

---

# **GITMATE FOR COALA**

---

# Student Info

**Name:** Sanchit Gupta

**GitHub Username:** pilgrim2308

**Email:** [sanchitgupta.072@gmail.com](mailto:sanchitgupta.072@gmail.com)

**Country I'll reside in during the project:** India

**City:** New Delhi

**Time Zone:** IST (UTC+5:30)

# Past Contributions

## coala

- **Pull requests to coala:** <https://github.com/coala/coala/pulls/pilgrim2308>
- **Merge requests to IGitt:**  
[https://gitlab.com/coala/gitmate/IGitt/-/merge\\_requests?scope=all&utf8=%E2%9C%93&state=all&author\\_username=pilgrim2308](https://gitlab.com/coala/gitmate/IGitt/-/merge_requests?scope=all&utf8=%E2%9C%93&state=all&author_username=pilgrim2308)
- **Merge requests to gitmate:**  
[https://gitlab.com/coala/gitmate/gitmate-2/-/merge\\_requests?scope=all&utf8=%E2%9C%93&state=all&author\\_username=pilgrim2308](https://gitlab.com/coala/gitmate/gitmate-2/-/merge_requests?scope=all&utf8=%E2%9C%93&state=all&author_username=pilgrim2308)
- **Other contributions:**  
<https://github.com/coala/coala/pulls?q=commenter%3Apilgrim2308+-author%3Apilgrim2308+>

## Zulip

- **Pull requests to Zulip:** <https://github.com/zulip/zulip/pulls/pilgrim2308>
- **Issues opened in Zulip:**  
[https://github.com/zulip/zulip/issues/created\\_by/pilgrim2308](https://github.com/zulip/zulip/issues/created_by/pilgrim2308)

# Project Info

## Which project from <http://projects.coala.io> are you applying for?

I'm applying for the [Gitmate for coala](#) project.

## How is your project helping coala and its community?

My project is helping the coala community as follows:

1. **Gitmate** was an essential tool for the coala community. It managed the entire git workflow of all coala repositories on various platforms and helped get newcomers acquainted with the community. It has not been actively maintained, so as of now, it's not being used by the community. My project aims to:
  - a. **bring it back to use**, which will immensely ease the community's GitHub and GitLab operations. I will also help in **setting up CI** for the new hosting infrastructure.
  - b. introduce **changes to multiple plugins** related to the Pull Request process, which will provide a more streamlined and intuitive experience.
  - c. add **support for the latest Python versions** by upgrading dependencies and API versions.
  - d. improve multiple sections of **documentation**, which will make Gitmate easier to use and **more welcoming for newcomers**.
  - e. make multiple improvements to the Gitmate frontend, including **various UI changes** and upgradation to the **latest Angular** and dependency versions.
2. **IGitt** is the package powering the git workflow of Gitmate. I would like to make the following changes:
  - a. Add **support for the latest Python versions** by upgrading dependencies
  - b. **Upgrade API versions** of GitHub, Gitlab, and Jira
  - c. **Improve documentation** - fix broken links, improve sections on how to set up and use, add a section demonstrating how IGitt is structured
  - d. Make necessary **changes in CI setup** to accommodate improvements
  - e. **Publish coala-IGitt**

## What is the final goal for this project? What would make it a total and perfect success?

The final goal of my project is:

1. To **bring Gitmate back into active use** for the coala community
2. **Add features** to improve Gitmate
3. Update the **documentation, dependencies,** and **tests** of IGitt and Gitmate
4. Update Gitmate frontend and **improve user experience**

If the community members can derive use from Gitmate and integrate it into their git operations in coala, that would make my project a total and perfect success.

## Are you already engaged with the project's possible mentors, and do you have any preference for a particular mentor?

Yes, I'm already in touch with the project's mentors, and since I have discussed the project in-depth with Abhinav ([@abhishalya](#)), I would like to have him as my mentor.

## What parts of coala do you have to work with in order to complete this project? What else are you planning on using?

I will be working on the gitmate-2, gitmate-2-frontend, and IGitt repositories of coala. I will use the Django and the Angular frameworks. I'll need to use the GitHub, GitLab, and Jira APIs. I will also need to use docker and a DigitalOcean droplet to deploy and host Gitmate.

