Google Summer of Code 2019
Submitty

**Improving and adding new features to
Discussion Forum**

BASIC INFORMATION:

1. Personal Information
- Name   Drumil Patel
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- Phone No.   +91-6351173421
- Location   India 🇮🇳
- Time Zone   India (UTC +5:30)
- Slack   Drumil Patel
- Linkedin   Drumil Patel

2. University Information
- University: Indian Institute of Technology, Roorkee
- Majors: Electrical Engineering
- Current: I Year (expect graduation in 2022)
- Degree: Bachelor of Technology (4 Year Program)

3. Contact and Working hours
- Reachable anytime through **email, slack** or **contact number**.
- Typical working hours include:-
    i.   UTC 0430 - 0730 hrs (IST 1000 - 1300 hrs)
    ii.   UTC 0930 - 1230 hrs (IST 1500 - 1800 hrs)
    iii.   UTC 1530 - 2030 hrs (IST 2100 - 0200 hrs)

CODING SKILLS:

Programming Languages

- Sound Knowledge of OOPs and MVC Architecture
- Moderate knowledge in **Python, C++,** and **JAVA**
- Proficient in **HTML/CSS, Javascript, PHP**
- Databases - **MySQL, PostgreSQL**

Hardware Specifications

- HP Pavilion 15 - cc129tx
- Intel® Core™ i5-8250U
- 8GB DDR4 RAM
- NVIDIA® GeForce® 940MX

Development Environment

- Ubuntu 18.04 or Windows 10
- **PHPStorm** for development in PHP
- **PyCharm** for development in Python
- **DataGrip** for development in PostgreSQL
- **Git** for version control

ABOUT ME:

I am an 18-year-old freshman, currently enrolled in electrical engineering at IIT Roorkee, I developed a passion for programming, web development in my first semester and from than most of my time goes into reading about new technologies and developing software. I have been contributing to open source regularly since about three-four months now.

I have an experience of working closely with a team as I am an active member of **Information Management Group** at IIT Roorkee, a bunch of passionate enthusiasts who manage the **institute main website**, internet and intranet activities of the institute.

My projects:

- A-farmer-s-help:-
  - An android application which helps a farmer to buy adequate quantities of fertilizers for a crop plantation and the required soil concentration.
  - It uses firebase to send data to fertilizer wholesaler

Open Source Contributions:

- **Submitty**

  Pull request
  - **#3538(Open)**   [BUGFIX] Highlighting checkbox label on focus
  - **#3529(Open)**   Resubmit "[VPAT] html tables are commented and data tables are given th…
  - **#3520(Open)**   [Bugfix] Trimming unwanted spaces in blank input
  - **#3498(Open)**   [BUGFIX] Fix size of textarea when editing the post
  - **#3495(Open)**   [BUGFIX] Fix missing link in notifications when the post is deleted
  - **#3493(Open)**   Add shortcut(KeyD) for discussion panel in grading portal
  - **#3491(Open)**   Enhancing discussion gradeable portal
  - **#3485(Open)**   Request not submitted in regrade request
  - **#3483(Open)**   Fix CSS of button for regrade request
  - **#3481(Merged)** Removing extra space in grading discussion portal
  - **#3478(Merged)** Apply trim to frontend and backend in Authentication
  - **#3463(Open)**   [Bugfix]Aligning select color tag in 'Edit categories'
  - **#3454(Open)**   Enhancing new gradeable
  - **#3444(Open)**   [FEATURE]TA/Instructor can lock Thread
  - **#3381(Merged)** Add stoplight legends to grade details page

- [#3358(Merged)](#) Error Handling on Login Page
- [#3336(Merged)](#) Customizable theme using layout tables
- [#3328(Merged)](#) Radio button grouping
- [#3322(Merged)](#) Contrast Error in Global footer view
- [#3321(Merged)](#) Remove rebundant link in the sidebar
- [#3296(Merged)](#) Change contrast and remove inline CSS in the navigation button

Issues
- [#3539](#)   Tab navigation not working properly
- [#3519](#)   No Validation for blank input
- [#3484](#)   Wrong command in regrade request
- [#3482](#)   Improper behavior when regrade request is resized
- [#3477](#)   Authentication failing due to unwanted whitespaces
- [#3461](#)   Misalignment on editing categories
- [#3410](#)   Small textarea for editing in the Discussion forum
- [#3380](#)   Sidebar links tooltip CSS overridden on new gradeable page
- [#3366](#)   Wrong command for database
- [#3353](#)   Redirection not handled properly on the login page
- [#3293](#)   Improving form validation in New Gradeable

PROJECT IDEA:

Title: Improving and adding new features to the discussion forum

Introduction

The discussion forum is one of the major features of Submitty. It helps the user to post a new thread and communicate to the community. This help student to solve different queries, notes sharing and answer the question. This also helps the instructor and TAs to post a new announcement and answer student asked question.

