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## Introduction

Diversity is an issue very close to my heart. While I have never been openly discouraged from pursuing a career in technology – a predominantly male dominated field – there has always been an unconscious bias within my family. When I wanted to apply for a degree in Mechanical Engineering, I was asked to take some more time to think about my courses and was gently nudged towards more female-friendly engineering fields like Computer Science which wouldn't involve as much strenuous physical effort. Fedora Community Operations team wasn't the first one I contributed to in Open Source but it was the first one whose positive community made me want to stick. I felt lucky to finally feel included in a Free and Open Source Software (FOSS) community – even though luck shouldn't have had anything to do with luck.

## My Involvement in Diversity Initiatives

With so many growing opportunities in Open Source, it is disheartening to see that it is still a predominantly 'white-cis-male dominated' field. With this in mind, I got involved with Fedora Diversity Team about six months ago when I first came to know of their diversity and inclusion efforts. At Fedora, most of my work has been on using metrics for understanding the community and as a part of the Fedora Diversity Team, I am currently involved with collecting statistics to understand the diversity scenario in the Fedora community. I work closely with the Fedora Diversity Adviser and Diversity Team on identifying the target areas and devising strategies to positively impact these identified areas.

## Why is this project important to me ?

There are multiple ongoing efforts across different FOSS projects and organizations trying to improve diversity and promote workplace inclusion for minority groups in their respective communities. However, these efforts are not consolidated and do not look towards analyzing the impact of those strategies. The project 'Build a Library of Inclusion Best Practices and Case Studies' offers a great opportunity to study about current diversity situation in Mozilla communities and to identify what is working and

what isn't. Mozilla also has a Diversity and Inclusion Strategy [1] in place since 2014 and I would love to understand how these strategies have impacted the current diversity situation in Mozilla. I also hope to apply my learning from this project to help the Fedora Diversity Team in their ongoing efforts. It would also be great to see collaborations between different FOSS projects or organizations on diversity initiatives to have a much wider and stronger impact on the FOSS community. That being said, I really admire the work Larissa has been doing to improve diversity in Mozilla community and look forward to learning from a lot from her. It would also be great to be a part of Outreachy program as it offers a lot of opportunities to learn and grow in FOSS for newcomers.

## Work Sample for Outreachy Application

Initially after talking with the mentor for this project, Larissa Shapiro, I decided to conduct a small sample study about diversity and workplace inclusion in different FOSS communities.

## Methodology

With this study, I wanted to get an overview of diversity and inclusion practices across different FOSS projects, communities or organizations. I planned to interview around 10 contributors in the beginning (but later narrowed them down to 5 on Larissa's suggestion) with most from minority backgrounds based on their gender or race. I also interviewed a 'cis-white-male' contributor (the domain where a majority of FOSS contributors fall in) and a contributor from a minority background who were a part of the same FOSS organization to see if they have had different experiences with the organization and their overall perspective on diversity and inclusiveness in their organization and FOSS as a whole. Initially, I planned to conduct these interviews via video or in person - to engage better and provide a 'friendly' environment where interviewees can find it easy to open up and describe their experiences. However, as none of the candidates were based in the same city as me, I conducted these interviews via video. This was also done to ensure communication issues were kept to a minimum. The interviews were recorded in an etherpad which was edited by the interviewee during the interview while also engaging with the interviewer about their answers. The

whole process took about 1.5 – 2 hours per interview on average and sometimes even more. Since the etherpad was visible to both interviewer and interviewee, I also took notes about the interviewees reactions, behavior, interview process, struggling points in a notepad.

## Interview Questions and Answers

The questions which were asked during the interview can be found here :

https://github.com/bee2502/Diversity-Survey

The questions focus on five target areas :

### 1. FOSS Involvement

Questions were about contributions of interviewee in FOSS with each project, organization or community, length of their involvement, leadership roles etc.

### 2. Diversity in FOSS projects, organizations or communities

Questions were about regarding efforts to promote diversity by the organization or project, current diversity scenario and handling of diversity related issues. Interviewees were asked to answer the question for each organization, project or community they were involved with.

### 3. Workplace Inclusion in FOSS projects, organizations or communities

Questions were about regarding efforts for workplace inclusion by the organization or project and current inclusive atmosphere. Interviewees were asked to answer the question for each organization, project or community they were involved with.