## Why are you the right person to work on this project?

I'm well familiar with the Gitmate and IGitt codebase. I'm also **proficient in JavaScript and Python**, having contributed to open-source projects previously, and worked on industry projects as well as personal projects. I've **made several contributions to various coala projects** and know how to work with the community. Also, I have acquired **a deep understanding of the project** which places me in a better position than most to successfully complete this project. Lastly, I'd like to state that I'm fascinated by the open-source community and it has played an instrumental role in helping develop my skills. This project will be my small way of giving back.

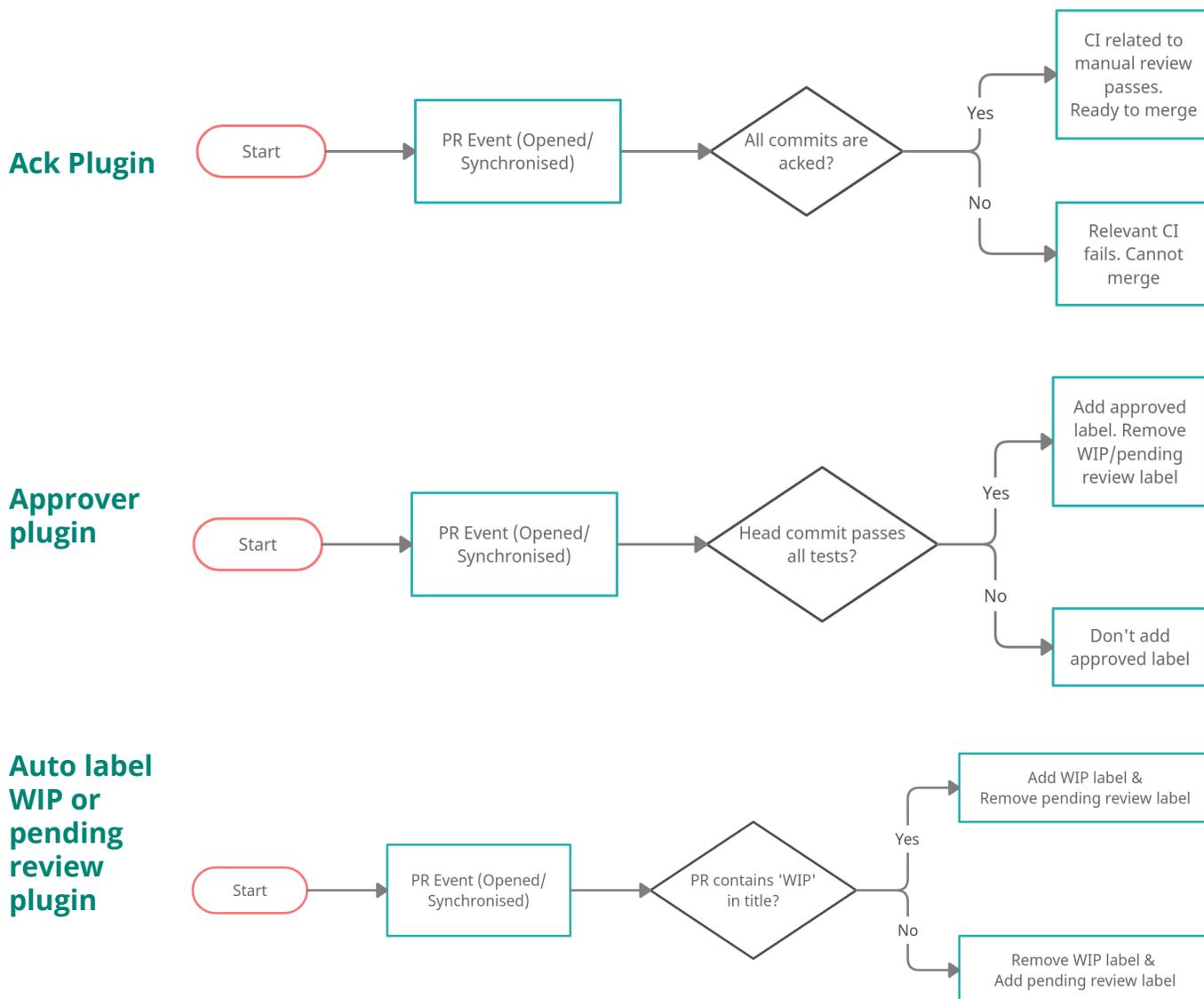
## How do you plan to achieve the completion of your project?