Present Discussion forum only supports general threads which are visible to every member of the community. Some additions to the forum could be: -
- Instructor Forum's
- Direct Messages
- Team Chats
- Automate refresh for a new post
- Tag a direct message as grade inquiry

Project Impact

Instructor Forum:-
Discussion forum messages are visible to all community. Instructor forum will provide a platform where TAs/instructor can restrict threads to themselves . This will help to them to discuss test papers, exam schedules, problem statements ,etc.

Direct messages:-
Direct messages will help student , TAs and instructor to communicate on one to one basis . This will help student to solve doubts personally, chat with another students.

Automate refresh for new post:-
Present discussion forum contains manual refresh. After implementation it will result into automated addition of chat when new post comes
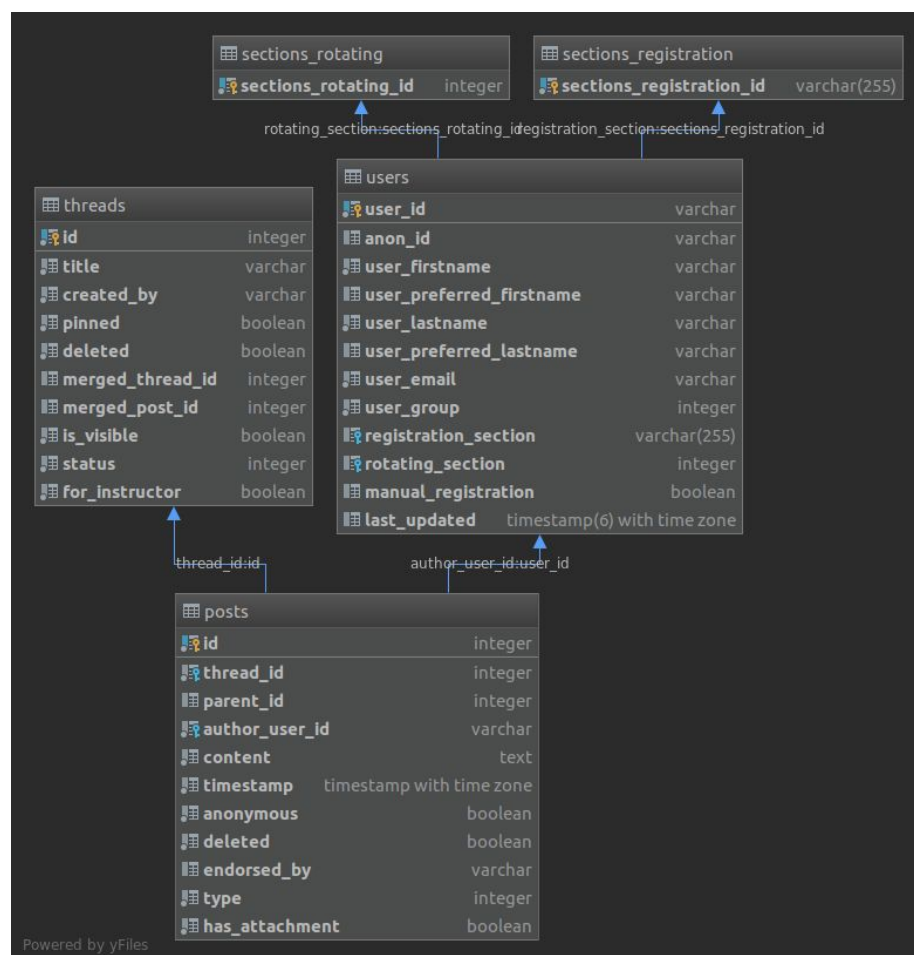
Team Chats:-

Team chat will provide a platform where team can communicate with themselves. This will help them to discuss about project, assignment and meet timing and place.

Proposed Workflow

Phase 1:-

1.1 Add for_instructor column to threads

➔ Make instructor forum visible for only instructors, graders, and teaching assistants.

