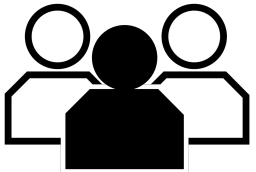
THE QUANTUM OPEN SOURCE SOFTWARE SURVEY

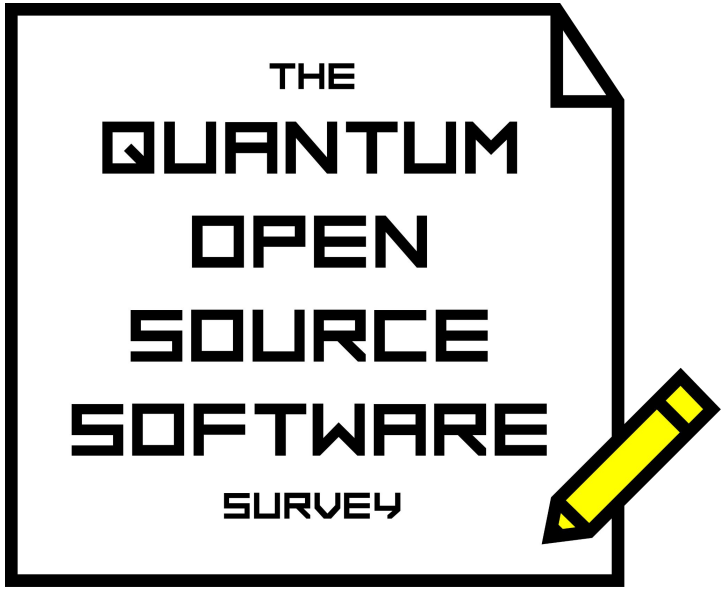
2022

DIVERSITY AND INCLUSION



PART I

PART II



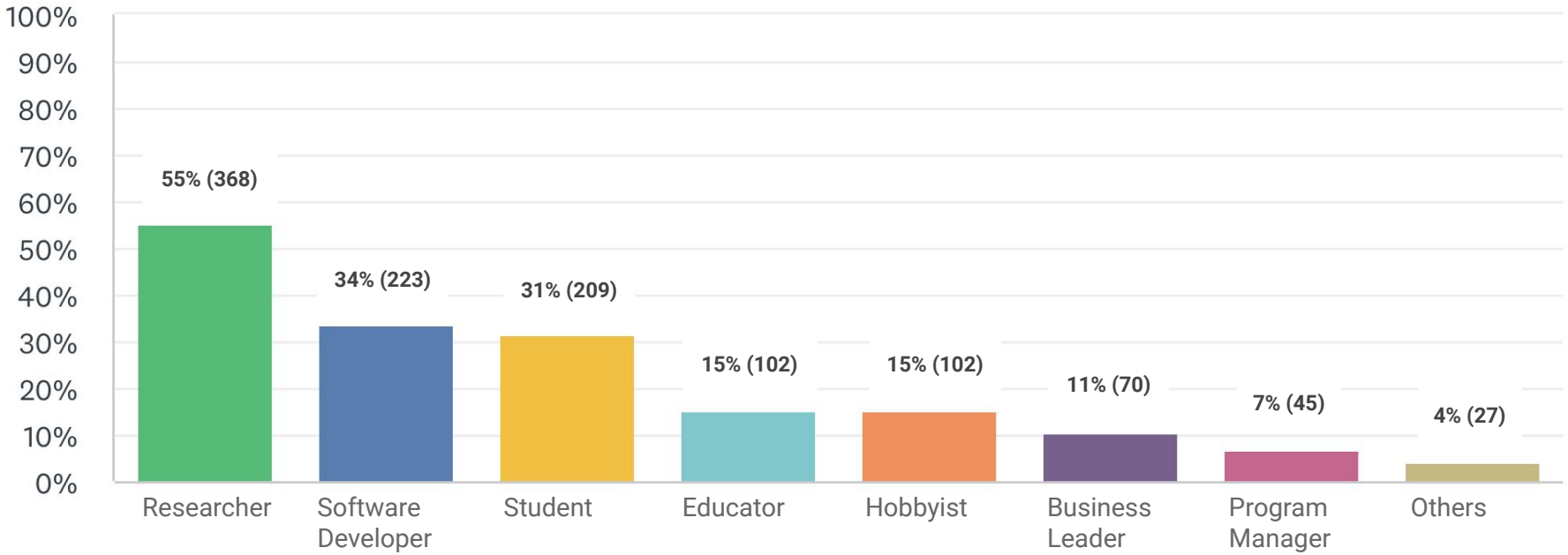
This dashboard represents the results based on the responses received from the 2022 Quantum Open Source Software Survey. Its purpose is to get a better understanding of the quantum computing community's needs and background and improve products, services, and educational material to better accommodate its users.

The survey aims to obtain a community-wide and industry-wide snapshot that is representative of everyone who codes or wants to code for and with quantum computing technologies.

The following data is collected from September 7th to October 7th, 2022.

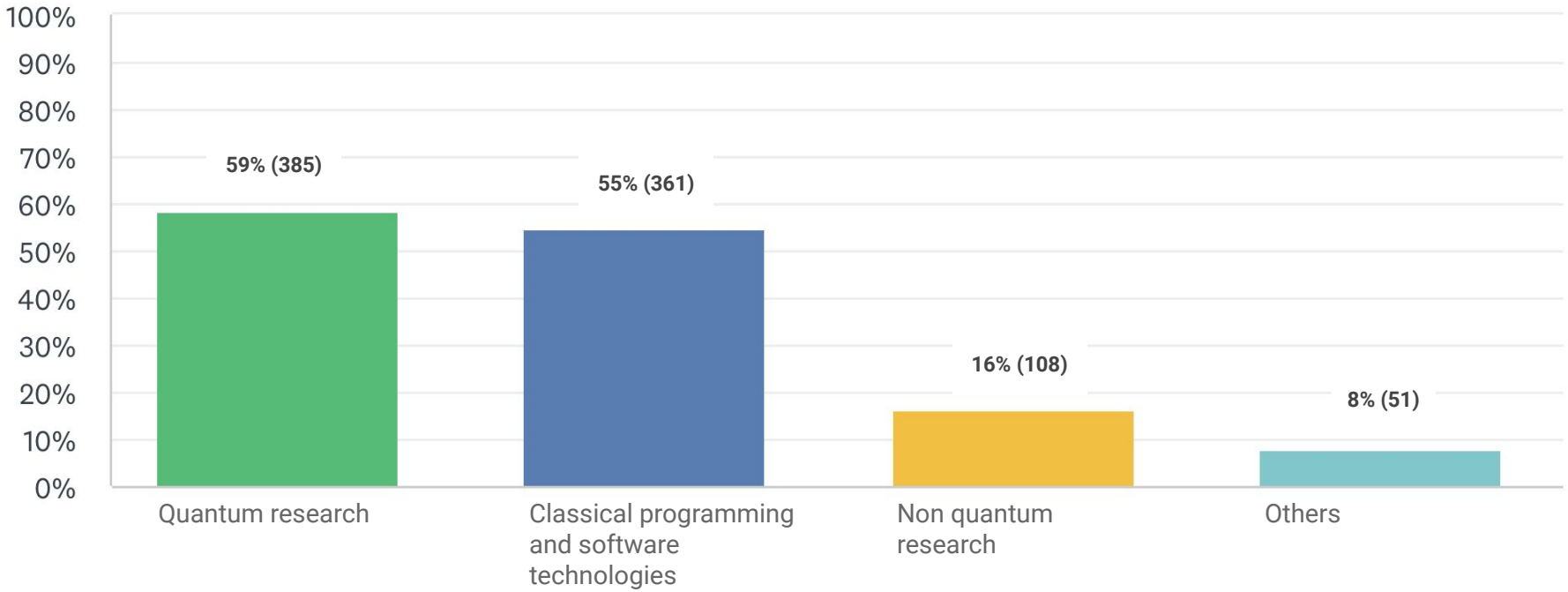
Roles:

Answered: 664 Skipped: 164



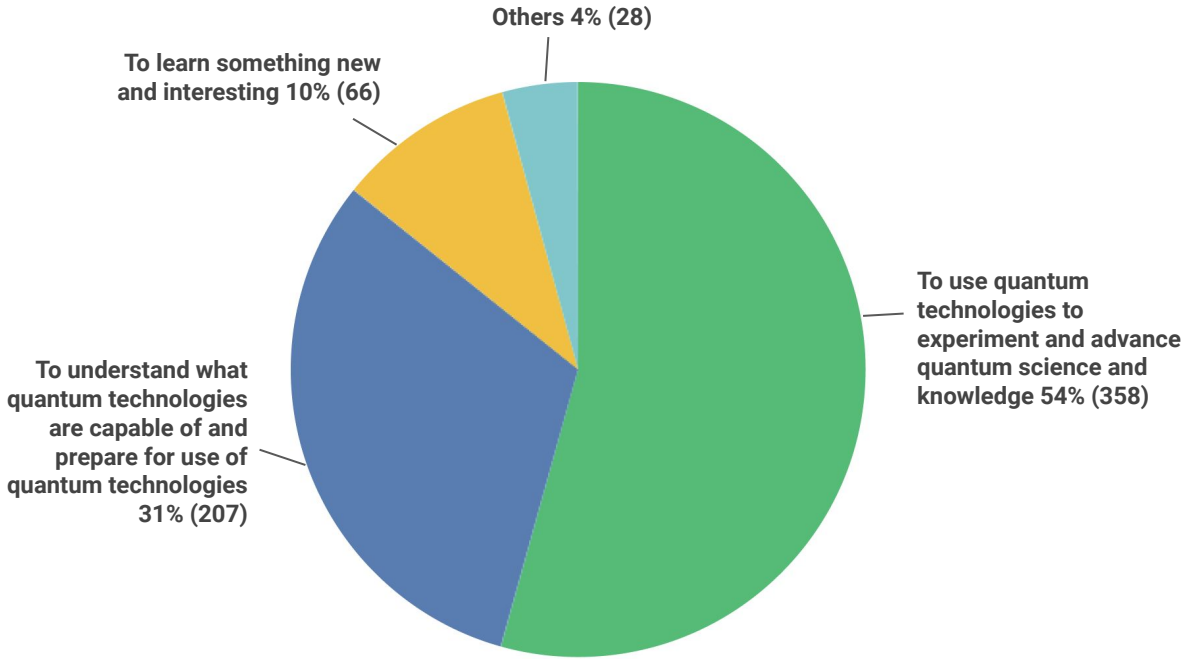
Background:

Answered: 658 Skipped: 170



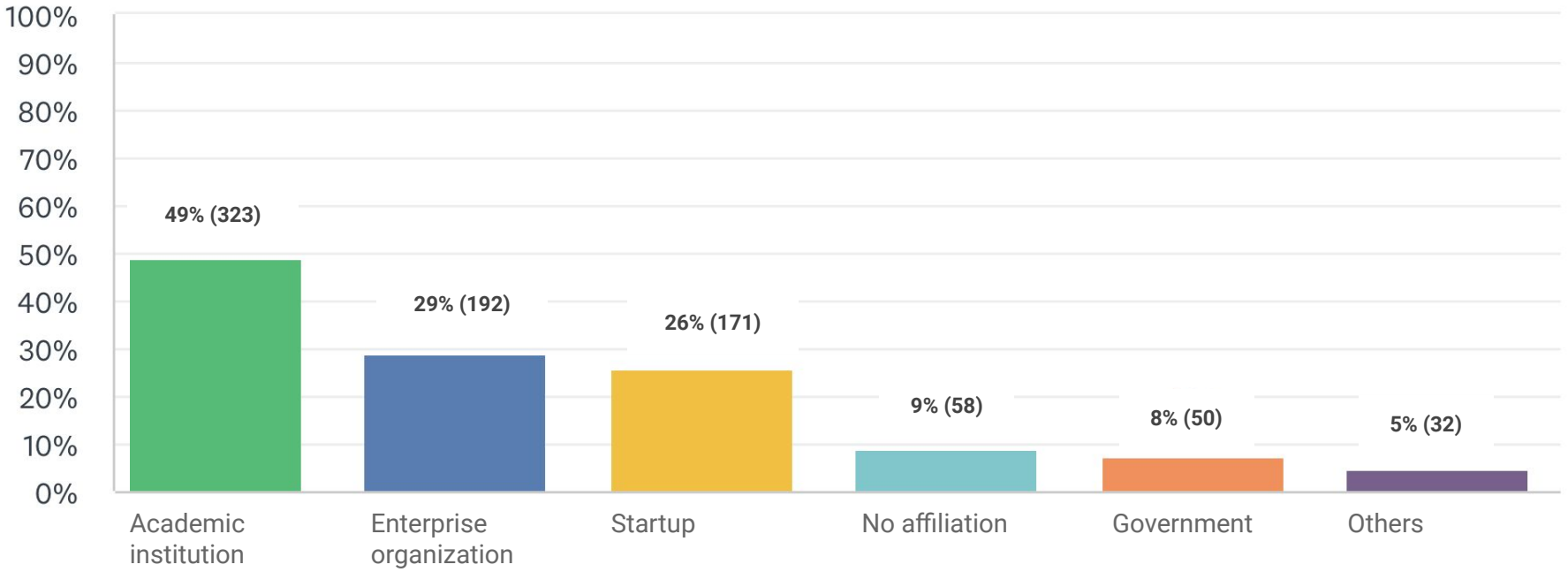
Reason for quantum involvement:

Answered: 659 Skipped: 169



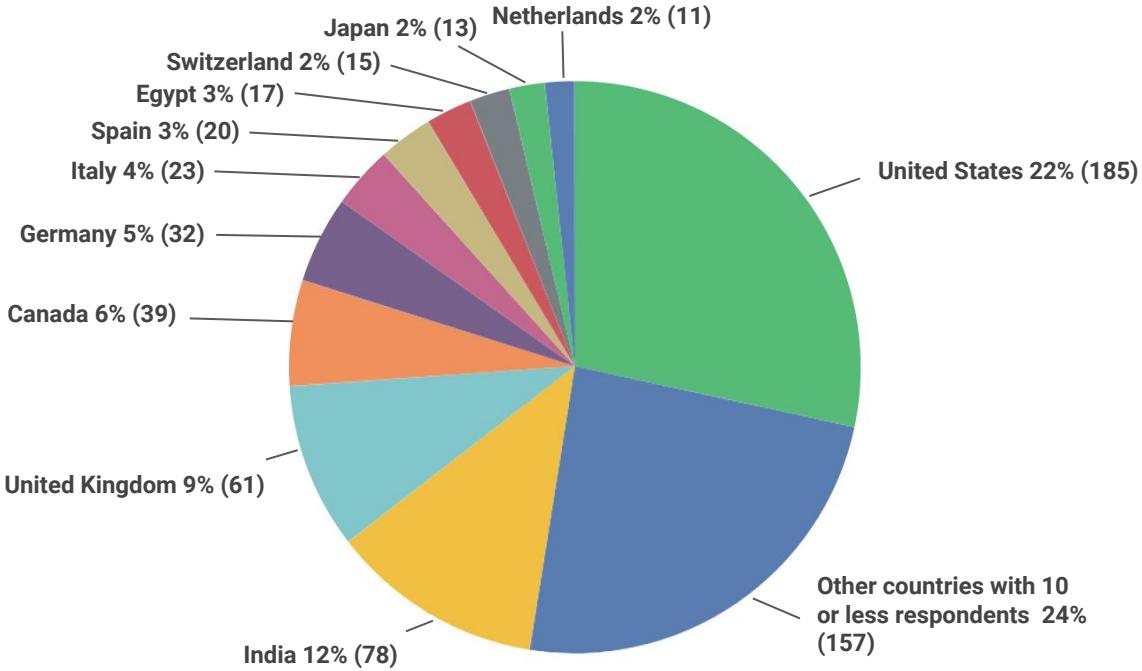
Affiliation in quantum technology:

Answered: 659 Skipped: 169



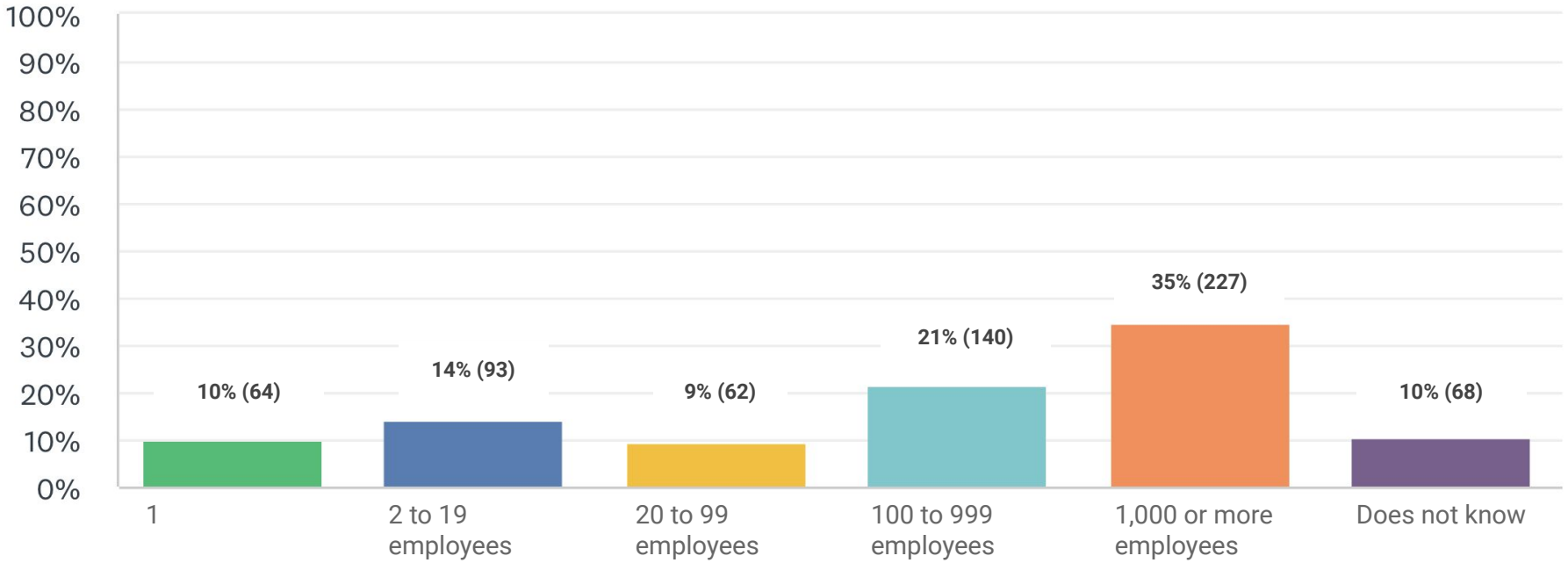
Country of residence:

Answered: 651 Skipped: 177



Affiliated organization size in terms of employee number:

Answered: 654 Skipped: 174



Employment status in quantum technology:

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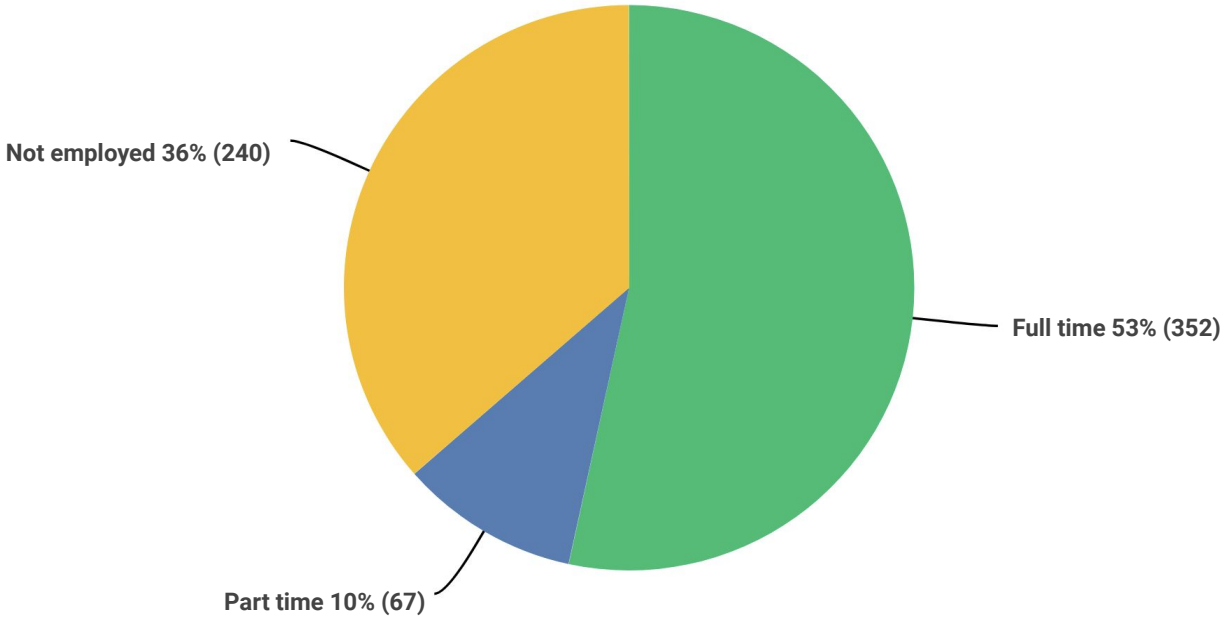
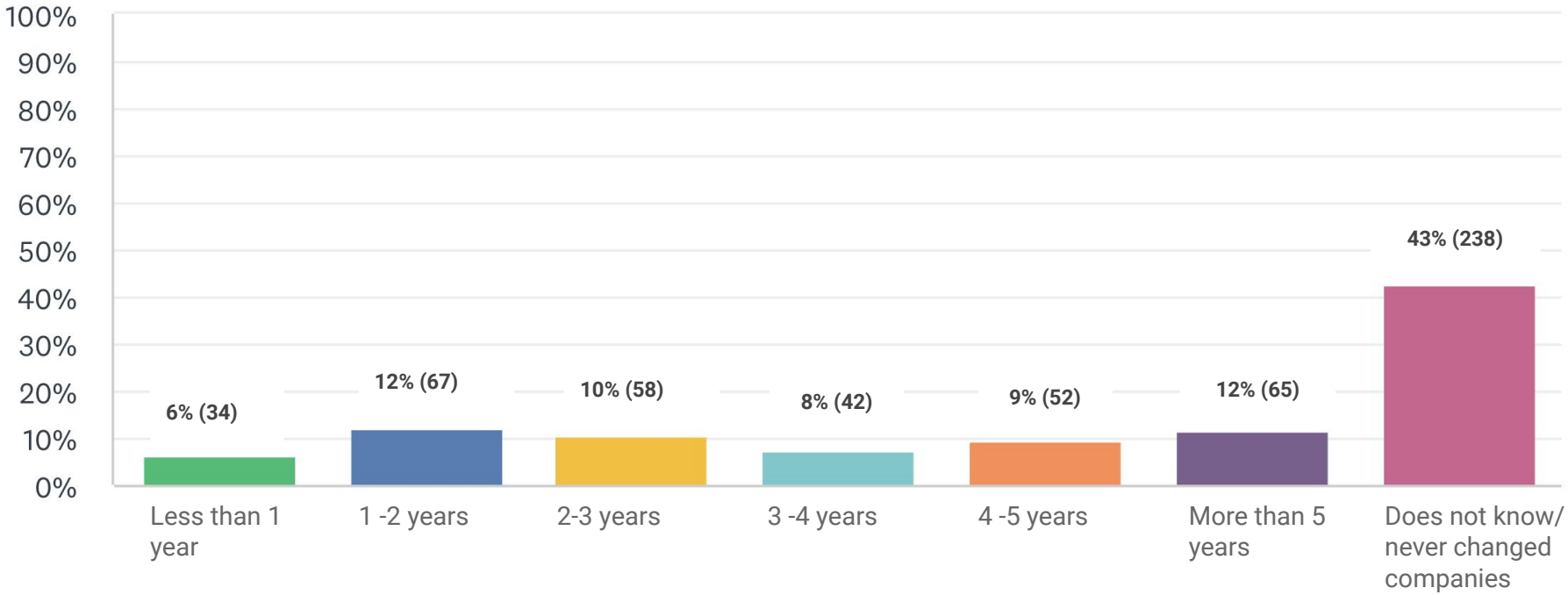


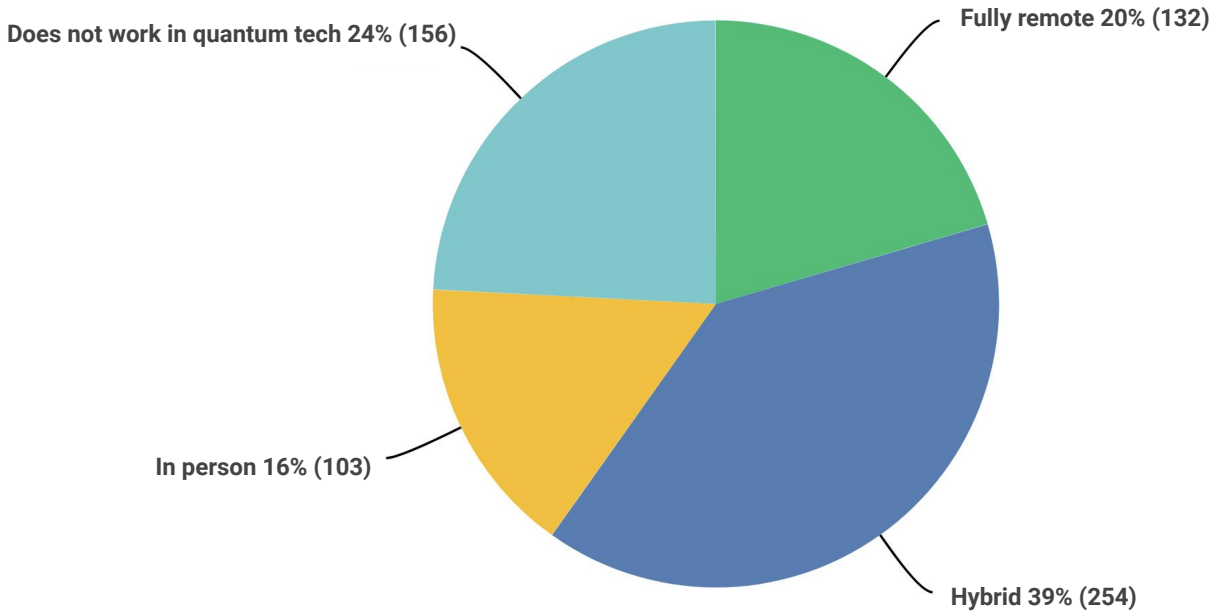
Length of stay within the same company:

Answered: 556 Skipped: 272



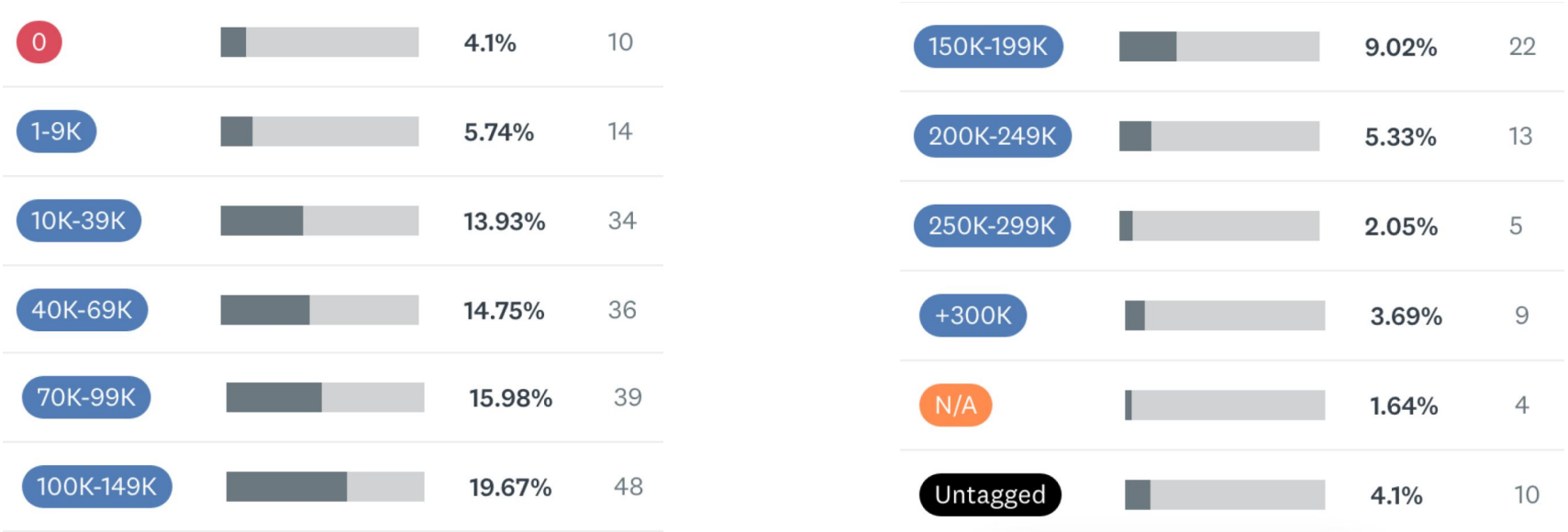
Work environment in quantum technology:

Answered: 645 Skipped: 183



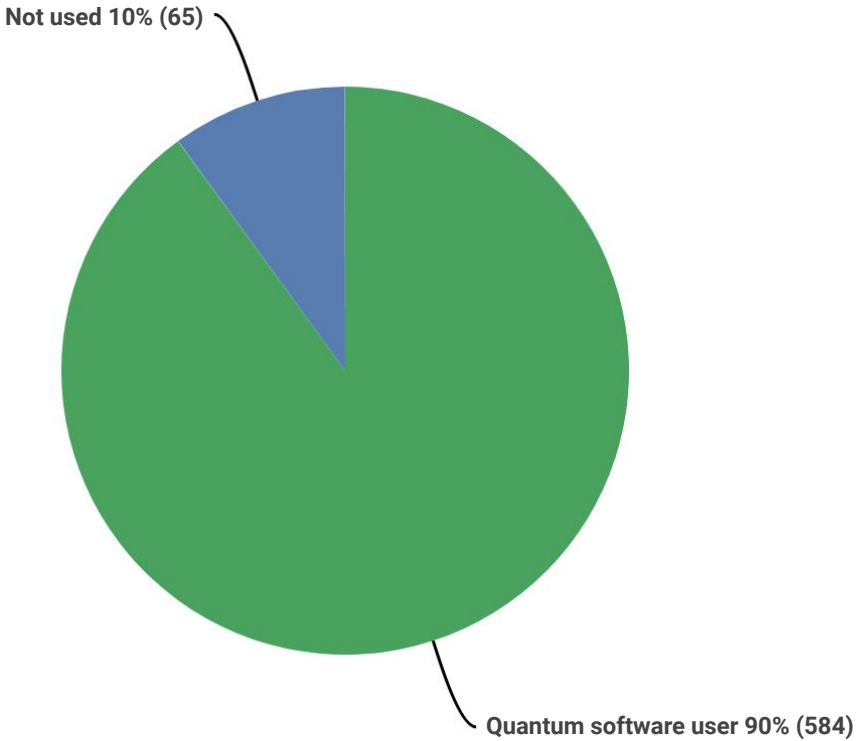
Current/expected total annual compensation in US dollars:

Answered: 244 Skipped: 584



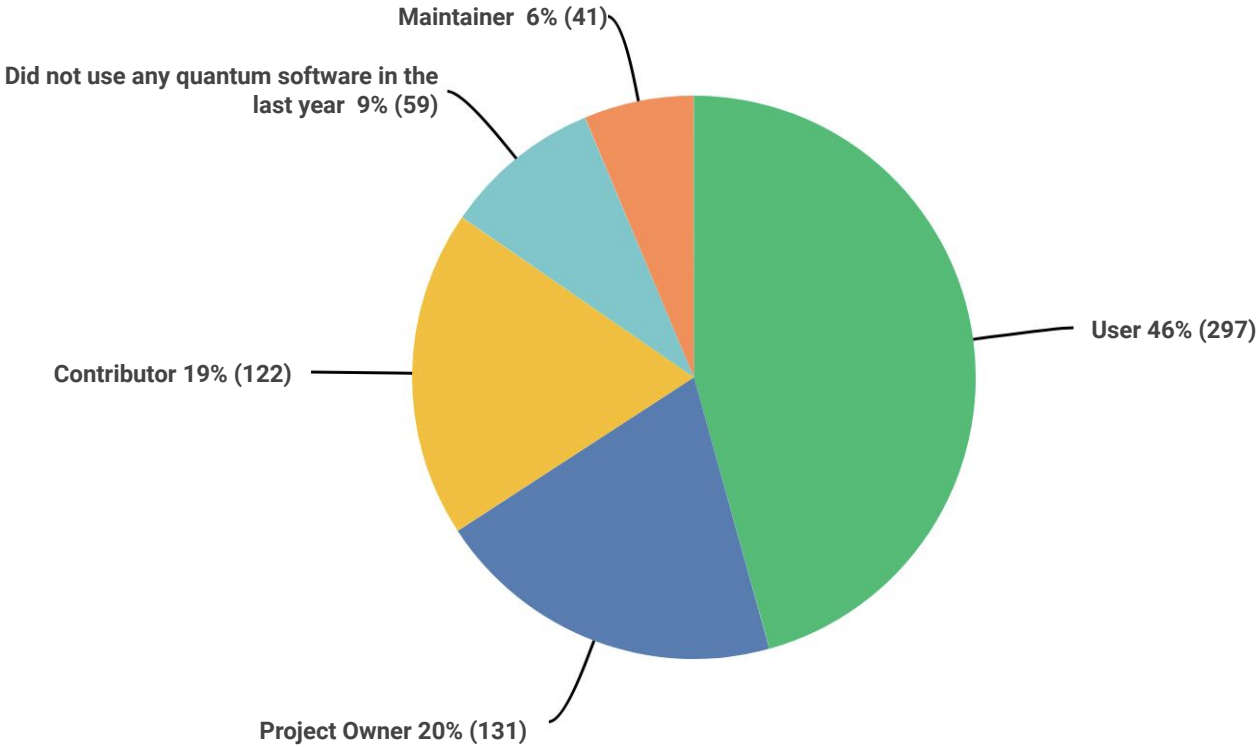
Quantum Software use:

Answered: 649 Skipped: 179



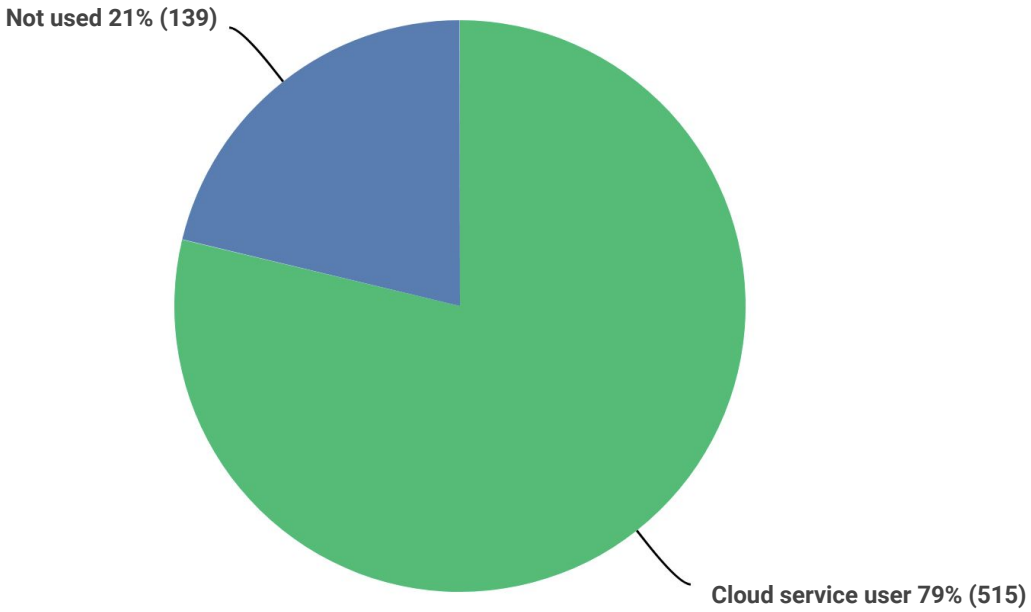
Role in the Quantum Software project most involved in:

Answered: 650 Skipped: 178



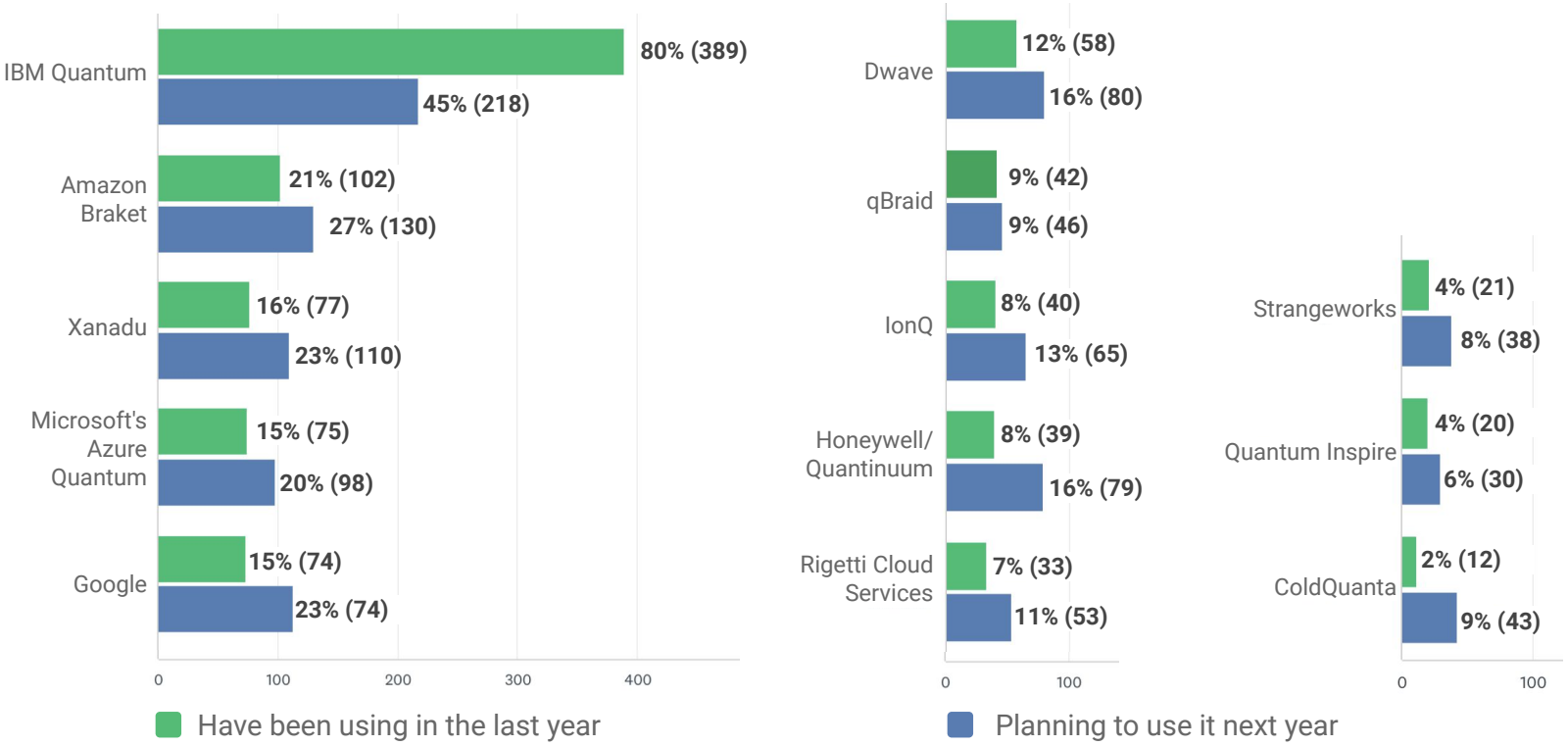
Cloud service use:

Answered: 654 Skipped: 174



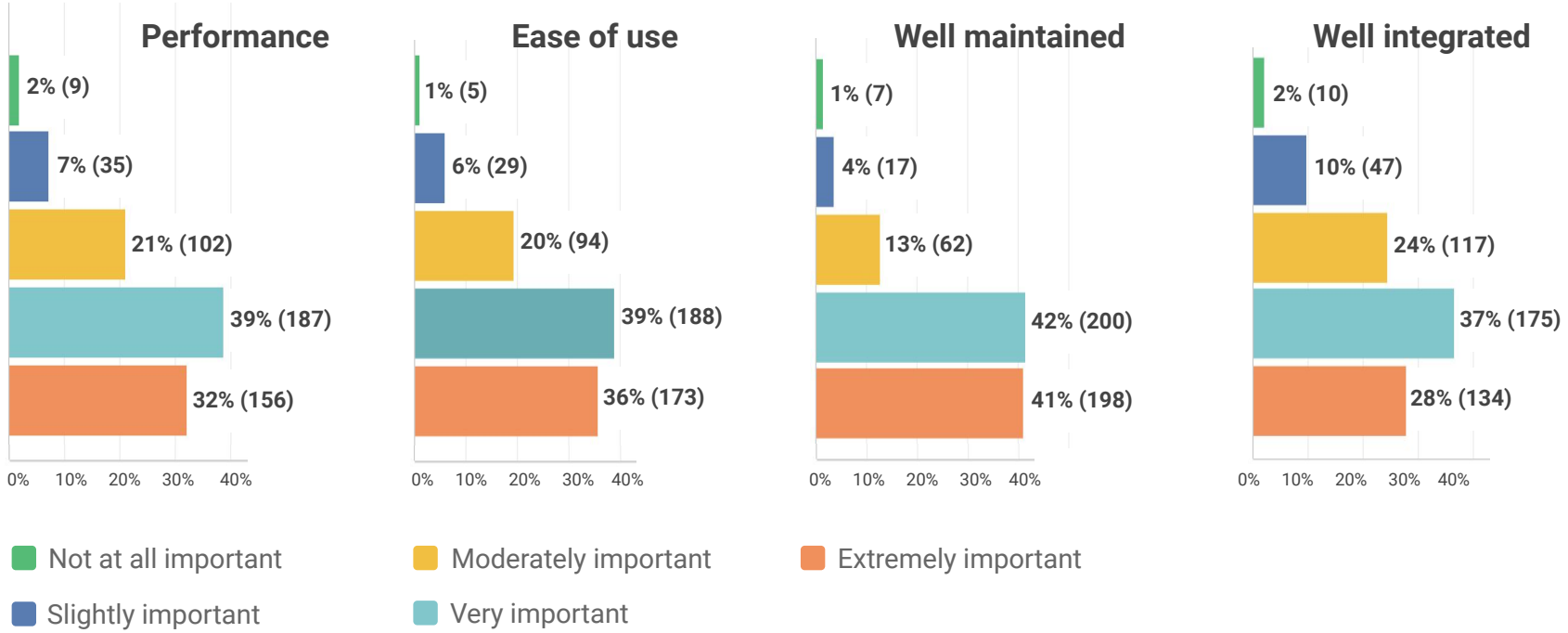
Cloud services used currently and would like to use in the next year:

Answered: 485 Skipped: 343



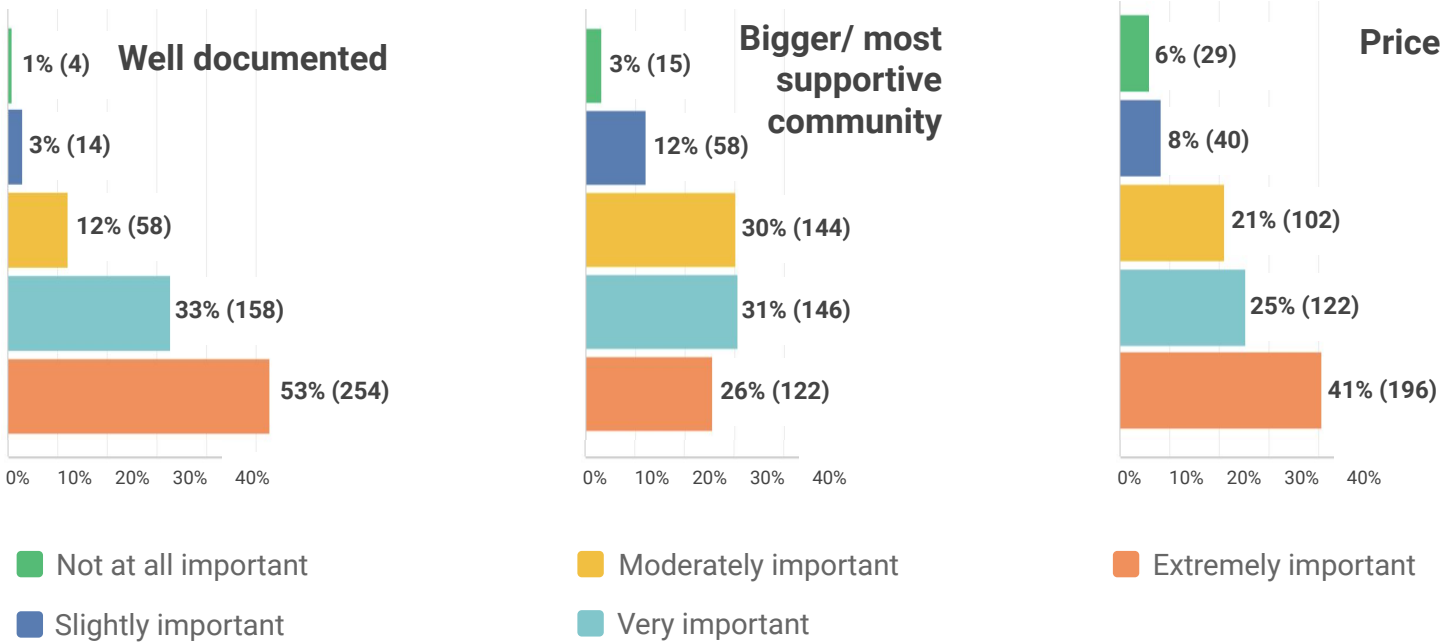
Importance rating when choosing a cloud service (1/2):

Answered: 485 Skipped: 343



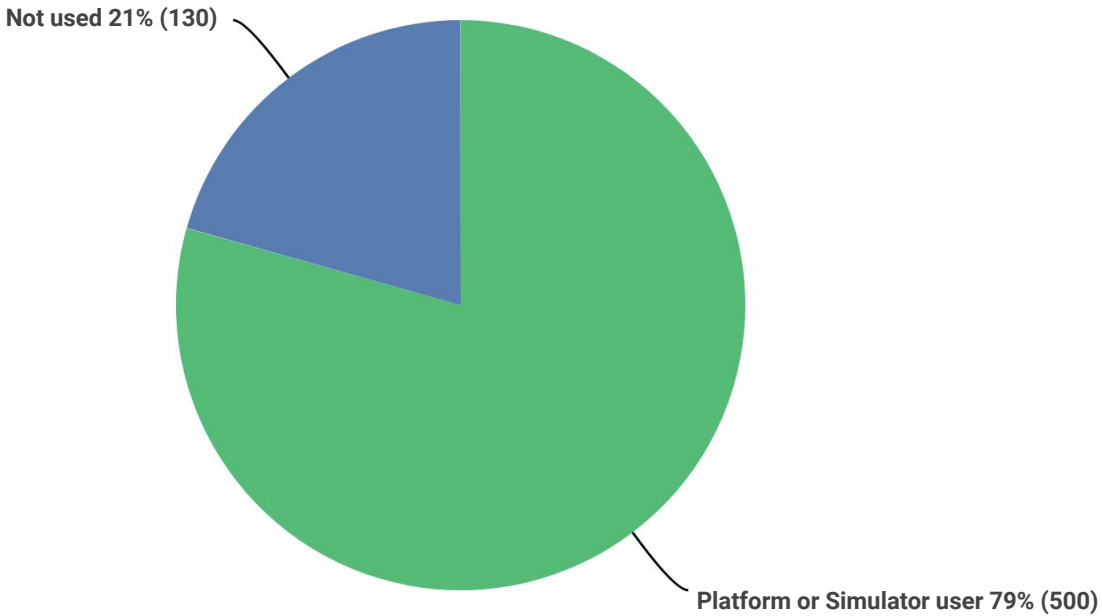
Importance rating when choosing a cloud service (1/2):

Answered: 485 Skipped: 343



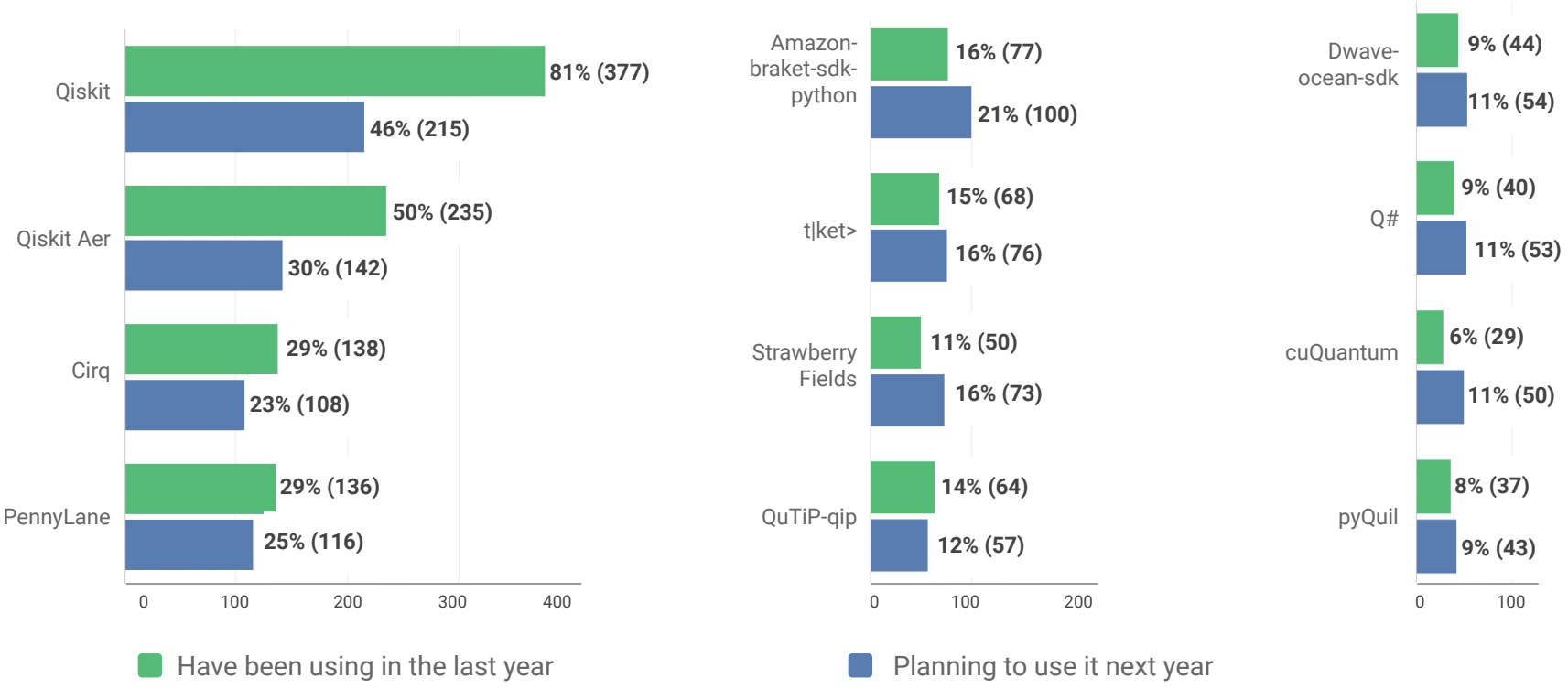
Full-stack development platform or simulator:

Answered: 630 Skipped: 198



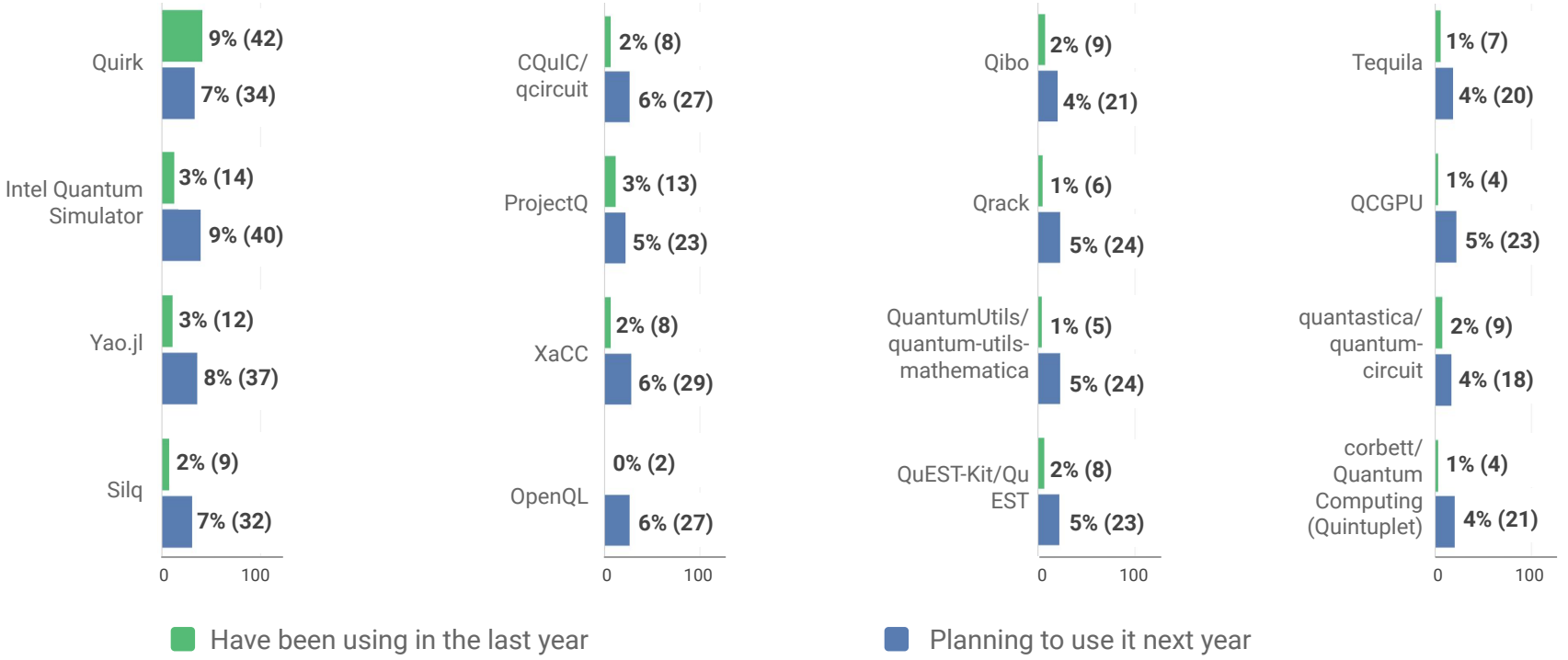
Full-stack development platforms and simulators used currently or in the future (1/3):

Answered: 468 Skipped: 360



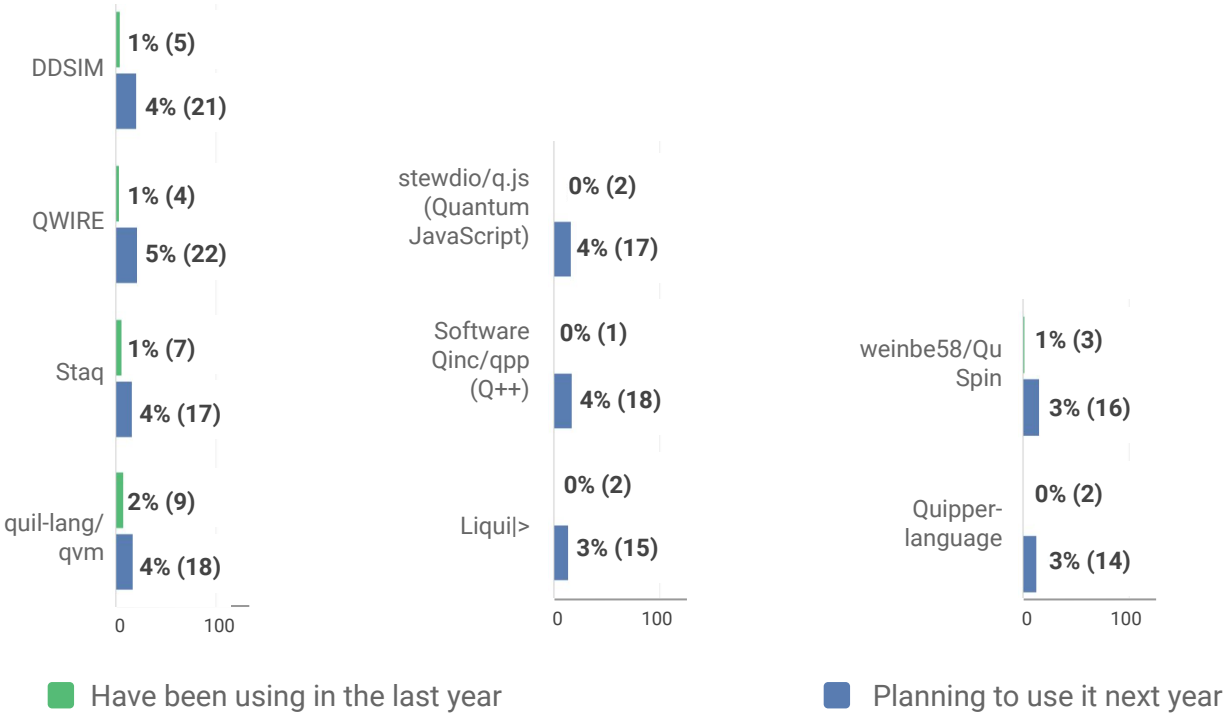
Full-stack development platforms and simulators used currently or in the future (2/3):

Answered: 468 Skipped: 360



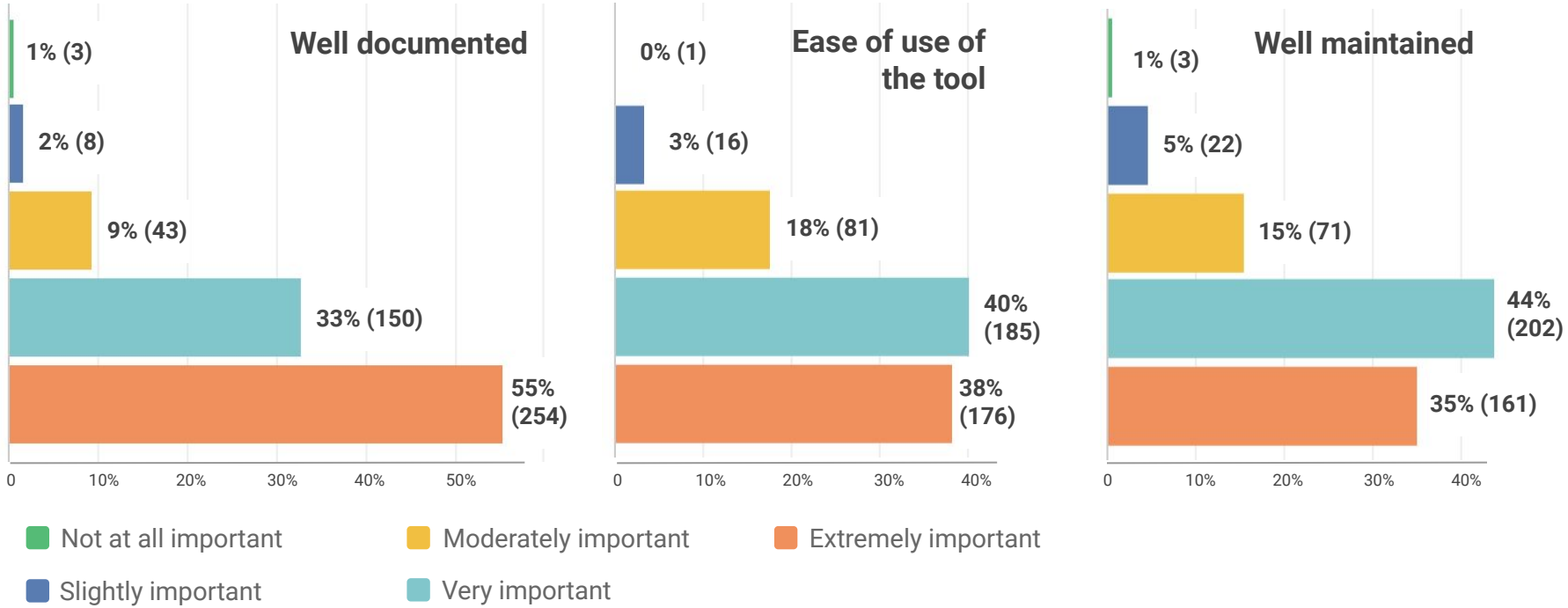
Full-stack development platforms and simulators used currently or in the future (3/3):

Answered: 468 Skipped: 360



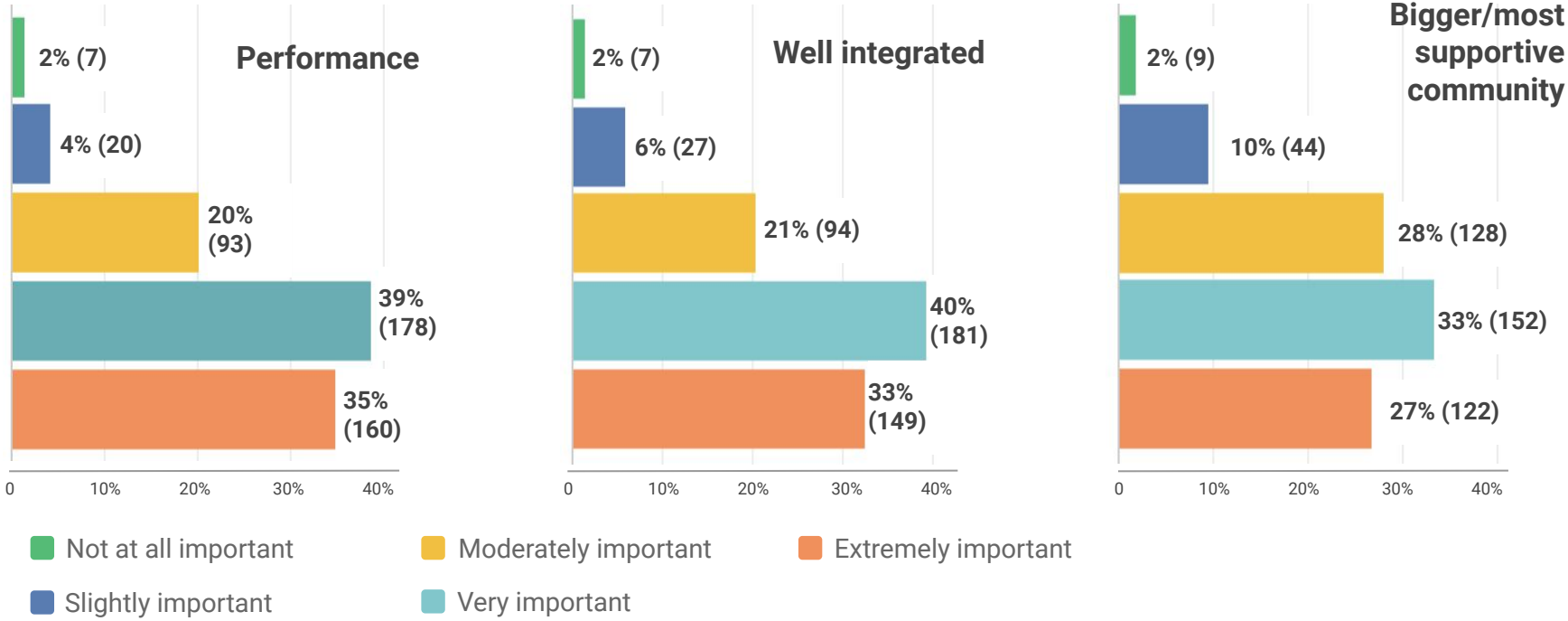
Importance rating when choosing a full-stack development platform and simulator(1/2):

Answered: 462 Skipped: 366



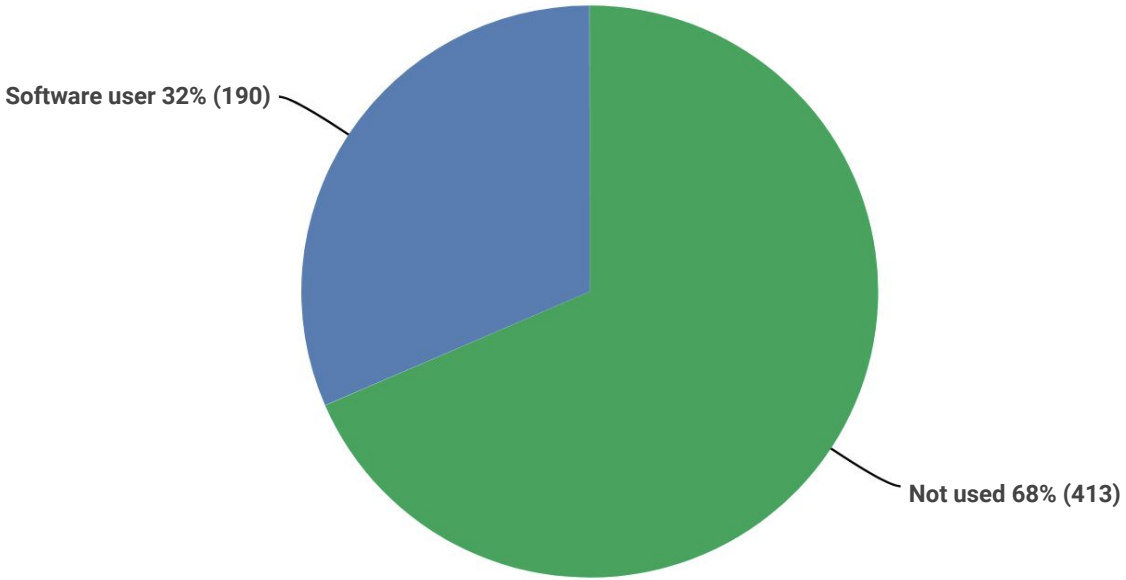
Importance rating when choosing a full-stack development platform and simulator(2/2):

Answered: 462 Skipped: 366



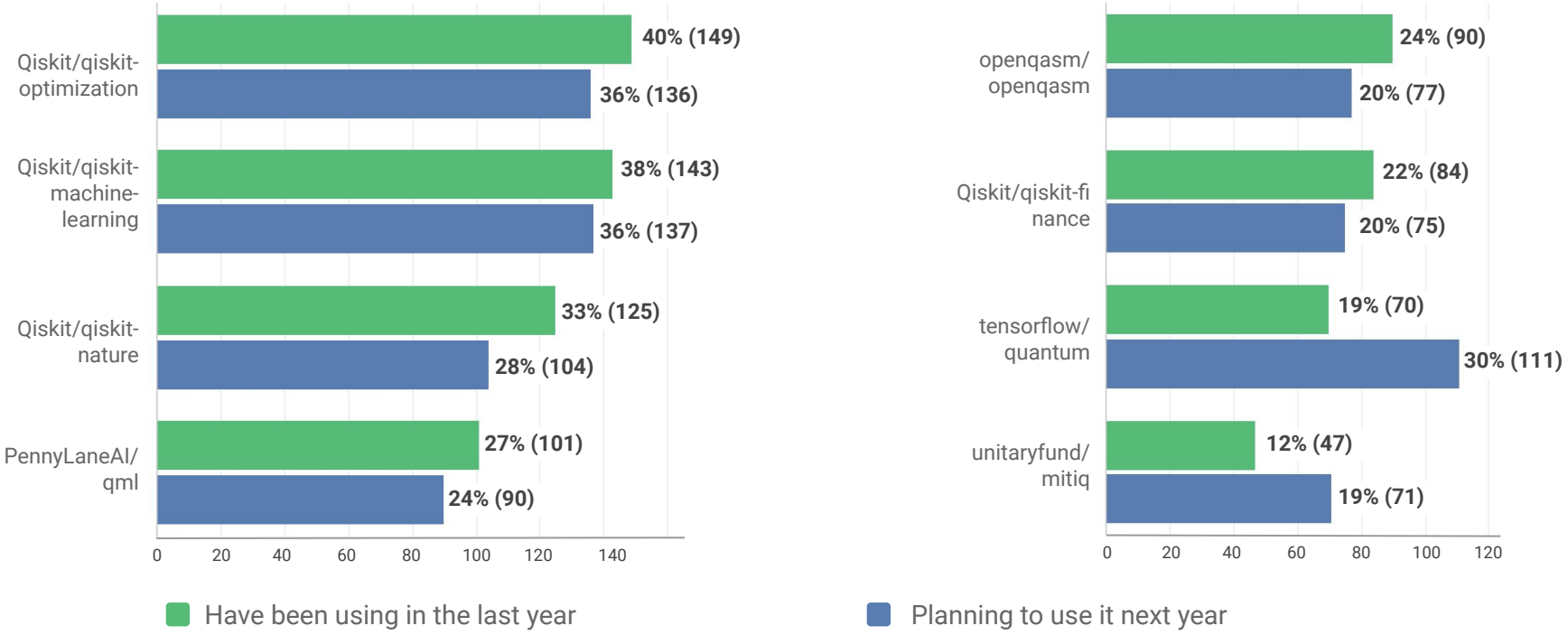
Software use for applications and tools:

Answered: 603 Skipped: 225



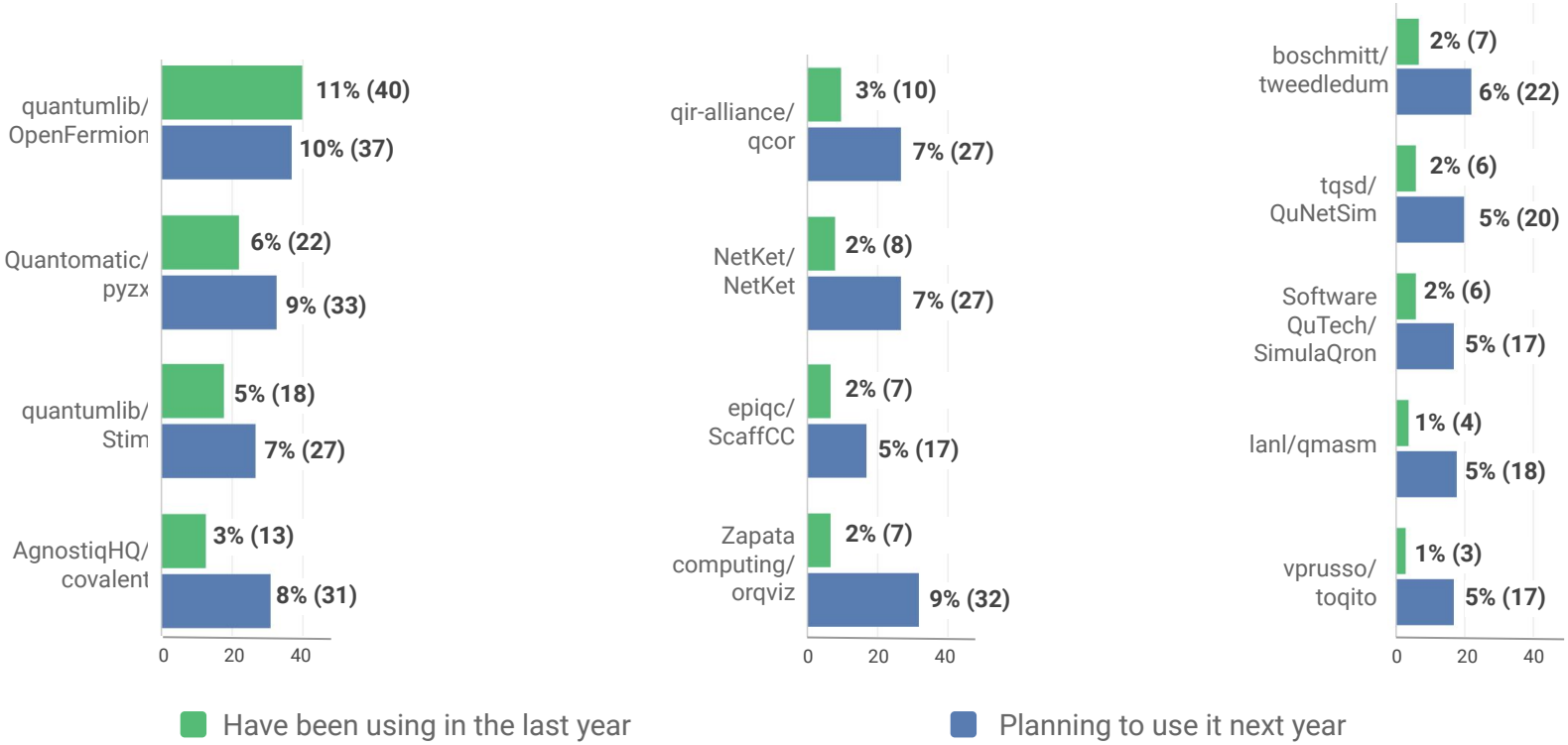
Softwares currently used and would like to use in the next year for applications and tools(1/2):

Answered: 376 Skipped: 452



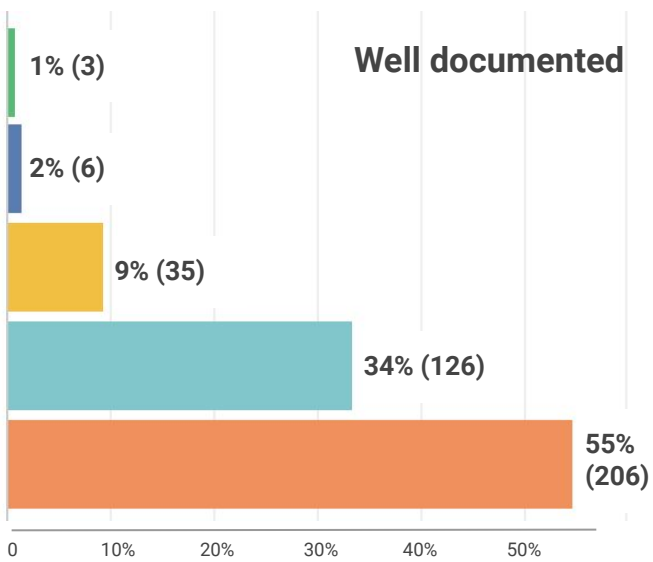
Softwares currently used and would like to use in the next year for applications and tools(2/2):

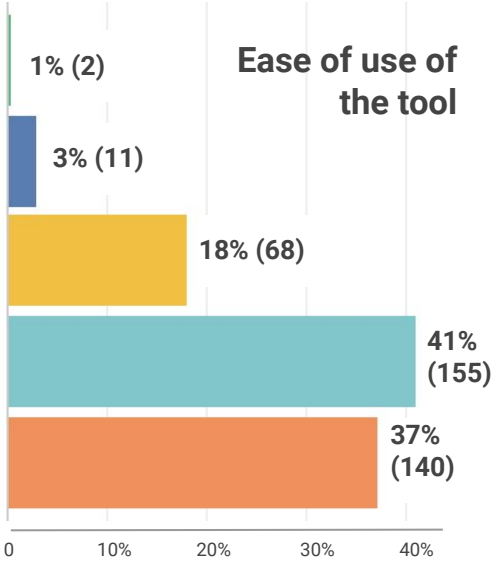
Answered: 376 Skipped: 452

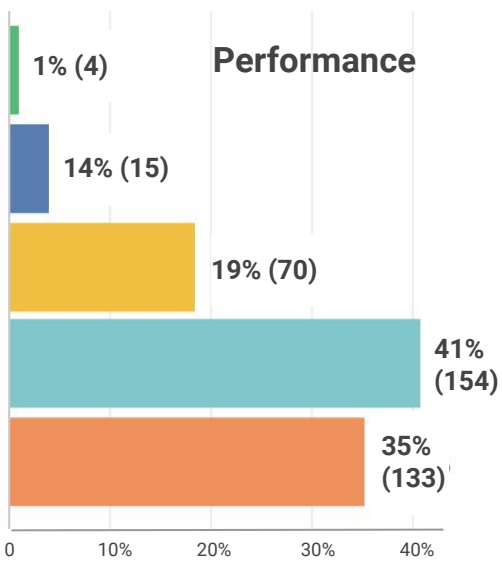


Importance rating when choosing a software for applications and tools(1/2):

Answered: 379 Skipped: 449



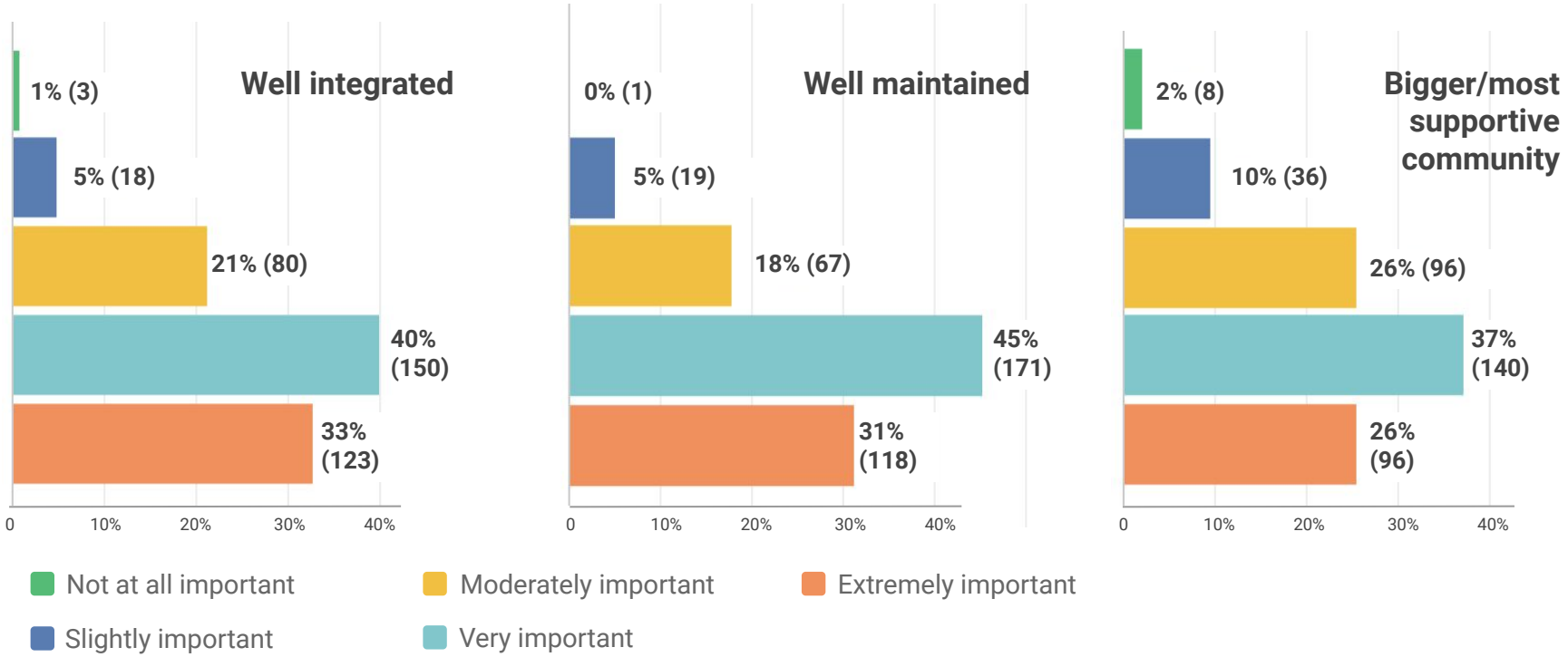




Not at all important
Slightly important
Moderately important
Very important
Extremely important

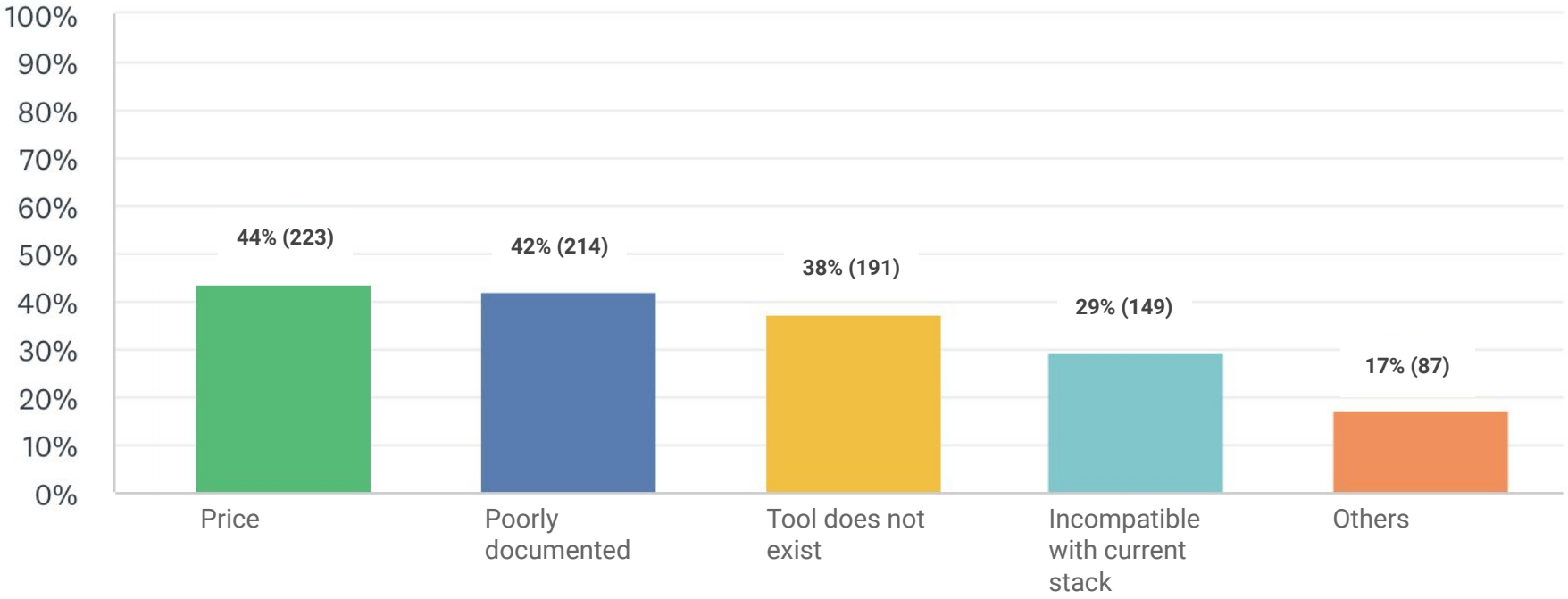
Importance rating when choosing a software for applications and tools(2/2):

Answered: 379 Skipped: 449



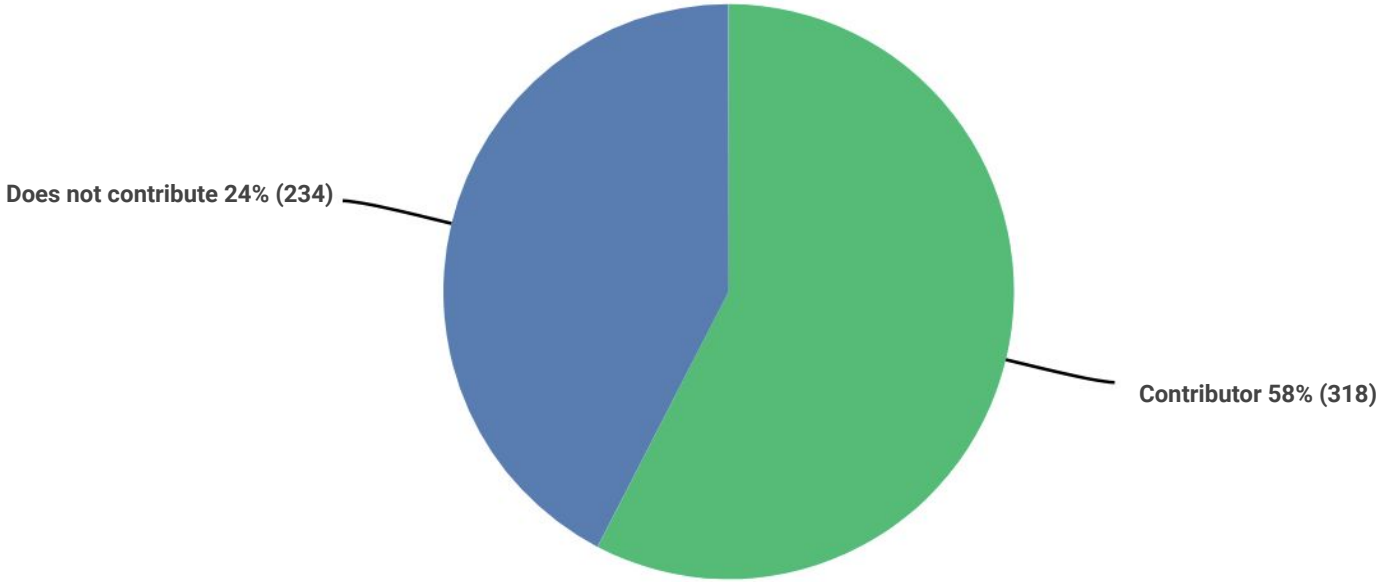
Main reasons for not using the technologies that respondents would like to use but are not currently using:

Answered: 508 Skipped: 320



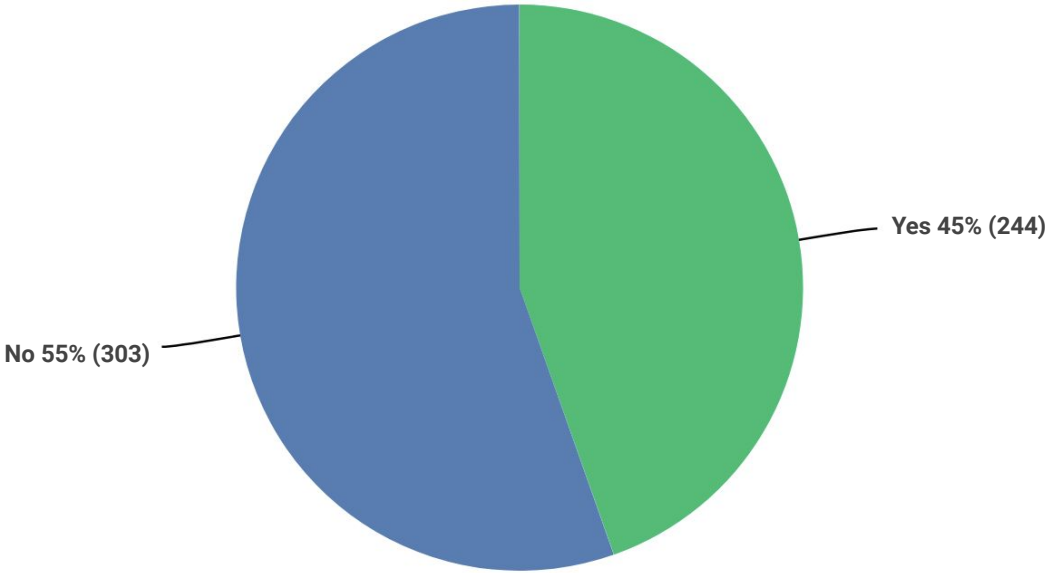
Code contributions to quantum OSS projects (can be collaborative or personal projects):

Answered: 552 Skipped: 276



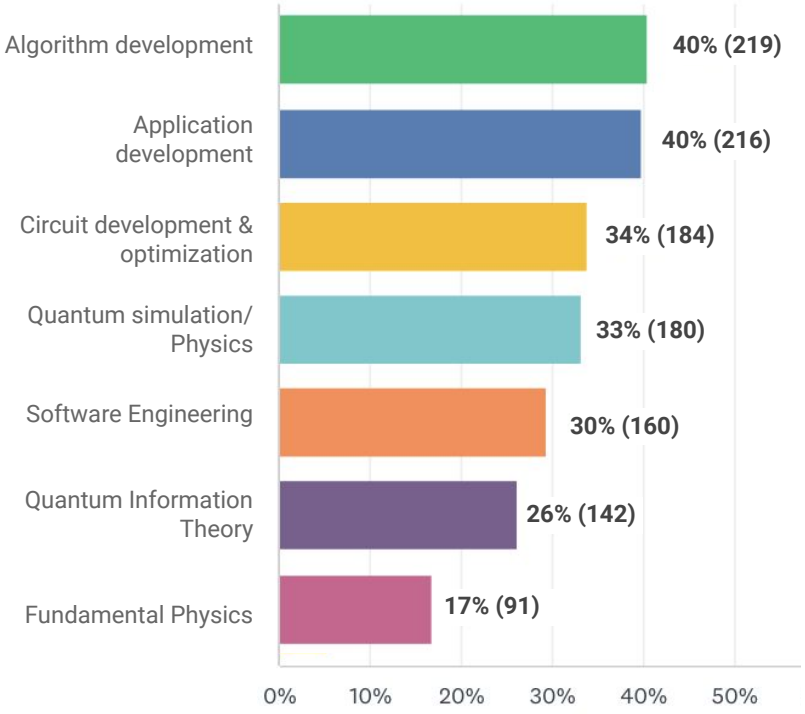
Are your contributions to quantum OSS part of your scientific research in the quantum field?

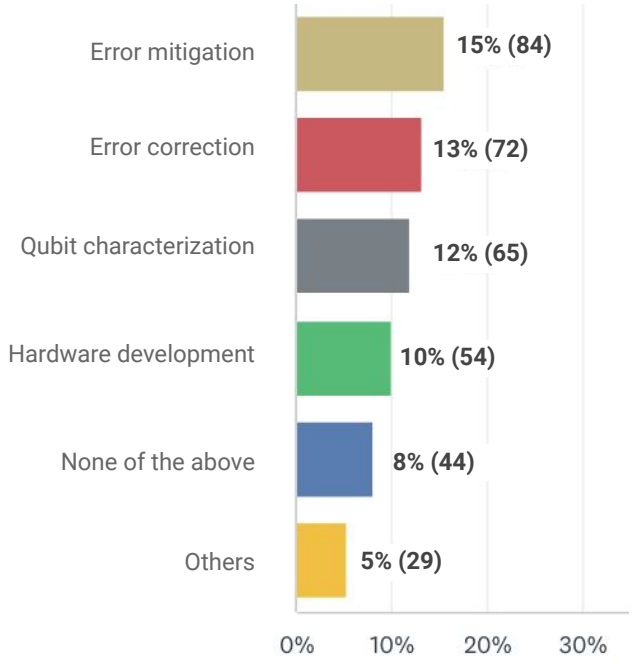
Answered: 547 Skipped: 281



The type of quantum computing research the respondent performs:

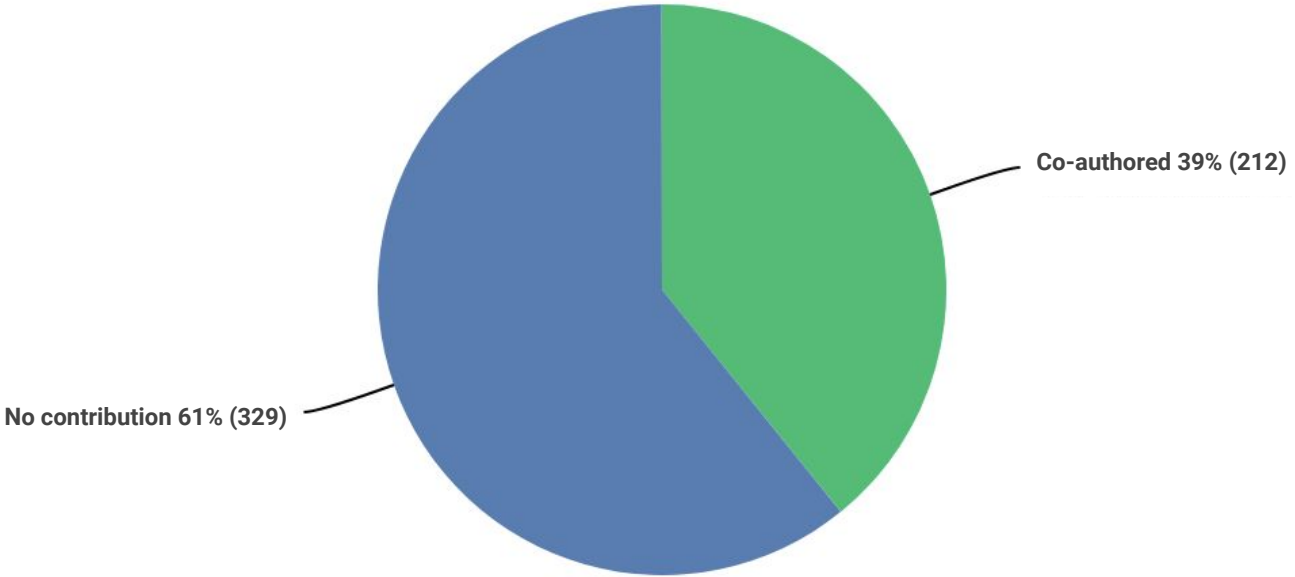
Answered: 542 Skipped: 286





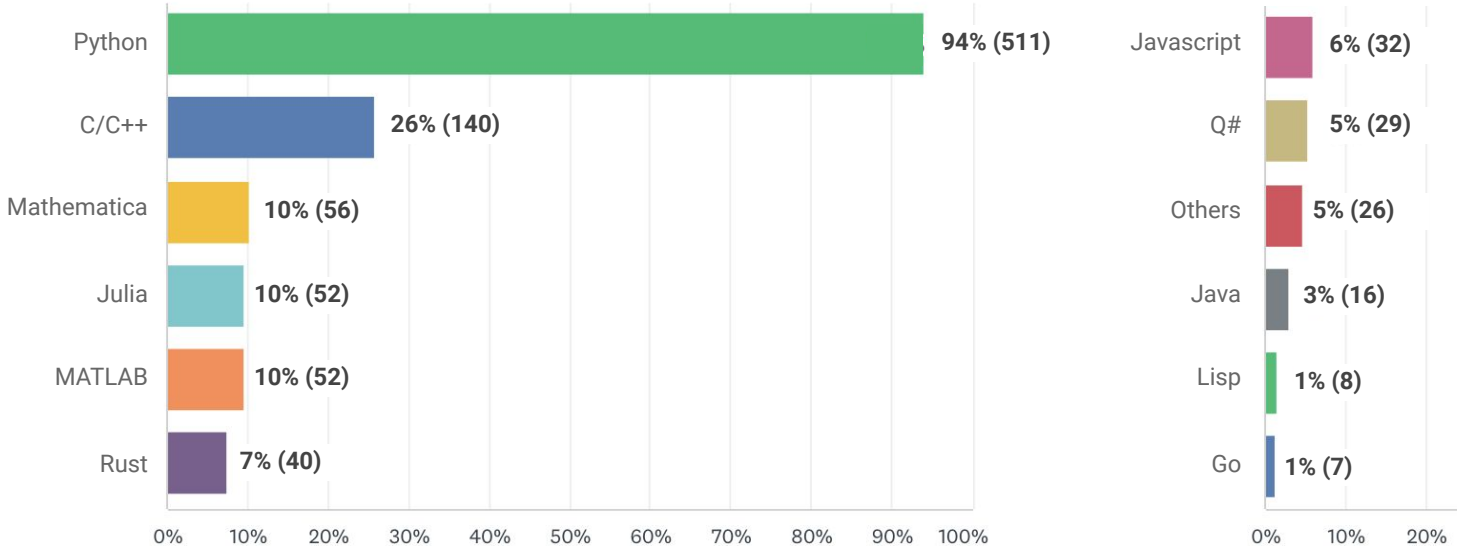
Contribution to (a) research paper(s) based on the work with open-source software:

Answered: 541 Skipped: 287



Programming languages the respondent use in developing quantum software:

Answered: 543 Skipped: 285



Workflows used in developing quantum software:

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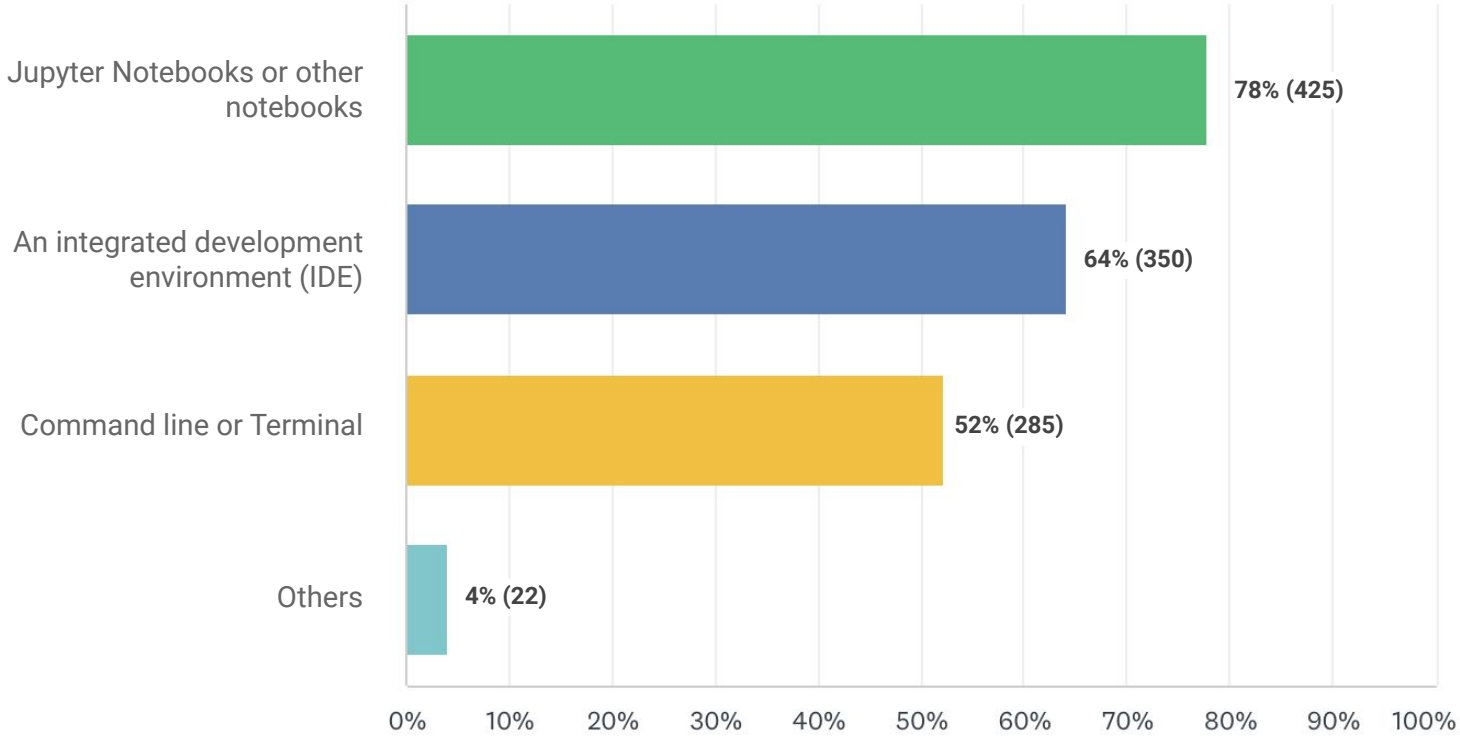

Opinion on how welcoming the quantum software community is:

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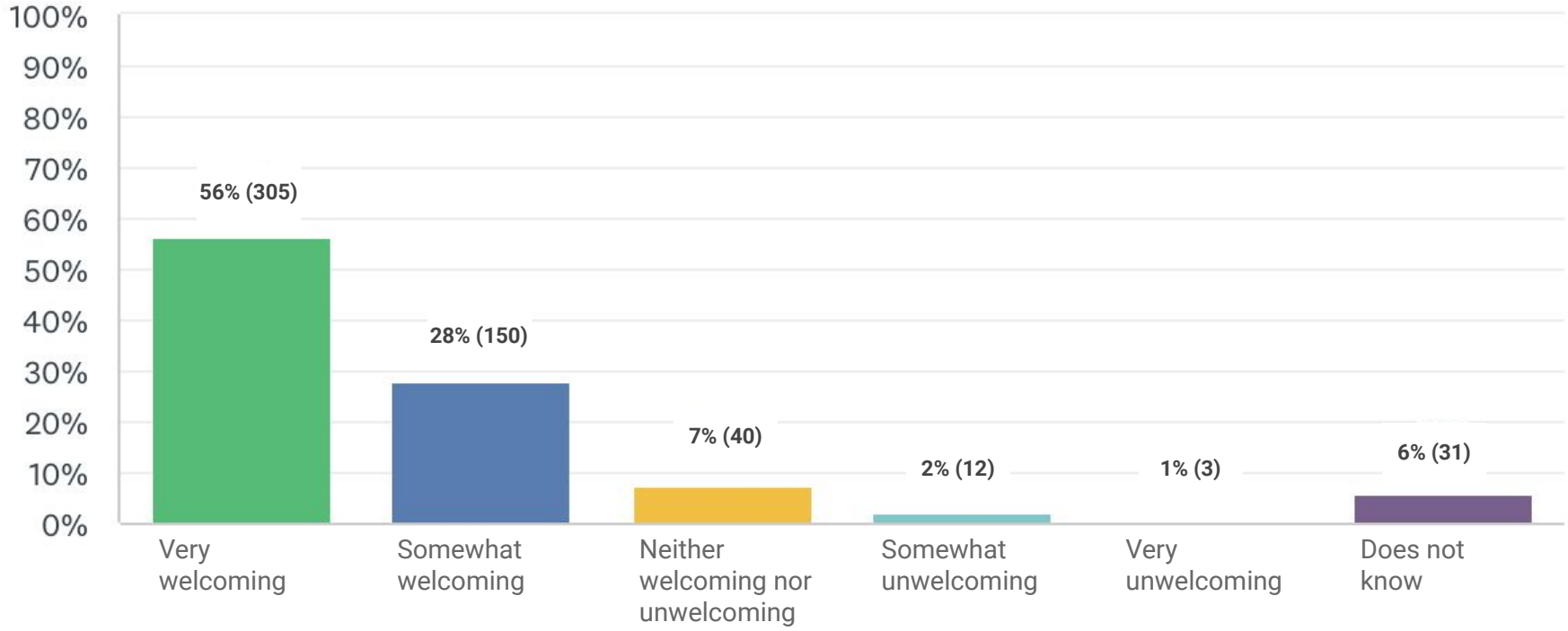
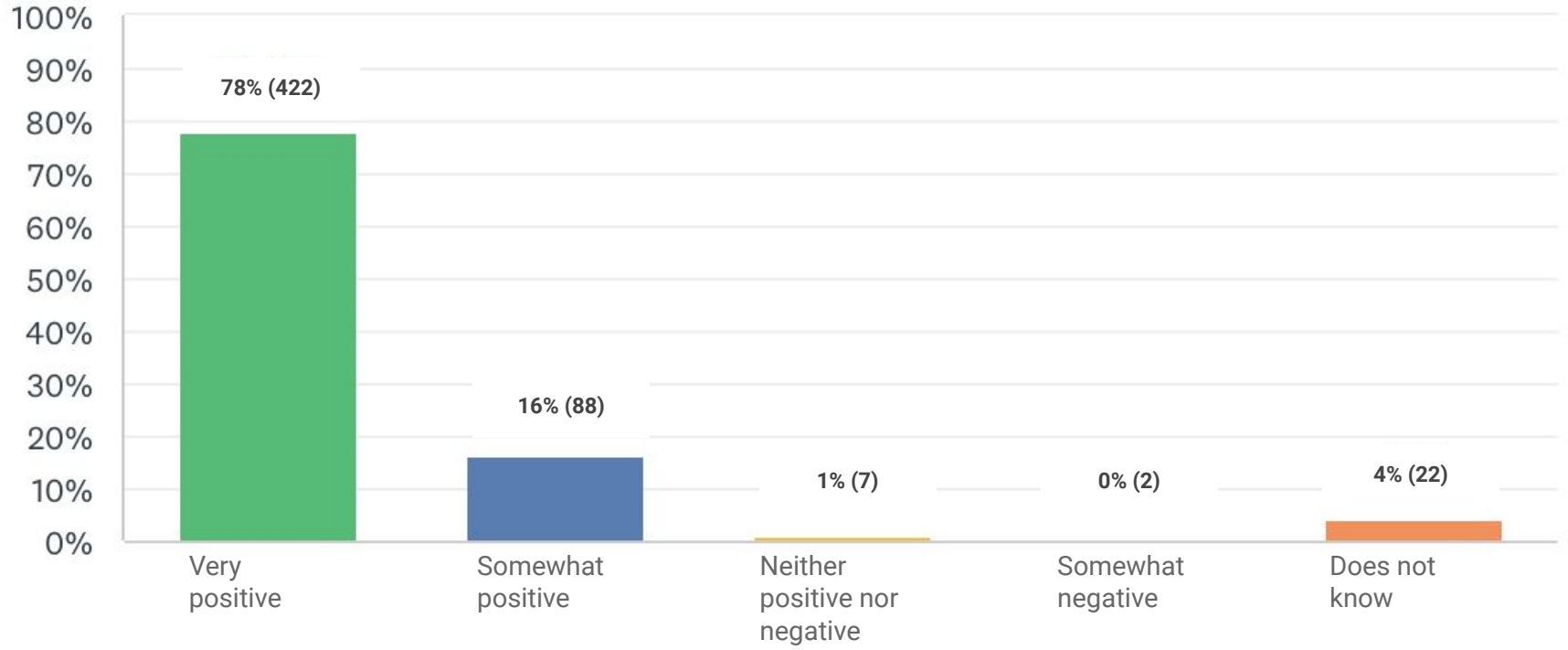