The first coding phase will focus on **improving IGitt** and **setting up Gitmate** for the coala community. The second phase will involve improving Gitmate and **making changes to plugins**.

I also plan to utilise the last four weeks to improve Gitmate and **solve issues** either already listed [here](#) or those that may arise after setting up Gitmate for use by the community.

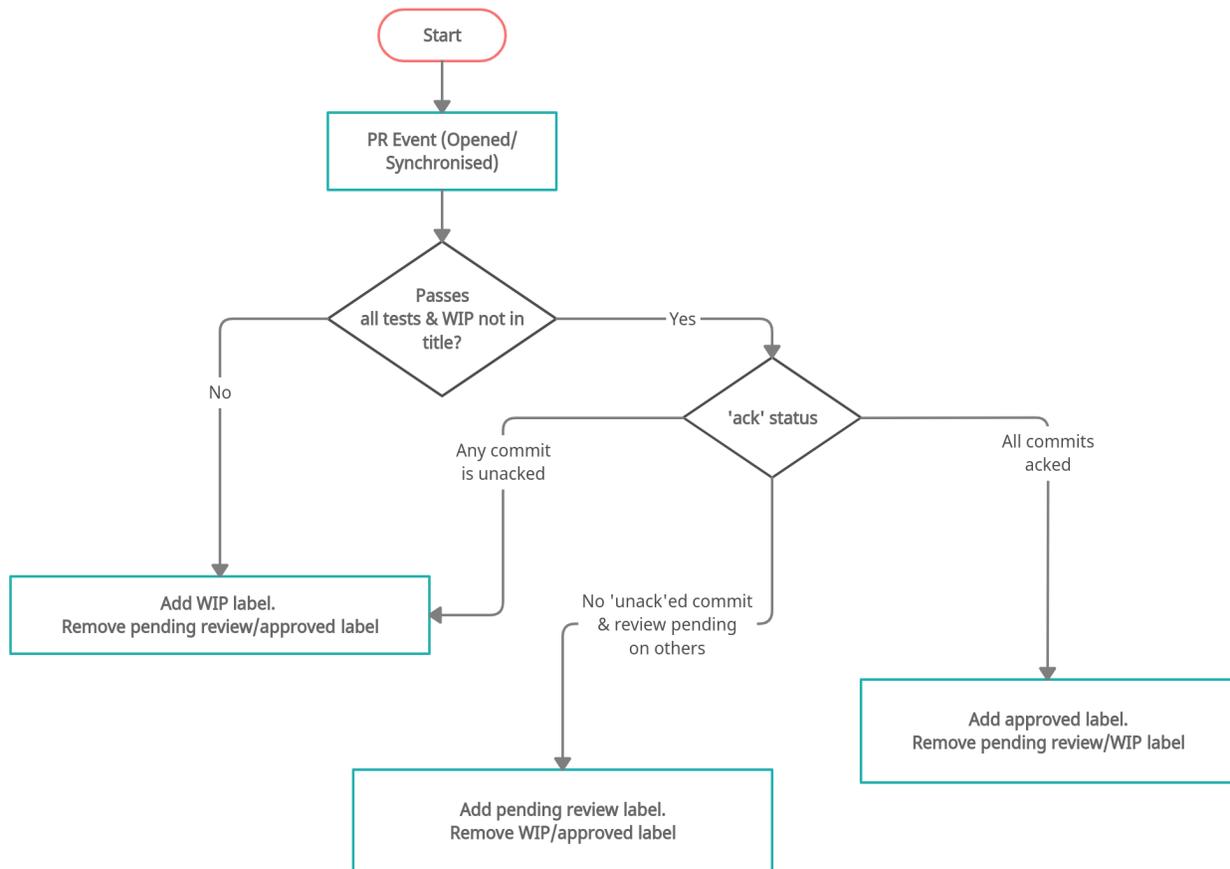
I plan to **merge the 'ack', 'approver', and 'auto label pending or wip' labels** ([#242](#)) and refine the way Gitmate works on Pull Request events such as rebase, fast-forward, or merge. Also refer to [#376](#), [#375](#), [#243](#), [#144](#).