### 4. Diversity and Inclusion Experience with other Community Members

Interviewees were also asked to identify two community members from organizations they were involved with. Mentors in the community were preferred due to high number and quality interactions mentors usually have with mentees however, any other

community members satisfying this criteria could also be chosen. Questions were about their interactions and experiences with the community members they had chosen regarding diversity and inclusion practices.

**5. Individual Preferences**

Questions were about comfort level of interviewees when interacting with people from different backgrounds, their thoughts on diversity and a diverse workforce.

**6. Personal Experiences**

Questions regarding their experiences in FOSS as a person from a minority background, diversity and workplace inclusion culture in different organizations, diversity related issues and their experiences.

For sections 2, 3, 4 and 5, answers involved a rating (on a pre-defined scale) and also a brief explanation of why a particular rating was chosen.

The interview transcripts can be found here :

https://github.com/bee2502/Diversity-Survey/tree/master/Interviews

One of the five interviews is redacted as the interviewee wanted it to be kept anonymous.

## Demographics of the Interview candidates

I interviewed 5 candidates for the study

- 4 out of 5 candidates were from minority backgrounds (three women and one African male)

- All were from geographically diverse communities (2 from North America, 1 from Latin America, 1 from Europe, 1 from India)

- All of the candidates were involved with different FOSS projects, organizations or communities for more than 3 years now.

- Altogether they are currently involved with 4 different projects or organizations for more than one year (Fedora, Libre Office, Spigot MC, One Laptop Per Child) and with 2 more organizations (GNOME, Gluster) for shorter duration. They were also involved with 4 other local FOSS communities (Open Labs, FOSS @ Magic, RIT LUG, dgplug).

- 3 out of 5 candidates were students.

- 4 out of 5 candidates were involved with Fedora Project.

- 4 out of 5 candidates were involved in diversity initiatives in their project,organization or community

- 2 out of 5 candidates had mainly technical(code) contributions, 2 out of 5 candidates had mainly non-technical (non-code) contributions, 1 out of 5 candidates had an equal amount of both technical and non-technical contributions.

- Only one out of the three girls was had a leadership role in her FOSS community while both of the boys had a leadership role in their respective FOSS communities.

- None of the candidates from the minority backgrounds had ever been remunerated for their contributions. The other candidate (cis-white-male) was a Google Summer of Code participant with the FOSS organization over the summer and had been remunerated for his contributions in part (He also contributed to other roles in the organization)

# Results

## Diversity and Inclusion Culture in FOSS projects, organizations or communities

### Fedora Project

4 out of 5 interviewees were involved with Fedora Project, out of which 3 were involved with the Fedora Diversity Team. The candidates involved with the Fedora Diversity Team rated it highly on diversity and inclusion related questions (5 or 6 mostly on a scale of 6). They acknowledged that diversity issues were present in the Fedora community however the fact that a Diversity Team had been specifically established seemed to reassure them that Fedora was working towards improving diversity and inclusiveness in the community. Since Fedora is a large project with multiple teams, the diversity and inclusiveness seemed to vary across different teams. Also, the interviewees were not as confident in the abilities of the organization to handle diversity related issues arising out of its own community. Since contributors contribute remotely, most of the candidates didn't have an idea about accommodations provided by the organization for people with physical disabilities. However, one interviewee was a Fedora contributor and not a part of the Diversity Team. This interviewee didn't seem to have an idea of current diversity initiatives taken by Fedora Project and rated the project neutrally or poorly on diversity and inclusion related efforts. Hence, there seems to be a disconnect between community and diversity team about efforts that are being established. While Fedora seemed to have a lot of diversity related initiatives, the interviewees had no idea about inclusion – specific initiatives taken by Fedora Project. Interviewees thought that while Fedora Project had people from minorities in leadership roles, but there was still room for improvement. Interviewees rated their fellow community members highly on inclusive and mostly felt that they treated those from minority no differently (mostly rated 5 or 6 on a scale of 6).

### Libre Office

Only one person out of the five interviewees is involved with LibreOffice. According to the interviewee, LibreOffice had only one diversity related effort – LibreLadies – a

group for women contributors however, it was pretty inactive. According to the interviewee, there were no other ongoing diversity or inclusion related efforts and overall, no efforts targeted towards minority groups other than women. However, the culture in LibreOffice community seemed very inclusive to the interviewee. The interviewee knew from her experience that LibreOffice community was working positively towards establishing diversity and inclusion initiatives and hence rated them positively. LibreOffice seemed to have minorities in leadership positions. No data was available for specific community members or mentors from this organization.

