

Surveying the C++ Community

Jens Weller

C++ now

2021
MAY 2-7

Aspen, Colorado, USA

Introduction



- * '81
- C++ since '98
- Meeting C++ since 2012
- C++ Evangelist
 - Supporting C++ Community
 - Social Media
 - global Network for C++
- @meetingcpp
- @meetingembedded

online.meetingcpp.com

survey.meetingcpp.com

Did you notice
the lack of statistics and facts
from the real world
in talks at C++ Conferences?

What do we really know
about the C++ community out there?

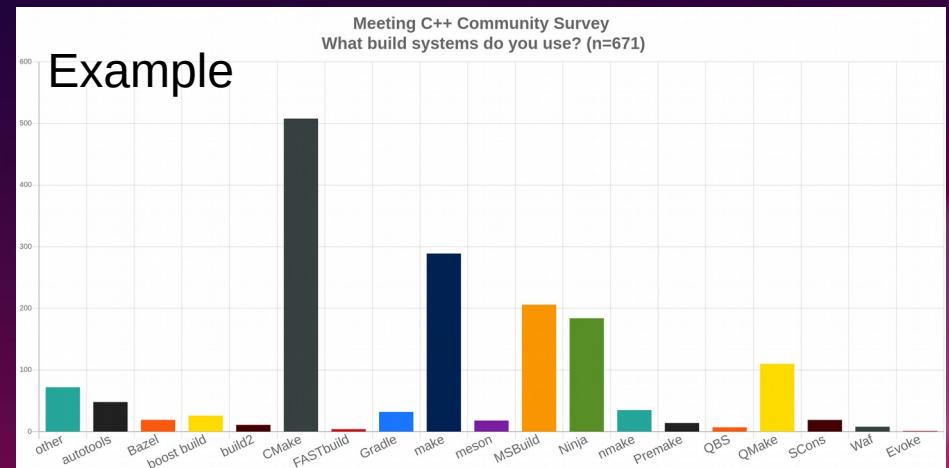
Well kept secrets?

- Tooling (IDEs, Code Tools, ...)
 - User and usage data
 - Internal/Customer surveys
- Temporary Surveys
 - I used to do audience surveys
- Commercial Surveys
 - Sales/QA
 - “Whitepapers”

TIOBE Index
“C++ fastest growing language”

Use cases (for this talk)

- C++ Teaching
 - Talks
 - Trainings
- Communication
 - Visual aid
 - Supports your argument



About the C++ Surveys

Annual Surveys

- ISOCPP

Third Annual C++ Foundation Developer Survey "Lite"

By Blog Staff | Apr 5, 2020 09:14 PM | Tags: None

Note: Given the pandemic, we weren't sure whether to run our annual survey now at all. Thank you very much to the several hundred people who gave their feedback on our poll about that... you overwhelmingly encouraged us to go ahead, and so here we are trying to do it. We look forward to your responses and insights, but most of all we want to send our best wishes to all of you in our global C++ community and your families and loved ones; C++ has always enjoyed a cohesive global community, and never more so than now as we are all going through this dreadful shared experience together in virtually all countries. Please be safe, everyone.

The Standard C++ Foundation's third annual global C++ developer survey is now open. As the name suggests, it's a one-pager:

2020 Annual C++ Developer Survey "Lite"

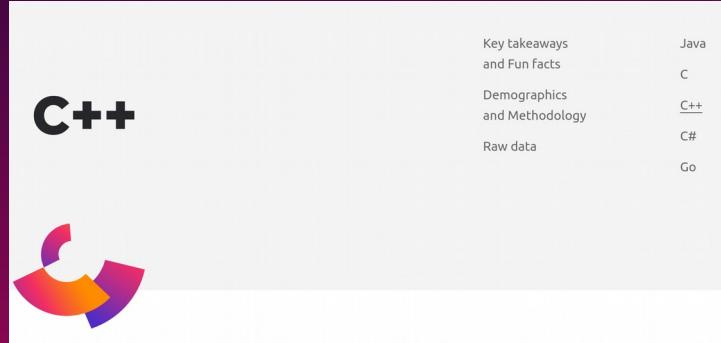
Please take 10 minutes or so to participate! A summary of the results, including aggregated highlights of common answers in the write-in responses, will be posted publicly here on isocpp.org and shared with the C++ standardization committee to help inform C++ evolution.

The survey closes in one week.

Thank you for participating and helping to inform our committee and community.



- Jetbrains



Save to: [Instapaper](#) [Pocket](#) [Readability](#)

C++

Key takeaways and Fun facts Java

Demographics and Methodology C

Raw data C++

C# Go

How the Meeting C++ surveys started

How many attend?

 **Meeting C++**
@meetingcpp

Have you attended a C++ User Group meeting?

#cpp
#cplusplus
#Thursdaysurvey

Yes	33%
No	67%

213 votes · Final results

How many attend?

 **Meeting C++**
@meetingcpp

Have you attended a C++ Conference?
[#ThursdaySurvey](#)
[#cpp](#)
[#cplusplus](#)

Yes  30%

No 70%

433 votes · Final results

Combining these polls...

 **Meeting C++**
@meetingcpp

Did you attend a C++ User Group meeting and/or C++ Conference?

[#cpp](#)
[#cplusplus](#)

Attended C++ UG & Conf ⓘ	24%
Attended C++ Conference	16%
Attended C++ User Group	9%
Neither	51%

173 votes · 3 hours left

Meeting C++ Community Survey

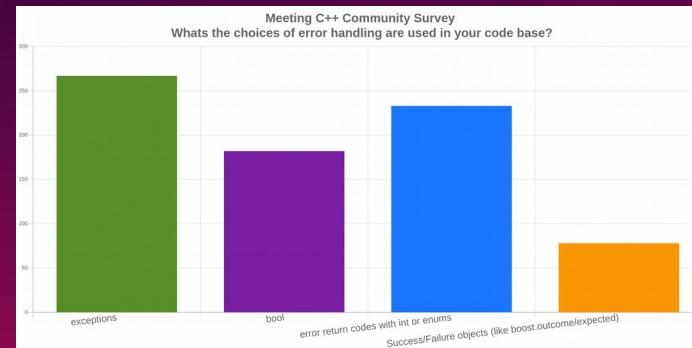
- 2020
- Continuous Survey
- Questions
 - Single & Multiple choice

Whats the choices of error handling are used in your code base?

exceptions
 bool
 error return codes with int or enums
 Success/Failure objects (like boost.outcome/expected)

Skip this question

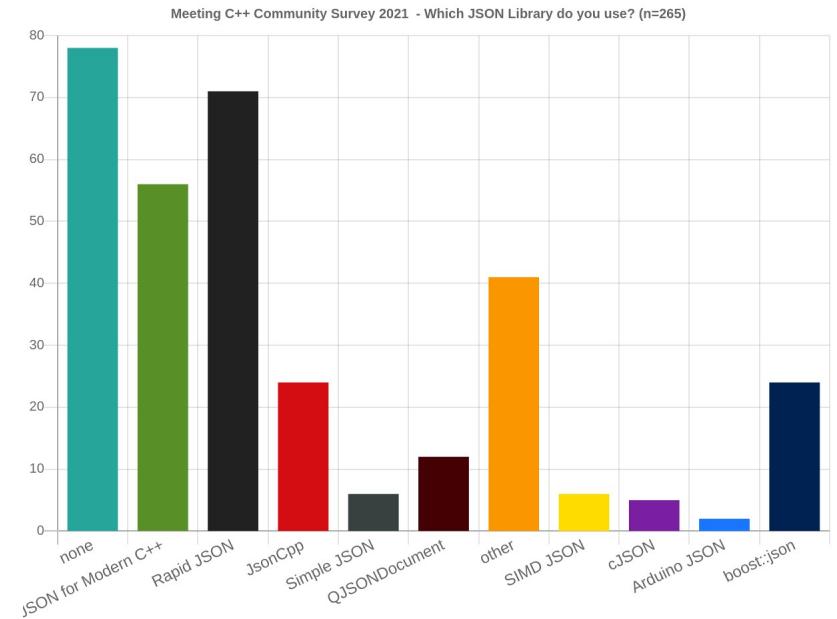
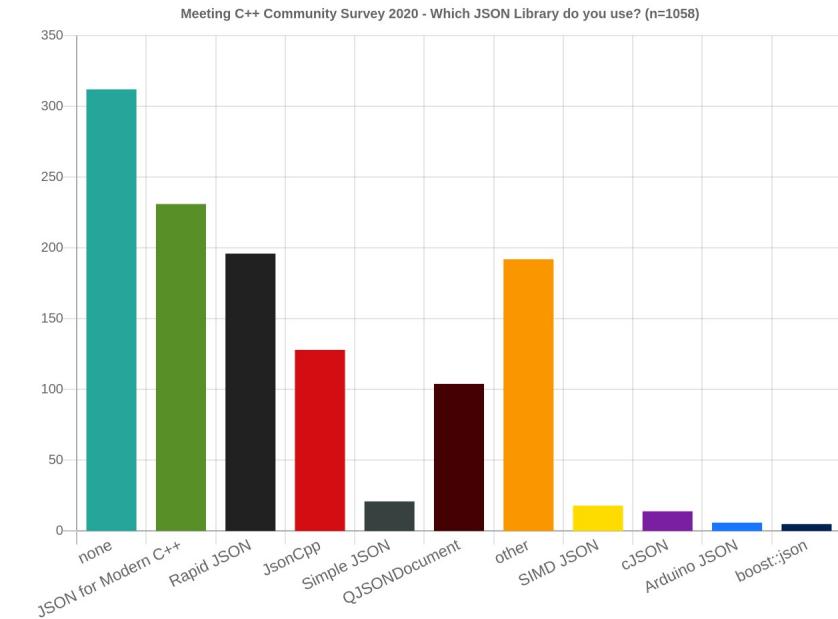
Submit poll



New Feature: Yearly Results

- Used for aggregating 2020

Which JSON Library do you use?



Technical Details

- Session based
 - Logged in
 - Just voting
- Special features
 - Combining of Questions
 - Range based reporting
(m/q/y)*
- Planned features
 - Options for graph display
- Saving votes as
 - Aggregate
 - $\{\{0:1\},\{1:2\}\}$
 - Vote
 - Date
 - Session

Technical Details

- Answers
 - Locked for 30 days
 - Skip for 60 days
- Reanswering the question
 - Does not add to the aggregate

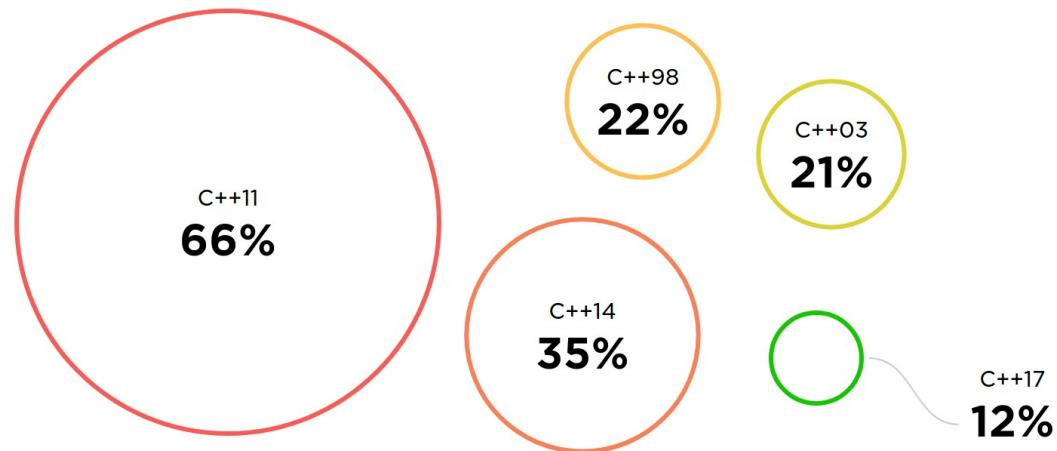
Technical Details

- Finding the right Questions
- ... and answers!
- Is an art form.

Case study: C++ Standard adoption

C++ (Jetbrains 2017)

Which C++ standards do you regularly use?



46%

don't plan to move to a newer C++ standard.

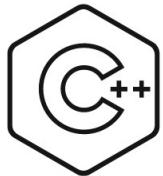
62%

of those using older standards (C++ 98 and C++ 03) are moving to modern C++ standards.

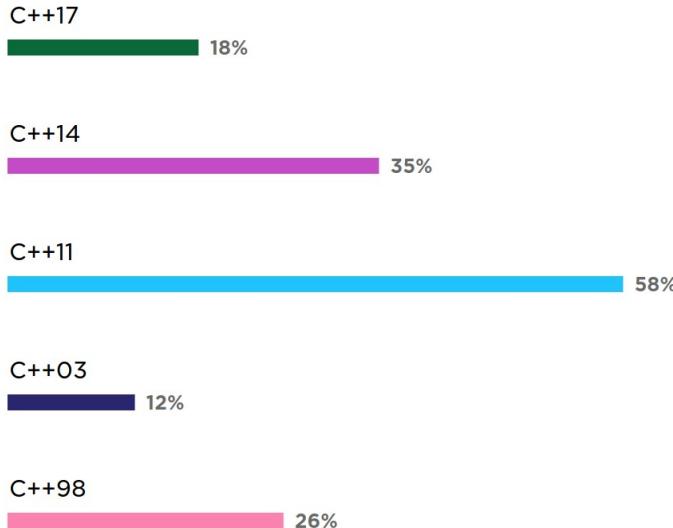
25%

of C++ developers are planning to move to C++17.

C++ (Jetbrains 2018)

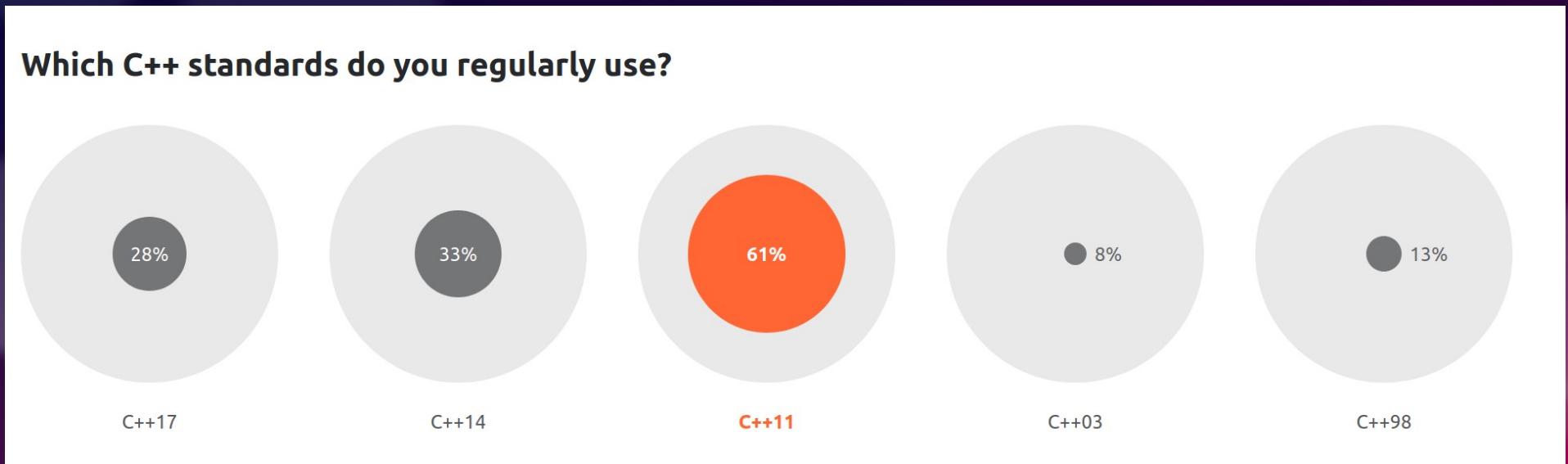


Which C++
standards do you
regularly use?



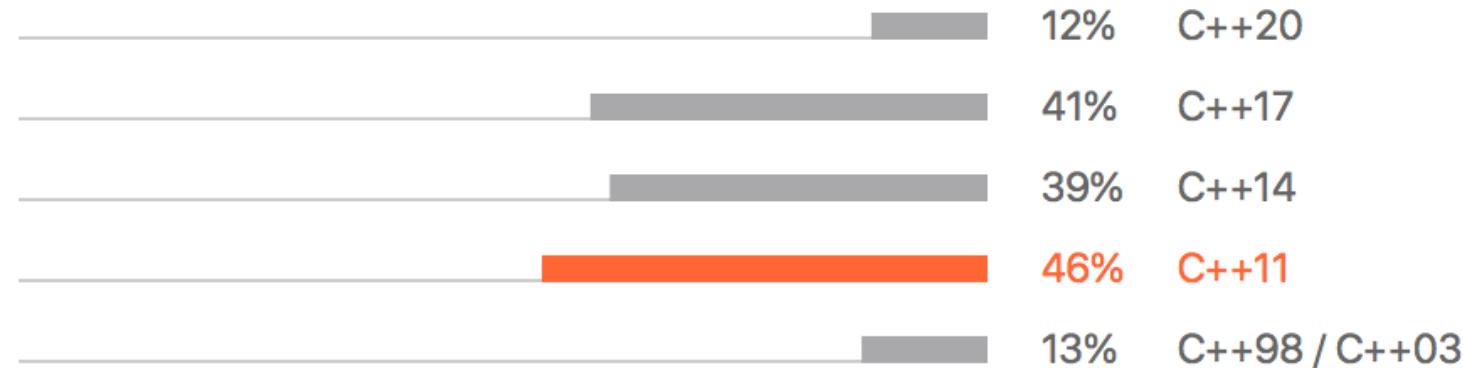
Question with checkboxes. Sum of shares may be more than 100%.