Currently, the plugins function as follows:



We can merge these three plugins into a single 'review' plugin. It will apply one of the following three labels, by default:

- **Approved** - This label will be applied when all commits of Pull Request pass CI tests and are acknowledged.
- **Work in progress** - This label will be applied when either
  - At Least one commit has been 'unack'ed.
  - Title contains WIP
  - At Least one commit does not pass tests.
- **Pending review** - This label will be applied when no commit has been 'unack'ed and review is pending on at least one commit.



The models for the review plugin will be similar to this:

```
class Settings(SettingsBase):
    wip_label = models.CharField(
        max_length=25,
        default='status/WIP',
        help_text='Label for pull requests that are work in progress')
    pending_review_label = models.CharField(
        max_length=25,
        default='status/pending_review',
        help_text='Label for pull requests that need review')
    approved_label = models.CharField(
        max_length=25,
        default='status/approved',
        help_text='Label for pull requests that have been approved')
    ack_strs = models.TextField(
        default='ack, reack',
        help_text='Keywords for acknowledging commits, comma separated')
    unack_strs = models.TextField(
        default='unack',
        help_text='Keywords for unacknowledging commits, comma separated')
```

```
class MergeRequestModel(models.Model):
    repo = models.ForeignKey(
        Repository, on_delete=models.CASCADE, related_name='review_mr')
    number = models.IntegerField()
    acks = psql_fields.JSONField(default=dict)
    head_sha = models.CharField(max_length=40, default='')

    @property
    def ack_state(self):
        state = CommitStatus(
            Status.SUCCESS, 'This PR is reviewed. :)',
            'review/gitmate/manual/pr', 'https://gitmate.io')
        for acked in dict(self.acks).values():
            if acked['status'] in [Status.FAILED.value,
                                   Status.ERROR.value,
                                   Status.CANCELED.value]:
                return CommitStatus(
                    Status.FAILED, 'This PR needs work. :((',
                    'review/gitmate/manual/pr', 'https://gitmate.io')
            if acked['status'] == Status.PENDING.value:
                state = CommitStatus(
                    Status.PENDING, 'This PR needs review.',
                    'review/gitmate/manual/pr', 'https://gitmate.io')

        return state

    @property
    def igitt_pr(self):
        return self.repo.igitt_repo.get_mr(self.number)
```

I also plan to make changes to the rebaser plugin to ensure the proper labels are applied when rebase, fastforward, or merge is performed.

- **Rebase**
  - If rebase fails, apply WIP label and remove pending review/approved label
  - If rebase succeeds, the review plugin runs again and adds the appropriate label
- **Fastforward/merge**
  - Ensure approved label is applied before the action is performed
  - If action fails, apply WIP label and remove approved label

```
def verify_appropriate_label(cmd: str,
                             pr: MergeRequest,
                             wip_label: str = 'status/WIP',
                             pending_review_label: str = 'status/pending_review',
                             approved_label: str = 'status/approved'):
    if(cmd == 'rebase'):
        return True
    labels = pr.labels
    if not approved_label in labels:
        return False
```

```
def handle_command_fail(pr: MergeRequest,
                        wip_label: str = 'status/WIP',
                        pending_review_label: str = 'status/pending_review',
                        approved_label: str = 'status/approved'):
    labels = pr.labels
    if not wip_label in labels:
        if pending_review_label in labels:
            labels.discard(pending_review_label)
        else:
            labels.discard(approved_label)
    labels.add(wip_label)
```

The following section contains the exact timeline.

# Milestones

## Community Bonding Period (May 17 - June 6)

- Interact with mentors and get doubts cleared
- Create a coala Enhancement Proposal (cEP) and get it merged
- Start a blog to document each milestone
- Discuss and finalise the changes to pull request related plugins
- Discuss possible addition of new plugins/features to Gitmate and required upstream changes to IGitt

## Coding Phase 1 (June 6 - July 11)

### Weeks 1-2 (June 7 - June 20)

- Upgrade IGitt to **Jira API version 3**
- [#146](#): **Add docstrings** to IGitt code to increase code readability
- **Improve IGitt documentation**
  - Make changes caused as a consequence of migrating IGitt from Gitmate to coala. For example, old links, organisation details, license, etc.
  - Comment in more detail on how to use and set up for developers.
  - Add a section on how the IGitt codebase is structured.
  - Write examples on how to use notifications, reactions, etc.
- **Upgrade IGitt to the latest versions of dependencies**
  - Add support for latest versions of python
  - Upgrade packages in requirements.txt, test-requirements.txt, as well as Sphinx etc. to support the latest versions of python
  - Find viable alternatives in the rare case that a package does not support the latest versions
- **Make requisite changes in CI setup**
  - Add cron jobs for all supported python versions, that is, 3.6, 3.7, 3.8, and 3.9
- **Publish coala-IGitt**

