**Abstract:**

Open-source was meant to create a larger diversity in the tech field by opening up software development to all; however, this is not the case as many open-source projects are less diverse than proprietary software companies. This is a big issue as open-source is being gatekept by those with the knowledge and know-how and not making it easy for those who want to start, to get into it. In all, this leads to the perpetuation of toxic project communities that undermine the very definition and intention of open-source.

**Intro:**

The project that my group made was a manual for contributing and maintaining free open-source software. The purpose of this project was to provide a guide for those who want to get into open-source but aren't sure where to start. Many times people want to help a project or address an issue but don't have the knowledge to get over the high knowledge barrier to entry that open-source has. Our design was to make a simple documentation website using markdown. This was because it was simple to use and easy to look at. The markdown documentation website style is very common among open-source projects so it can be good to get used to this. This meant we were able to produce content quickly and didn't need to create as many design rules between ourselves because it was all done by the software. This also makes our manual very easy to contribute to. All you would need is a little knowledge of Free and Open-source software and Markdown.

**Process Description:**

The project went well. We were able to accomplish what we set out to do in a reasonable amount of time and with little conflict between our contributions. At some points for me, I was confused by the workflow process as I am not as experienced in Git and GitHub; however, I think as a group we got around this eventually and the product turned out the way we intended. As a group we could've scheduled our time better at the beginning of the project as most of our work was done in short bursts rather than consistently over time. Through this project, I learned that working in a group requires a clear form of communication. For our project, we had clear communication through a discord server, and during our scrum meetings. In those meetings, we all talked about, in order, what we did and our to-dos in the future. This taught me to be more proactive about what I thought our project needed to do. This could relate to editing sections, adding images, etc. It's important to be proactive about your opinions on the direction of a project because if you're a part of the group then you should see your opinions and effort reflected in the final product. I also learned about keeping the end in mind when planning when you're developing because when developing something you want to make sure each step is heading towards your end goal. This is so you don't get sidetracked trying to add adjacent features or content instead of your main goal. I learned a lot about FOSS while researching the content. I researched the agile development process with GitHub and workflow. This taught me that when producing a product it's good to first understand your product yourself before making it understandable to your user. This is important because it is difficult to explain a subject to an audience of any knowledge level if you aren't very knowledgeable in this subject. Since our development was split up into three sections split among the three members of my group, I learned a lot about how to synergize work. Referring to synergizing our work by maintaining particular formatting and writing style but also, in the process of creating with Git and GitHub it's

good to make sure your work does not conflict on GitHub when you merge it into the end product.

**Usability Study Description:**

For my usability study, I created a google form. I start by asking the user to give their familiarity with the topics covered in the manual before accessing the manual. They rank their familiarity with FOSS, contributing to, and maintaining FOSS on a scale of 1-10 from not at all familiar to very familiar. Then after interacting with the website, I have them rank their familiarity and confidence now with FOSS, contributing to, and maintaining FOSS or open-source in general. I ask these questions to gauge the effectiveness of the website. I then ask questions regarding the aesthetics and design of the website. Another question related to their emotions towards the organization and presentation of the content on the webpage. I designed this form the way I did so that I could see how the manual enhanced people's understanding of the concepts because that is the objective of a manual. I hoped to learn what the users did and did not like about the website and the content. This way it could be improved in the future.

**Results and Recommendations:**

After testing a large set of users (N = 9), the Usability Test tool revealed that a majority of users were not familiar or vaguely familiar with FOSS, contributing to, or maintaining open-source projects before reading the content on the website. This was largely expected. Since the first three questions all followed the same trend, here is the first as an example:

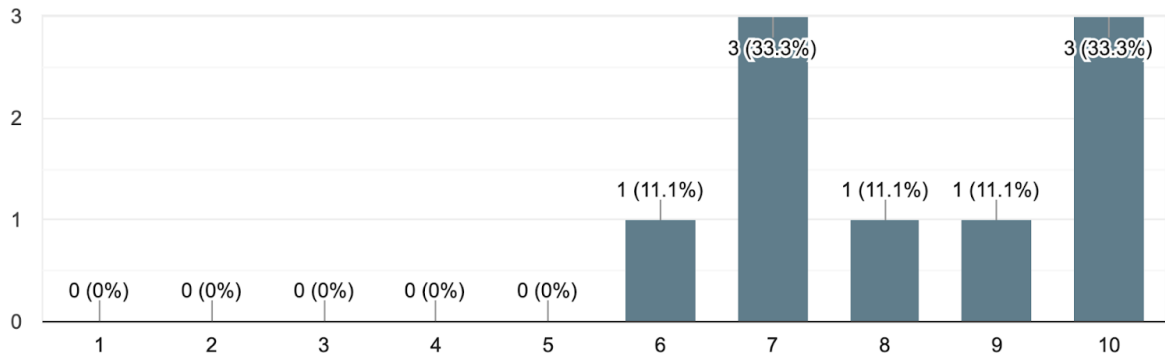Before accessing the site, how familiar were you with the concept of Free Open-Source Software (FOSS)?