➔ This can be achieved by using "for_instructor" in "threads" which will check that threads are only visible to an instructor, graders and TAs

➔ "for_instructor" is a boolean which is false by default. It is true for the thread to visible only

1.2 Add views and twig to support Instructor Forum

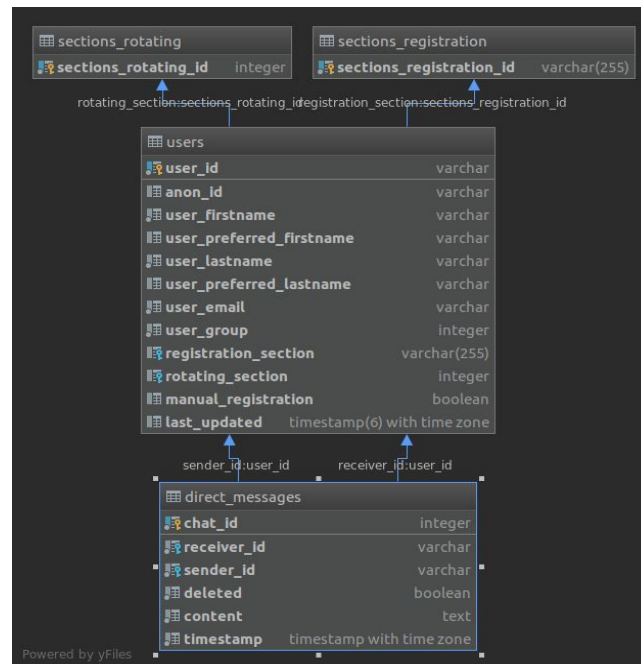➔ The user can switch to instructor mode by clicking in "instructor forum"

➔ "Instructor forum" will contain the same features as the general forum

➔ Instructor forum will only render thread whose corresponding value of for_instructor is set as true

1.3 Upgrading queries to utilize for_instructor

➔ Upgrading queries in getThreads and publishThreads such that general thread can only render threads and publish threads which have for_instructor's value equal to false

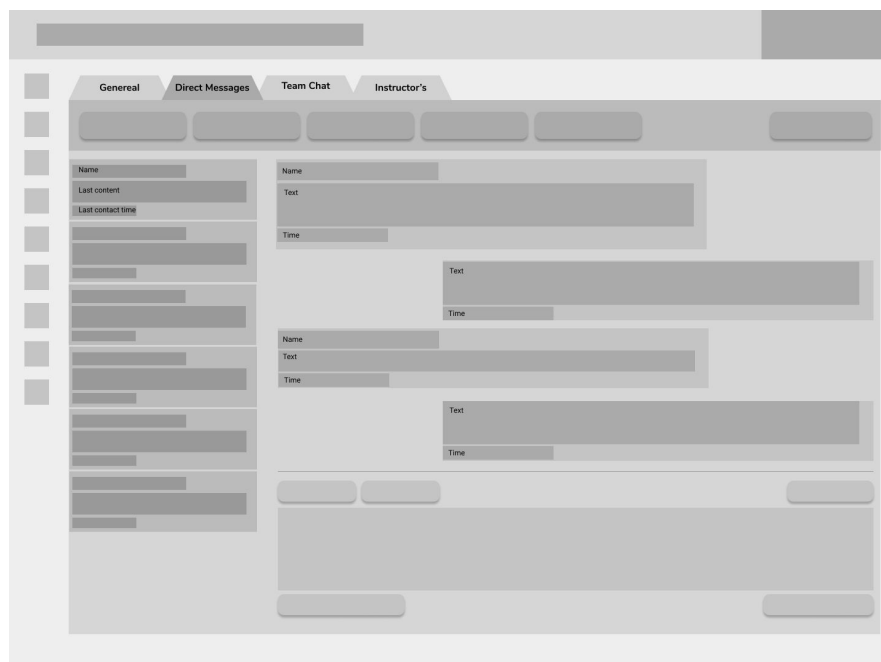➔ Upgrading queries which will make and render new threads in instructor tab

1.4 Add direct_message table

➔ direct_message will contain chat_id, receiver_id, sender_id, deleted, content and timestamp

➔ chat_id as primary key, receiver_id, and sender_id as a foreign key to user_id(users)