## Open Labs

Open Labs is a FLOSS community and Hackerspace in Tirana, Albania with community members contributing to different FLOSS projects like Fedora Project, Mozilla, Wikimedia, Libre Office etc.

One person out of the five interviewees is involved with Open Labs. According to the interviewee, Open Labs has an unique diversity situation since 70 percent of the Open Labs members are girls. 60% of the Board Members of Open Labs are girls including the the interviewee herself. Due to the high percentage of women in Open Labs community, Open Labs doesn't have any of it's own initiatives targeting minority groups however, each FLOSS project community in Open Labs has events targeted towards onboarding newcomers and increasing diversity in their project community. Open Labs also has Braille language tools to help visually impaired contributors feel more included in the community. Diversity related conflicts or issues in Open Labs are resolved in face-to-face meetings which are possible due to small size of the community. The interviewee rated her mentor highly on promoting diversity and inclusiveness in the community. According to the interviewee, 'mentors consider them no different than us and think in terms of their/our contribution rather than their race, gender, background etc'

## Spigot MC

Spigot MC is a FOSS project for Spigot, a customized CraftBukkit Minecraft server API and BungeeCord, the cloud server proxy.

Only one person out of the interviewees is involved with Spigot MC. According to the interviewee, Spigot MC community has very few members from diversity backgrounds and is not friendly towards women, non-native English speakers or other minorities. In interviewees own words, 'it almost felt 'cultist' and a culture of 'elitism' seemed in place'. There aren't any diversity or inclusion related efforts in place. The interviewee had also sensed a divide between the elder and younger members of the community. If a diversity conflict arises in the community - outside of standard correctional behavior (i.e. clearly defined rules for moderating and disciplining users) - it is dealt with neutrally based on the level of detail of a report. The action is dependent on the viewpoint of the specific moderator for certain reports (such as where some moderators might think an inflammatory scenario isn't an issue and requires no action). According to the interviewee, the project also does not have a clear way to recognize contributor efforts for an inclusive culture. There were no minorities in leadership positions. No data was available for specific community members or mentors from this organization.

The interviewee involved with this project was not from a minority background.

## One Laptop Per Child (Project Ceibal)

The Plan Ceibal is a Uruguayan initiative to implement the "1 to 1" model to introduce Information and Communication Technologies (ICT) in primary public education and is beginning with the expansion into secondary schools.

One out of the five interviewees is involved with Open Laptop Per Child Project. According to the interviewee, OLPC has no diversity or inclusion related effort. Resolution of diversity related issues or conflicts is left up to official authorities (like teachers and parents) outside of the community. According to the interviewee, diversity issues or conflicts in the past were generally ignored or had not been resolved satisfactorily. The community supported inclusion related efforts by it's members even

though no official recognition was awarded. There are no minorities in leadership positions in OLPC. No data was available for specific community members or mentors from this organization.
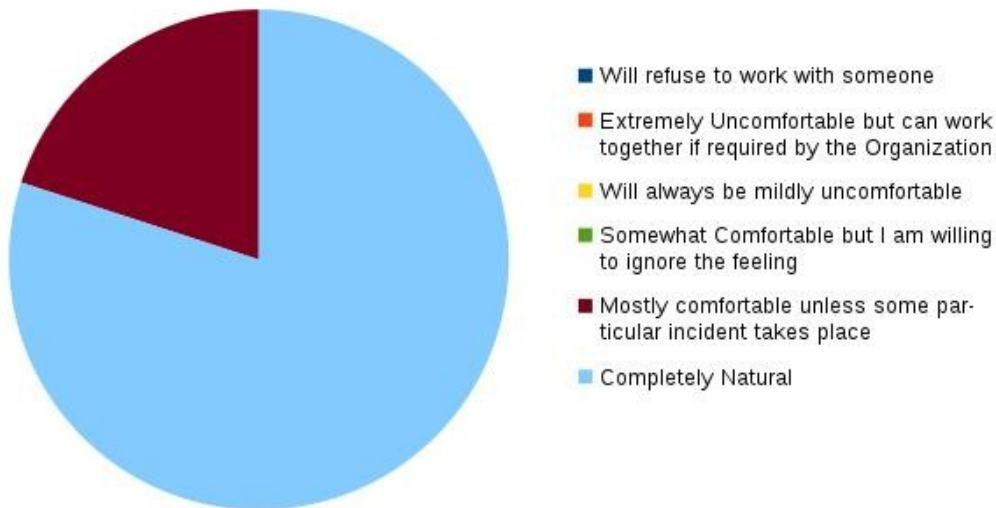
## FOSS @ Magic