C++ (Jetbrains 2019)

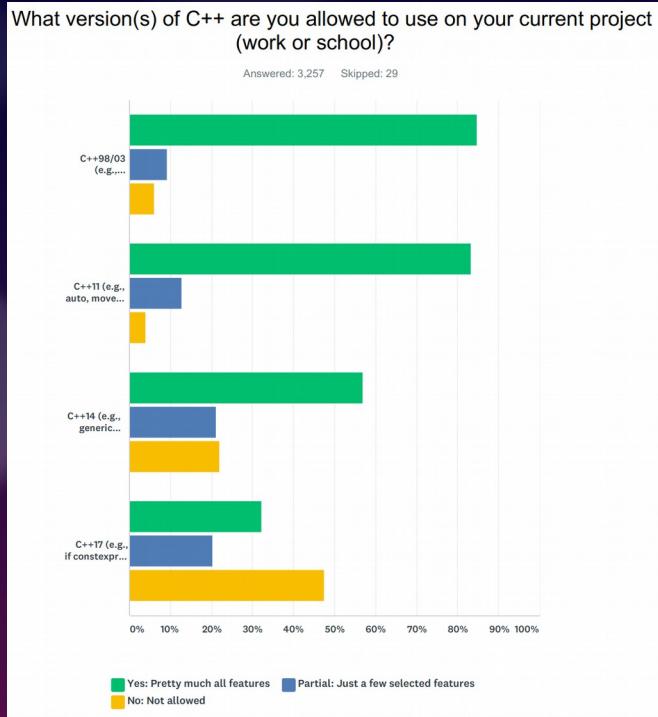


Jetbrains (2020)

Which C++ standards do you regularly use?

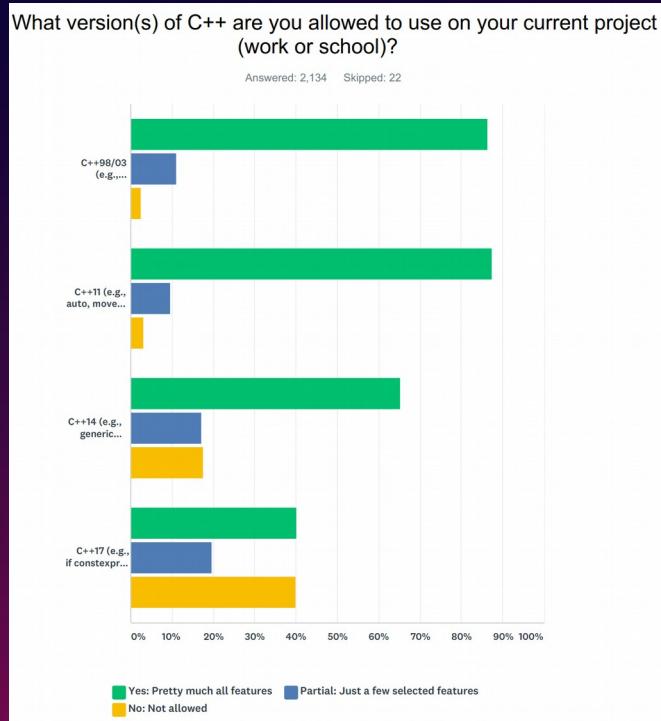


C++ (ISOCPP 2018)

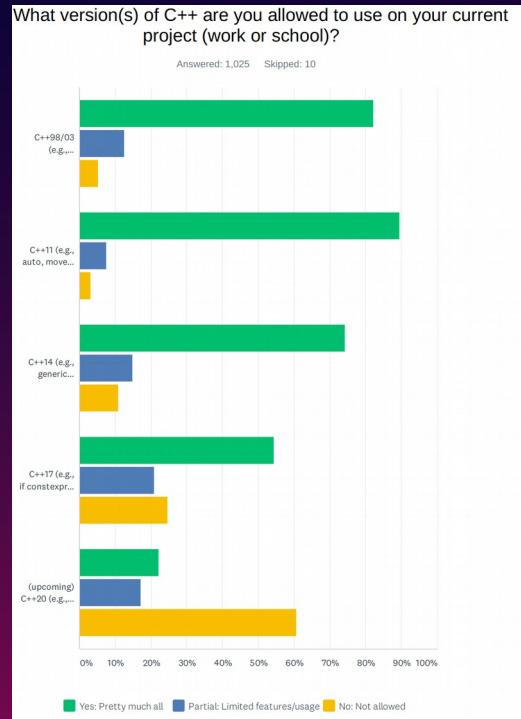


- Not the same but similar question

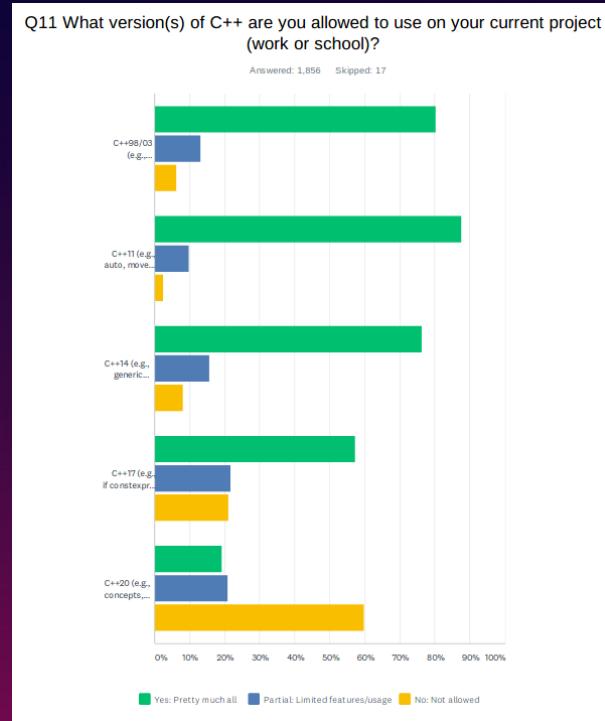
C++ (ISOCPP 2019)



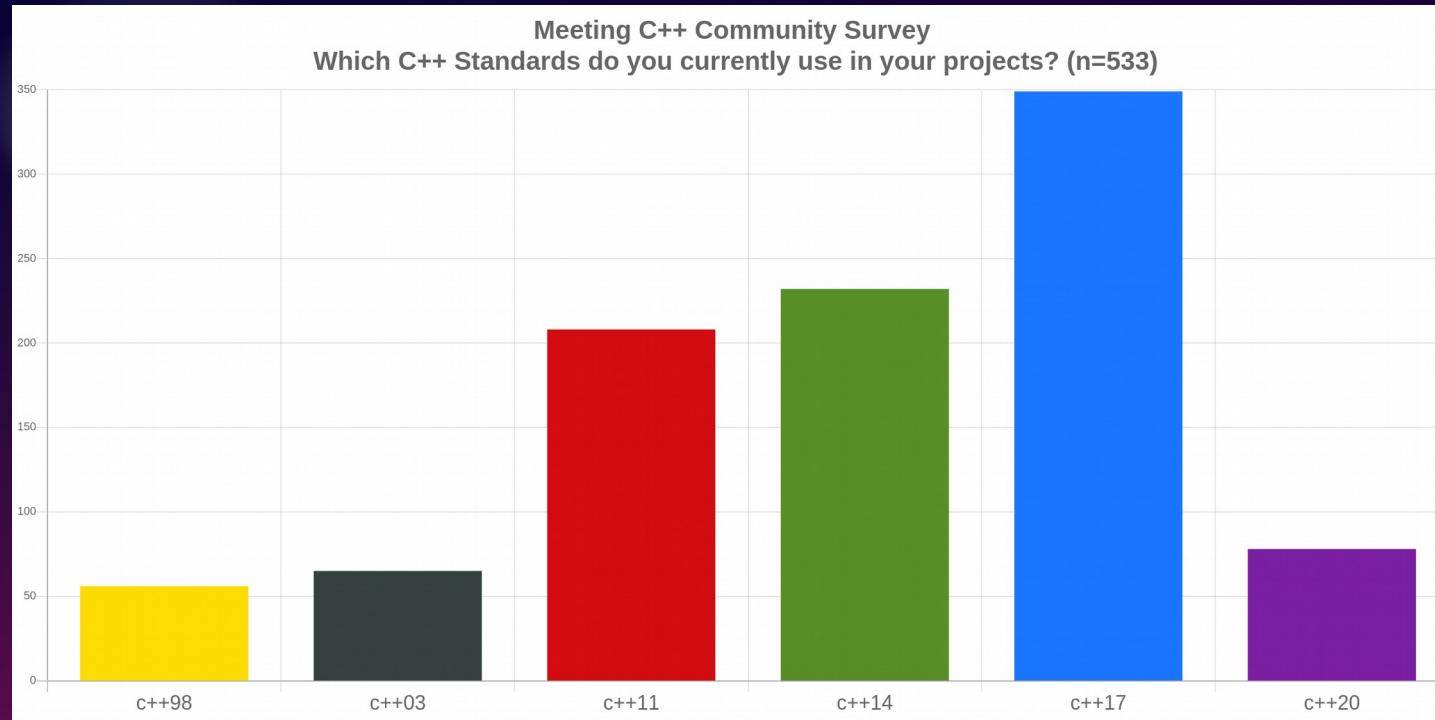
C++ (ISOCPP 2020)



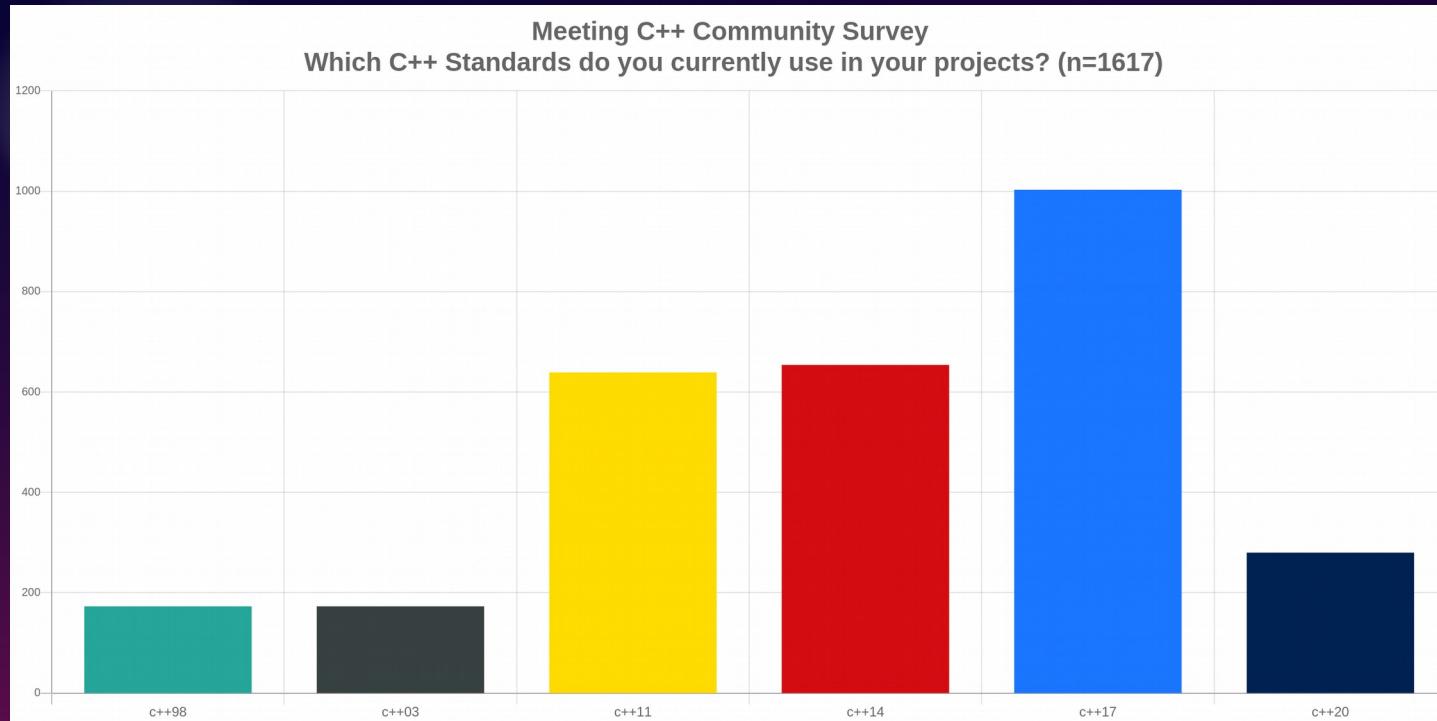
C++ (ISOCPP 2021)



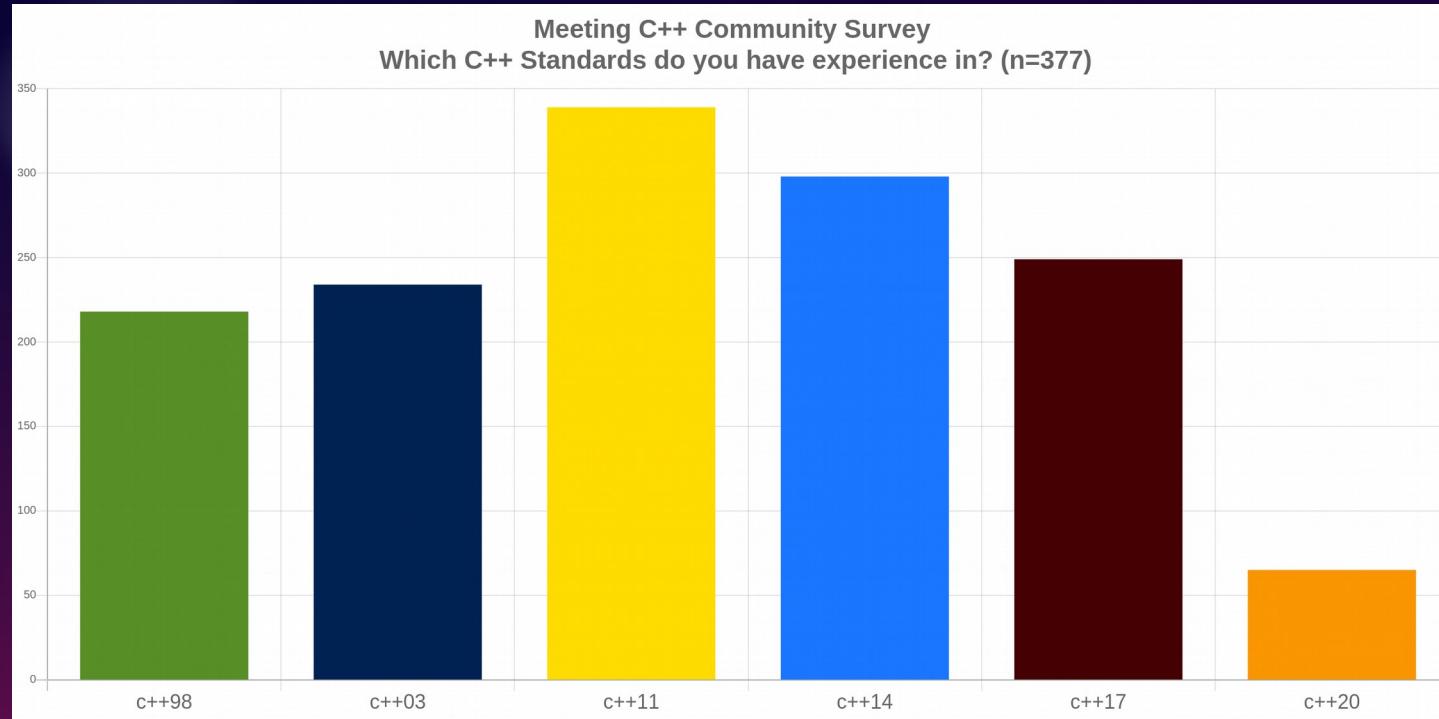
C++ usage (June 2020)



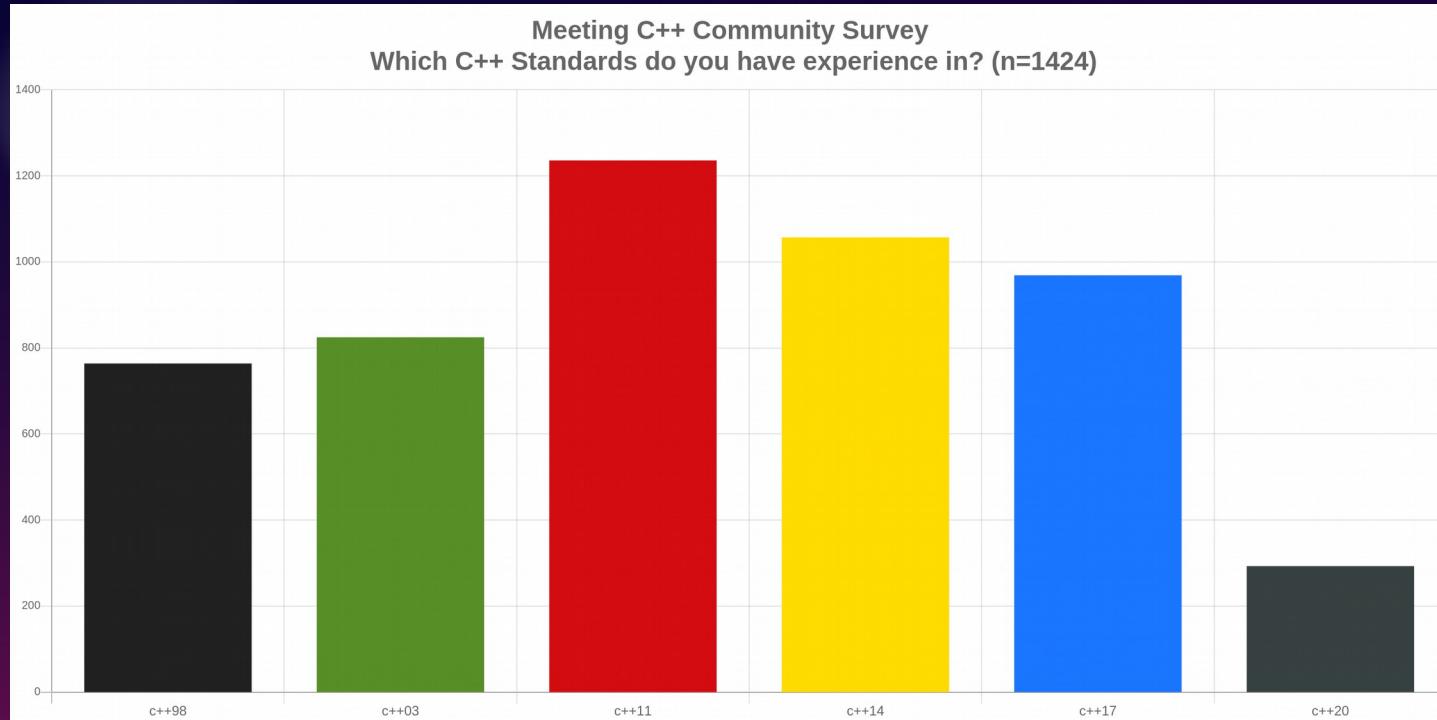
C++ usage (May 2021)



