Data Science Institute
UNIVERSITY OF WISCONSIN–MADISON

Open Source Program Office
DATA SCIENCE INSTITUTE
UNIVERSITY OF WISCONSIN–MADISON

Open Source Survey Results

The Data Science Institute and the Open Source Program Office at UW–Madison

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Project Repositories:

Source Code to our Myst Site

Source Code to our Quarto Site

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Chapter 1

Home

Thanks to a grant from the Alfred P. Sloan Foundation, The University of Wisconsin–Madison Open Source Program Office (OSPO) is positioned to support and grow our vibrant open source ecosystem. The OSPO's mission is to collaborate with key stakeholders and community members to provide open source learning opportunities, promote best practices, facilitate the use of open source software in research, and make open source–fueled connections between practitioners and adopters on campus and beyond.

In Spring 2024, the OSPO distributed an open source survey to gauge the usage of open source tools among members of the university community, identify open source projects under development, and to collect feedback on improving the open source environment at UW-Madison. This site summarizes the findings of the results and allows users to explore how campus community members use open source tools at UW-Madison.

View the results

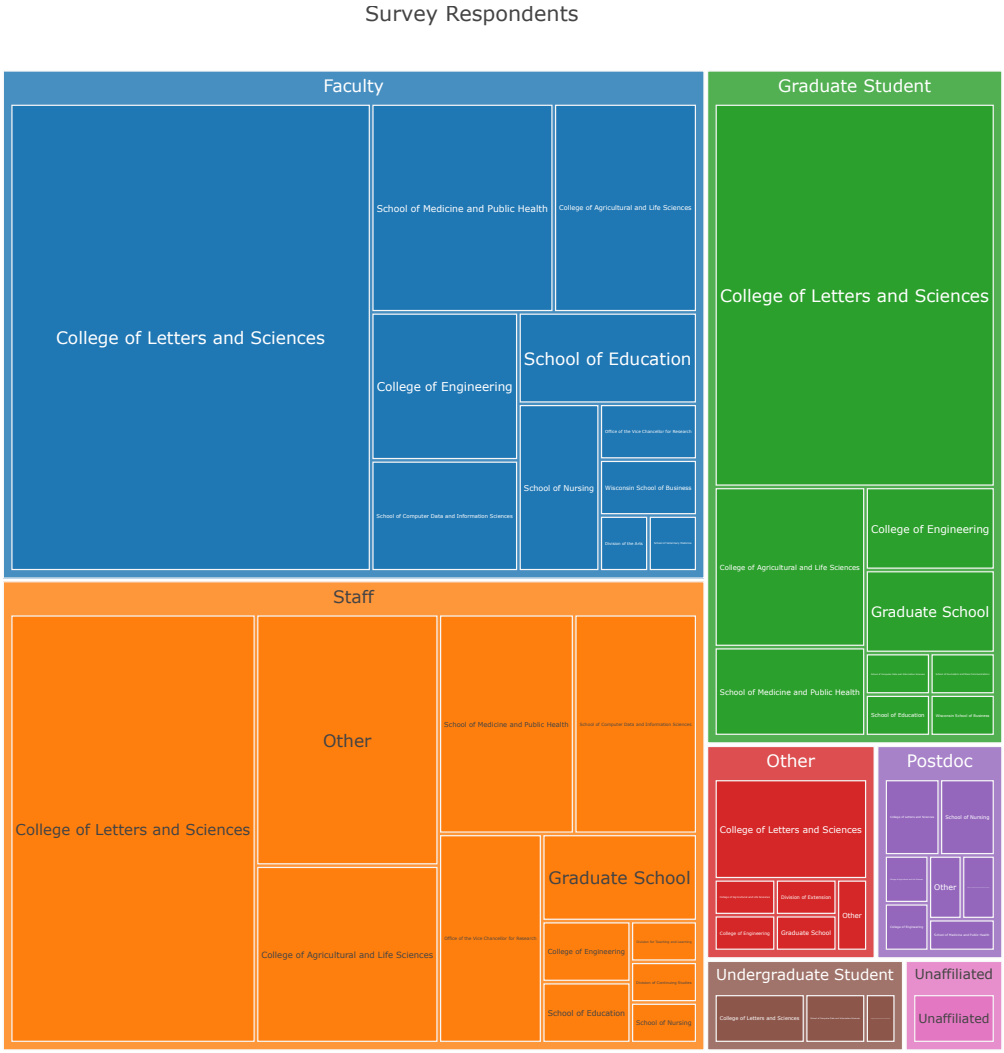
We are open sourcing the survey itself (in Qualtrics format), an anonymized version of the responses, and this Quarto-based analysis of the survey results. Our goal is to streamline such surveys at other universities and encourage a uniform set of questions and responses that can more easily be aggregated to understand the broader open source ecosystem in academia. If you're interested in recreating this survey and website for your institution please see the reproduction section.

Chapter 2

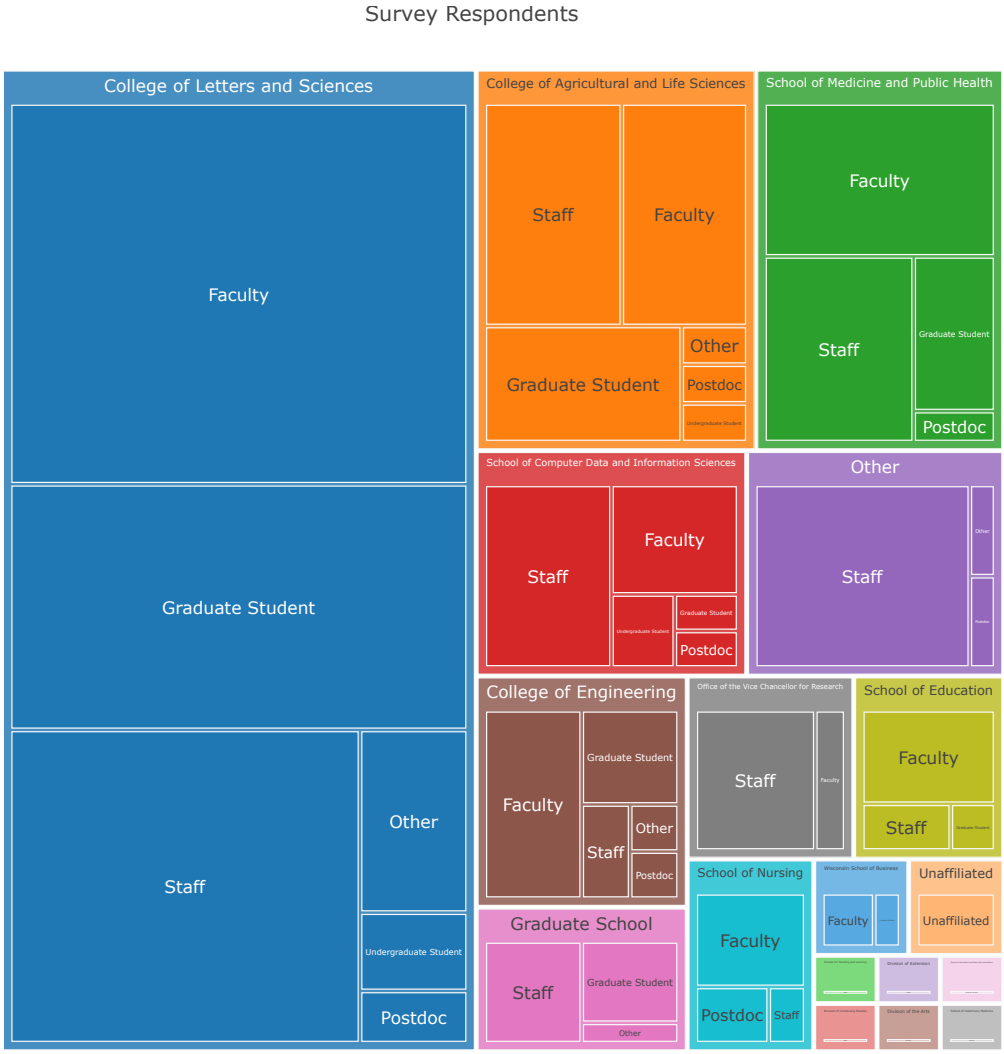
Demographics

323 respondents finished the survey, broken out by role and affiliation below:

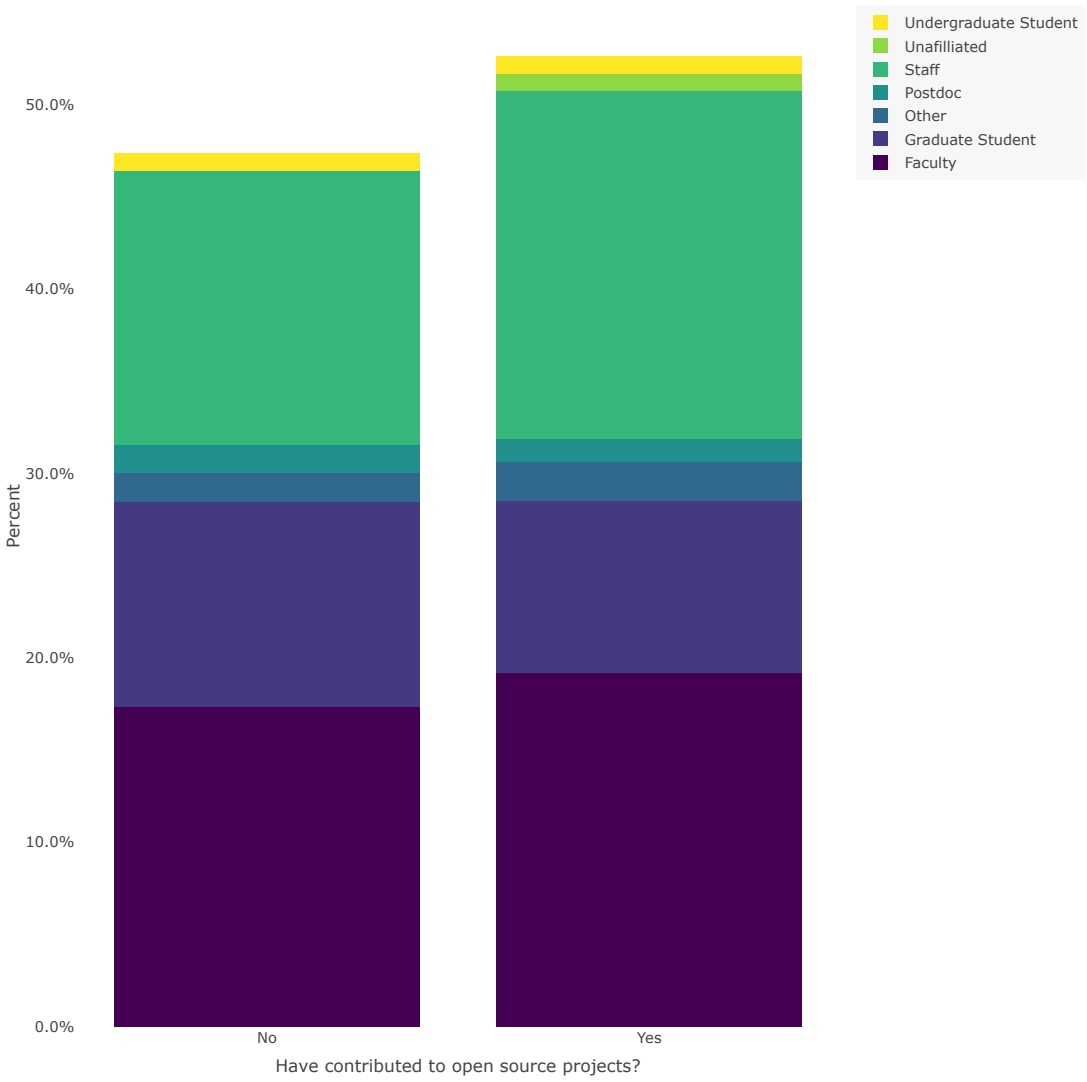
2.0.1 Role


Survey Respondents
Faculty
College of Letters and Sciences
School of Medicine and Public Health
College of Agricultural and Life Sciences
College of Engineering
School of Education
School of Nursing
Graduate Student
College of Letters and Sciences
College of Agricultural and Life Sciences
College of Engineering
Graduate School
School of Medicine and Public Health
School of Education
Staff
College of Letters and Sciences
Other
School of Medicine and Public Health
College of Agricultural and Life Sciences
Graduate School
College of Engineering
School of Education
School of Nursing
Other
College of Letters and Sciences
Division of Extension
Other
College of Engineering
Graduate School
Postdoc
School of Nursing
Other
Undergraduate Student
College of Letters and Sciences
Unaffiliated
Unaffiliated

2.0.2 Affiliation



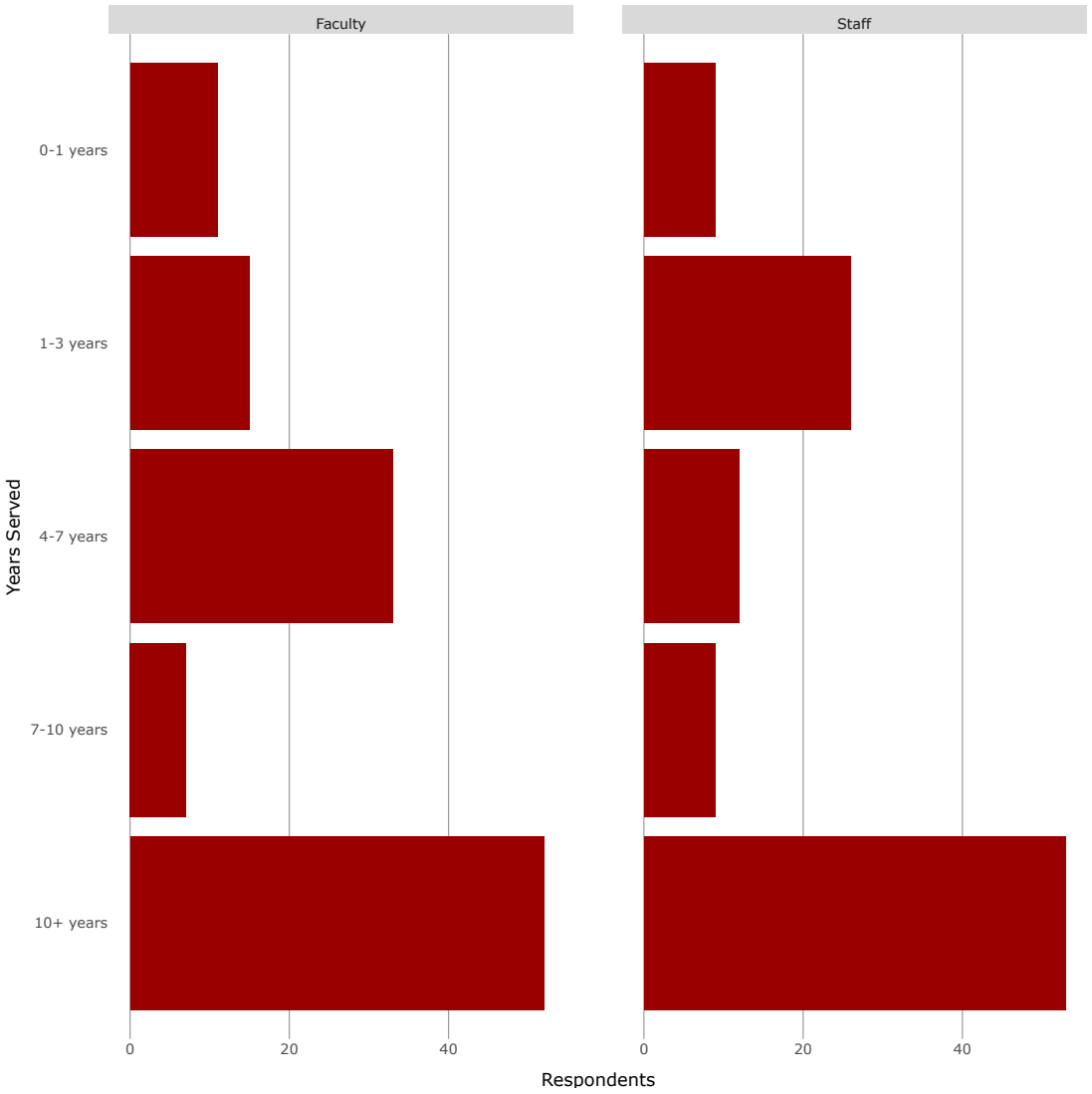
53% of respondents said they have contributed to open source projects, either academically or personally.


Undergraduate Student
Unafilliated
Staff
Postdoc
Other
Graduate Student
Faculty
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Percent
No
Yes
Have contributed to open source projects?

2.0.3 Faculty and Staff

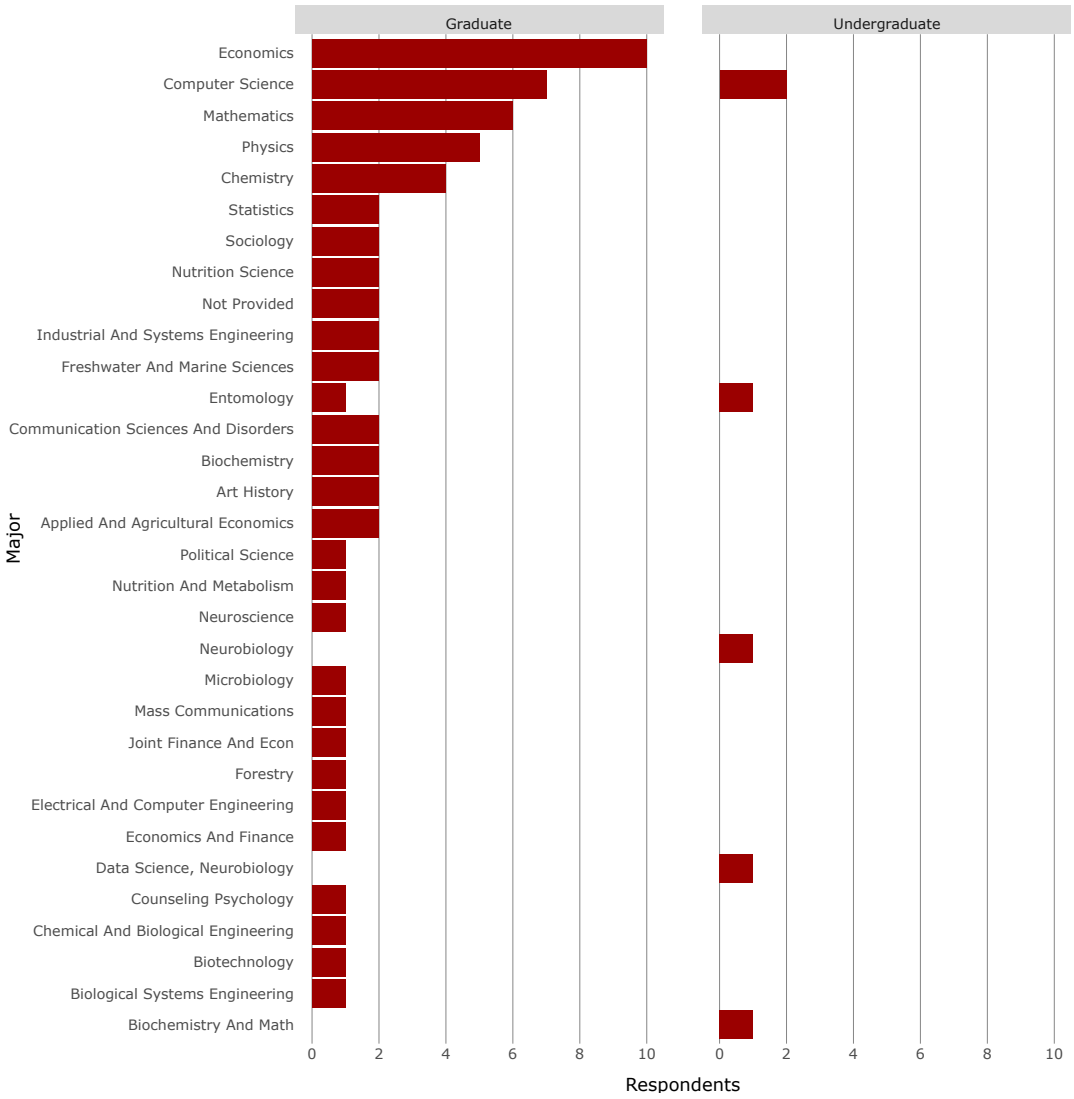
Of these respondents, 230 identified as faculty or staff (71% of respondents).