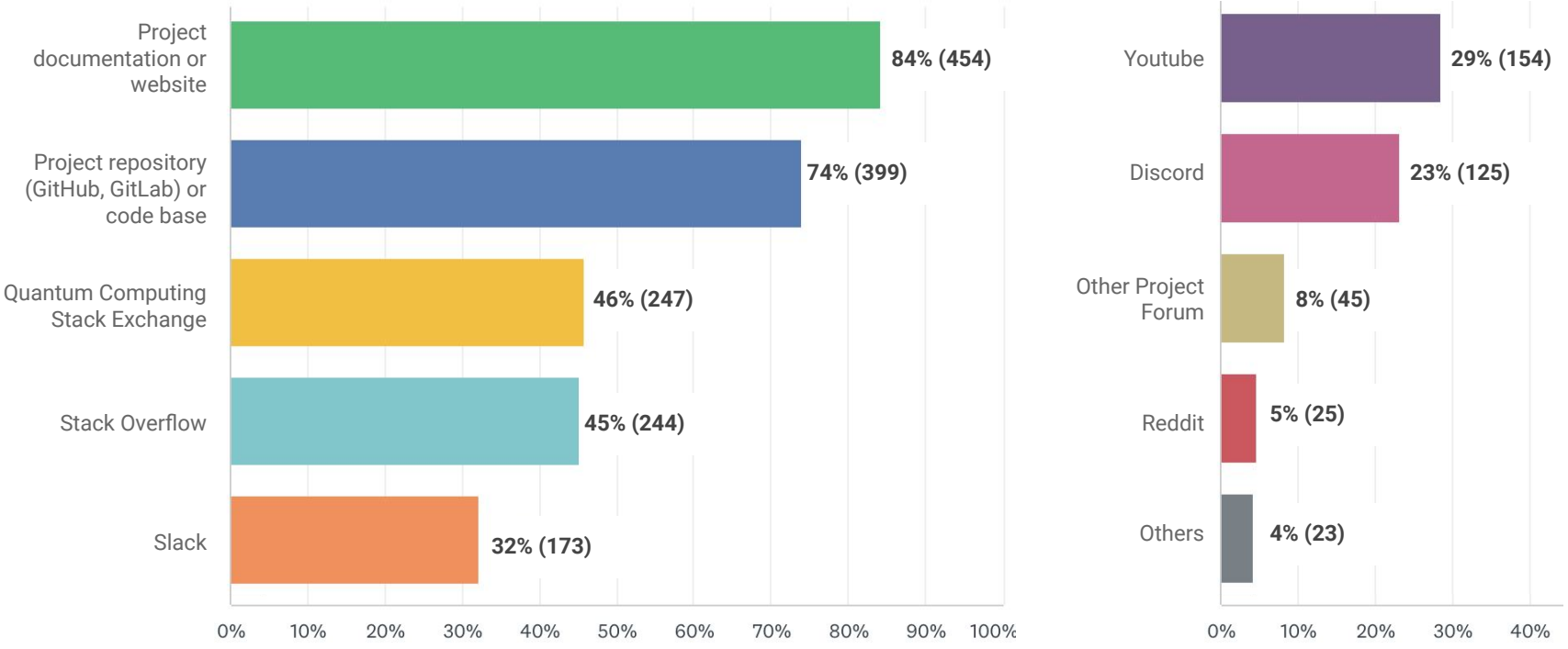
Opinion on what the impact of open source software on the quantum software community is:

Answered: 541 Skipped: 287



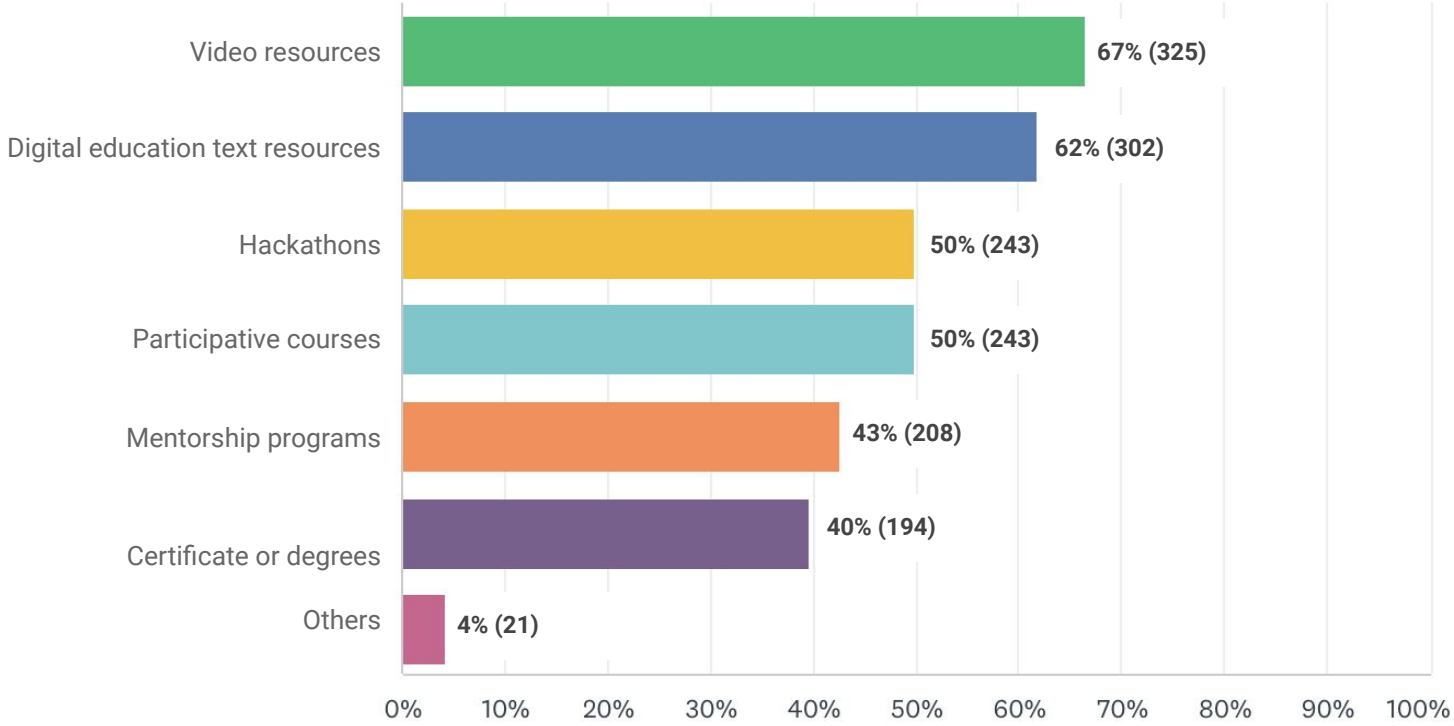
Source of answers or information when developing quantum software:

Answered: 541 Skipped: 287

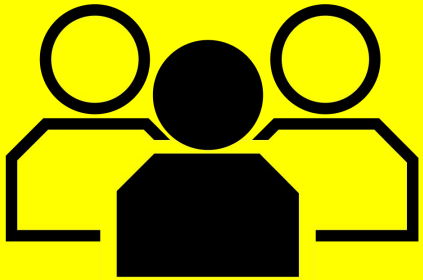


The types of resources/ engagements helpful for learning or contributing to quantum open source projects:

Answered: 488 Skipped: 340



DIVERSITY AND INCLUSION

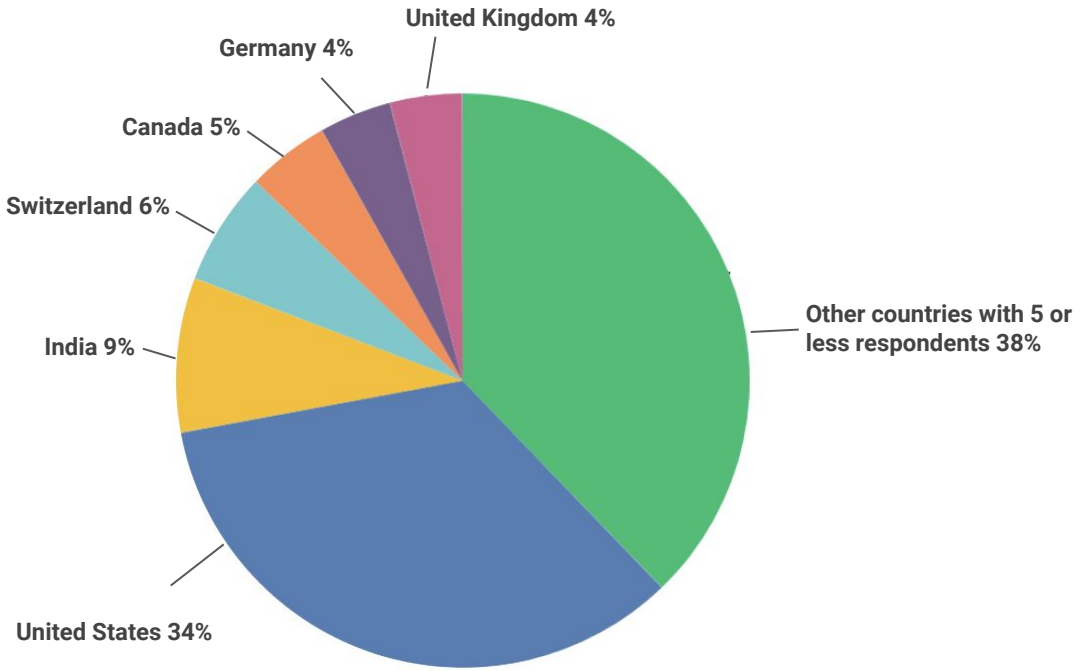


This dashboard represents the results based on the responses received from the 2022 Quantum Open Source Software Diversity and Inclusion Survey. Its purpose is to get a better understanding of the quantum computing community's needs and background and improve products, services, and educational material to better accommodate its users.

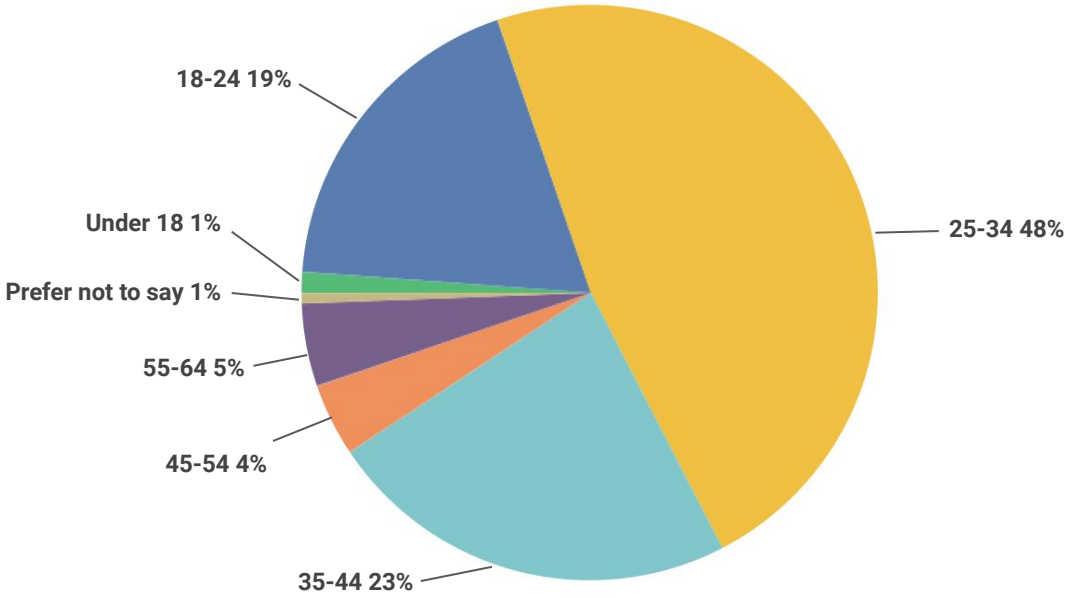
The survey aims to obtain a community-wide and industry-wide snapshot that is representative of everyone who codes or wants to code for and with quantum computing technologies.

The following data is collected from September 7th to October 7th, 2022.