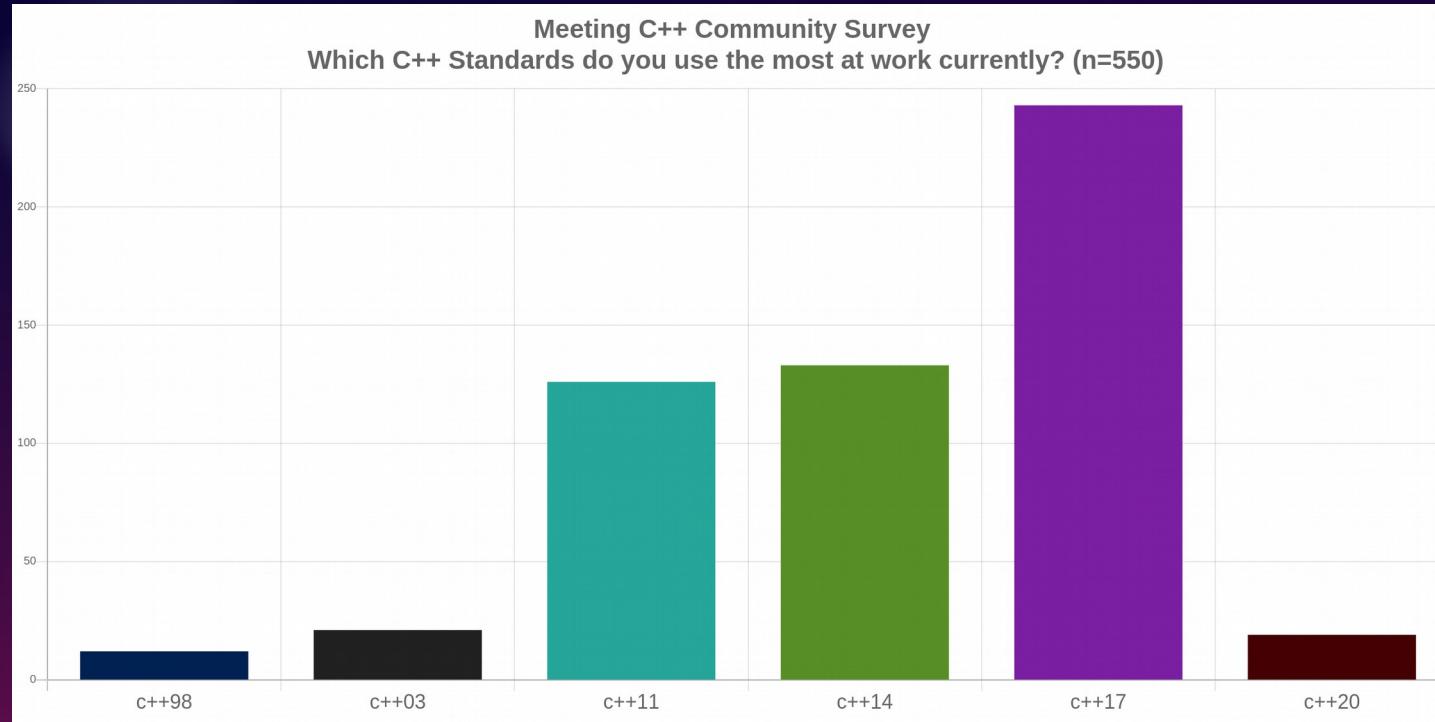
C++ experience (June 2020)



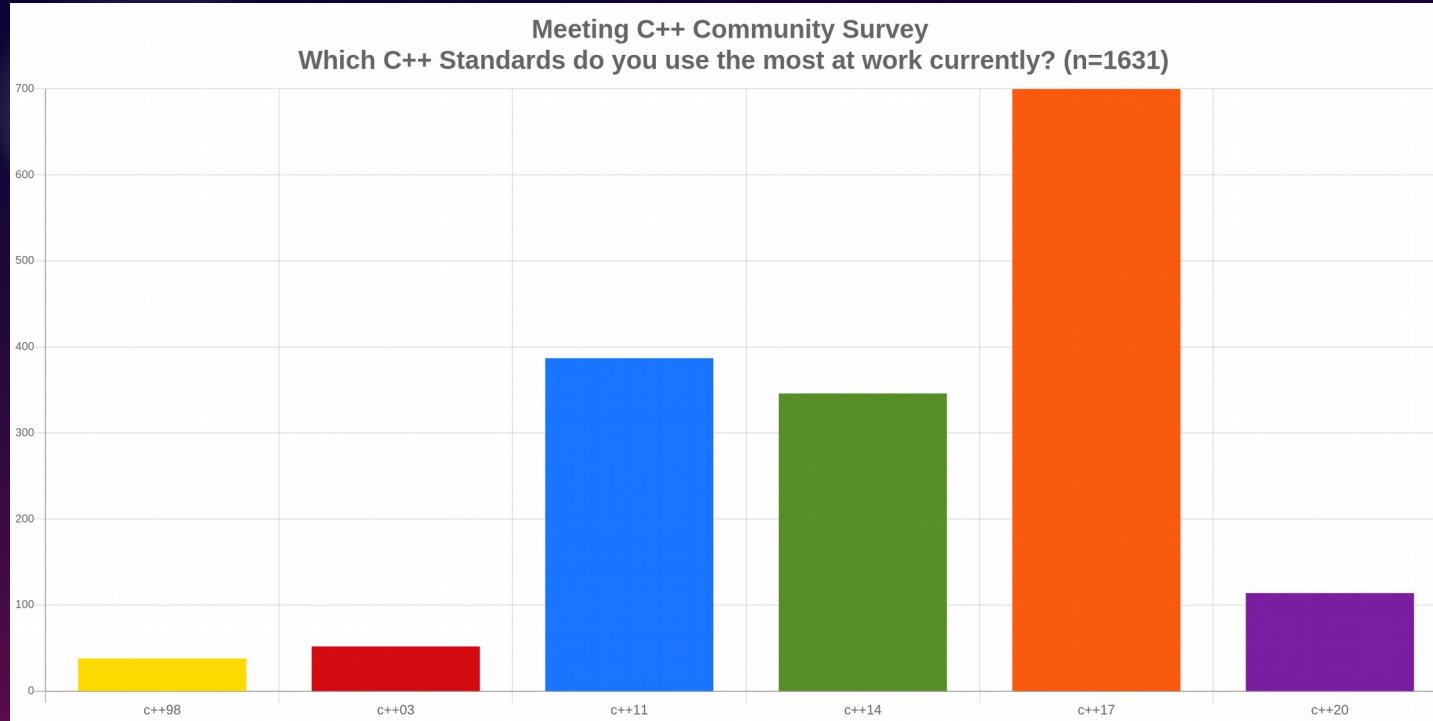
C++ experience (May 2021)



C++ Standards in use (June 2020)



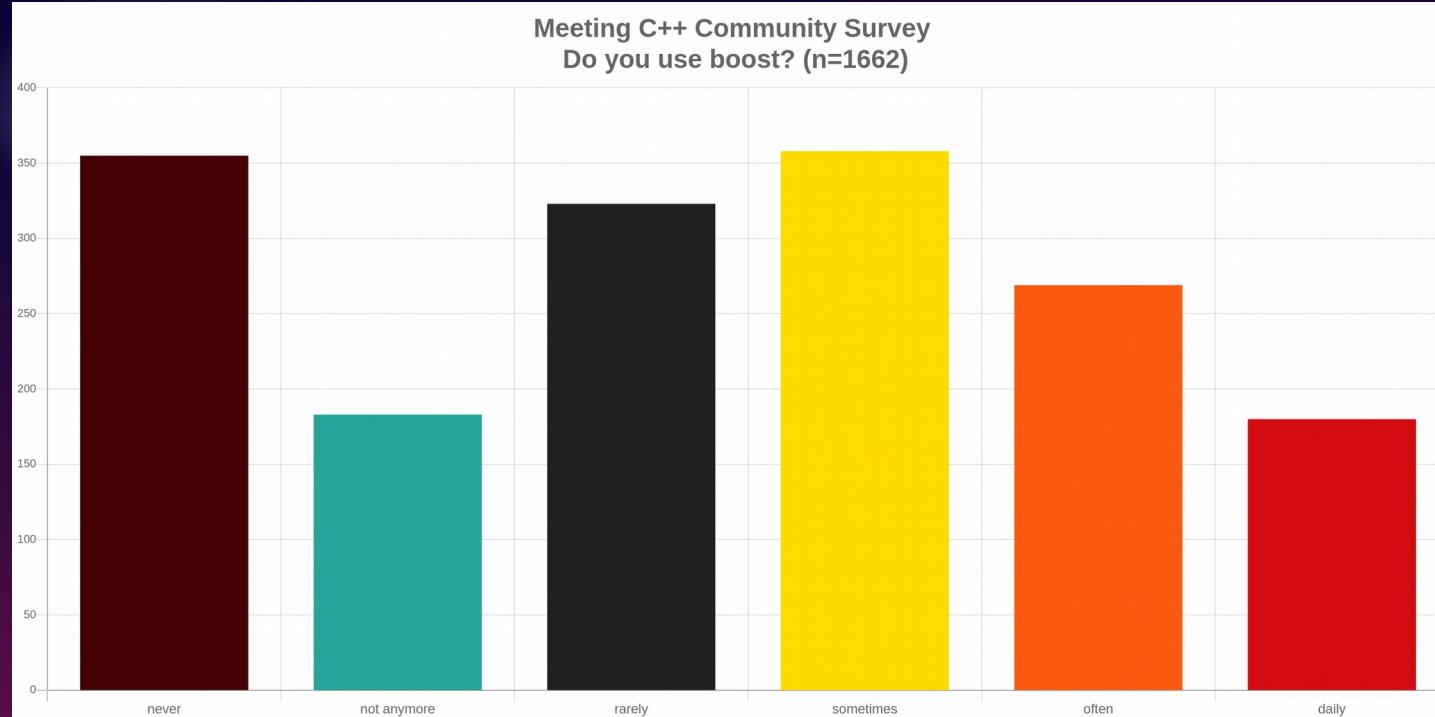
C++ Standards in use (May 2021)



Lets ask some Questions...
... and combine them with boost usage

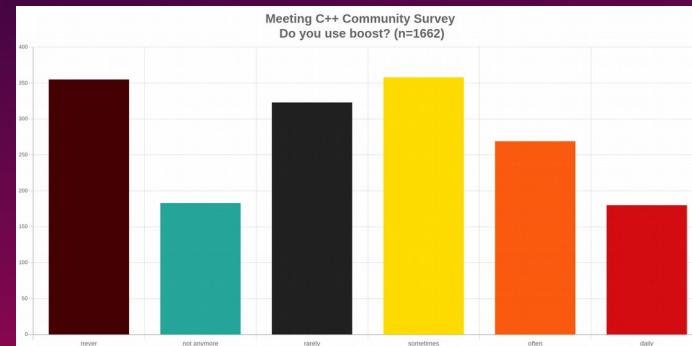
Do you use boost?

Do you use boost?

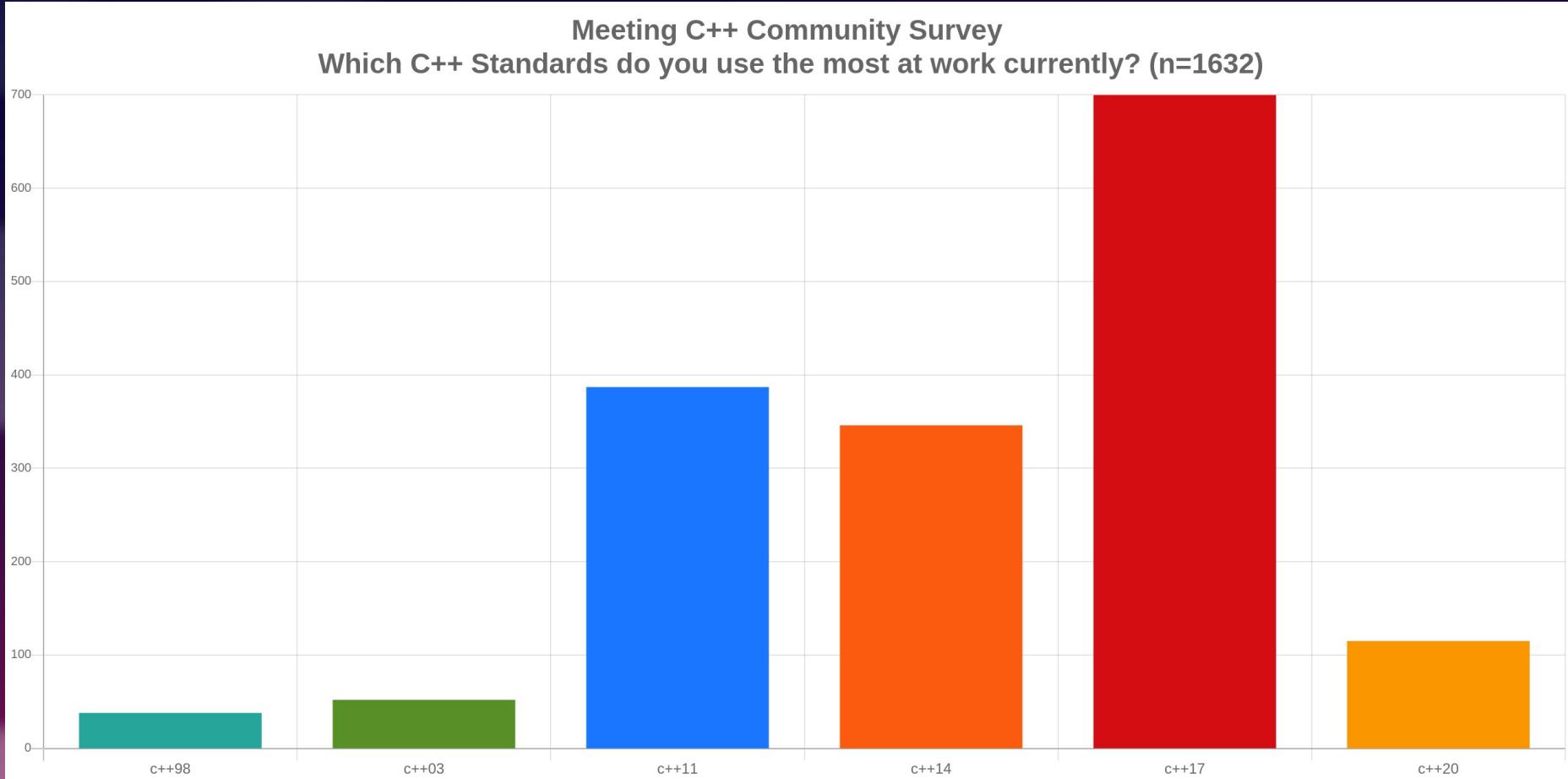


Disclaimer

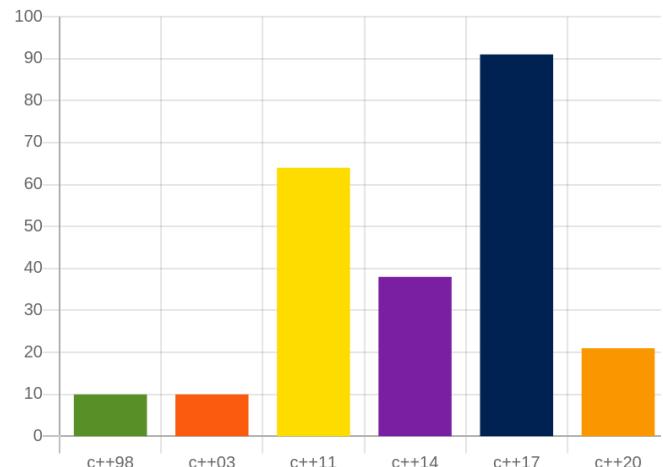
- In the coming slides this question will be used to show the answers from folks answering
- This is only correlated
- **The session must have answered both questions**
- This is based on
 - meetingcpp.com/mcpp/survey/combine.php



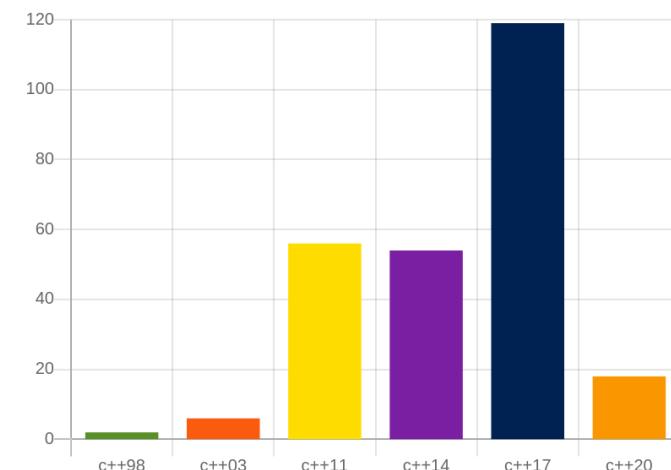
Which C++ Standards do you use the most at work currently?