FOSS @ Magic is a Free and Open Source Software program at the MAGIC Center at the Rochester Institute of Technology. It acts like a FOSS community for RIT students where they work on existing or new FOSS projects with RIT Faculty acting as their mentors.

Two out of the five interviewees are involved with FOSS @ Magic. According to the interviewees, FOSS @ Magic had no diversity of its own but was contemplating having tie ups with the Women in Computing Group at RIT to improve the participation of women in the program. Since the program is based in RIT campus, it benefits from the inclusion efforts at RIT even though it does not have any of its own. However, according to the interviewees, the atmosphere in FOSS @ Magic is very inclusive and activities like encouraging newcomers to personally engage with every community member foster this culture of inclusion. According to the interviewees, resolution of diversity related issues or conflicts is left up to official authorities (like faculty) and even then diversity and inclusion are given their due importance while deciding on an ideal solution. The community supports inclusion related efforts. The interviewees rated FOSS @ Magic positively on it's diversity and inclusion culture even though according to them there was scope for improvement. Only one out of two interviewees involved with FOSS @ Magic was aware of minorities holding leadership positions in the community in the past. According to one of the interviewee, the community members and mentors from FOSS @ Magic seemed to promote diversity and inclusion implicitly through their interactions and engagement prompting other community members to follow their lead.
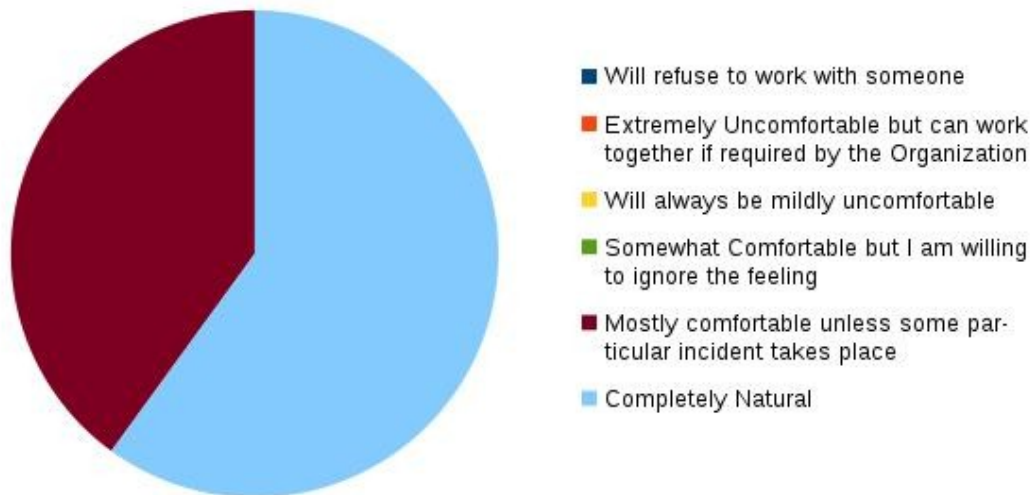
## Individual Preferences of the Interviewees