Faculty and staff respondents were distributed in tenure (years served) at the university as below:


Faculty
Staff
0-1 years
1-3 years
4-7 years
7-10 years
10+ years
Years Served
0
20
40
0
20
40
Respondents

2.0.4 Students

75 respondents identified at students (23% of respondents). Students came from degree programs in the following subjects:

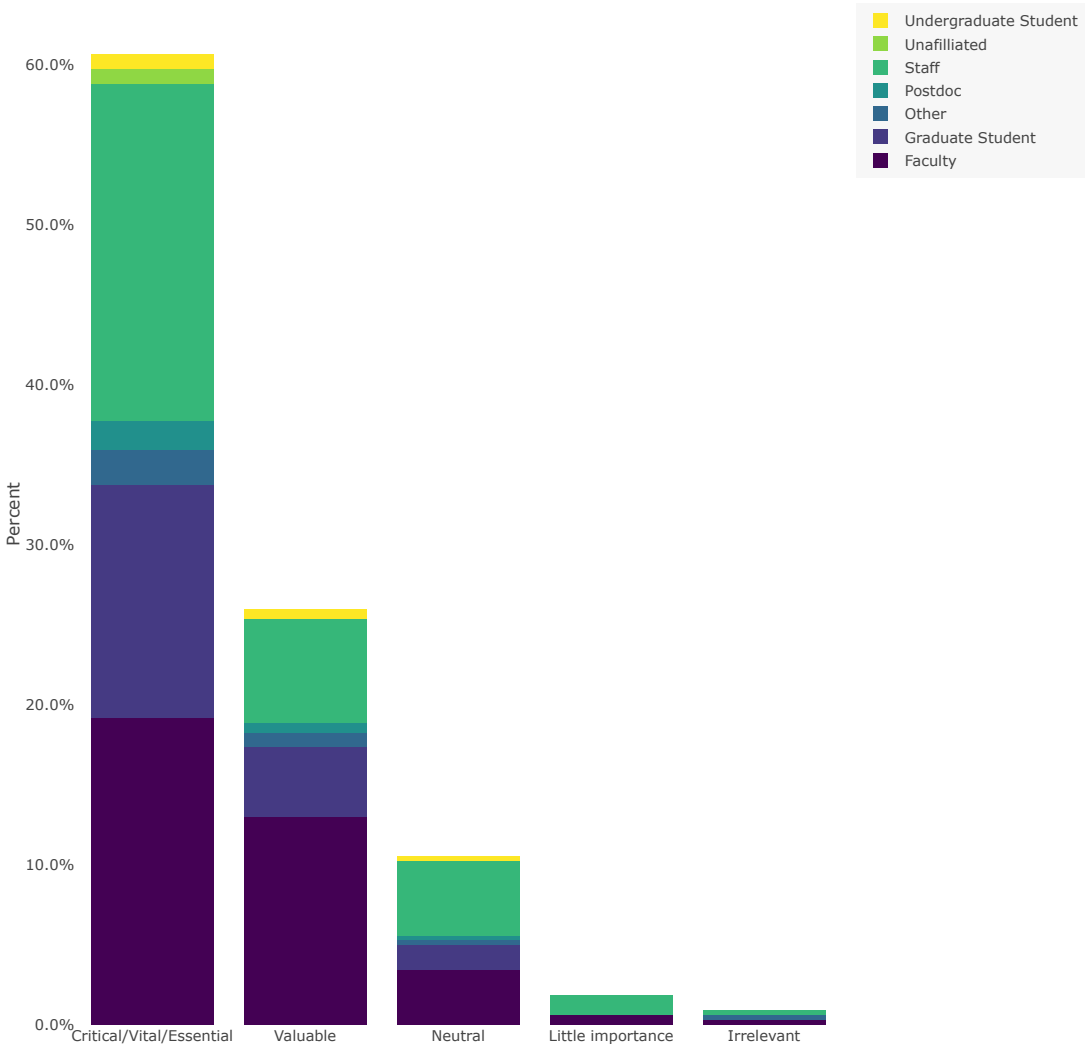

Graduate
Undergraduate
Economics
Computer Science
Mathematics
Physics
Chemistry
Statistics
Sociology
Nutrition Science
Not Provided
Industrial And Systems Engineering
Freshwater And Marine Sciences
Entomology
Communication Sciences And Disorders
Biochemistry
Art History
Applied And Agricultural Economics
Political Science
Nutrition And Metabolism
Neuroscience
Neurobiology
Microbiology
Mass Communications
Joint Finance And Econ
Forestry
Electrical And Computer Engineering
Economics And Finance
Data Science, Neurobiology
Counseling Psychology
Chemical And Biological Engineering
Biotechnology
Biological Systems Engineering
Biochemistry And Math
Major
0
2
4
6
8
10
Respondents

Chapter 3

Perceptions

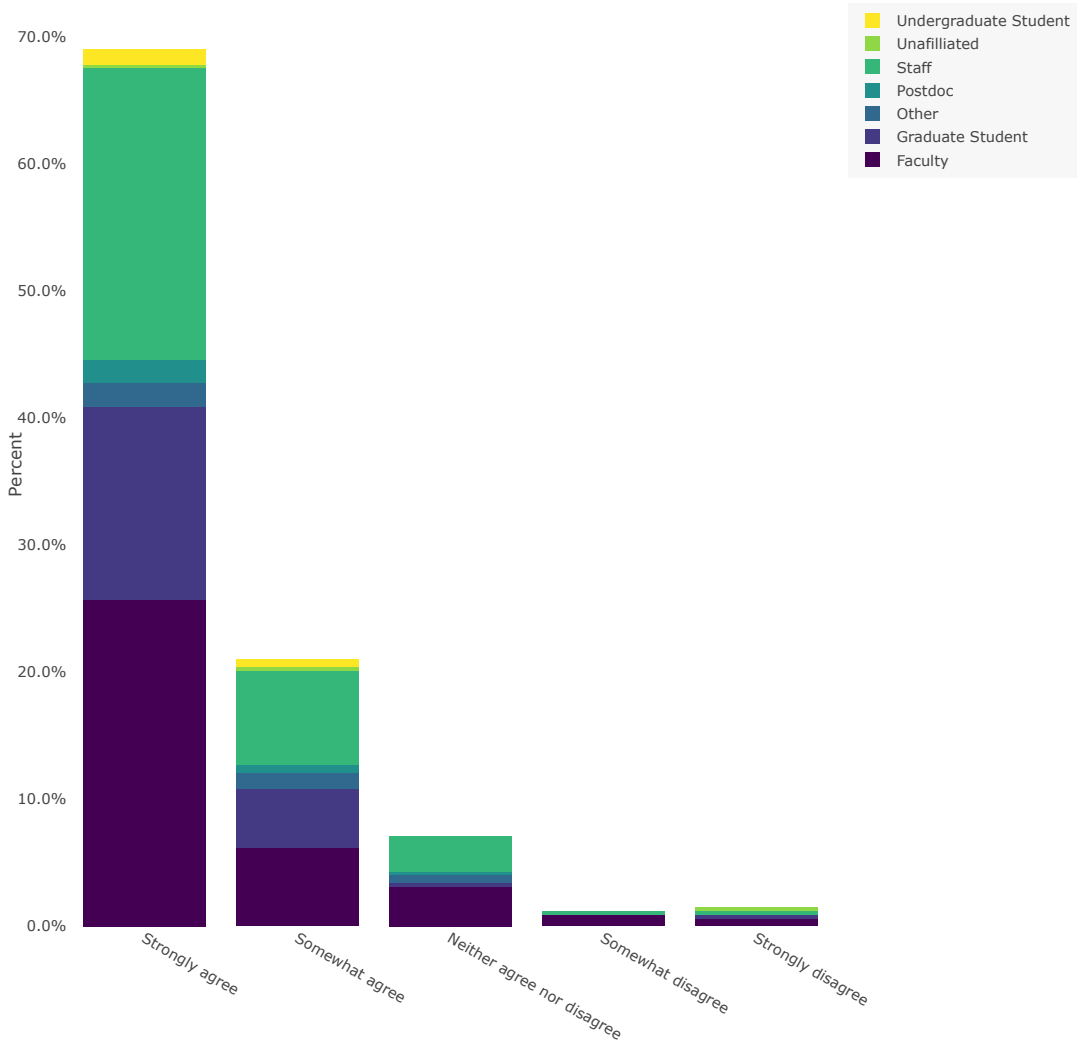
3.0.1 Value of Open Source Projects

When asked to characterize the importance of open source tools to their education, teaching, and research, respondents said the following:

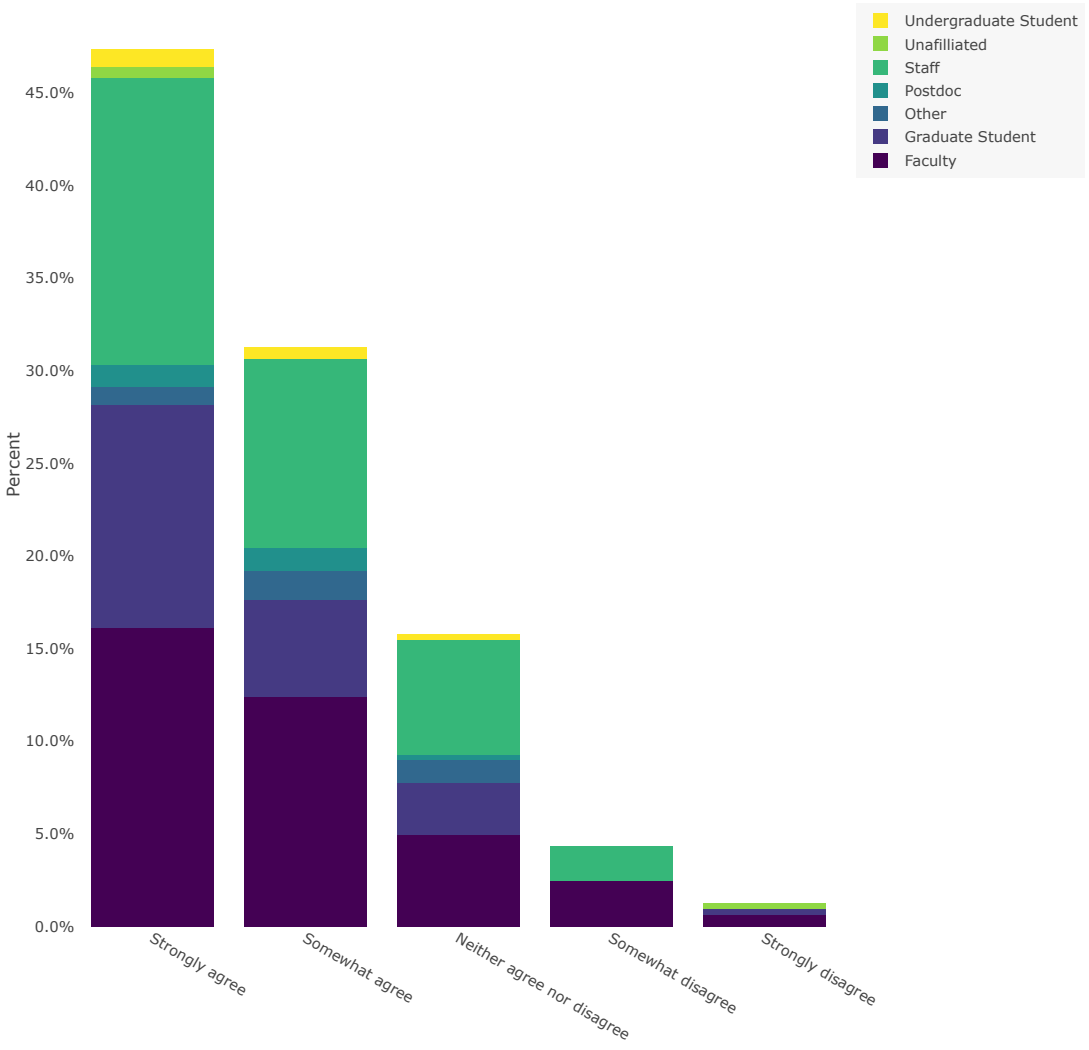


Survey takers were also asked how much they agree that 1) open source tools are a valuable form of research output and 2) open source tools are an important way to translate research into entrepreneurship and innovation.

3.0.2 "OS is a valuable research output"

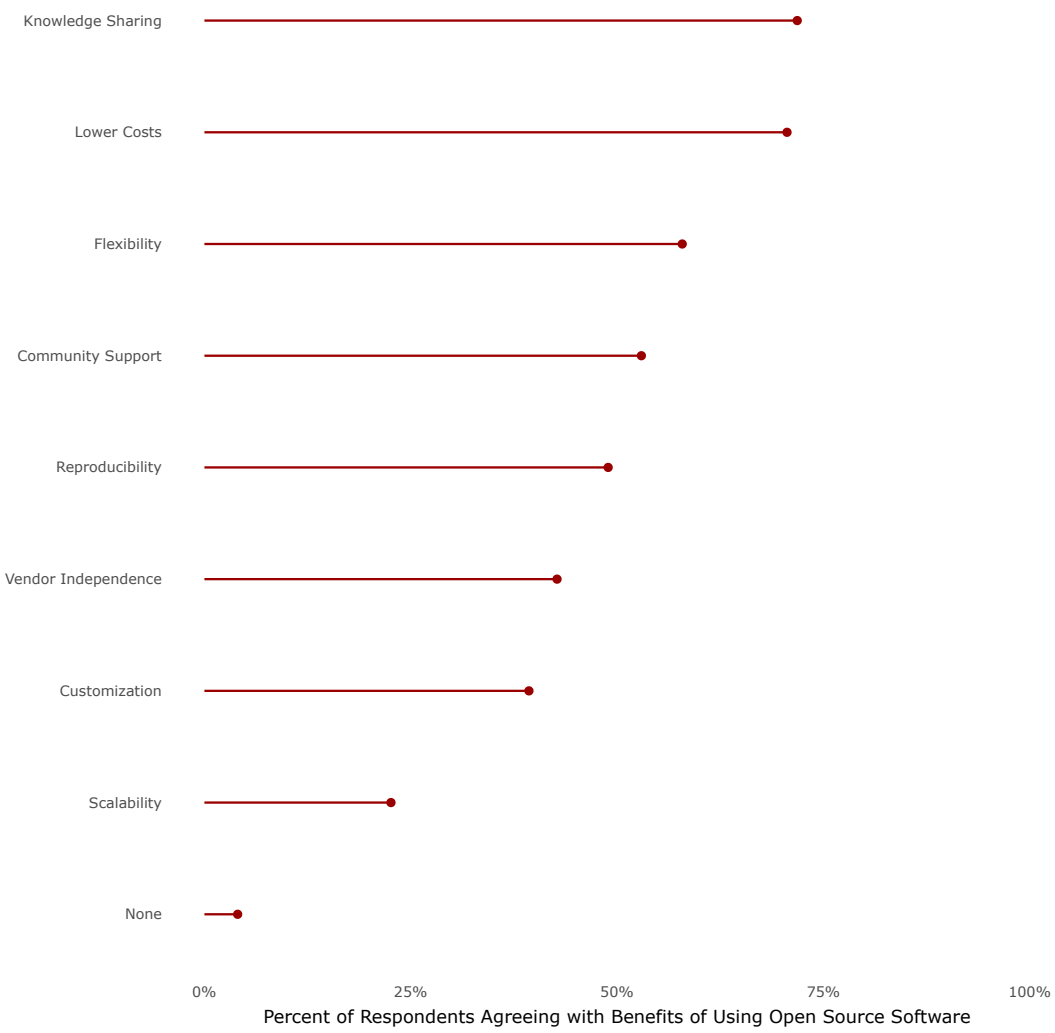


3.0.3 "OS translates research into innovation"



3.0.4 Benefits of Open Source Tools in Academic Settings

We asked survey respondents to choose among a list of potential benefits of using open-source tools in their work. Of the survey-takers who identified benefits, the percentage of respondents who identified each benefit are shown below:


Knowledge Sharing
Lower Costs
Flexibility
Community Support
Reproducibility
Vendor Independence
Customization
Scalability
None
0%
25%
50%
75%
100%
Percent of Respondents Agreeing with Benefits of Using Open Source Software

Chapter 4

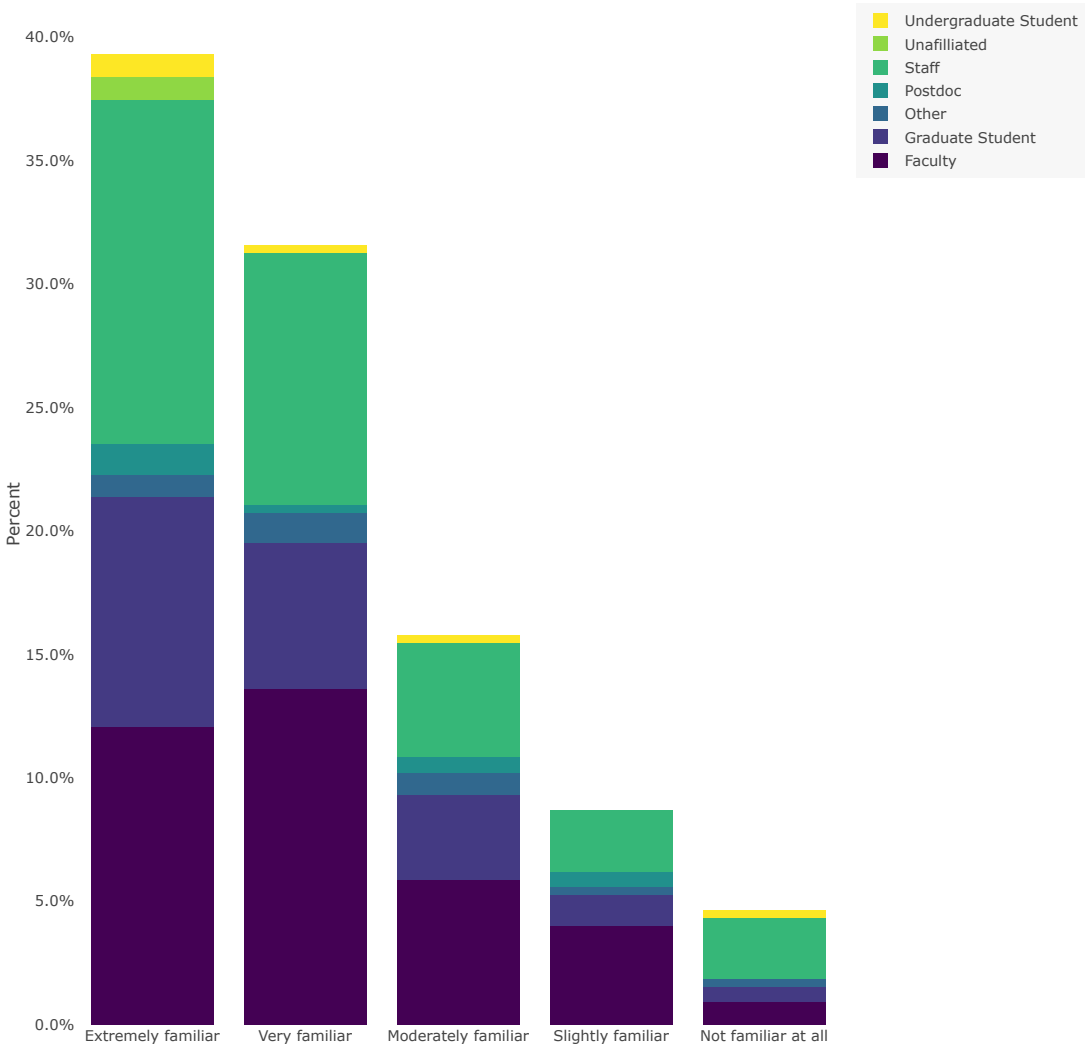
Usage

4.0.1 Familiarity with Open Source Tools

We asked respondents how familiar they are with the concepts of open source...