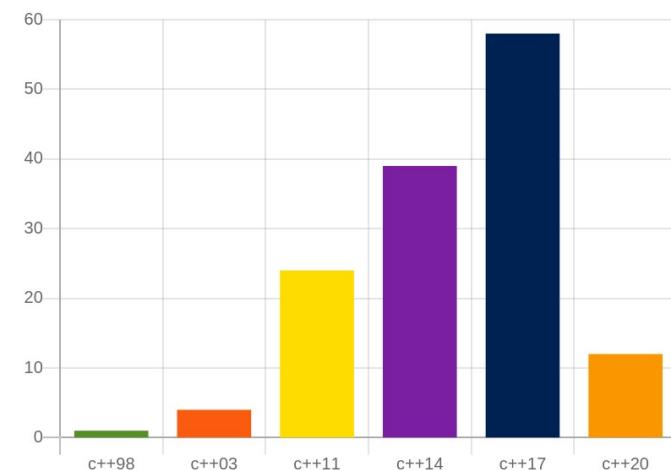
never



sometimes

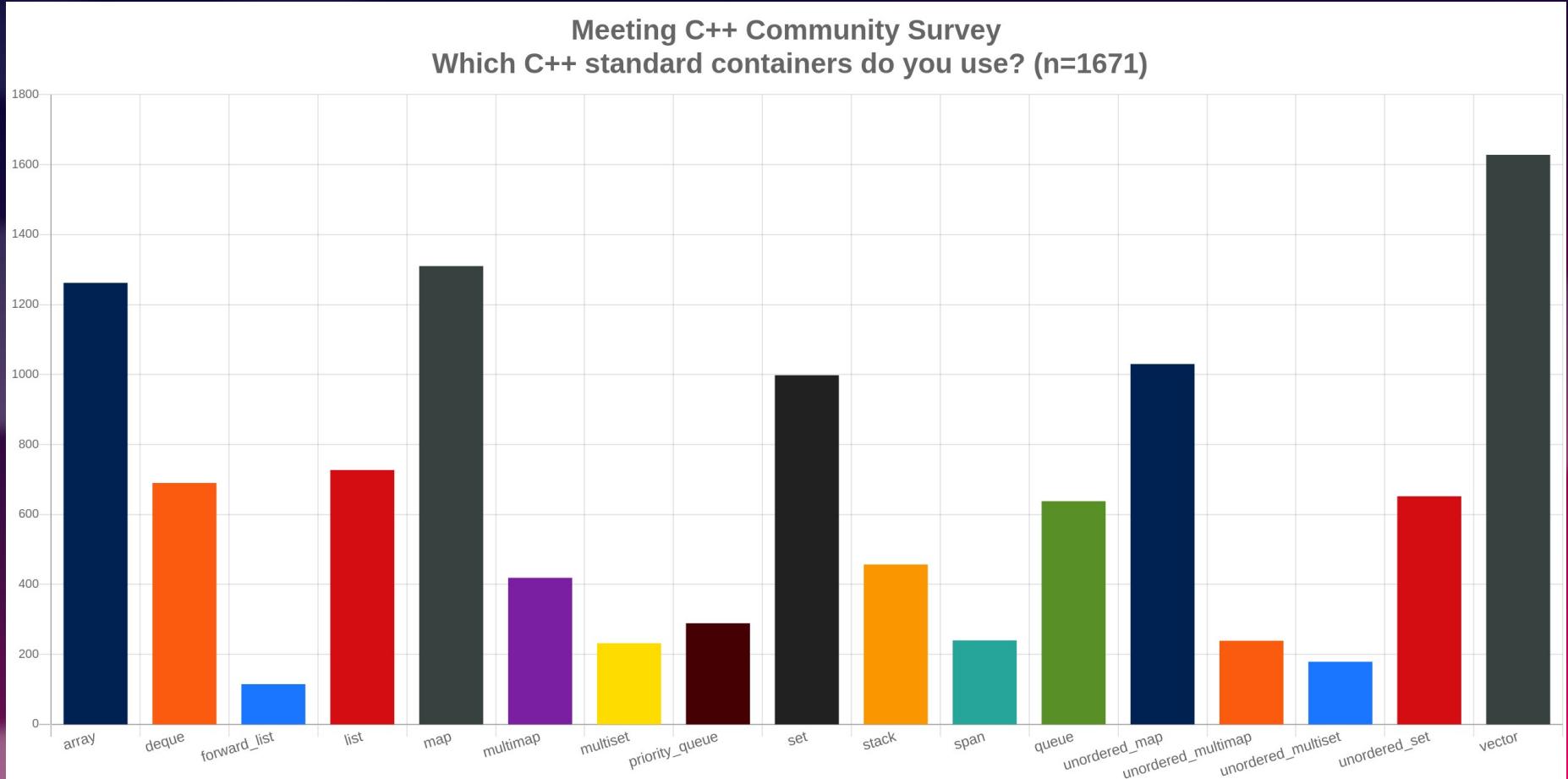


daily



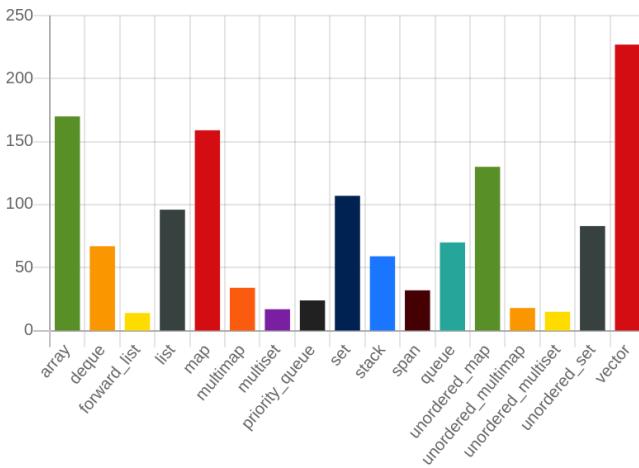
Which STL containers do you use?

Which C++ standard containers do you use?

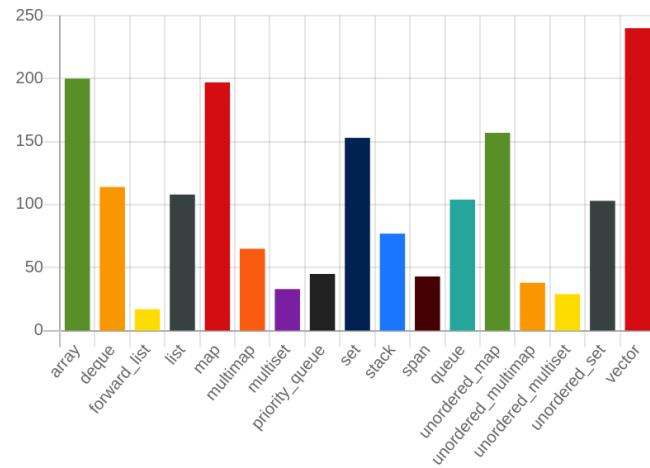


Combined with boost usage

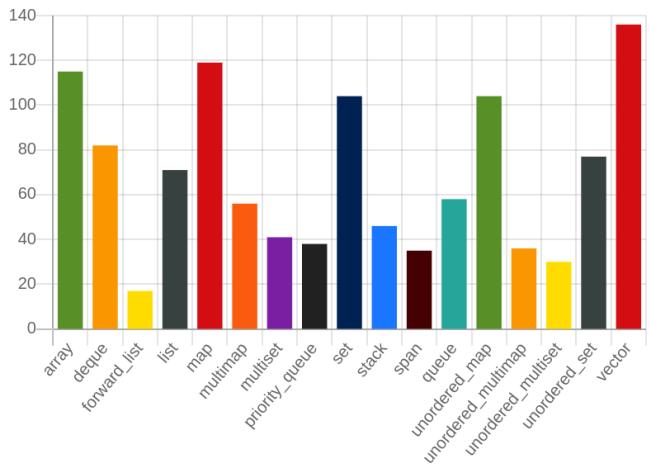
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sometimes

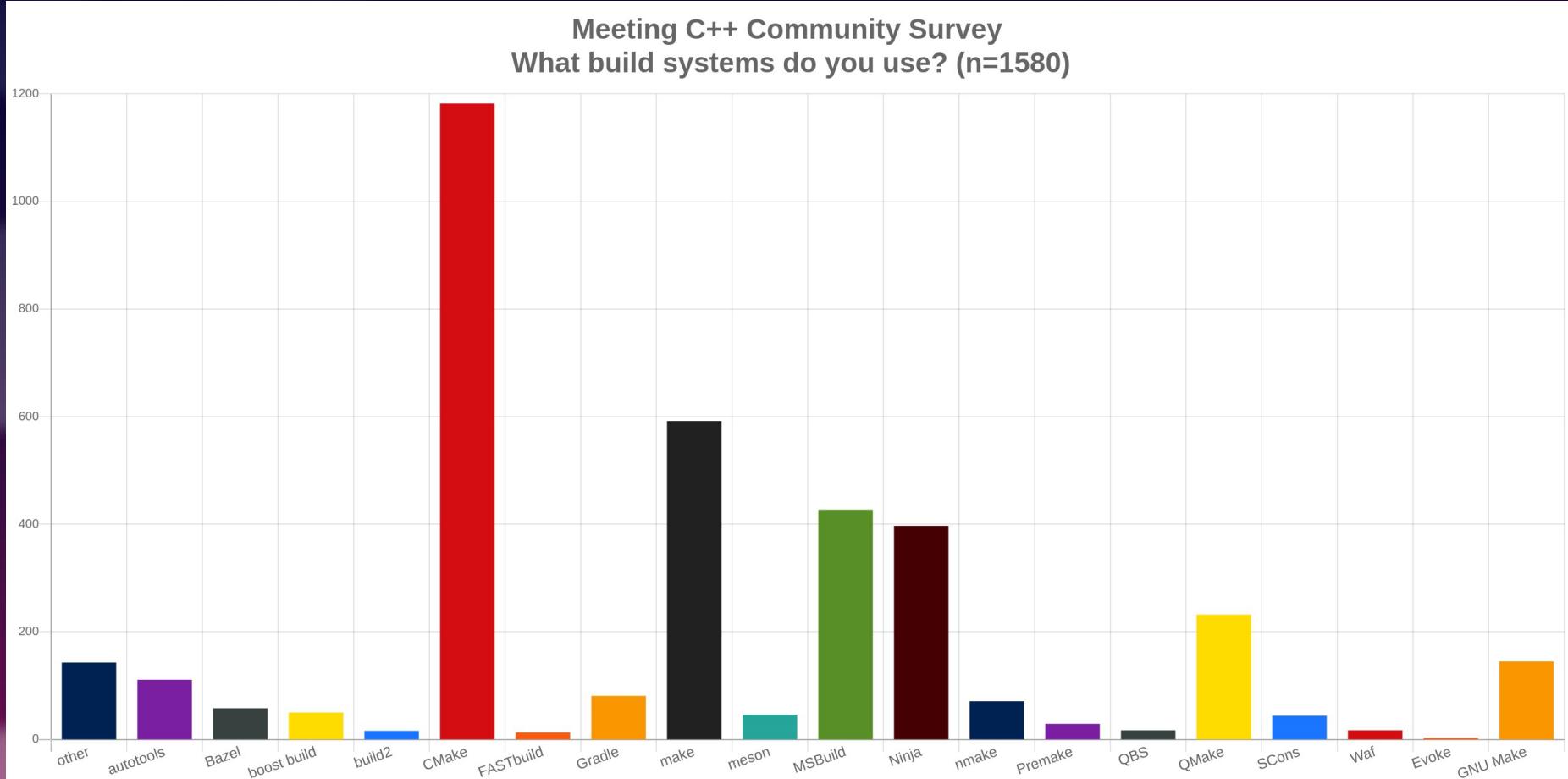


daily



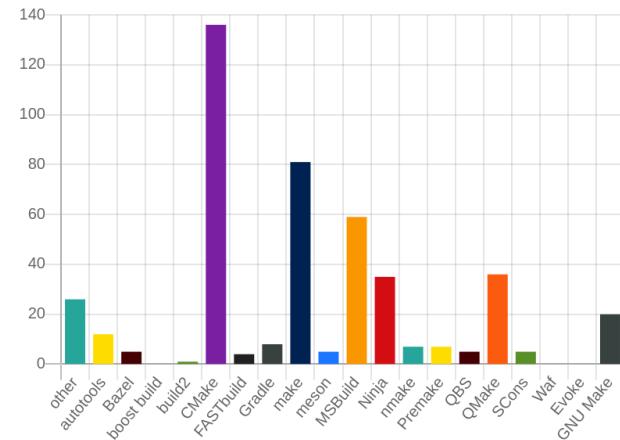
Buildsystems?

What build systems do you use?

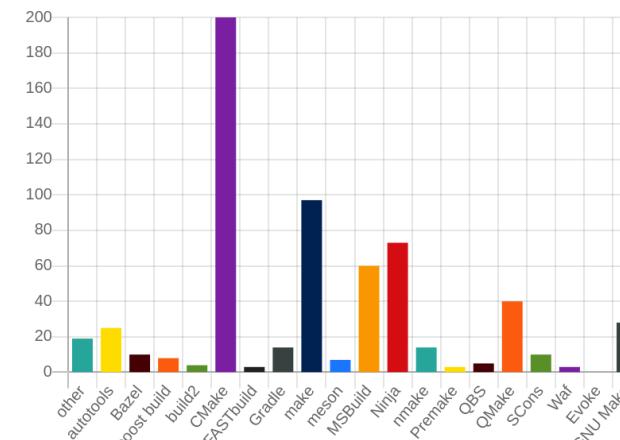


Combined with boost usage

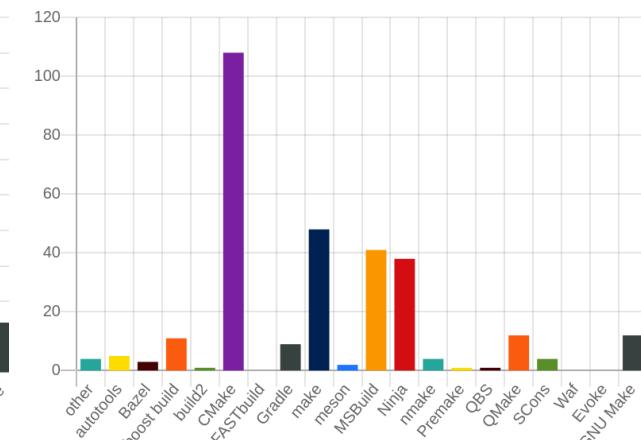
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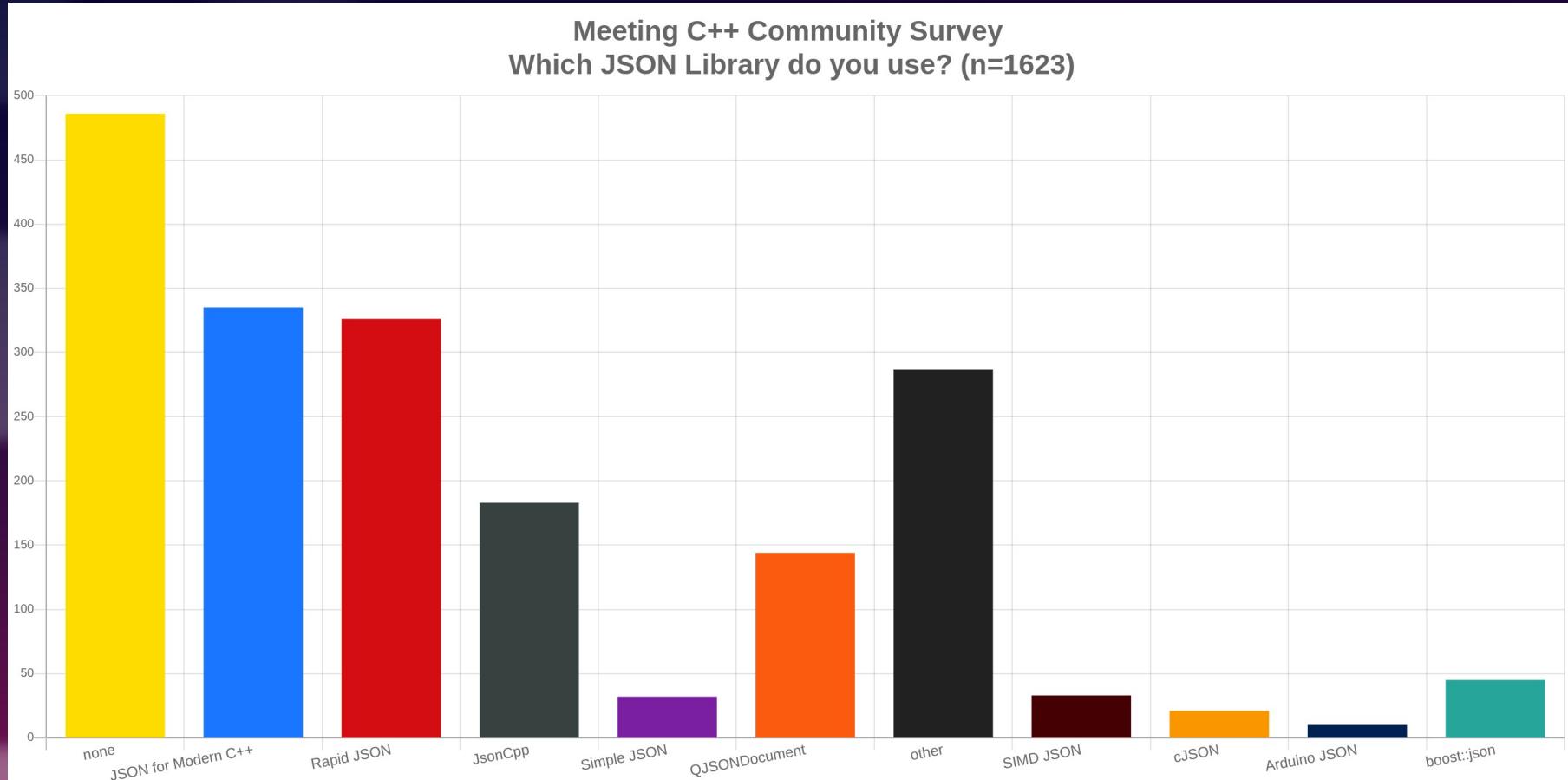


daily



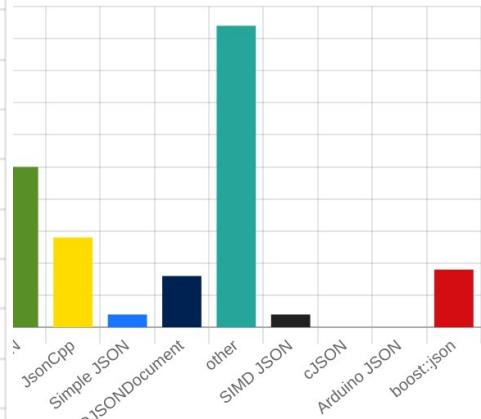
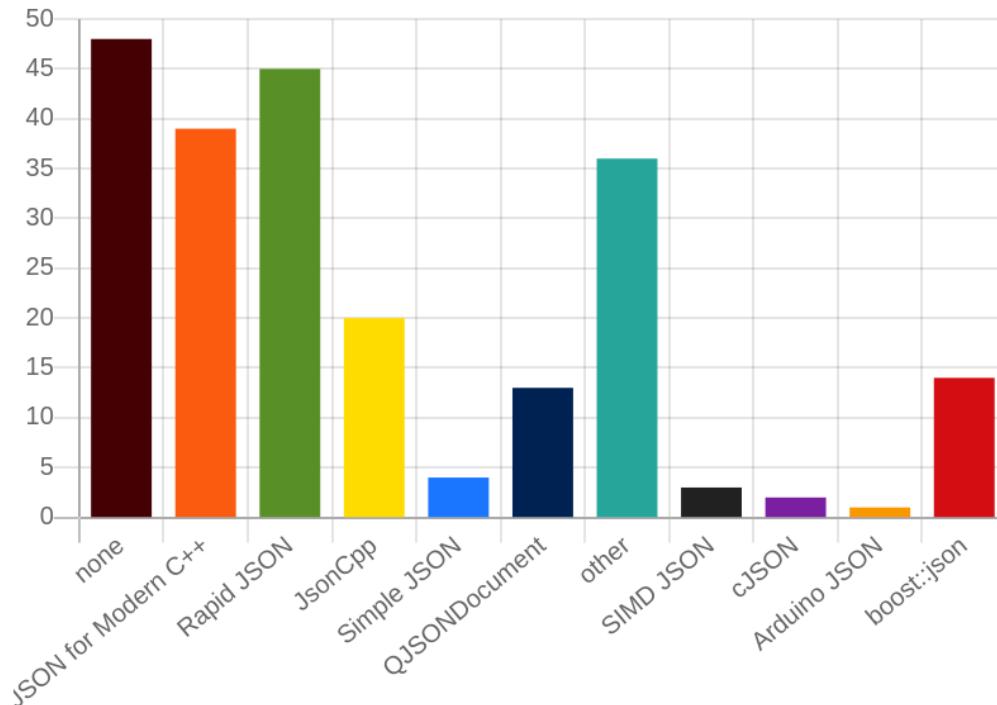
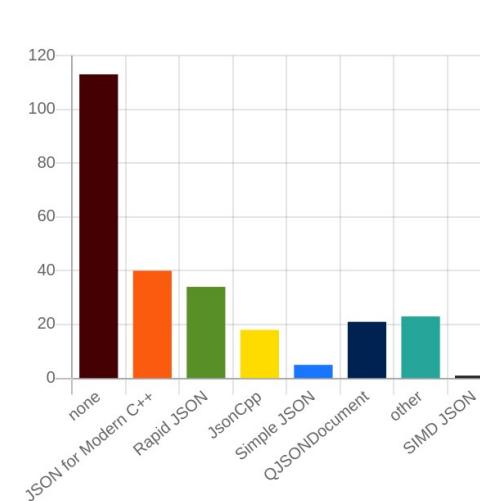
Which JSON Library do you use?