9 responses
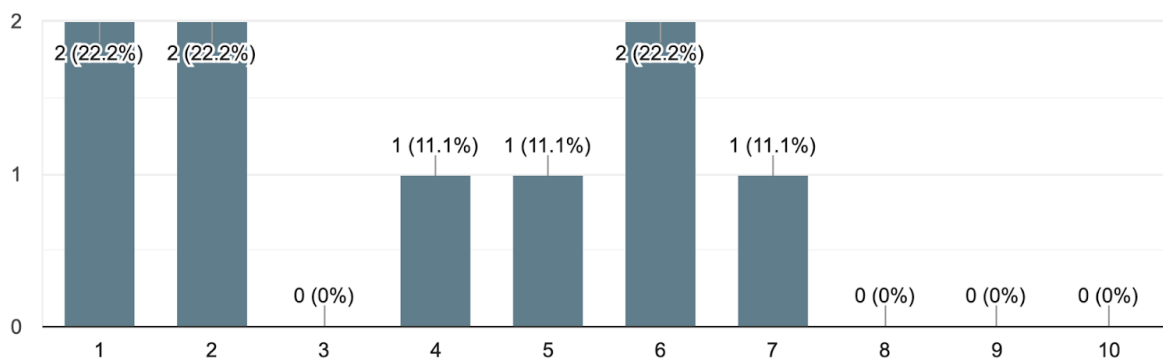


After reading, the data showed that every user was above at least a 6/10 in familiarity.

## After reading, how would you rate your familiarity with FOSS?

9 responses



This dramatic change shows the effectiveness of the manual in creating familiarity with FOSS. However, when asked about their feelings towards the content of the manual 33% of users responded as being indifferent or overwhelmed by the content. This is a problem area for our manual. The data highlights that while it increases familiarity with FOSS it does not convince those who were not interested in it to be interested in it in the future. I recommend that our introduction should be reworked to be more welcoming and address the "WHY" people should contribute/maintain. While many if not all users reported finding the presentation of the content "pleasing" and accessible it does seem as though this style of the website maybe does come off as more technical and therefore does not get the intrigue of those who were not interested in FOSS before reading. This is supported by the second to last question:

## How likely are you to contribute to/maintain a project in the future?

9 responses
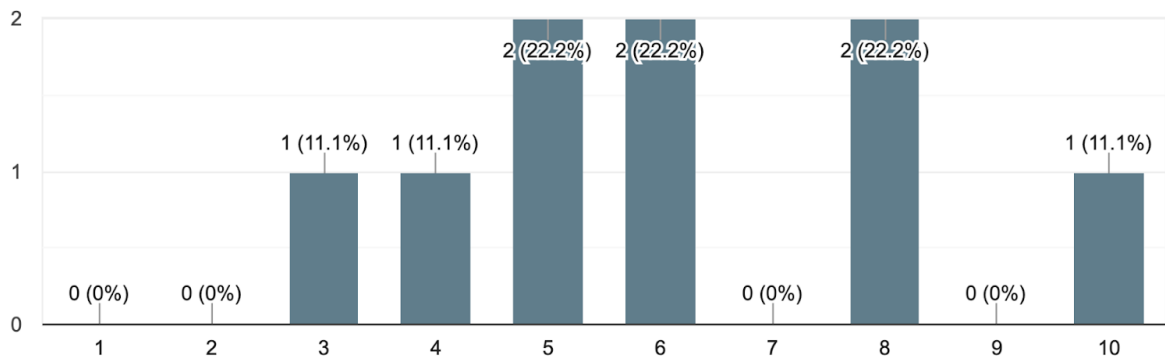
While all users' familiarity increased, there were still many who were not likely to contribute or maintain in the future. This shows the website is creating familiarity but not creating interest in those who were uninterested/indifferent.

**<u>Appendix:</u>**
- Project: https://rgoulazian.com/engcmp-manual-project/#/
- Repository: https://github.com/Richie78321/engcmp-manual-project
- Feedback tool: https://forms.gle/y8NgsGeMokStXgnBA