## Week 3 (June 21 - June 27)

- **Migrate Gitmate hosting and domain**
- **Set up CI/CD for Gitmate**
  - Use Docker and a DigitalOcean droplet for continuous deployment
  - Add cron jobs for all supported python versions, that is, 3.6, 3.7, 3.8, and 3.9
- **Activate Gitmate** for the coala community
  - Ensure frontend connection to backend is working

## Weeks 4-5 (June 28 - July 11)

- **Upgrade Gitmate to the latest versions of dependencies**
  - Add support for latest versions of python
  - Upgrade packages in requirements.txt, test-requirements.txt, as well as Sphinx etc. to support the latest versions of python
  - Find viable alternatives in the rare case that a package does not support the latest versions
- **Add docstrings to Gitmate code wherever missing**

## Coding Phase 2 (July 19 - July 25)

### Week 6-7 (July 19 - August 1)

- **Make improvements to various parts of the frontend**
  - Upgrade angular and dependencies
  - Revamp landing page
  - Copy plugin settings shows 'suggested password'
  - Make spinner go away after activating gitmate on a repository
  - Slide toggles buggy on several occasions - replace with a better alternative
  - [#104](#) - Fix alignment of toggles for suboptions
  - Allow user to go to '/repo/n' by click on repository card
  - [#83](#) - Add repository name in title
  - [#81](#) - Use material chips in text areas
  - [#66](#) - Make 'copy plugin' bar longer
  - Improve design of repository cards

- **Improve documentation**
  - Improve developers section - Fix broken links, improve part about setting environment variables
  - Complete FAQ.md
  - Add a section on how the Gitmate codebase is structured.

## Weeks 8 (August 1 - August 8)

- Conceptualise and write **models** of combined 'review' plugin
- Write **responder functions**
- Write **tests**

## Weeks 9-10 (August 9 - August 22)

- **Improve event handling** of rebase, fastforward, and merge.
- **Update documentation**
- Update gitmate-2-frontend repository to accommodate changes from the new plugin
- File/solve issues and bugs after feedback from the coala community.

## Stretch goals/ Post GSoC

- Continue fixing bugs and solving issues
- Begin work on possible new features
  - **Request Information Plugin** - Gitmate comments on pull requests or issues with either a default title or whose description is left blank.
  - A **welcome message plugin** exclusively for a first-timer opening pull request/filing an issue; we can modify the current welcome plugin for this.
  - **Reminder Plugin** - Lets users ask gitmate-bot to remind them after a specific period/on a certain date. Gitmate-bot will tag that user in that issue/PR on the due date.
  - A plugin to assign labels to issues based on the status of the PRs linked to it
  - **Automatic Issue Labeller Plugin** - We can train a Machine Learning model which shall iterate by receiving feedback given by users after it applies the labels it finds appropriate. We can modify the existing issue labeller plugin for this.

## Other Commitments

### Do you have any other commitments during the GSoC period?

My next college semester is scheduled to commence in the last week of July. Hence, I will be able to work approximately 25-30 hours/week in the last few weeks. I don't plan to take up any other internships or projects during the GSoC period, and my entire focus will be on completing my project. Also, currently, there are no other short term commitments.

### Have you applied to any other organizations?

No.

## Extra Information

### University Info

**University Name:** Indian Institute of Technology (Banaras Hindu University), Varanasi

**Major:** Computer Science and Engineering

**Current Year:** 2nd year

**Expected Graduation Date:** May 2023

**Degree:** B.Tech

### Other Contact Info

Alternate email: sanchit.gupta.cse19@itbhu.ac.in

### Will you be able to join us for a conference such as EuroPython or GUADEC and present your work if at least partial sponsorship will be provided?

Yes, I would love to have the opportunity to attend a workshop and showcase my work.

**Twitter:** @sanchit23082000