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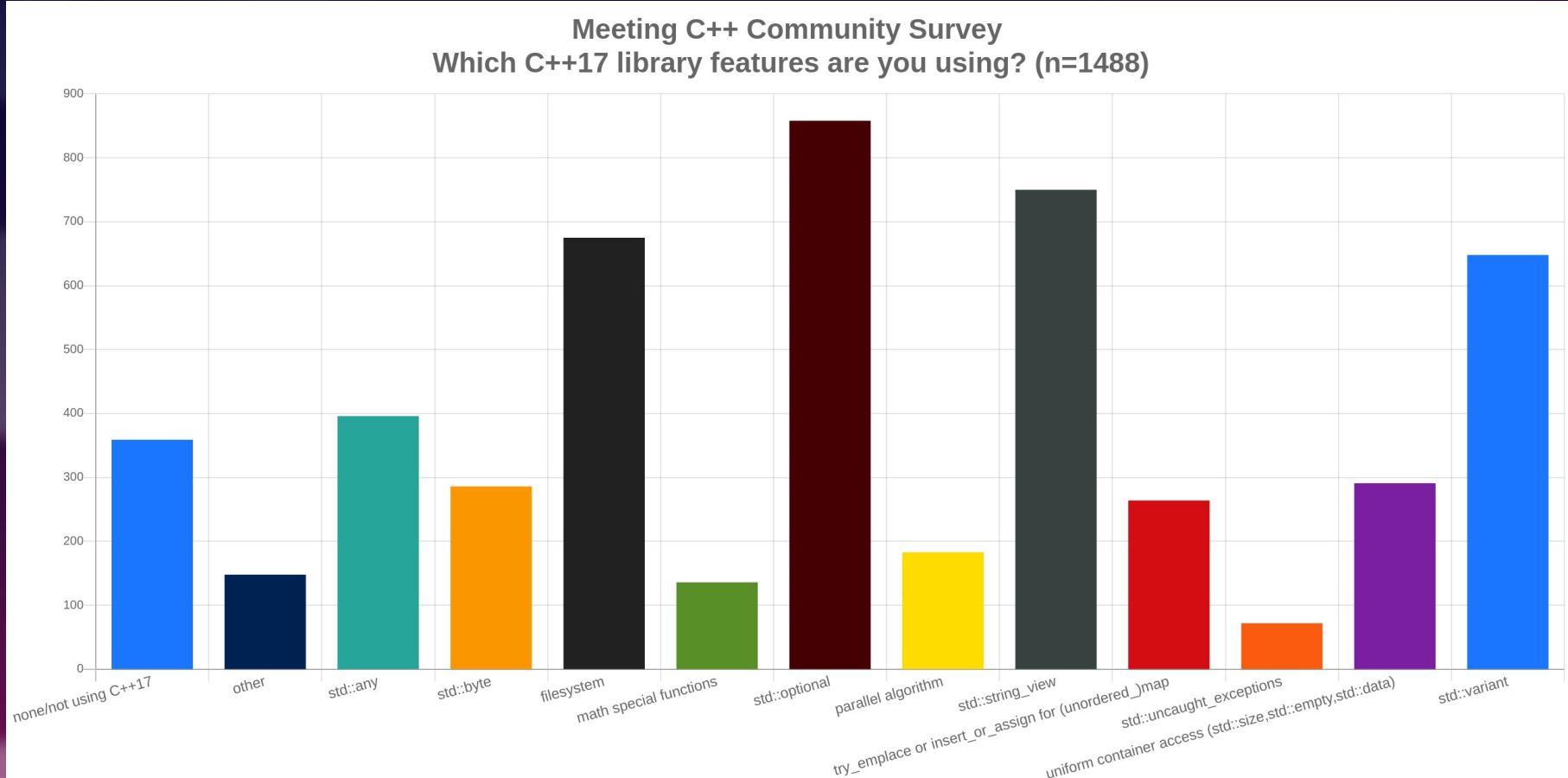
often

never



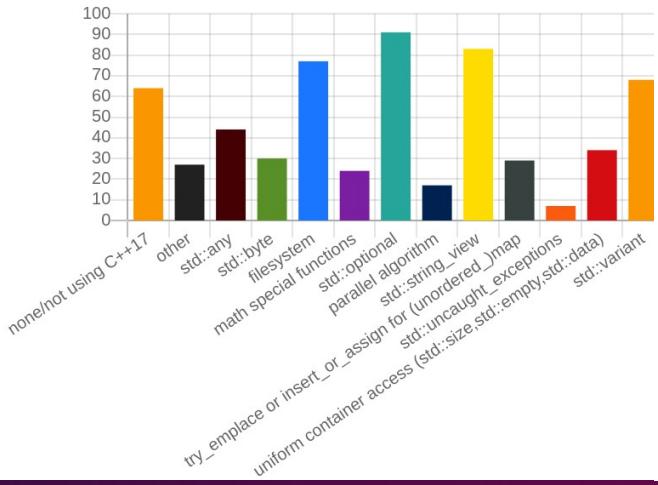
C++17 language/library features

Which C++ library features are you using?

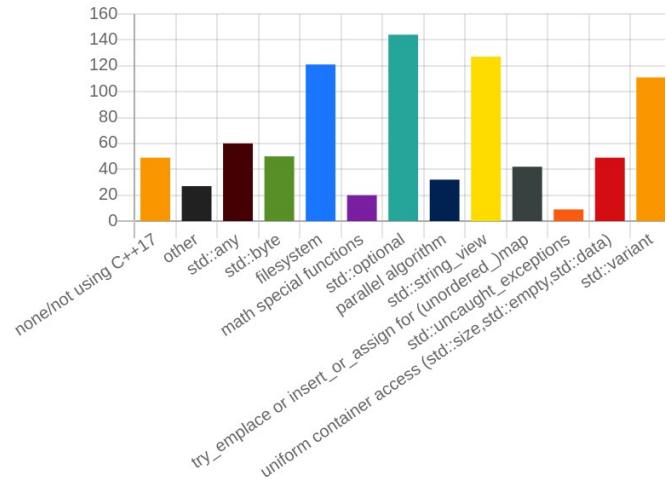


Combined with boost usage

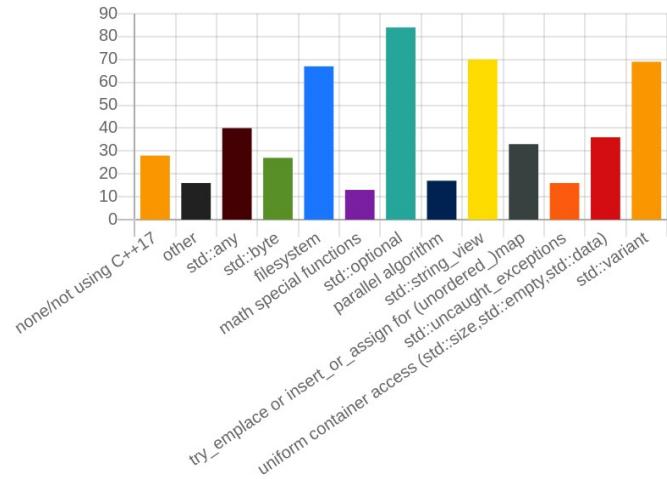
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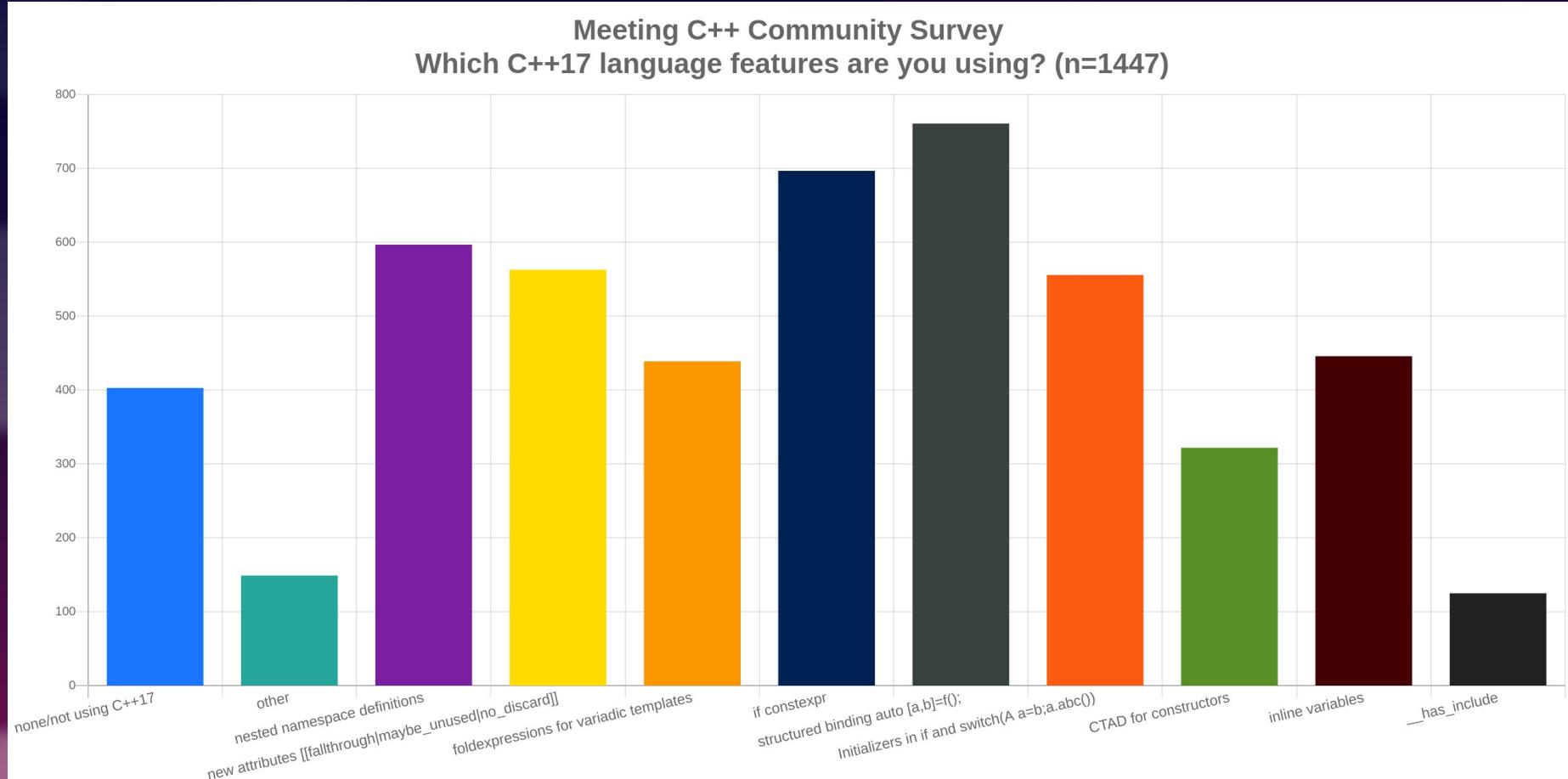
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daily

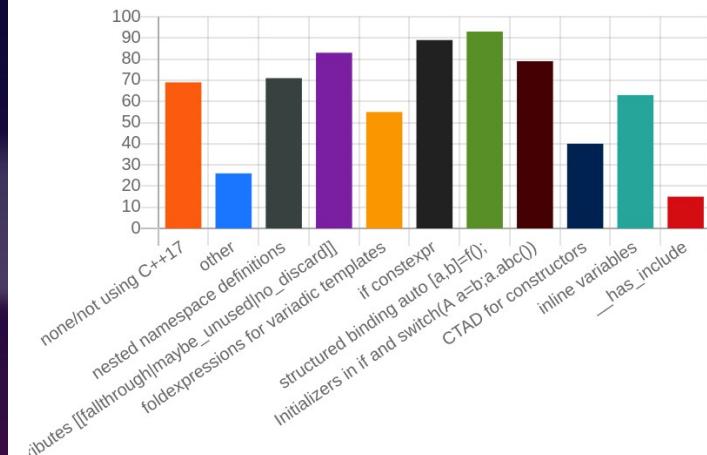


Which C++17 language features are you using?

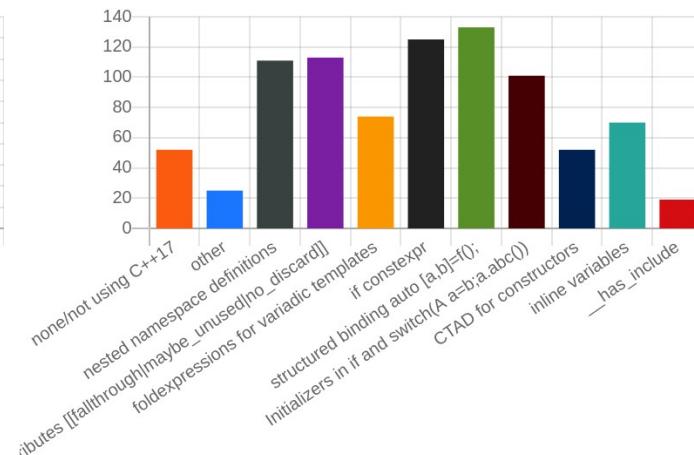


Combined with boost usage

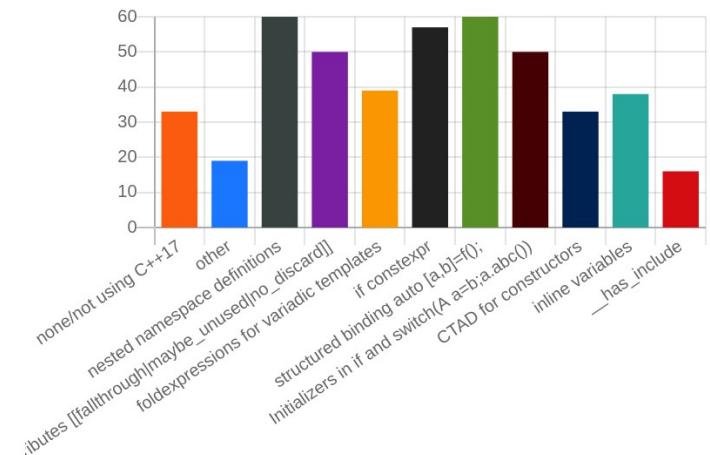
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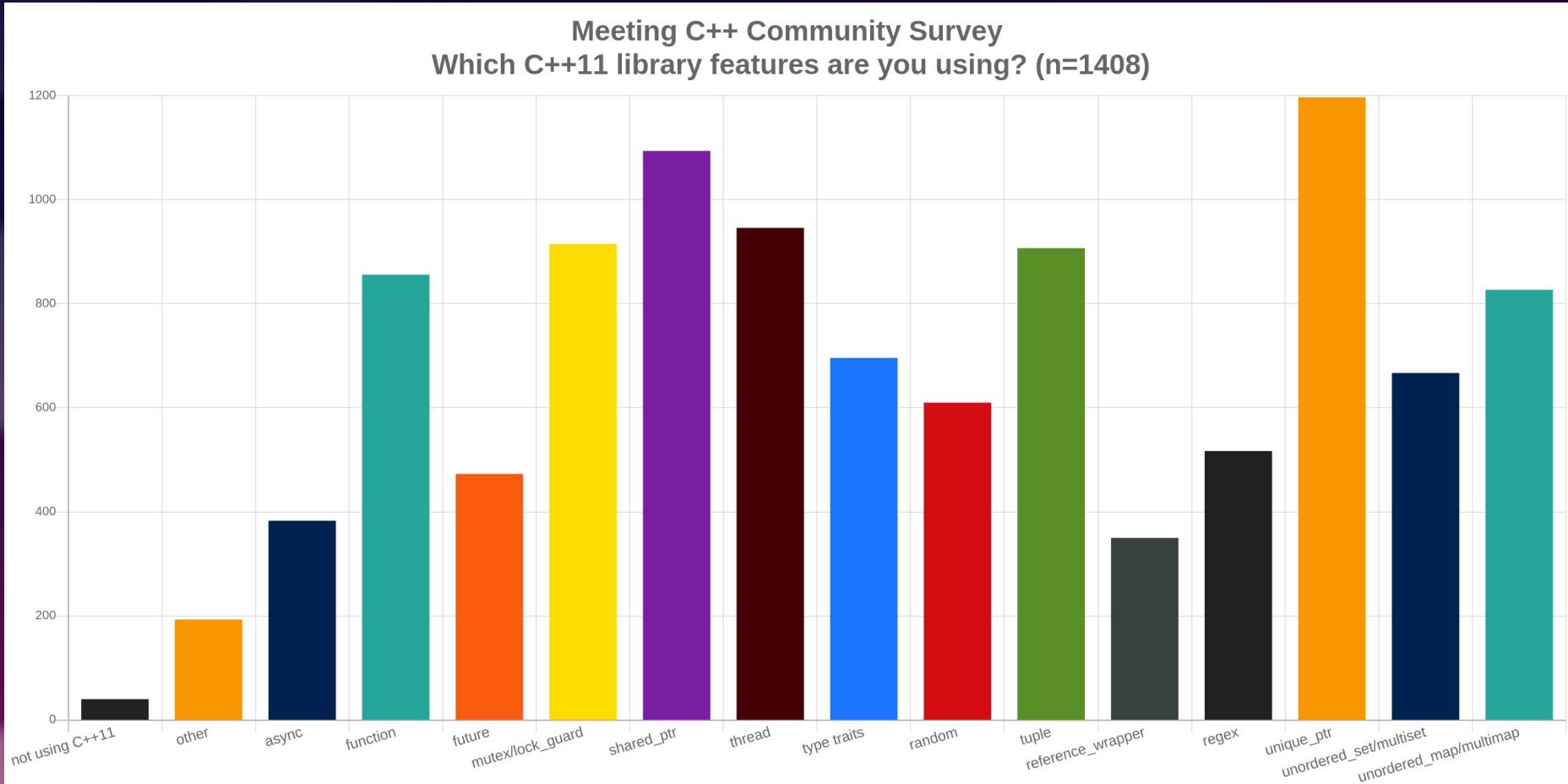