1.5 Add views and twig to support Direct message

➔ The page will contain two section

◆ Person contacted before

◆ Present chat selected from the contact list

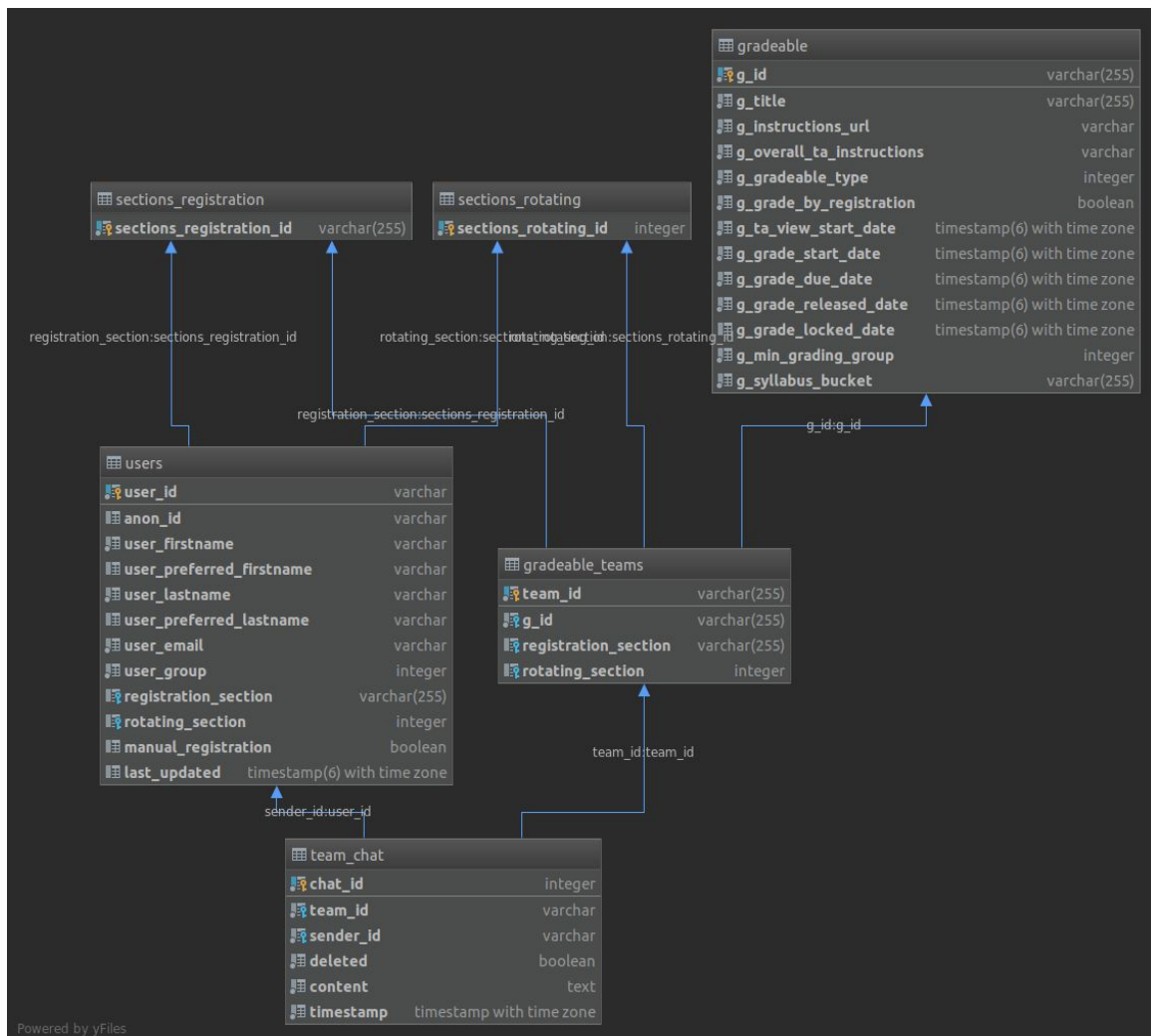◆ Search bar to find people for direct messages