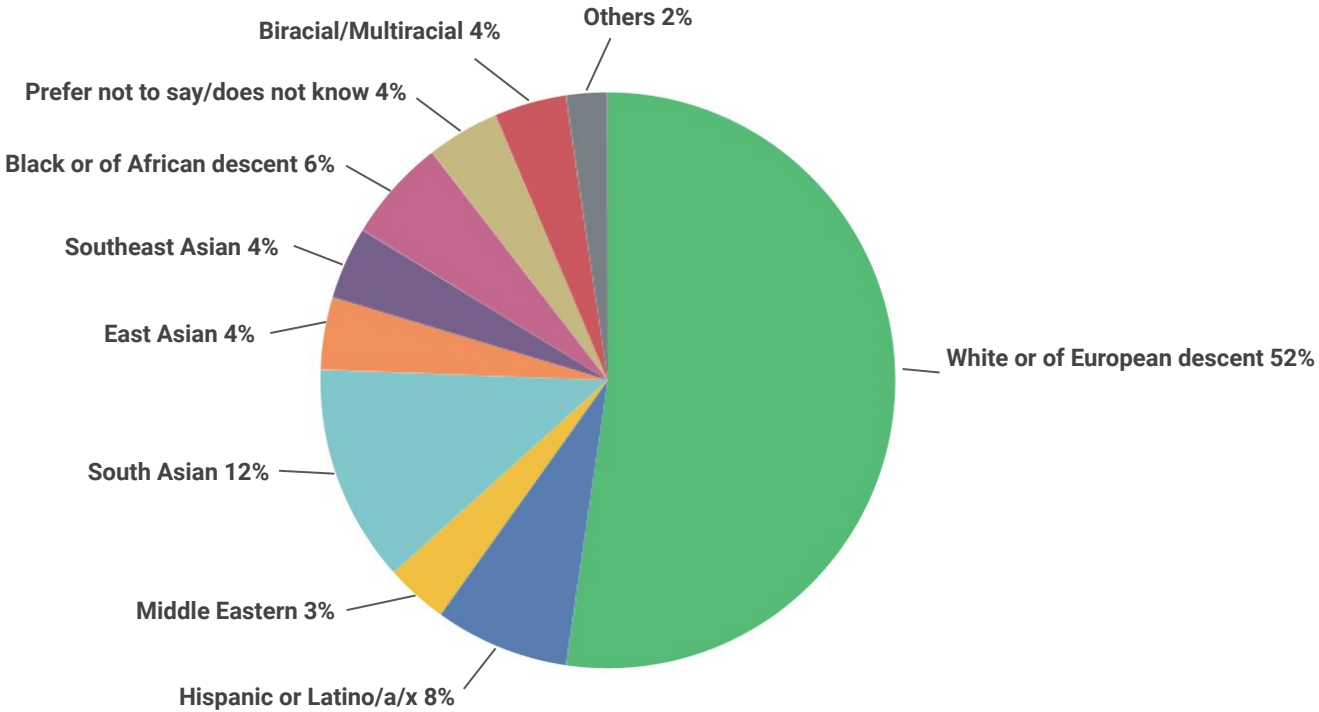
Country of residence:



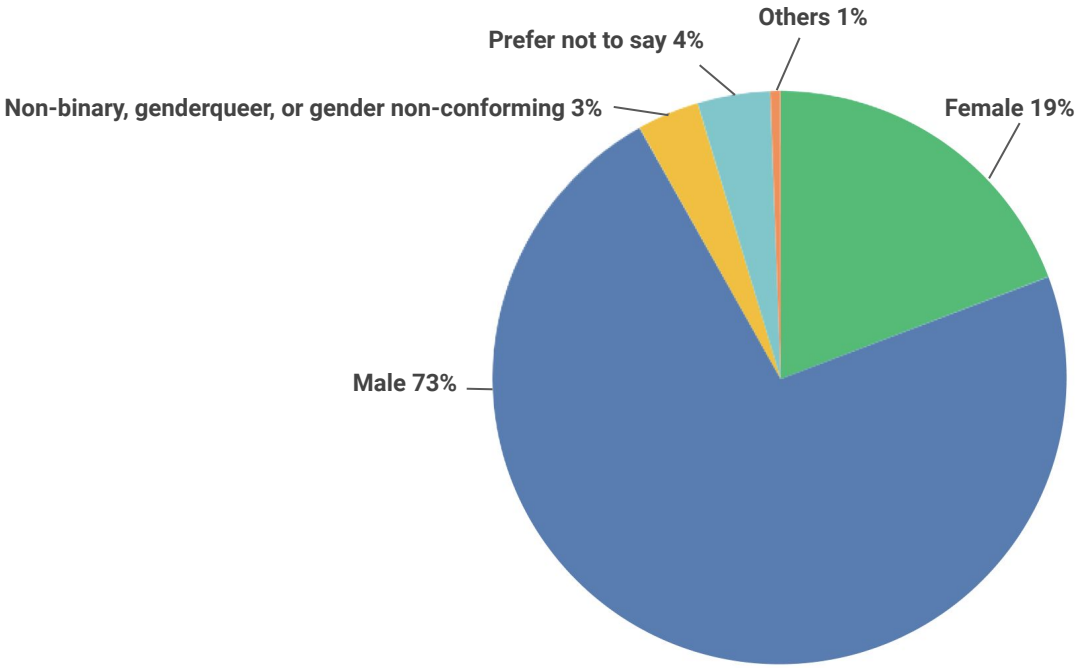
Age:


18-24 19%
Under 18 1%
Prefer not to say 1%
55-64 5%
45-54 4%
35-44 23%
25-34 48%

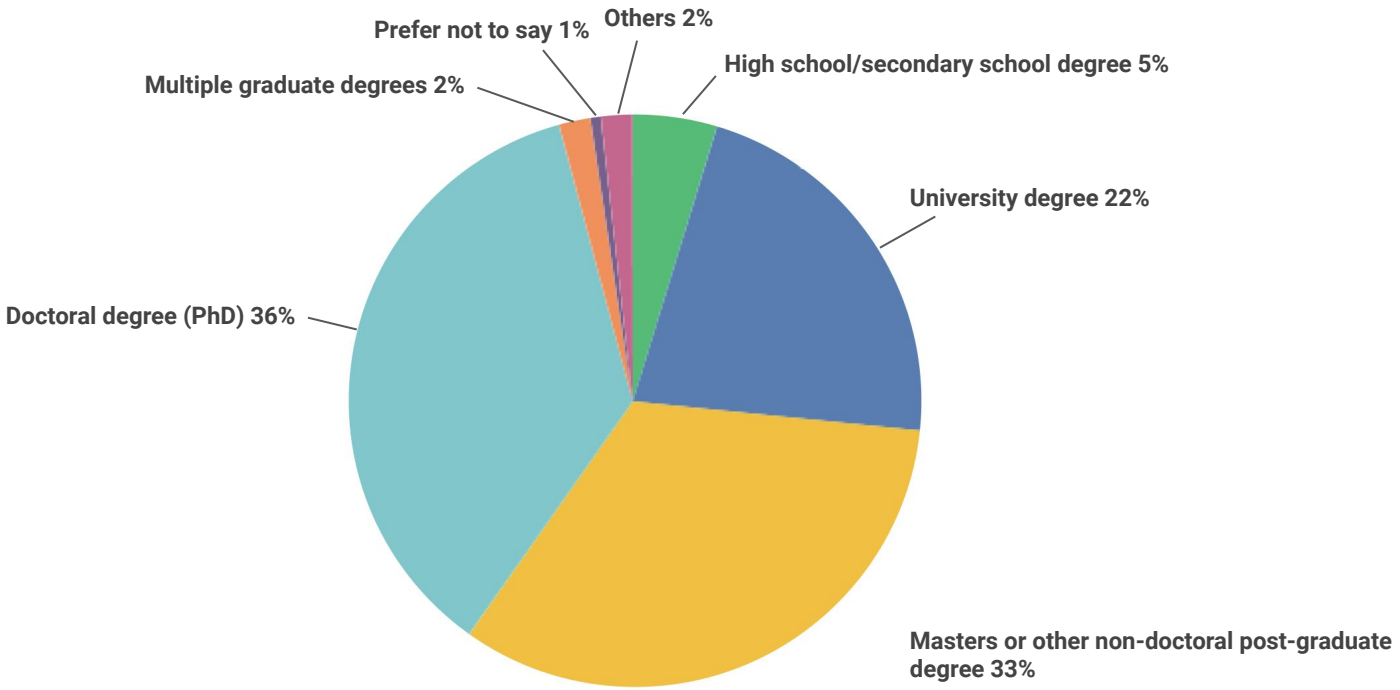
Ethnicity:


Others 2%
Biracial/Multiracial 4%
Prefer not to say/does not know 4%
Black or of African descent 6%
Southeast Asian 4%
East Asian 4%
South Asian 12%
Middle Eastern 3%
Hispanic or Latino/a/x 8%
White or of European descent 52%

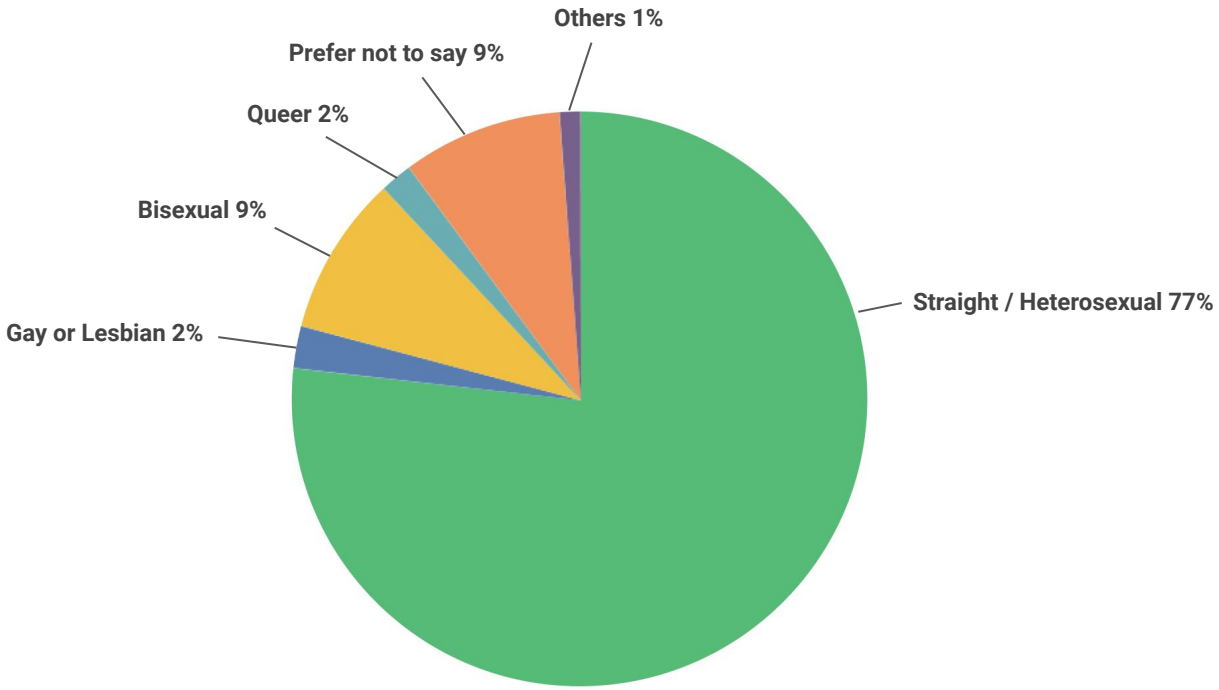
Gender:


Others 1%
Prefer not to say 4%
Non-binary, genderqueer, or gender non-conforming 3%
Female 19%
Male 73%

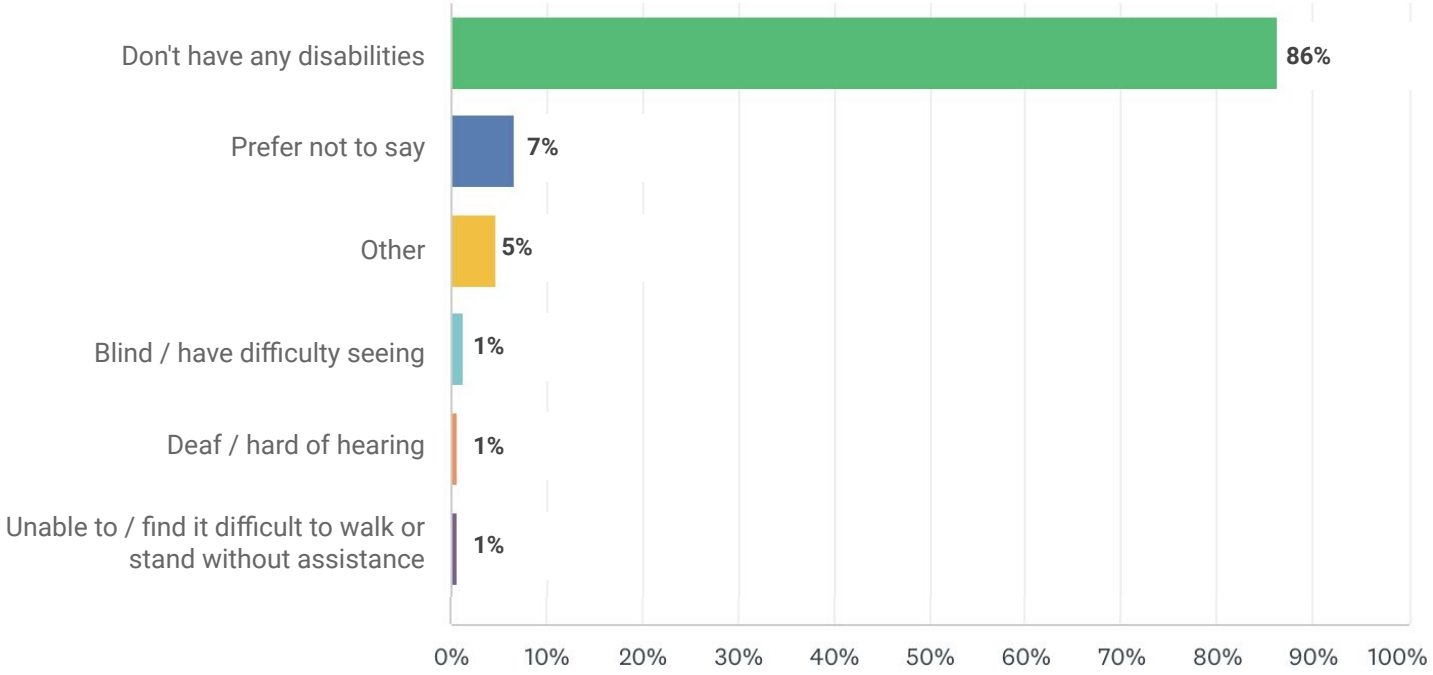
Formal educational background:



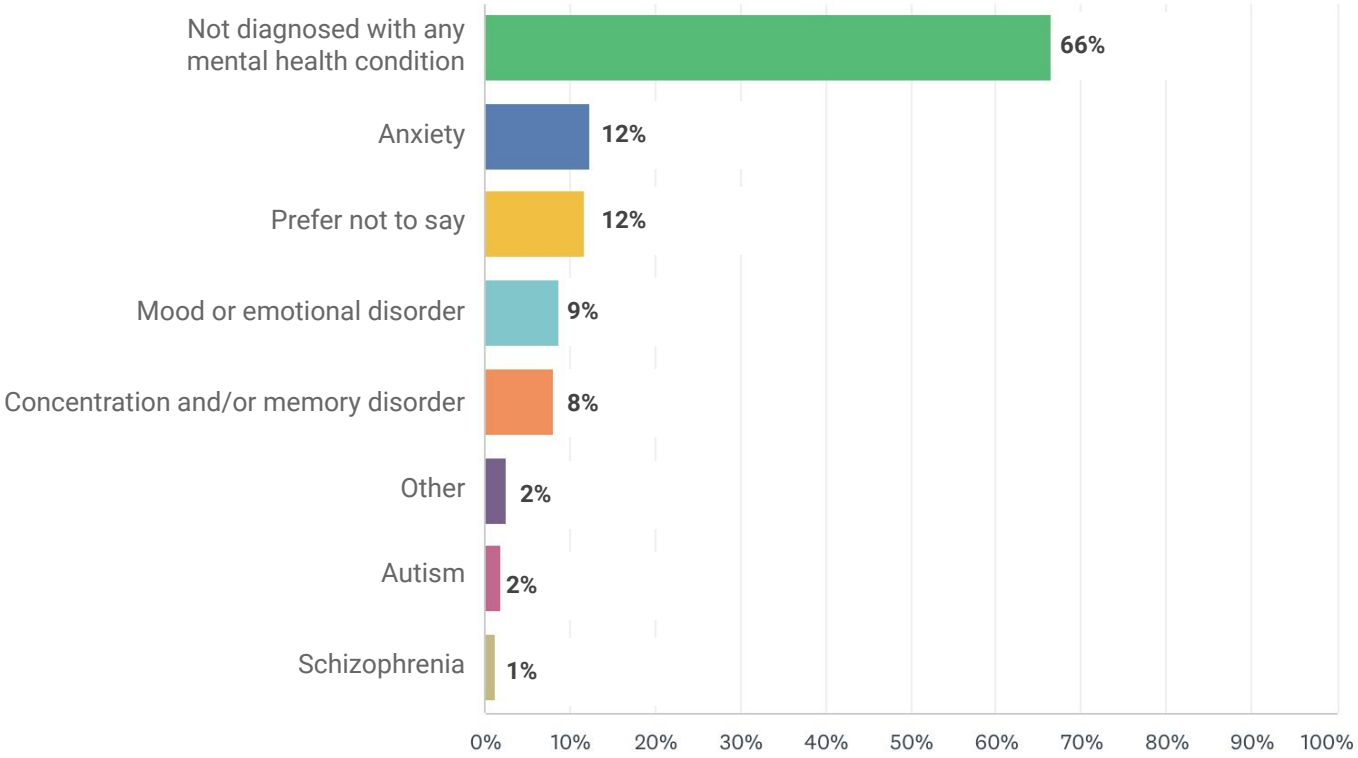
Sexual orientation:

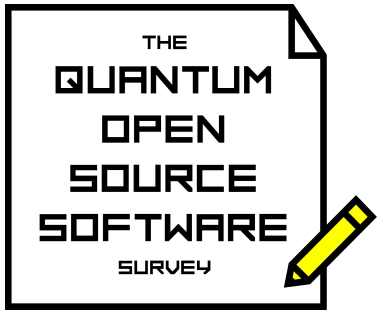


Disability/Ability Statuses:



Mental Health:





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Methodology

The quantum OSS projects listed in the software survey have been chosen among those with >50 stars on Github/GitLab included in the awesome-quantum-software list and other lists, excluding software focusing on tutorials, cryptography, experiments. The software projects and platforms have been divided in three categories: cloud services; software for full-stack development and simulator; application tools.

A draft of the survey has been circulated among Unitary Fund advisory board, board, program members and partners for feedback (including QOSF, Universal Quantum Education, QuantX). The survey has been open Sept. 7 – Oct. 7, 2022. The data is stored at github.com/unitaryfund/qoss-survey.

Unitary Fund circulated the surveys on its social media platforms (Discord, Twitter, LinkedIn, UF blog) and contacting major blogs (QC Report, Qiskit blog, PennyLane blog, etc.), newsletters (UF mailing list, QuTiP mailing list, ORNL quantum computing newsletter, IEEE Quantum Week, QED-c newsletter, academic networks, etc.), UF members, supporters and partners.