daily



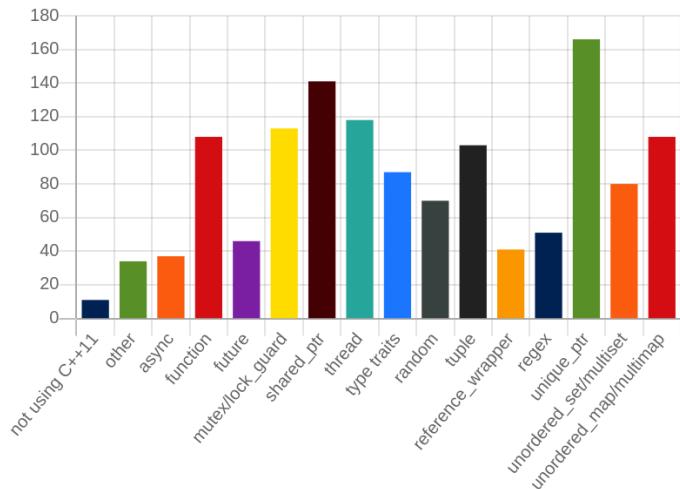
C++11 library features?

Which C++11 library features are you using?

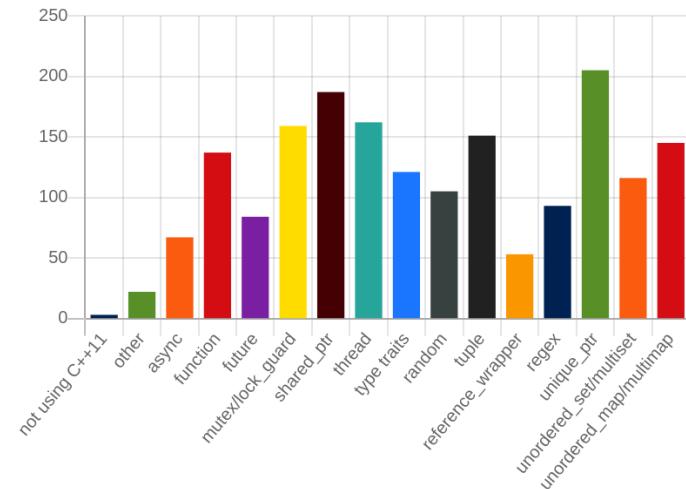


Combined with boost usage

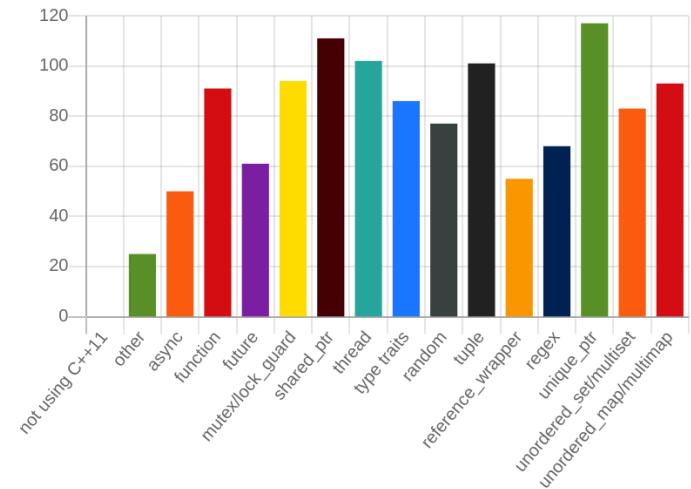
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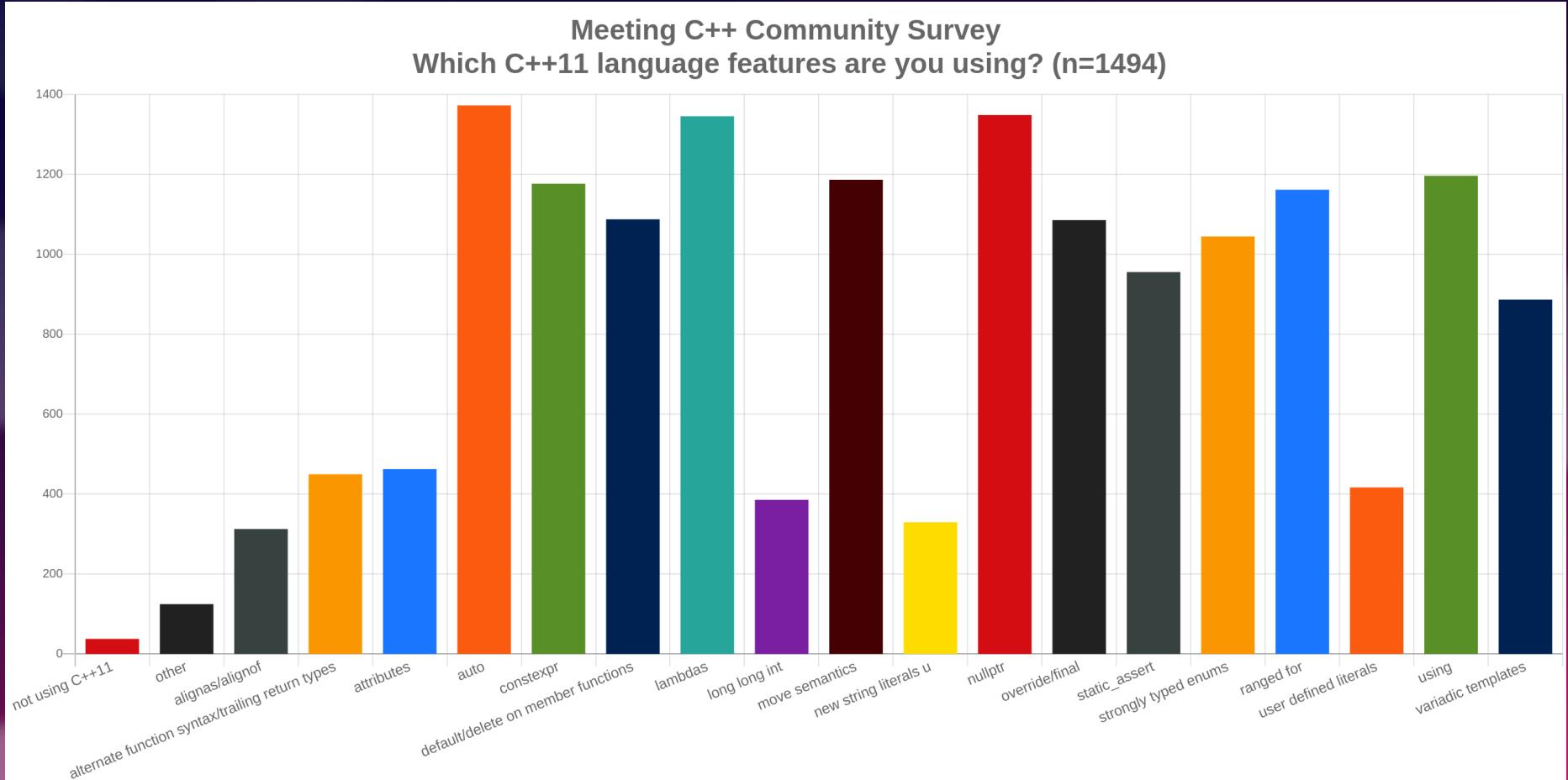
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daily

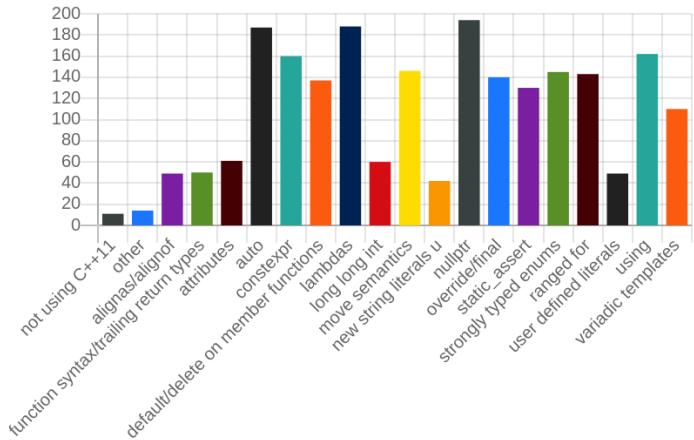


Which C++11 language features are you using?

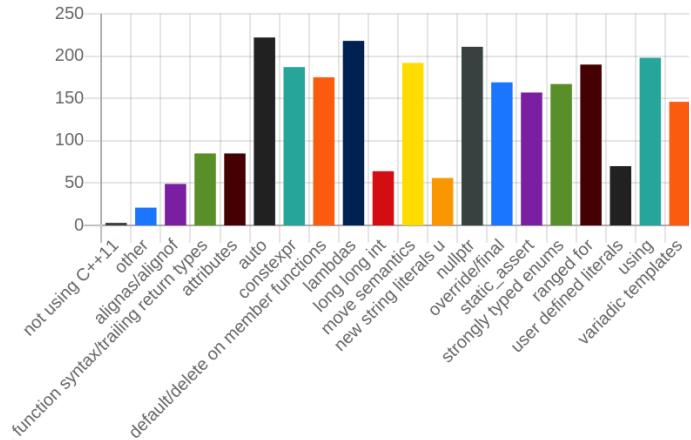


Combined with boost usage

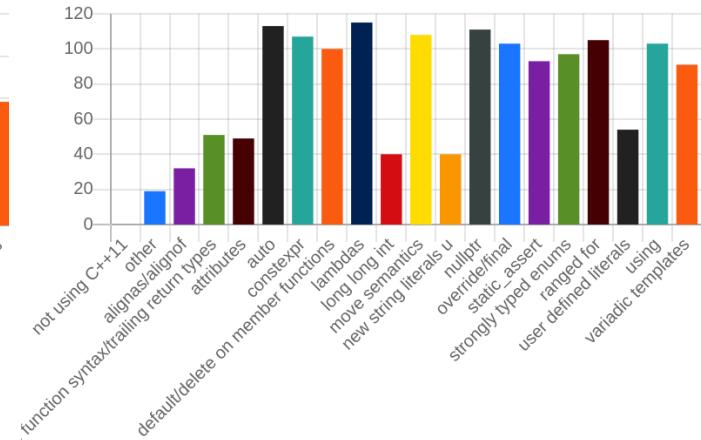
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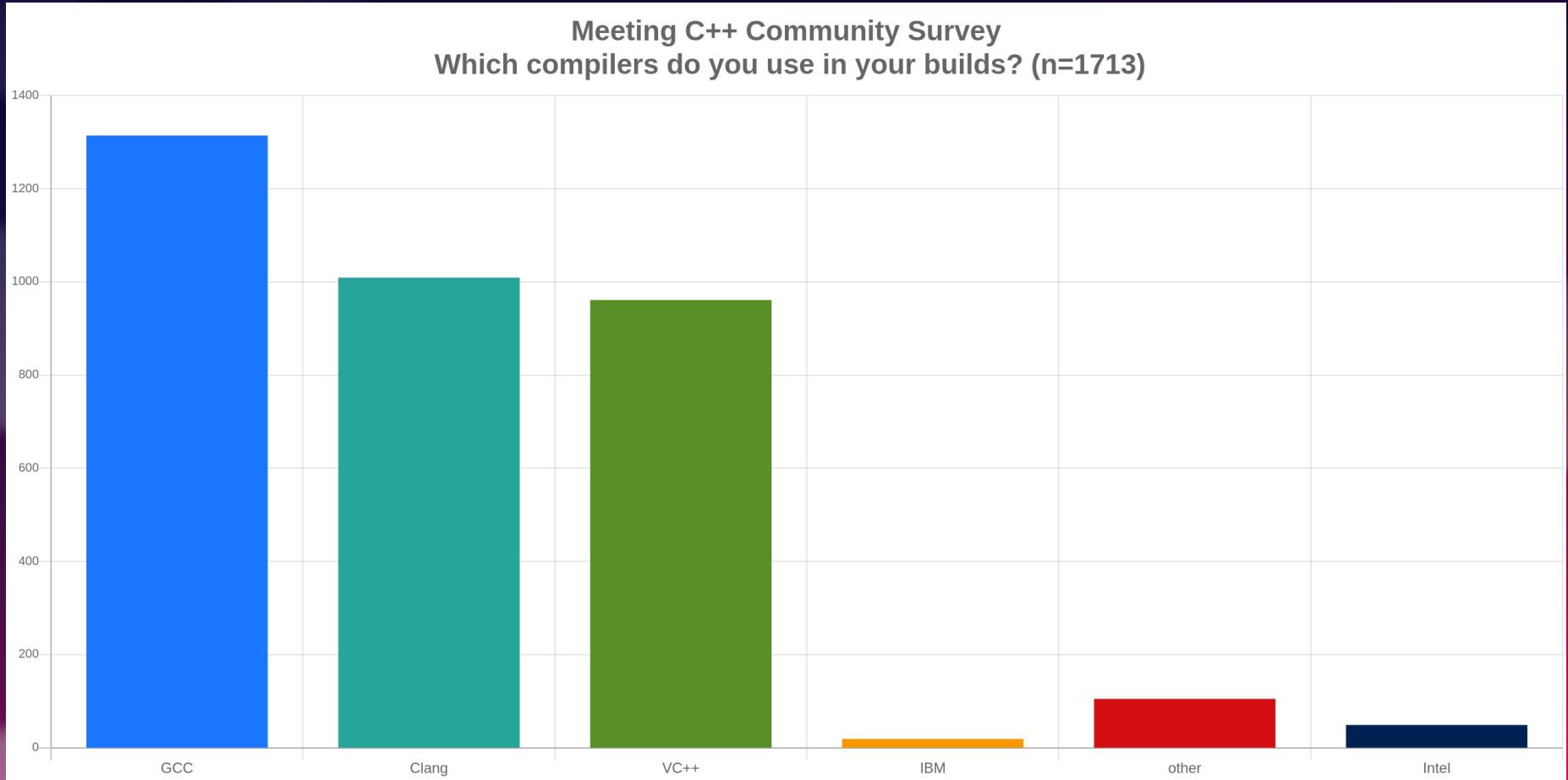


daily



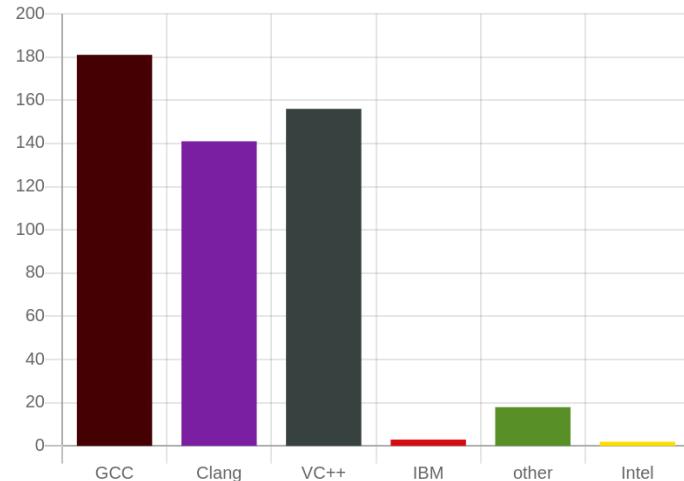
Which compilers do you use?