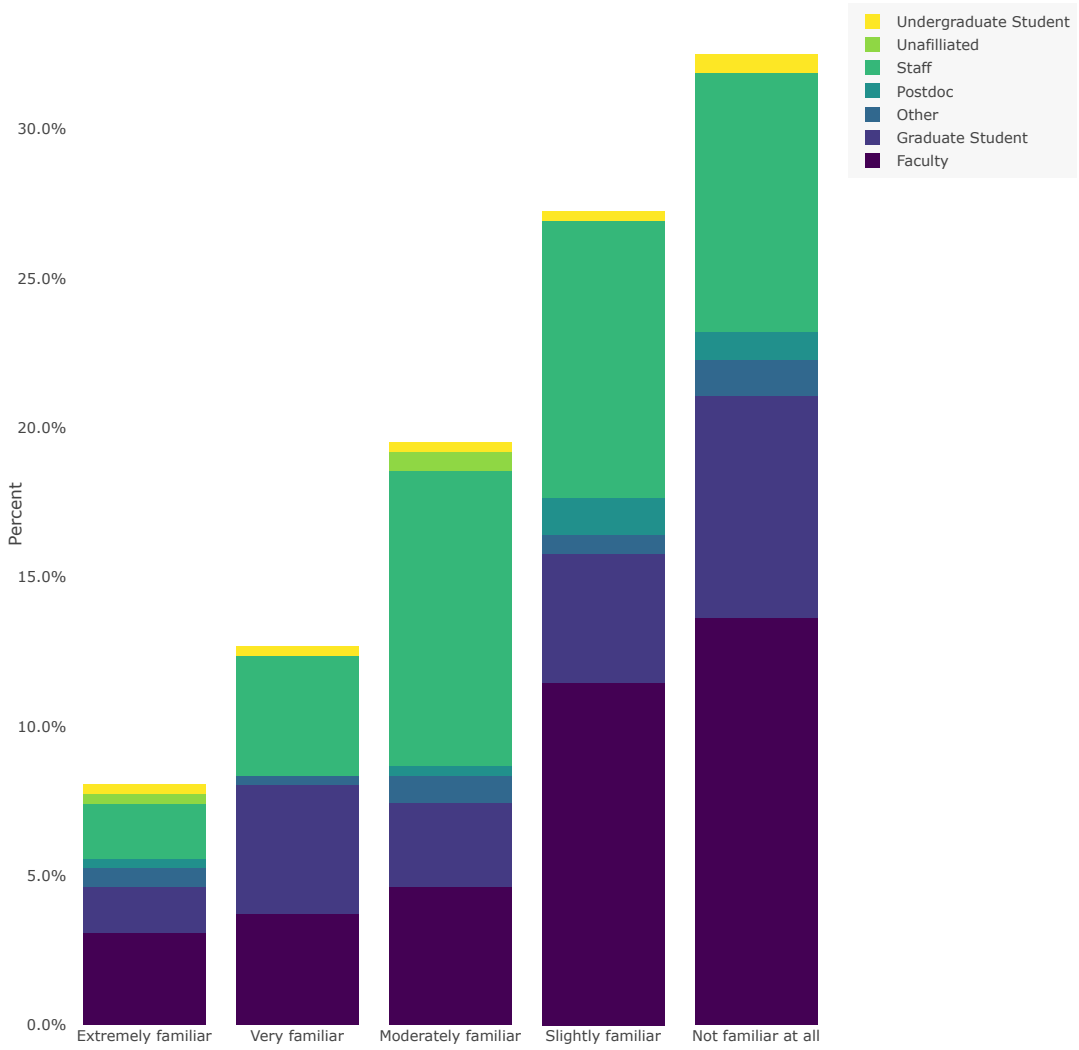
4.0.2 ...software

Examples of open source software include Python and git


Undergraduate Student
Unafilliated
Staff
Postdoc
Other
Graduate Student
Faculty
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Percent
Extremely familiar
Very familiar
Moderately familiar
Slightly familiar
Not familiar at all

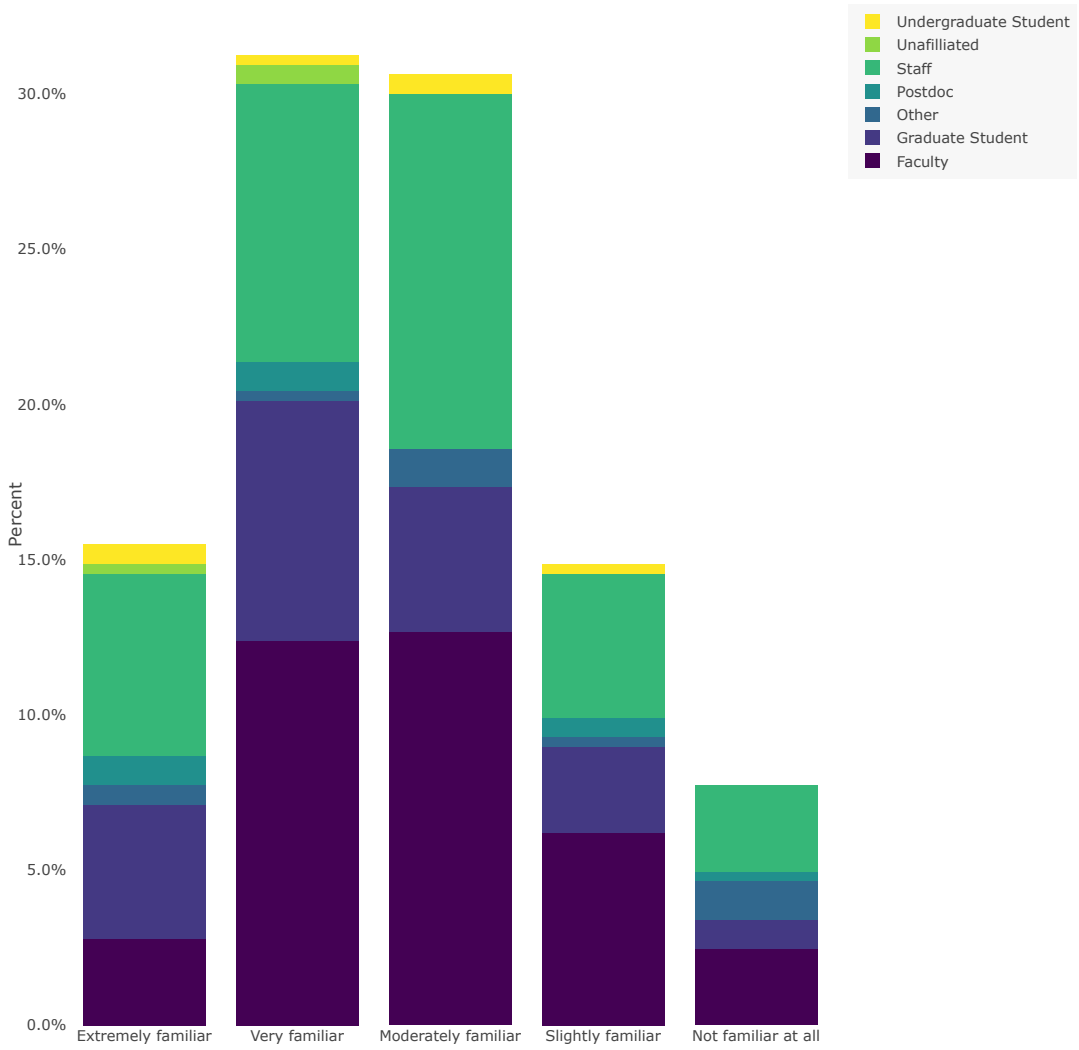
4.0.3 ...hardware

Arduino boards are an example of open source hardware



4.0.4 ...educational materials

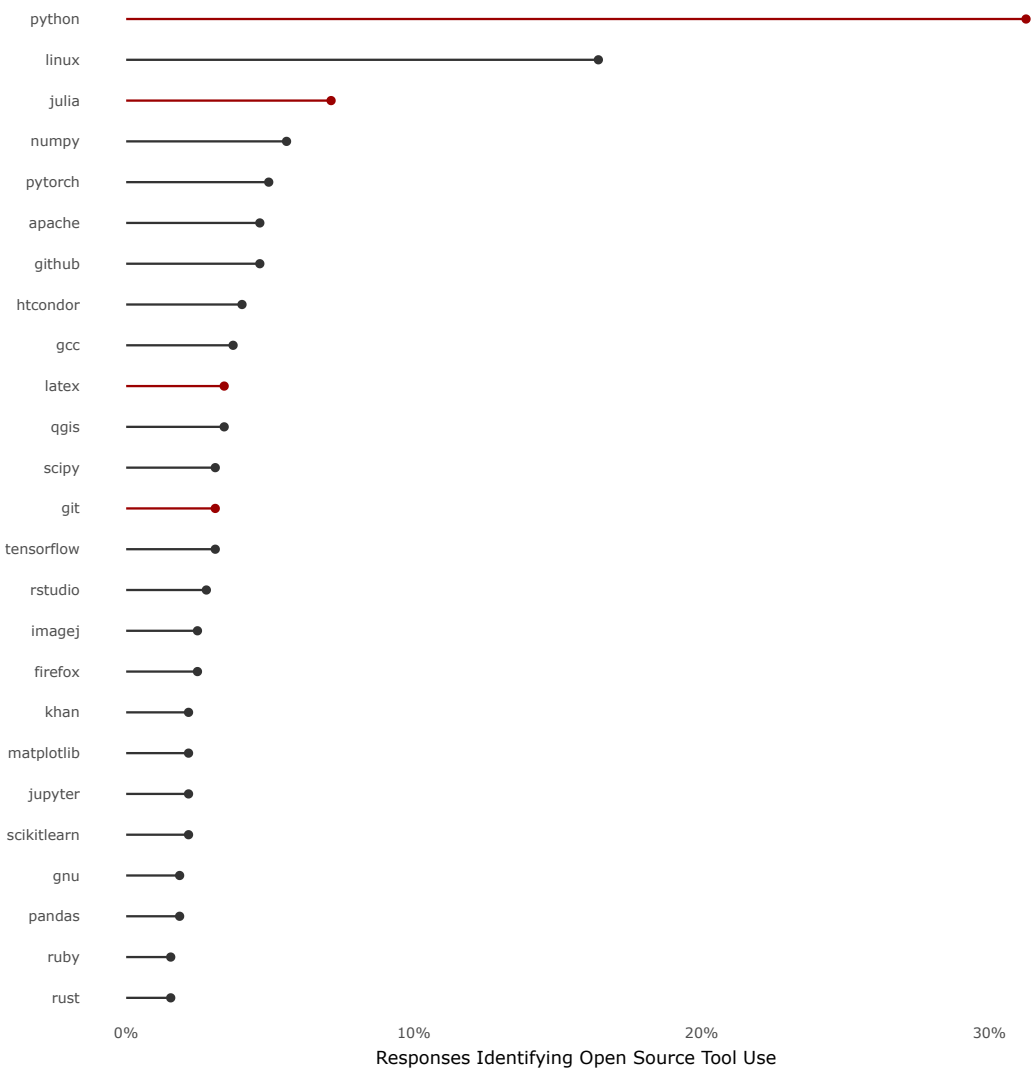
Khan Academy and MIT OpenCourseWare are examples of open source educational materials.