The pie charts show the distribution for interviewees answers for each question.
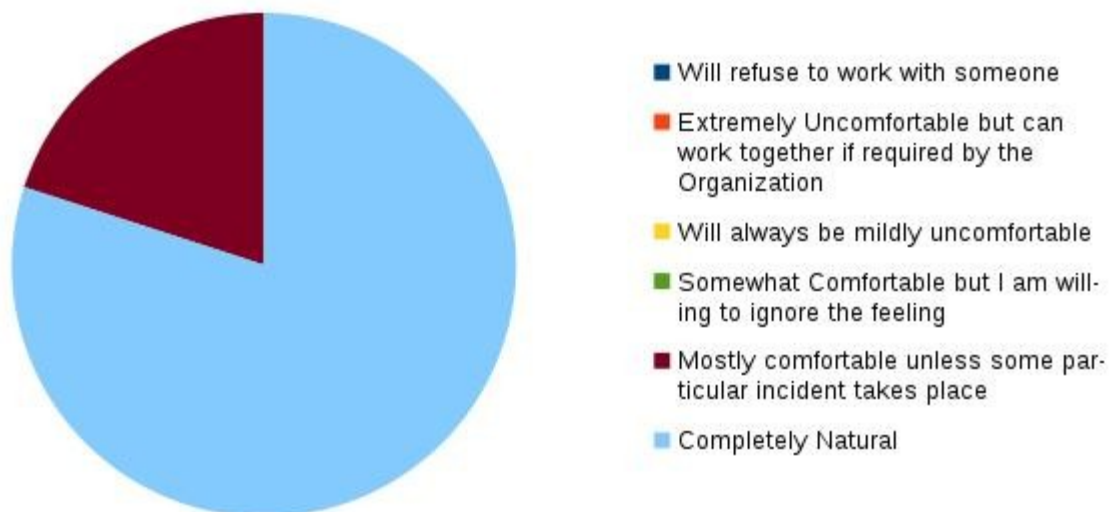
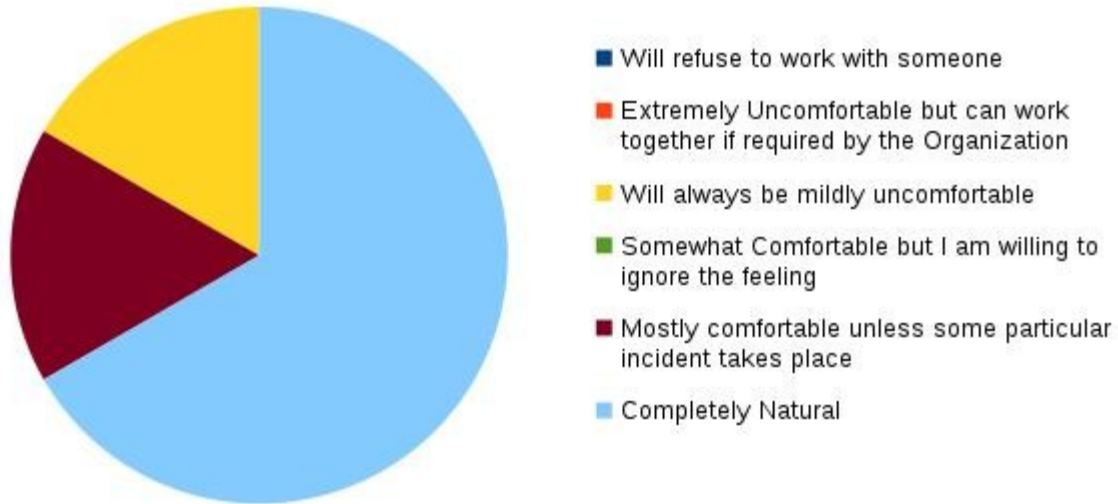## How comfortable are you working with people of different communities ?



- ■ Will refuse to work with someone
- ■ Extremely Uncomfortable but can work together if required by the Organization
- ■ Will always be mildly uncomfortable
- ■ Somewhat Comfortable but I am willing to ignore the feeling
- ■ Mostly comfortable unless some particular incident takes place
- ■ Completely Natural

## How comfortable are you working with people of different religions ?



- ■ Will refuse to work with someone
- ■ Extremely Uncomfortable but can work together if required by the Organization
- ■ Will always be mildly uncomfortable
- ■ Somewhat Comfortable but I am willing to ignore the feeling
- ■ Mostly comfortable unless some particular incident takes place
- ■ Completely Natural

## How comfortable are you with working with people of different genders ?



- ■ Will refuse to work with someone
- ■ Extremely Uncomfortable but can work together if required by the Organization
- ■ Will always be mildly uncomfortable
- ■ Somewhat Comfortable but I am willing to ignore the feeling
- ■ Mostly comfortable unless some particular incident takes place
- ■ Completely Natural

## How comfortable are you working with people of different age ?



- ■ Will refuse to work with someone
- ■ Extremely Uncomfortable but can work together if required by the Organization
- ■ Will always be mildly uncomfortable
- ■ Somewhat Comfortable but I am willing to ignore the feeling
- ■ Mostly comfortable unless some particular incident takes place
- ■ Completely Natural