1.6 Facilitate backend to support read and write in direct_messages

➔ Define models and controllers for direct_messages

➔ Add queries to read and write in direct_messages

➔ Add queries to read the contacted person

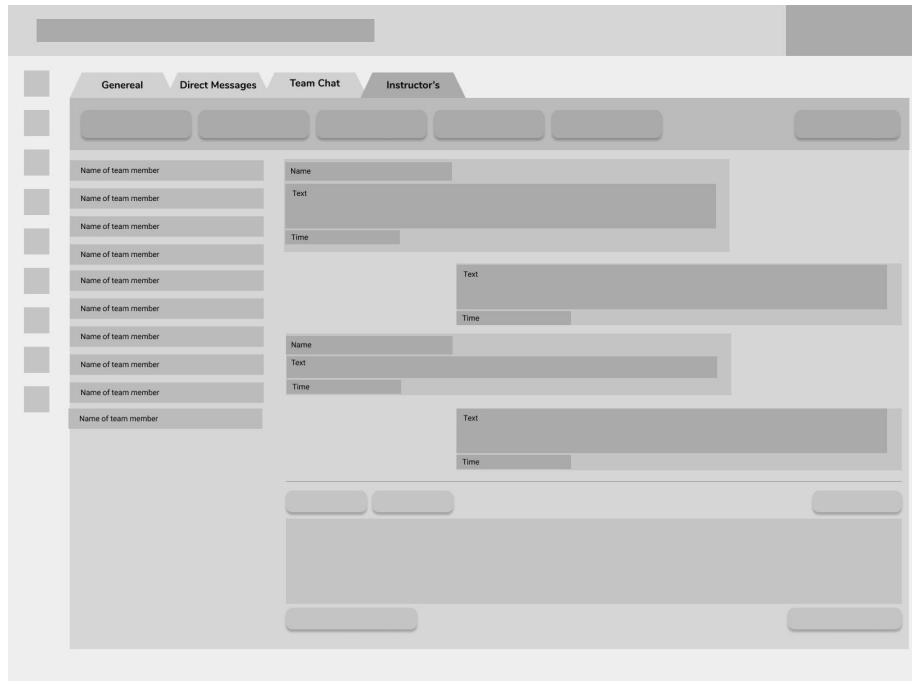➔ Add queries to search users

Phase 2

2.1 Add team_chat table

➔ Team_chat will contain chat_id, team_id, sender_id, deleted, content and timestamp

➔ Primary key as chat_id, team_id as foreign key to team_id(gradeable_team),sender_id as foreign key to user_id(users)

2.2 Add views and twig to support Team Chat

➔ Team chat will contain two section

◆ List of members in the team in alphabetical order

◆ Team chat arranged in descending order

2.3 Facilitate backend to support read and write in team_chat

➔ Define controllers and models of team_chat

➔ Add queries to write chats

➔ Add queries to read the name of members and chats

2.4 Add link members to their direct messages

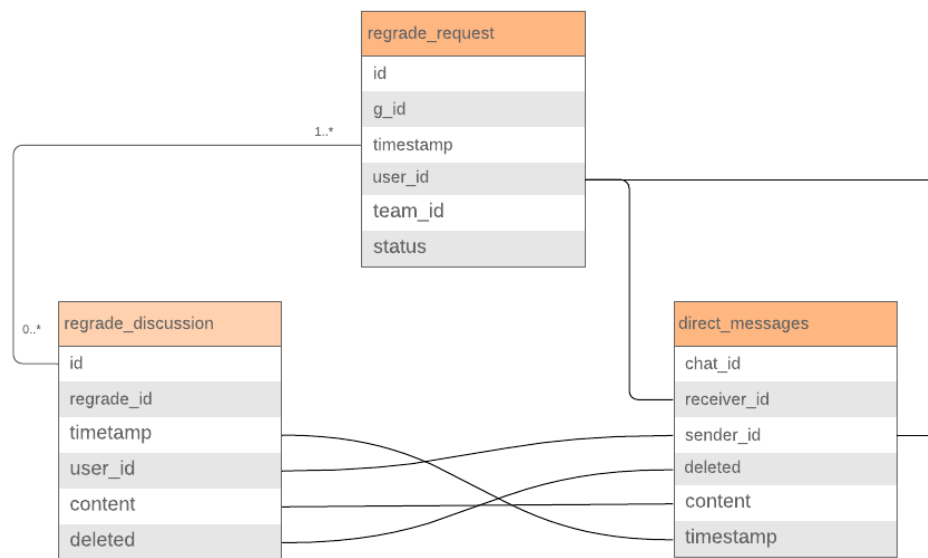➔ Add a link that redirects member name to direct messages section between them

2.5 Add Long polling to Direct message, team chat, general and instructor messages

➔ Add AJAX calls and PHP responses for long polling in direct messages, team chat, general and instructor

➔ Add timeout and caching of request to enhance long polling and decreasing memory consumption of CPU