4.0.5 What Open Source Tools Do Respondents Use?

84% of respondents identified open source tools that are key in their workflows or their fields.

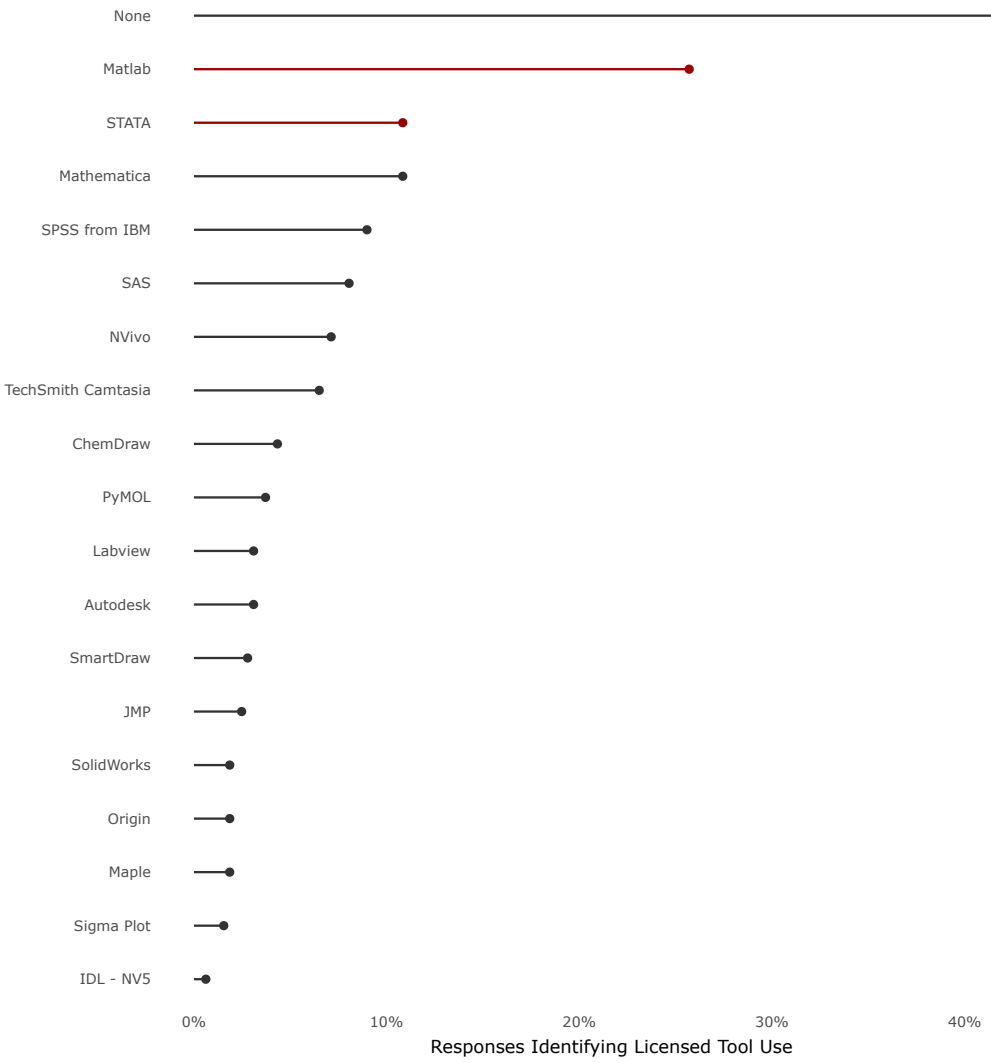
Tools respondents identified included:



Note that these are respondents' answers so not all tools may actually be open-source tools.

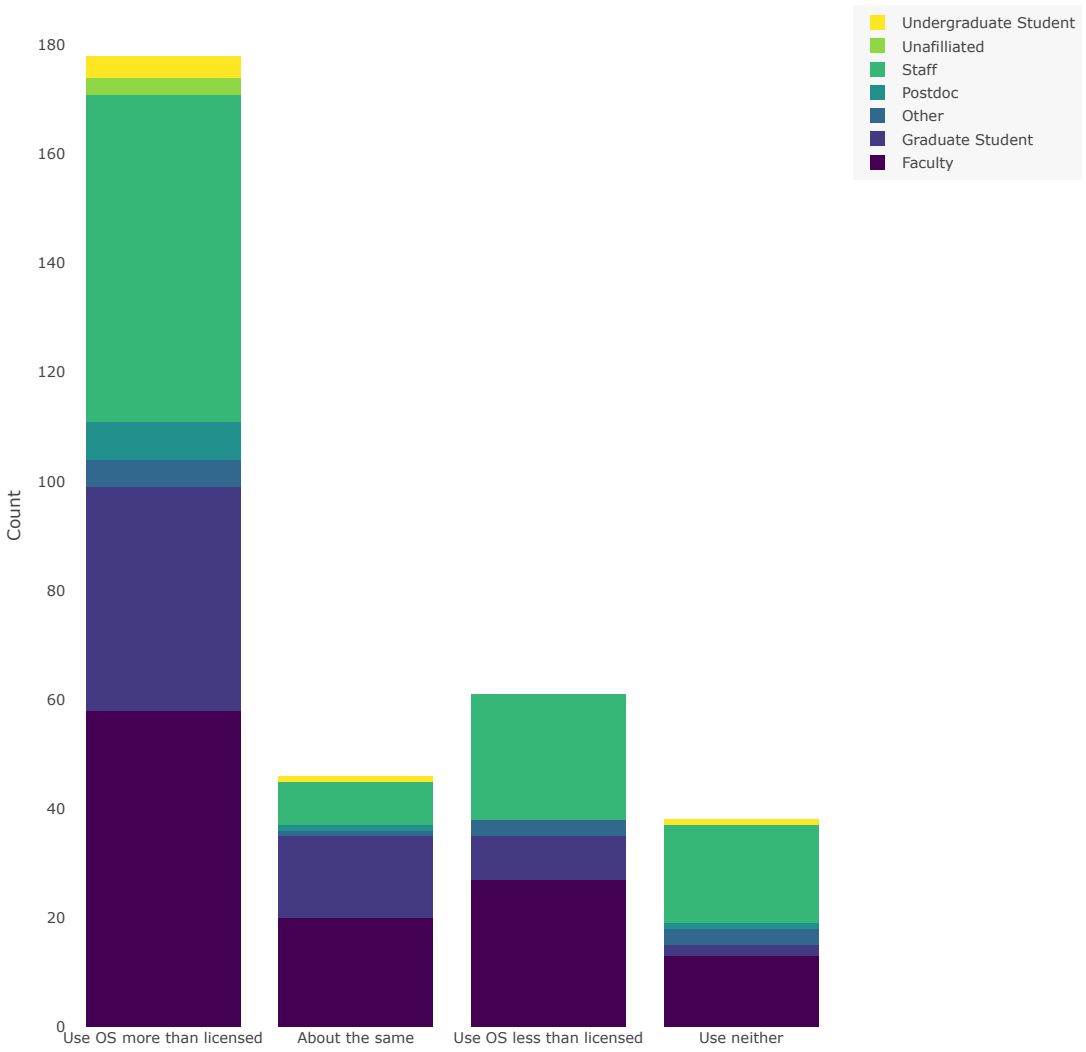
4.0.6 How Are Respondents Using University-Provided Licensed Software?

We asked respondents which university-provided licensed software they use that are available in the university's software library.


None
Matlab
STATA
Mathematica
SPSS from IBM
SAS
NVivo
TechSmith Camtasia
ChemDraw
PyMOL
Labview
Autodesk
SmartDraw
JMP
SolidWorks
Origin
Maple
Sigma Plot
IDL - NV5
0%
10%
20%
30%
40%
Responses Identifying Licensed Tool Use

4.0.7 Usage of Open Source Tools vs. Licensed Tools

Additionally, we asked respondents if they use open-source tools more than, as much as, or less than the licensed software provided by the university.