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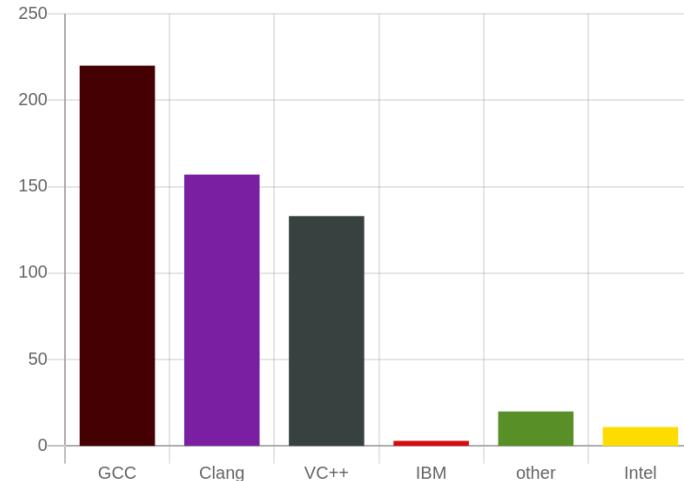


Combining boost usage → compiler question

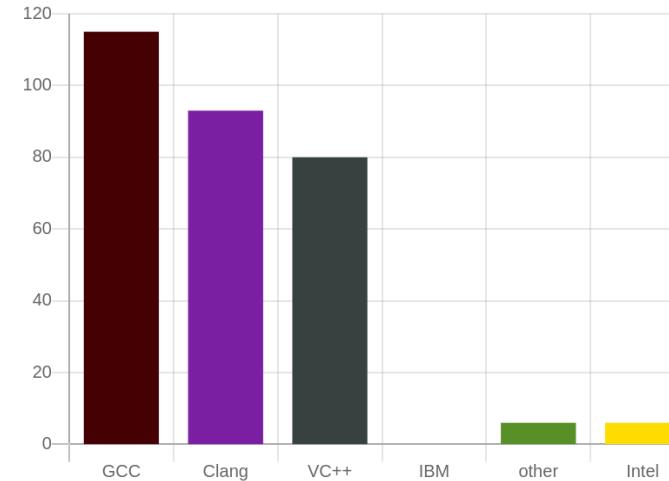
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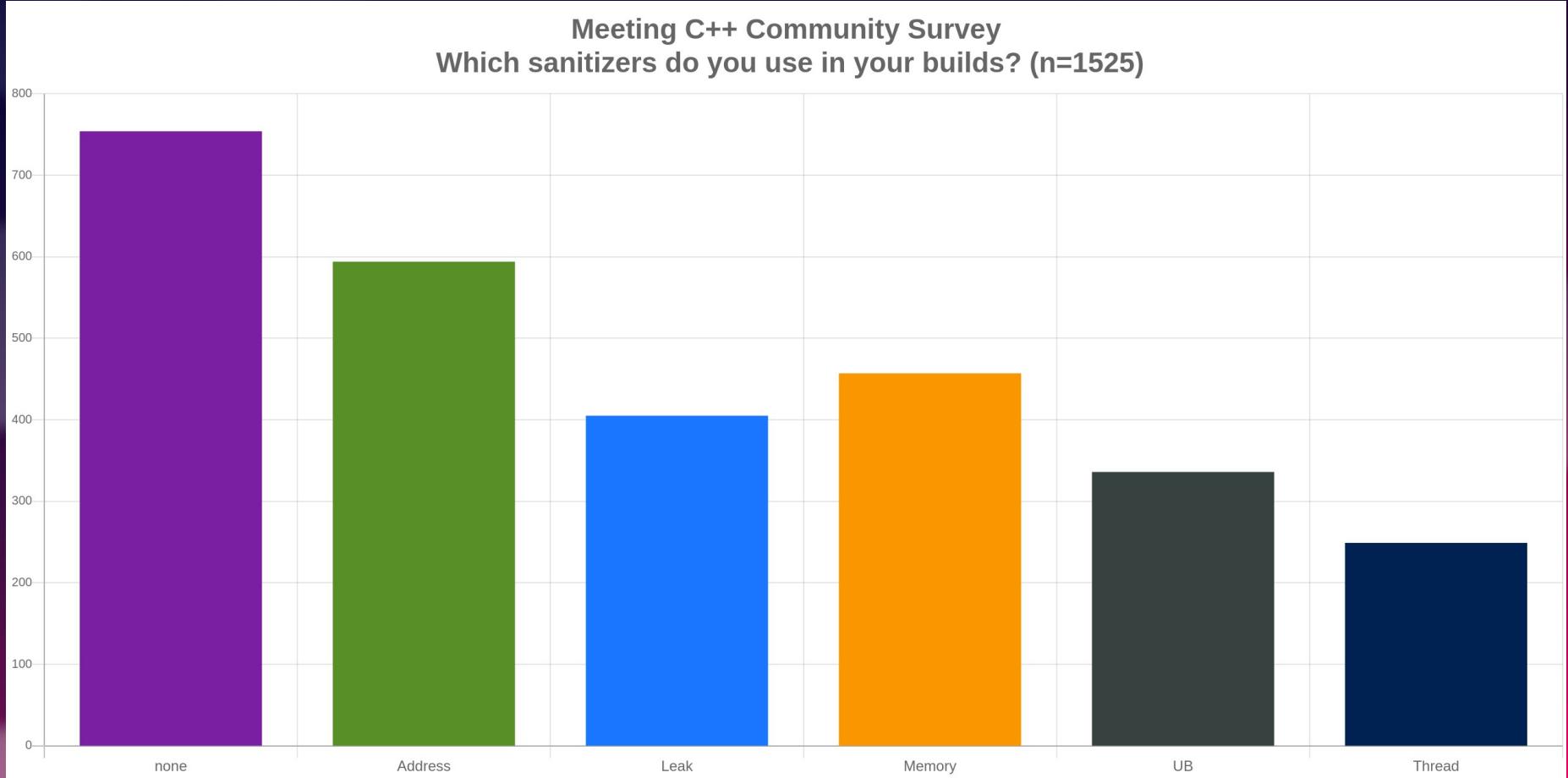


daily



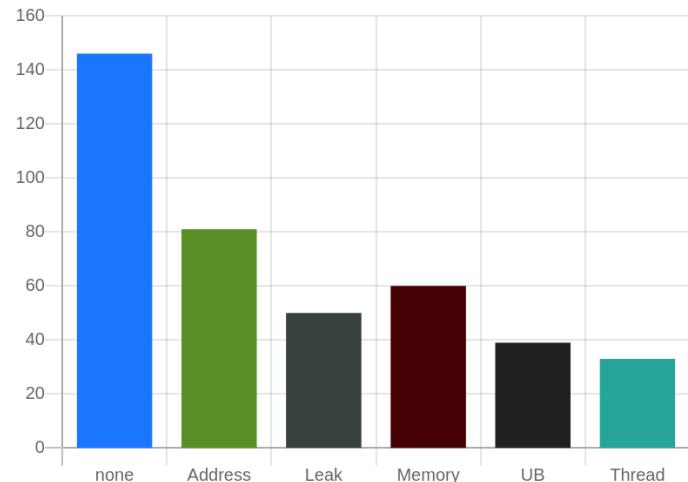
Which Sanitizers do you use in your builds?

Which Sanitizers do you use in your builds?

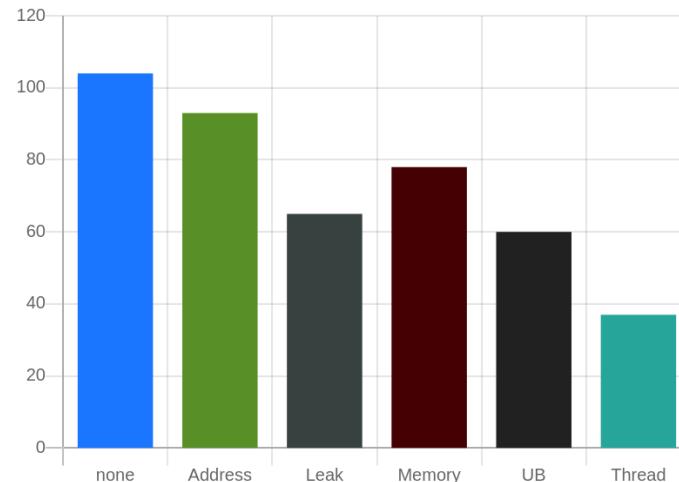


Combined with boost

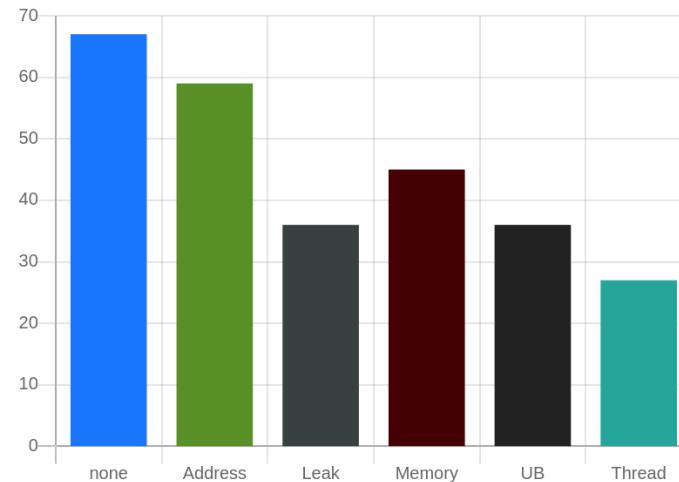
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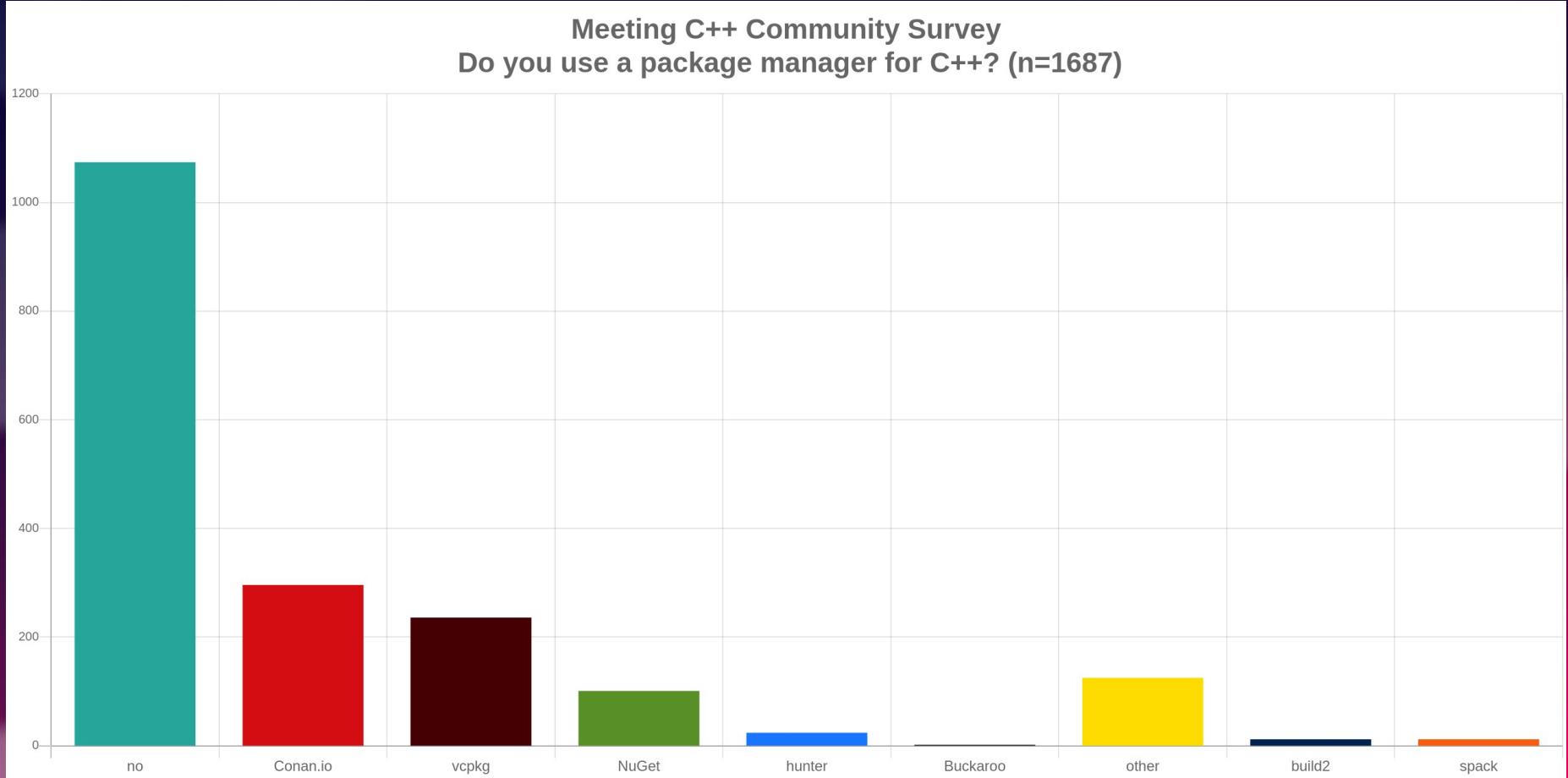


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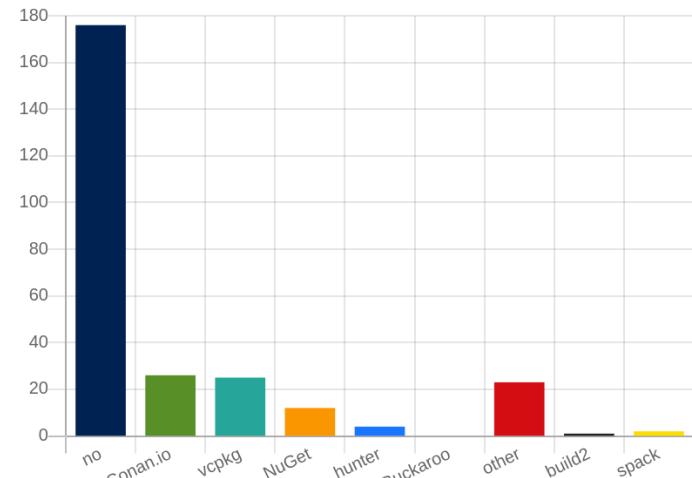
Do you use a package manager?

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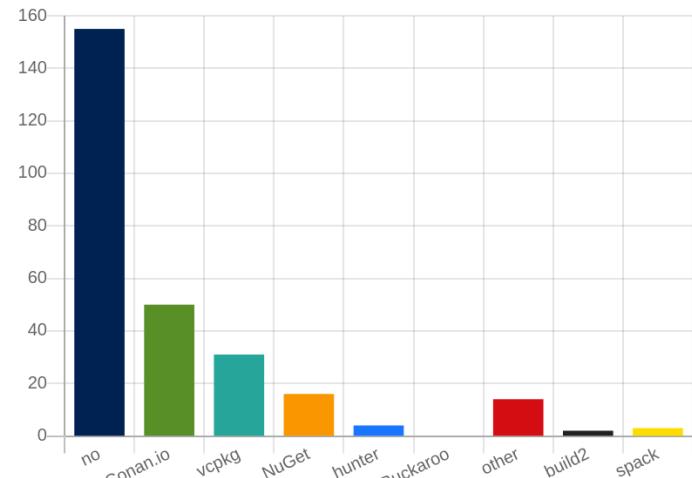


Combined with boost

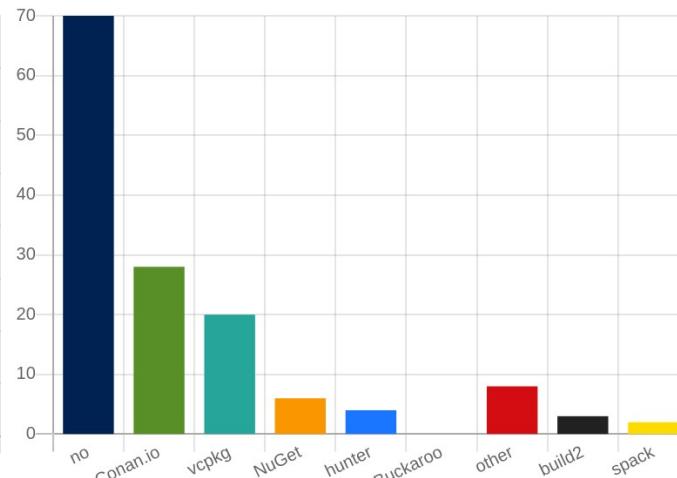
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sometimes



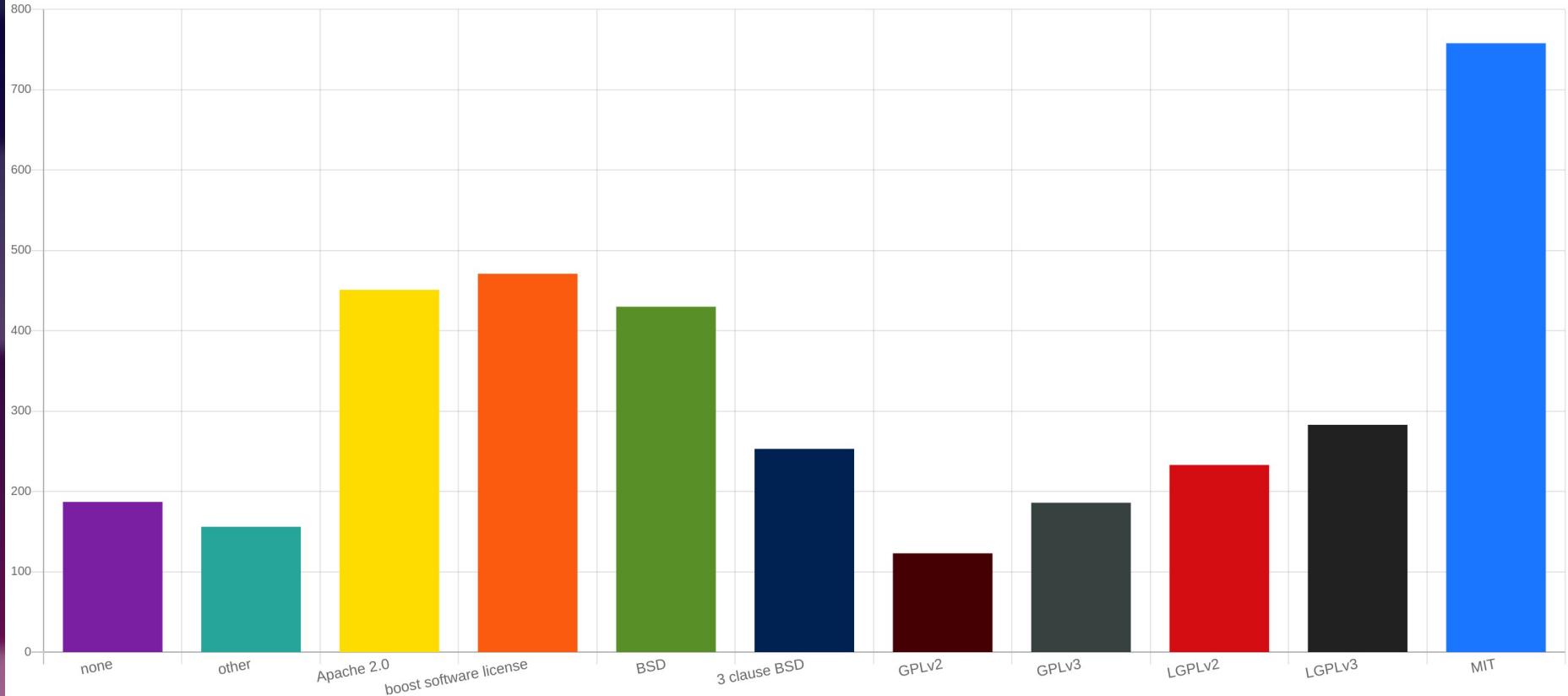
daily



Which open source licenses are actually in use in
your works code base?