## How often do you voice your opinion ?



- ■ always
- ■ often
- ■ occasionaly
- ■ rarely
- ■ only when someone asks me a question
- ■ never
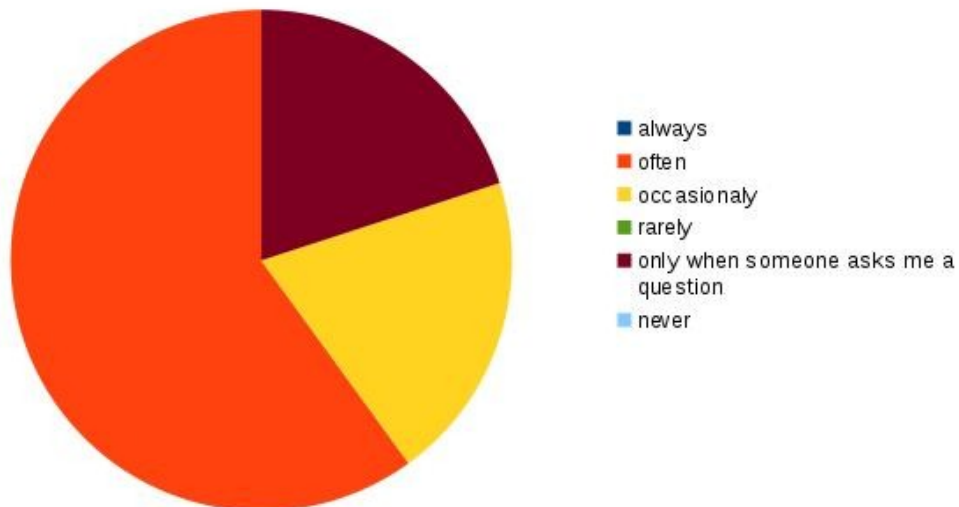
## Do you think personal characteristics do not hinder career progress ?



- ■ strongly disagree
- ■ disagree
- ■ somewhat disagree
- ■ somewhat agree
- ■ agree
- ■ strongly agree
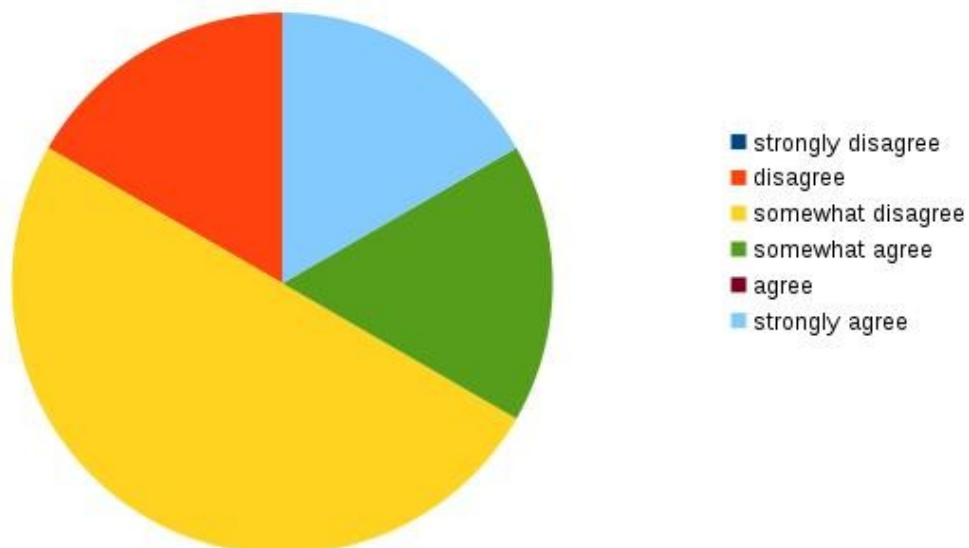
Do you think diversity impacts workforce positively ?

