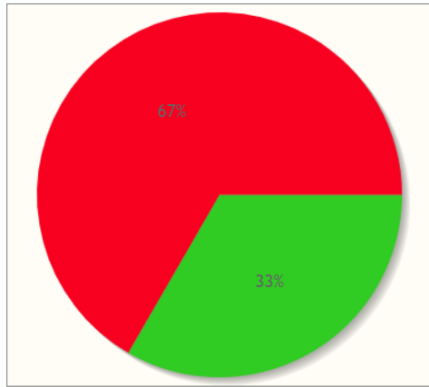
### 3 test scenarios

1 passed , 0 pending , 2 failed , 0 errors , 0 compromised , 0 ignored , 0 skipped [CSV]

Test Count | Weighted Tests

Total number of tests that pass, fail, or are pending.

Show/Hide Pie Chart



■ Passing 
 ■ Pending 
 ■ Ignored  
■ Failing 
 ■ Errors 
 ■ Compromised

### Test Result Summary

Test Type	Total	Pass	Fail	Pending	Ignored
Automated	3	1 (33%)	2 (67%)	0 (0%)	0 (0%)
Manual	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>3</b>	<b>1 (33%)</b>	<b>2 (67%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>
<b>Total Duration</b>	<b>0 seconds</b>				

### Related Tags

com.test.tutorial.serenity.steps.Calc Test

Min

### Related Tags

% Passed

Test count

#### Stories

com.test.tutorial.serenity.steps.Calc Test	33.3%	<div style="width: 33.3%; height: 10px; background-color: green;"></div>	3
When Authenticating	0%	<div style="width: 0%; height: 10px; background-color: orange;"></div>	1
When Navigating	0%	<div style="width: 0%; height: 10px; background-color: orange;"></div>	1

### Tests

Show 100 entries

Tests

- Min
- Mul
- Sum

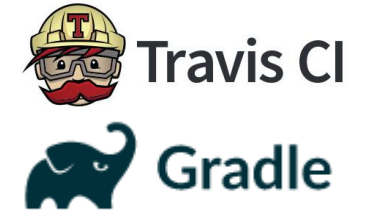
Showing 1 to 3 of 3 entries

### Steps

Outcome Duration

	An error occurred outside of step execution. expected:(-2) but was:(8) <a href="#">View stack trace</a>	FAILURE	0.17s
		FAILURE	0.17s

# 정리



감사합니다 :)