Phase 3:-

3.1 Tag a direct message as grade inquiry
- ➔ The same message will be saved in the direct message as well as grade inquiry table
- ➔ Popup will be displayed when regrade request feature is called which will ask for gradeable_id and status of request
- ➔ For instructors/tas popup with selection of user_id will be displayed

regrade_request
id
g_id
timestamp
user_id
team_id
status

1..*

regrade_discussion
id
regrade_id
timetamp
user_id
content
deleted

0..*

direct_messages
chat_id
receiver_id
sender_id
deleted
content
timestamp

3.2 Notification support for direct messages, instructor forum, and team chat
- ➔ Add queries insert data into the notification table when direct messages are initiated or new messages have arrived
- ➔ Add queries insert data into notification table when new messages are added into team chat

3.3 Code refactoring and solving issues related to direct messages, team chat, and instructor forum
- ➔ Refactor code of direct messages, team chat, and instructor forum
- ➔ Solving issues related to new features in the discussion forum

3.4 Create documentation for direct messages, instructor forum, team chat, and general forum

PROPOSED TIMELINE:

Before GSOC

- Add **Notification settings**([#2797](#) and [#3160](#))
- Add **Announcement only Forum**([#3152](#))
- Add **Scantron Feature**([#3468](#))

Community Bonding Period(May 6 – May 27)

Interact with the mentors of the project and set up feedback loops. Continue to refine the plans for the project in consultation with the mentors. Get more familiarize with **twig**, **PostgreSQL** and codebase Get involved with the community which is after all that this period is for.

Week 1(May 27 – June 3)

- Add for_instructor column to threads
- Add views and twig to support Instructor Forum

Week 2(June 4 – June 10)

- Upgrading queries to utilize for_instructor
- Add direct_message table

Week 3(June 11 – June 17)

- Add views and twig to support Direct message

Week 4(June 18 - June 24)

- Facilitate backend to support read and write in direct_messages

Phase 1 Evaluation

Week 5(June 25 - July 1)

- Add team_chat_ messages table
- Add views and twig to support Team Chat

Week 6(July 2 - July 8)

- Facilitate backend to support read and write in team_chat
- Add link members to their direct messages

Week 7 - 8(July 9 - July 22)

- Add Long polling to Direct message, team chat, general and instructor messages

Phase 2 Evaluation

Week 9(July 23 - July 29)

- Tag a direct message as grade inquiry

Week 10(July 30 - August 5)

- Notification support for direct messages, instructor forum, and team chat

Week 11(August 6 - August 12)

- Code refactoring and solving issues related to direct messages, team chat, and instructor forum

Week 12(August 13 - August 19)

- Create documentation for direct messages, instructor forum, team chat, and general forum

Final Evaluation

MOTIVATION

Google Summer of Code is a nice platform to get acquainted with the open source community and their skillful mentors. It gives you a professional work experience in your college years where one collaboratively builds a product for the welfare of the society. In this process, both the individual and the community improves and grows.

Submitty is an open source programming assignment submission system. Submitty provides a platform with which your development skill can be helpful to the huge community of students. Submitty is my first open source organization to which I actually contribute and I am glad about it. Submitty helped me to gain new skills and improve my present skills. The mentors here are knowledgeable and very responsive which makes the development of the project faster and encourage the number of contributors to get involved

AVAILABILITY

My vacations start on 5th May 2019 and end on 11th July 2019. The official GSoC period is from 6th May 2019 to 26th August 2019. I can easily devote 50-55 hours per week until my college reopens and 40-45 hours per week after that. I am also free on weekends.

Other than this project, I have no other commitments or vacations planned for the summer. I shall keep my status posted to all the community members on a weekly basis and maintain transparency in this project.

EXPECTATIONS

It is a great opportunity for me to apply my knowledge on a practical scale. I wish I can be a part of this program for gaining experience in software development and give back to the open-source community.

AFTER GSOC

I have already learned a lot and picked up many skills by contributing to **Submitty** and I plan to continue to contribute to this organization by adding features or solving issues in the current ecosystem.

Till now, the highlight of my experience with **Submitty** has been the fast-paced development of the website and the active involvement of the mentors. With the community growing continuously, I feel responsible for the projects I contribute to. Having picked up a lot of development skills, my major focus after GSoC would be to enhance my mentorship skills so that I can give back to this community by helping other people navigate around and reviewing their contributions.

RESOURCES

1. **[Submitty Project Ideas](#)**
2. **[Submitty Documentation](#)**
3. **Github repositories of [Submitty](#), [Submitty.github.io](#)**
4. **Long Polling**
   a. [Concepts](#)
   b. [PHP Implementation](#)
   c. [Enhancing with caching and timeout](#)

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