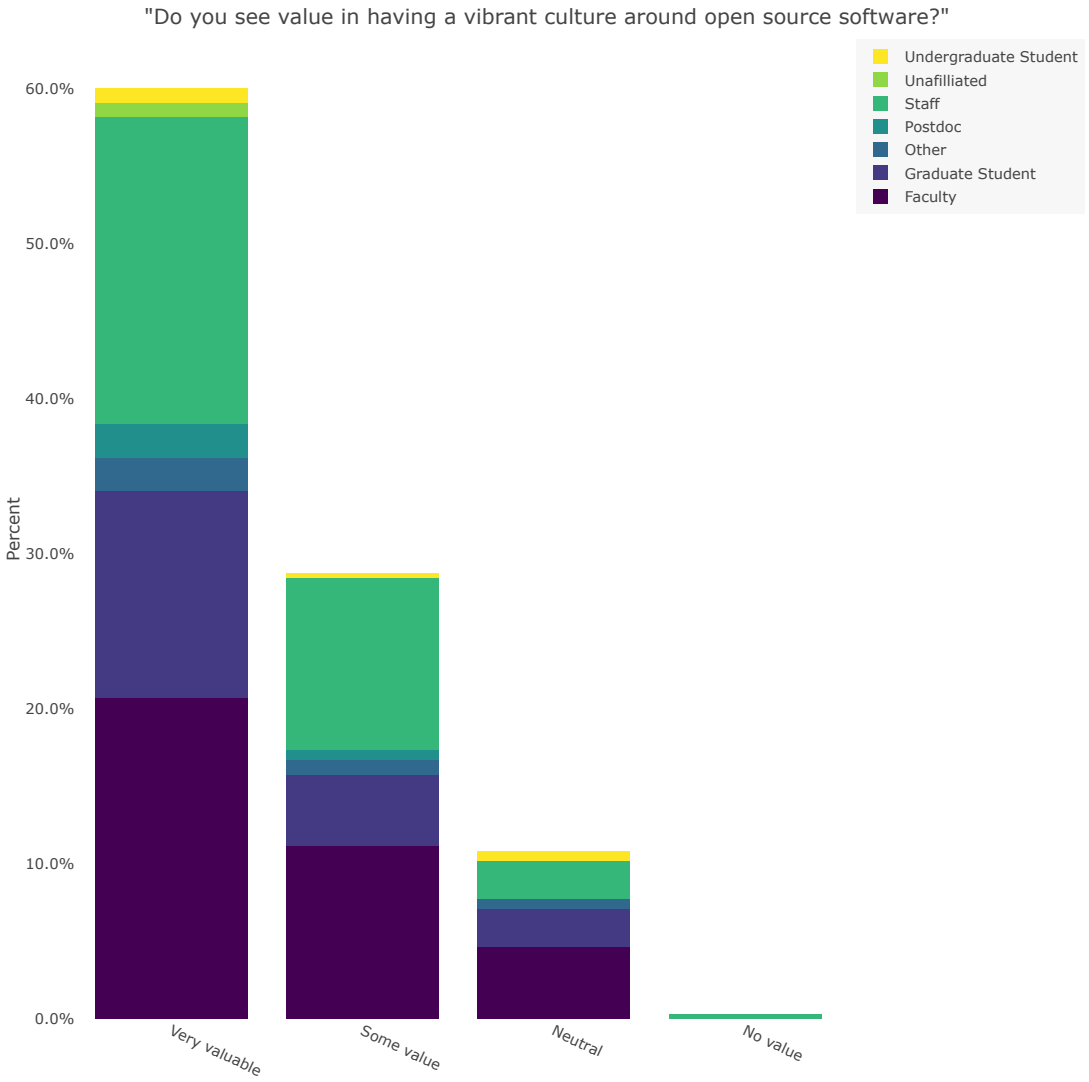

Undergraduate Student
Unafilliated
Staff
Postdoc
Other
Graduate Student
Faculty
Count
180
160
140
120
100
80
60
40
20
0
Use OS more than licensed
About the same
Use OS less than licensed
Use neither

Chapter 5

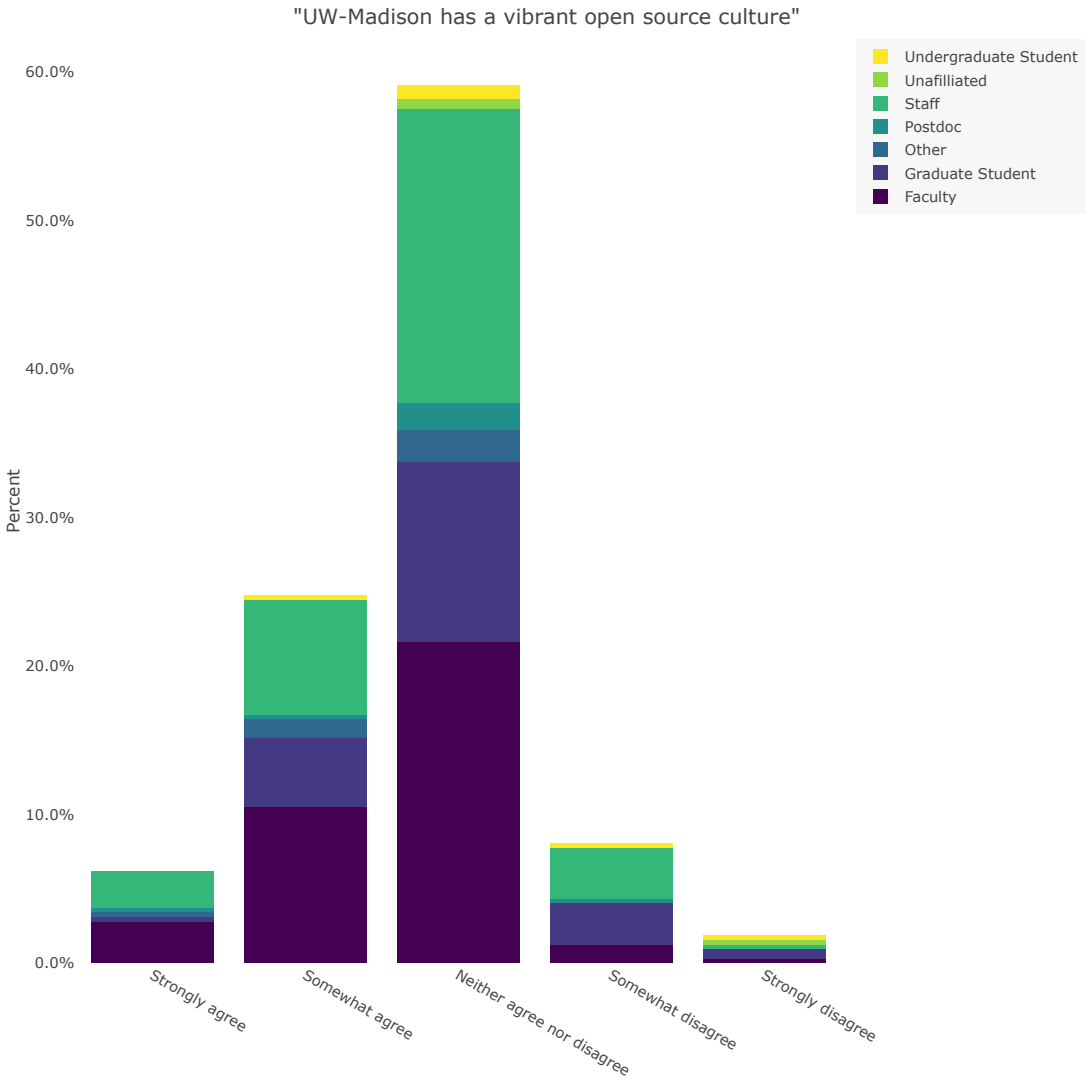
Campus Culture

5.0.1 Perceptions of Open Source Culture On Campus

60% of respondents said that having a vibrant open source culture is **"very valuable"**.



In comparison, only **31%** agreed that there is a vibrant open source culture at UW-Madison.

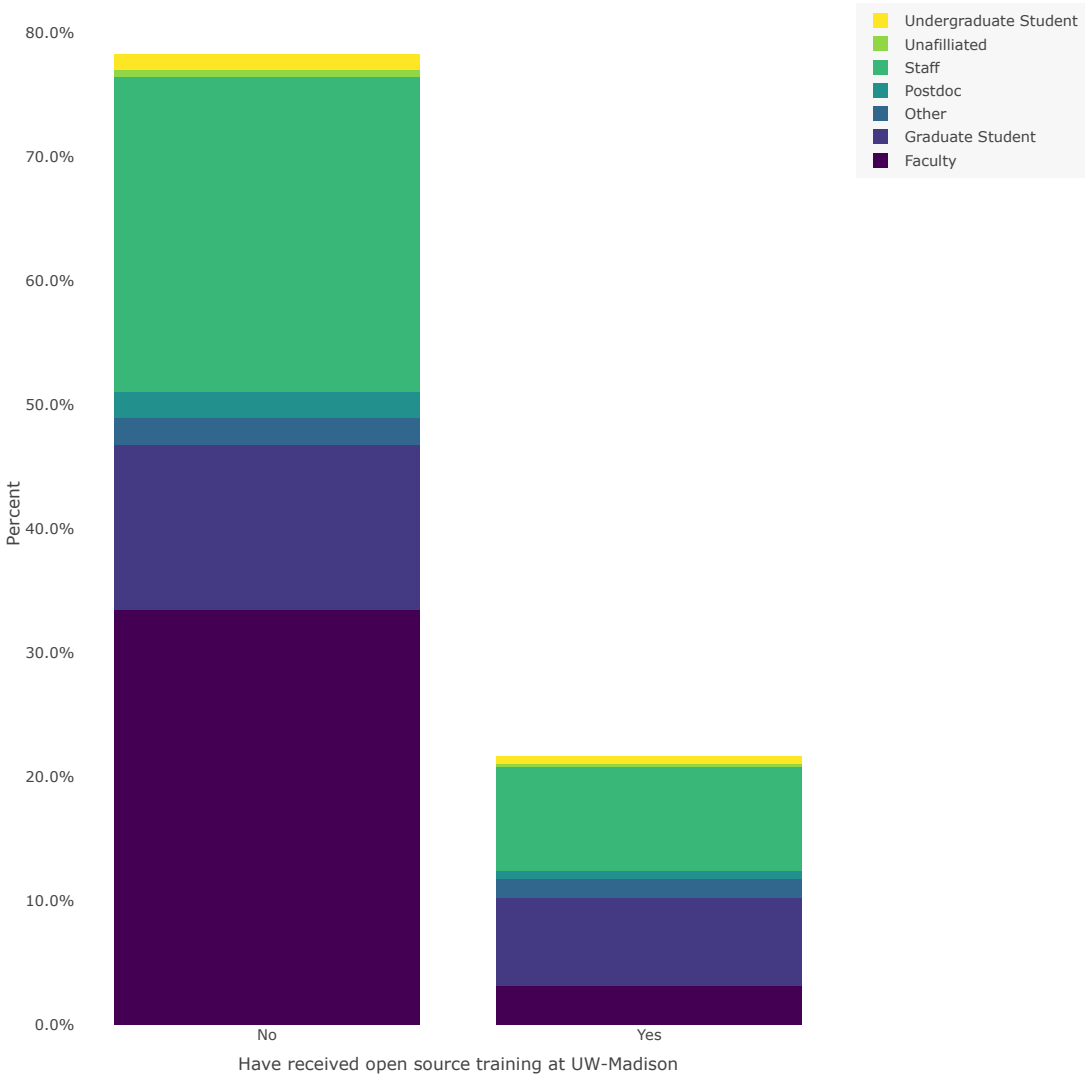


89% of respondents agreed that **"it makes sense for the university to contribute to open source software that is vital to its educational and research enterprise"** (11% were "unsure," and 0% disagreed).