- strongly disagree
- disagree
- somewhat disagree
- somewhat agree
- agree
- strongly agree
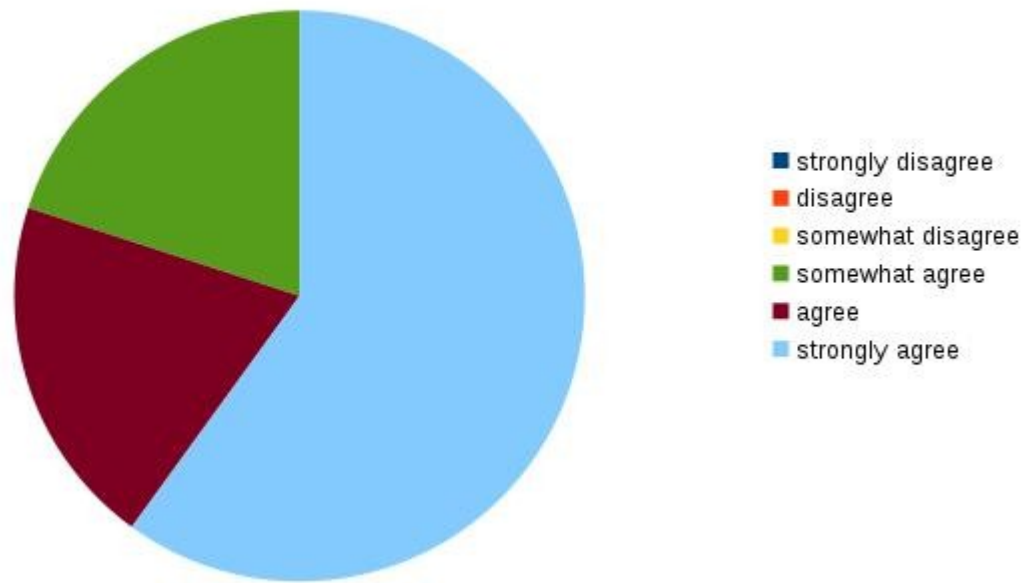
## Personal Experiences

When I asked interviewees about what made them continue contributing to FOSS projects or organizations, a positive community was one of the top reasons. I also asked interviewees to compare the culture of diversity and inclusion, they had seen in FOSS organizations or projects vs other workplaces and talk about their own experiences about being a FOSS contributor. Interviewees generally thought that FOSS communities are more inclusive and respectful as compared to other organizations. I also asked them for suggestions as someone with a minority background about how to foster an inclusive culture. Fostering 'open communication' in the community was what interviewees mostly agreed upon. Another nice suggestion from an interviewee was :

'If you are in a community and you notice a small engagement of someone that might be a minority make sure to reach out to them and say Hi and get to know them. Not only is this good for anyone who is new but it helps them know they are welcome and valued.'

## What worked well in the study ?

Generally speaking, I think this study was successful on consolidating a report on diversity and inclusion initiatives in different organizations and coming up with some target areas and questions that hopefully will help on understanding diversity and inclusion in Mozilla communities. The participants felt comfortable during the interviews and did not hesitate on communicating their thoughts, which helped me a lot. The study helped me understand and learn how to create and conduct a study – including creating questions, identifying format of these questions (statement/ descriptive/ rating scales), framing them in a way that the questions are not ambiguous to the interviewee, identifying interviewees and creating a friendly atmosphere for interviewees to open up about their personal experiences.

## What were the challenges ?

I have compiled this list of challenges from the feedback I received about the study and from my personal experience.

### Not everybody knows the meaning of diversity and inclusion

This is one of the most important things I learned from feedback about my study. All of my interview candidates were aware of their minority backgrounds and the meaning of the terms 'diversity' and 'inclusion' however, this may not always be the case. In such cases, it is important to ask questions rooted about specific experiences. For example, 'Have you ever felt unwelcome in your FOSS organization ?' or 'Has something like X ever happened with you?'. I also noticed this when asking interviewees about their experiences. Rooted questions had a higher chance of producing an answer with a background experience or story as compared to an unrooted one. I also tested this during LinuxCon EU Women in Open Source Lunch when I asked some of the women present about their experiences in FOSS communities.

### Increase the number of participants

I would try to increase the number of participants so that I can make more specific conclusions about diversity and inclusion culture in a FOSS project or community.

### Define a Neutral Option on the Rating Scale

This was an amateur mistake on my part but I did not define a neutral option on my rating scale and I only realized this error after interviewees requested one.

### Conduct a mock study

I realized the ambiguity of some questions and the rating scale during my first two interviews. Needless to say, the later interviews went rather smoothly but initially I had to clarify a lot of questions to the interviewees. This cannot be possible in an actual study and hence it is better to conduct a mock study to understand the pitfalls before you commence the actual one.

## References

[1] https://wiki.mozilla.org/Diversity_and_Inclusion_Strategy