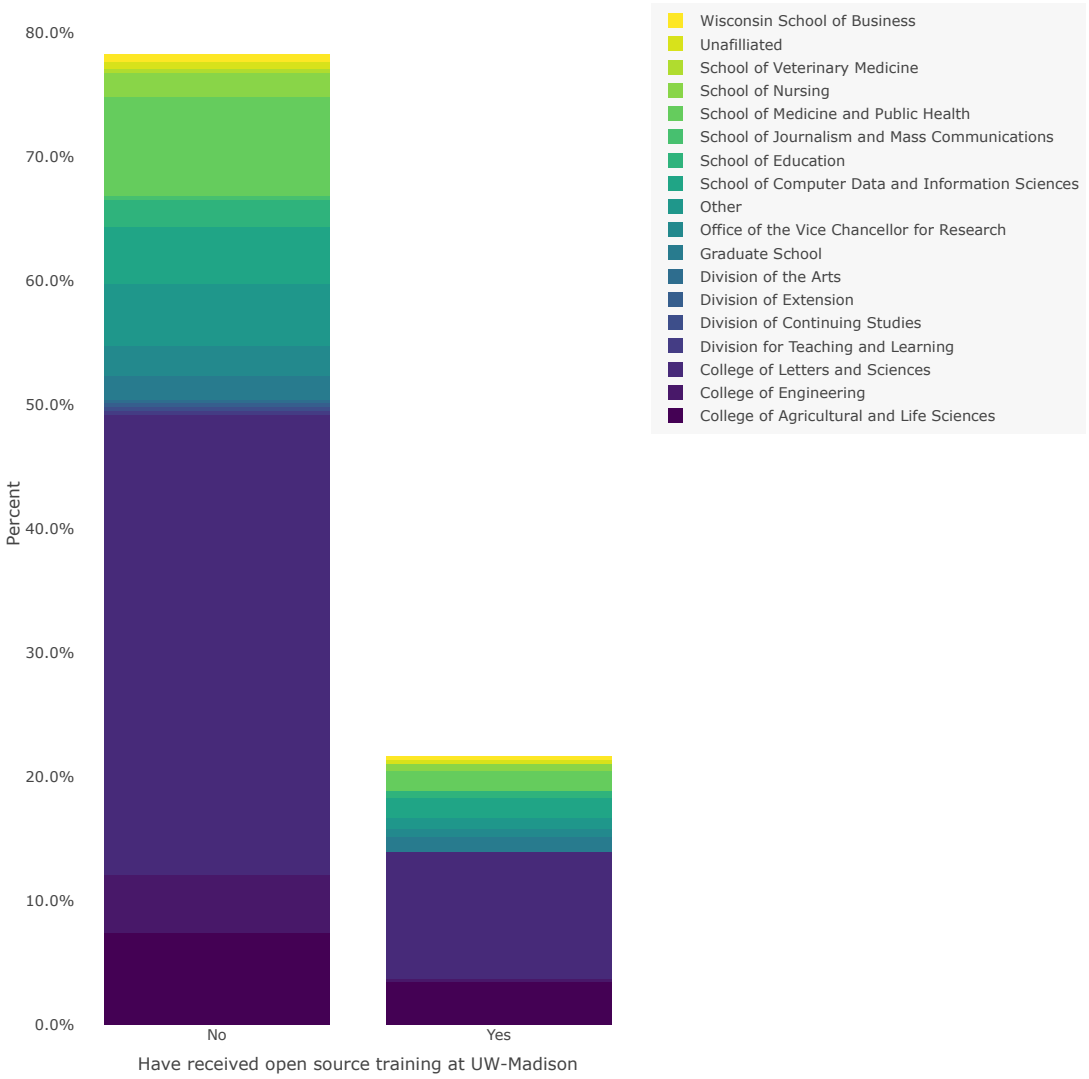
5.0.2 Open Source Training On Campus

22% of respondents said that they have received at least some formal training or education on open source software during their time at UW-Madison. These respondents were distributed by role and affiliation as below:

5.0.3 Role


Undergraduate Student
Unafilliated
Staff
Postdoc
Other
Graduate Student
Faculty
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Percent
No
Yes
Have received open source training at UW-Madison

5.0.4 Affiliation



87% of respondents said that they "would like to see more training, education, or support for learning how

to contribute to open source project" and **73%** of respondents expressed interest in potential open source training sessions and workshops organized by the Open Source Program Office.

Chapter 6

Reproducing the Survey

Both the 2024 UW-Madison open source survey and this Quarto analysis are open source. Instructions for customizing and reproducing this analysis are included here for ease of use.

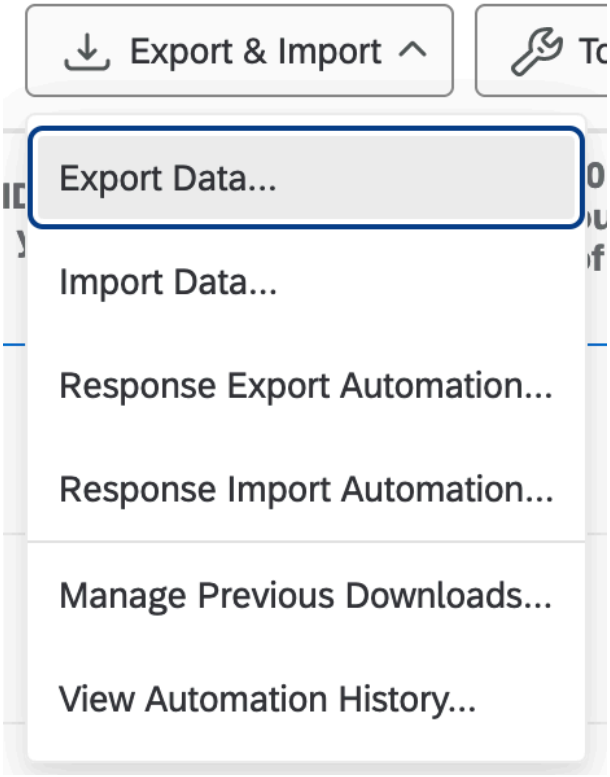
This project was inspired by a needs assessment survey conducted by the NYU Data Science and Software Services (DS3), an open source survey which was reproduced at the University of Washington.

6.1 About the Survey

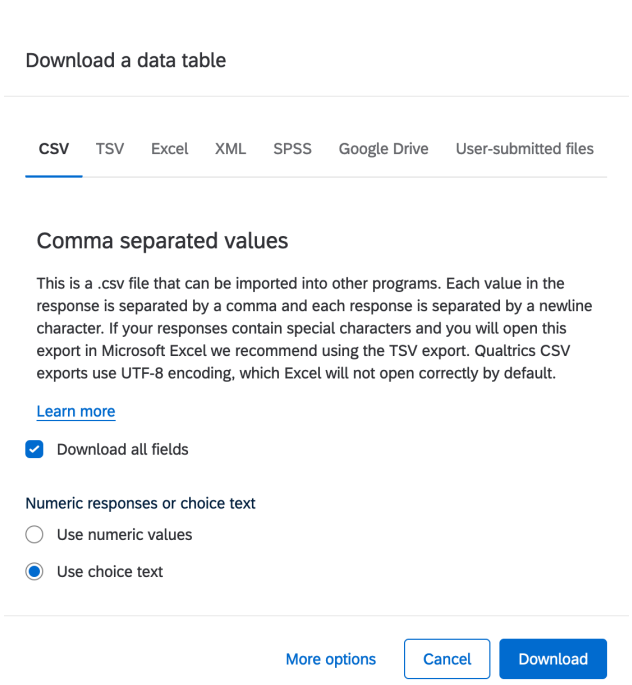
The 2024 open source survey at UW-Madison was administered with Qualtrics. Both the .qsf file for the survey and an example CSV of anonymized survey response data are available in this project's GitHub repo.

6.1.1 Exporting Survey Data From Qualtrics

Once your survey period is over, you can easily export your survey data. Within the Qualtrics project site for your survey, navigate to "Data and Analysis" → "Export & Import" → "Export Data…" and use the default settings in the options menu ("Download all fields" and "Use choice text") to export the survey response data as a CSV file.



(a) Select "Export data..."



(a) Use the default options in the pop-up download options menu

6.2 About the Quarto Site

This Quarto site uses the UW-Madison Quarto Template to conform to UW-Madison brand guidelines. The template is easily customizable to incorporate the color schemes, logos, and typefaces of other institutions.

Analysis of survey results is performed within R code chunks within the Quarto files for the appropriate pages. **Please note that the the analysis code written for this template is specific to the format of the 2024 UW-Madison open source survey**. If you change the format of your survey you will likely need to customize the code to adapt to your survey's response data.

6.2.1 Customizing the Site Theming

Most universities have a brand guidelines webpage that provides the color hex codes and typefaces that conform with the university's brand identity. `custom.scss` contains the SASS that styles all elements of the site that are not plots generated by R. You can customize the theme of the Quarto site here using your institutional brand's colors and typefaces. Custom fonts can be imported directly from Google Fonts in `custom.scss` or downloaded and installed locally.

`setup.R` is an R script that loads necessary packages and handles theming of R code output, like plots. Customize the sections of this script that define variables for your institution's name and color palette. The .qmd files that make up this Quarto site each `source` this file, so color variables, names, and plot themes customized in `setup.R` will apply to R output throughout the site.

Some R chunks in the site qmd files, such as in `usage.qmd`, also contain vectors that you can edit to remove unwanted words or characters from free response field analyses or to highlight certain elements of plots.