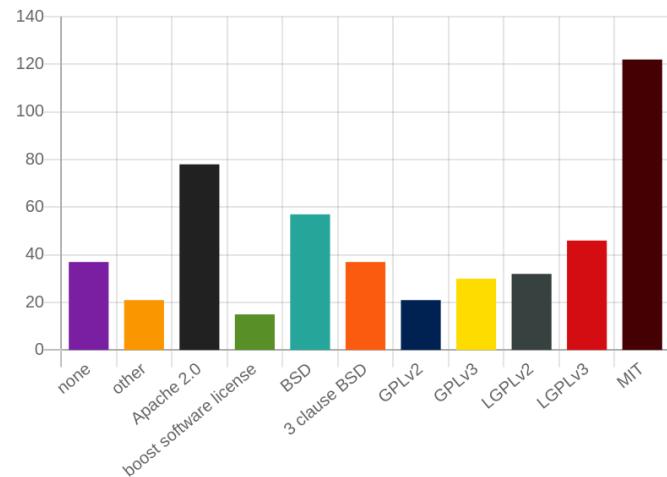
Meeting C++ Community Survey

Which open source licenses are actually in use in your works code base? (n=1200)

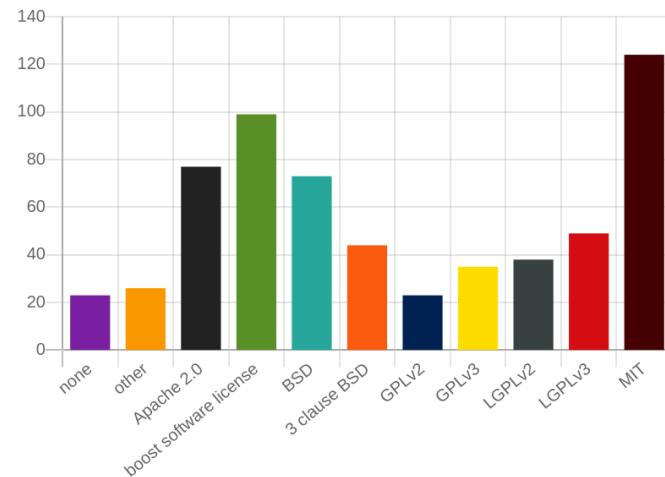


Combined with boost

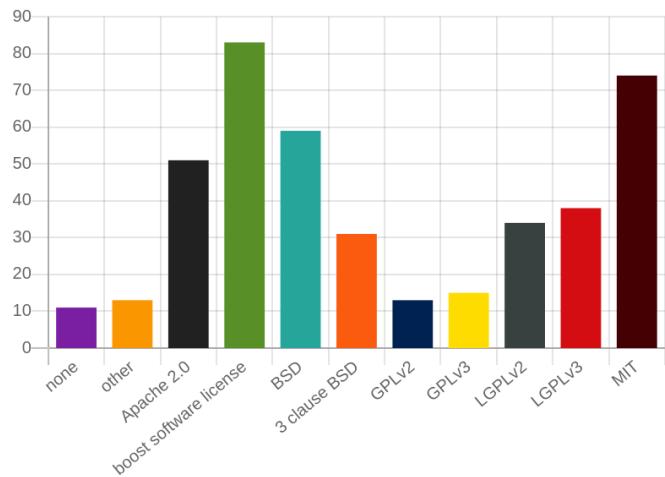
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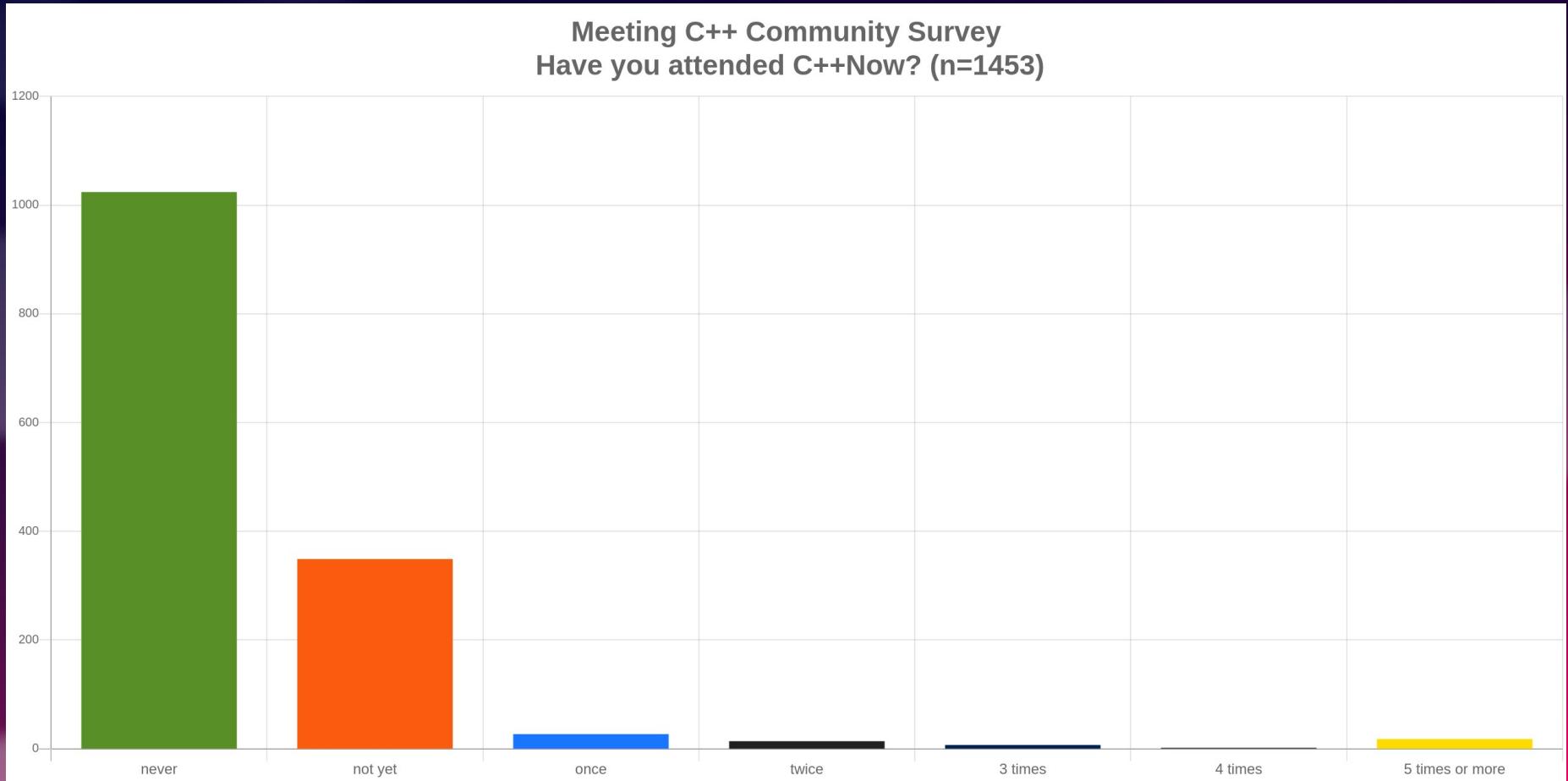


daily

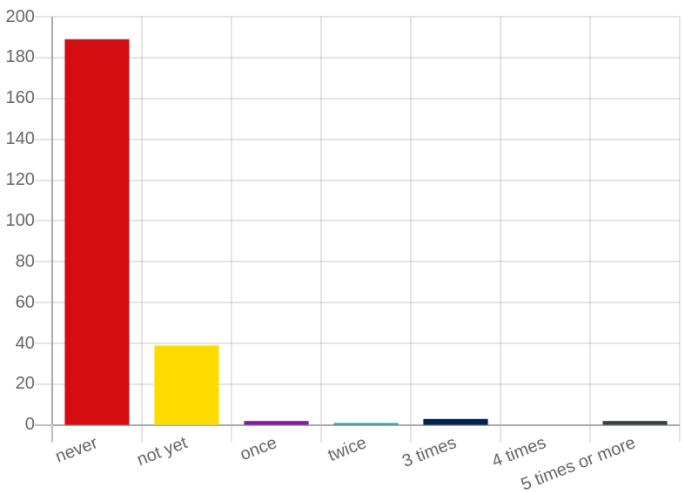


Have you attended C++now?

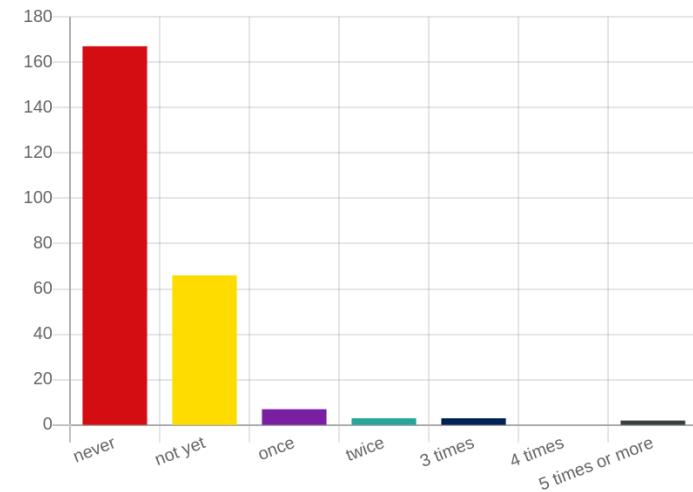
Have you attended C++now?



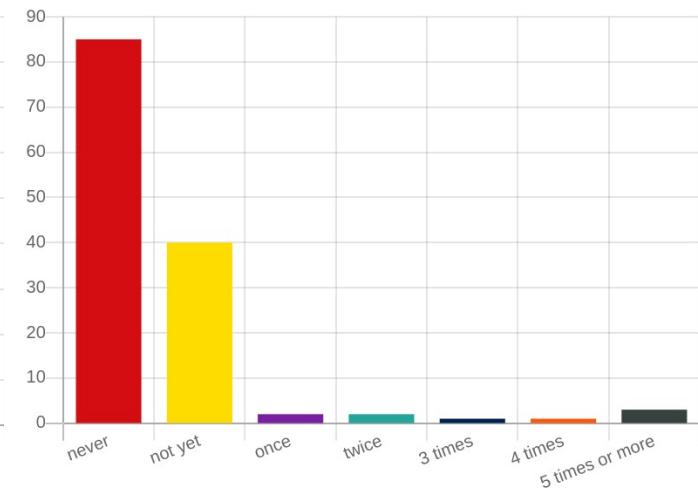
never



sometimes

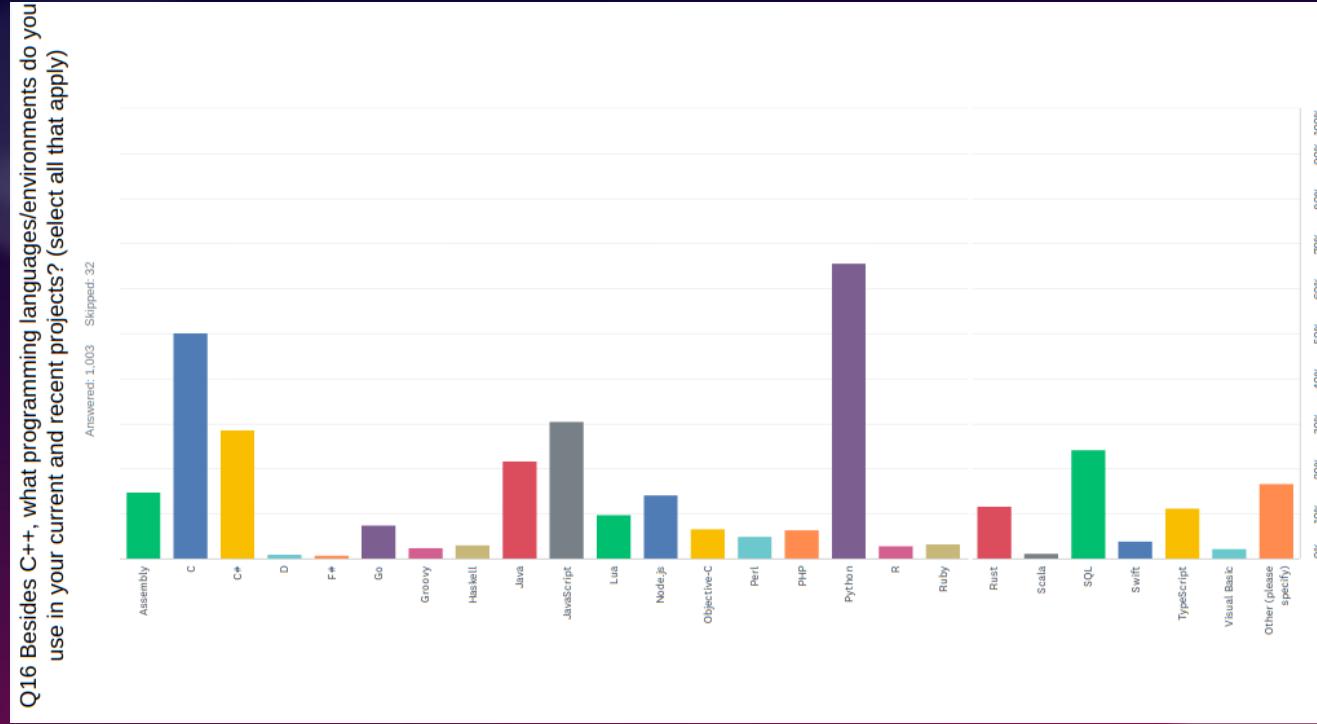


daily

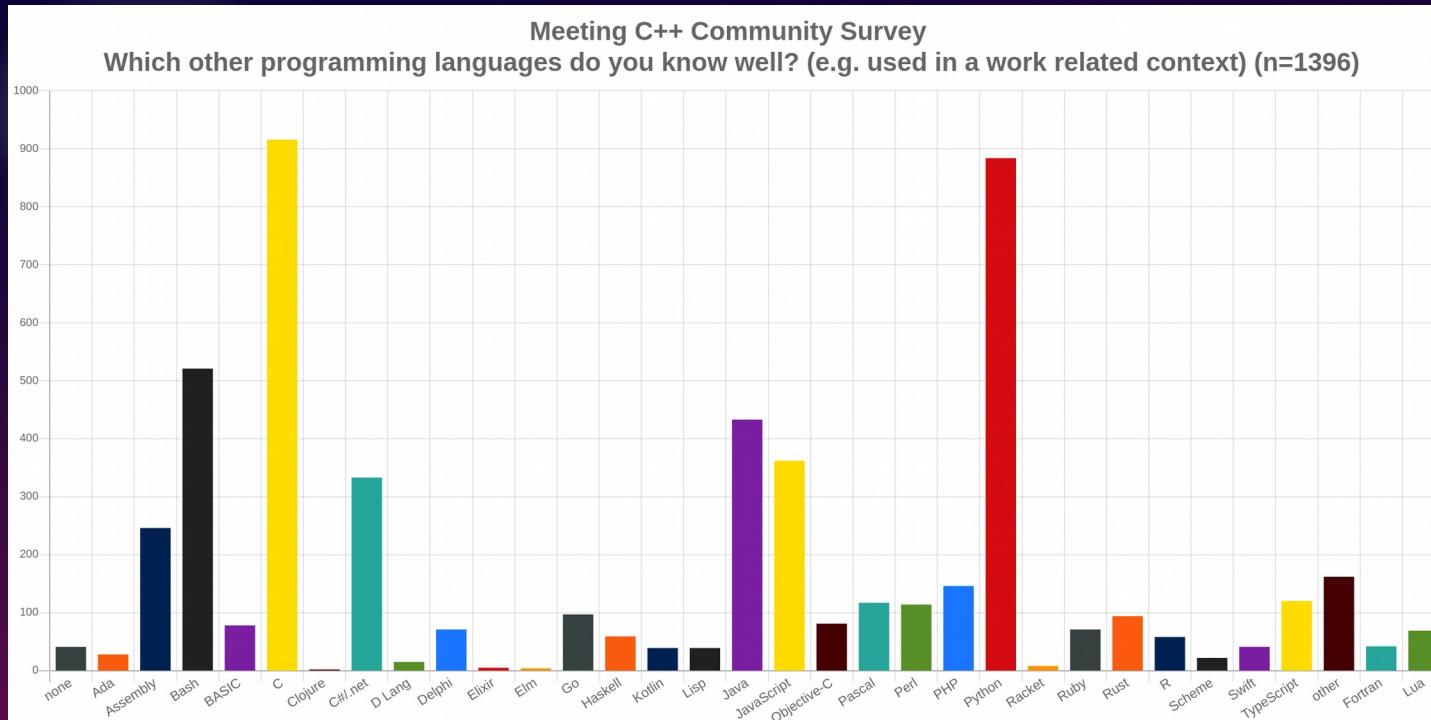


Some none C++ related Questions

Other programming languages



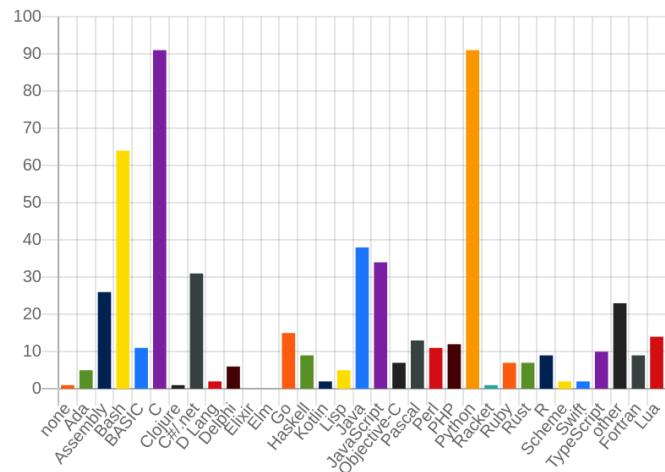
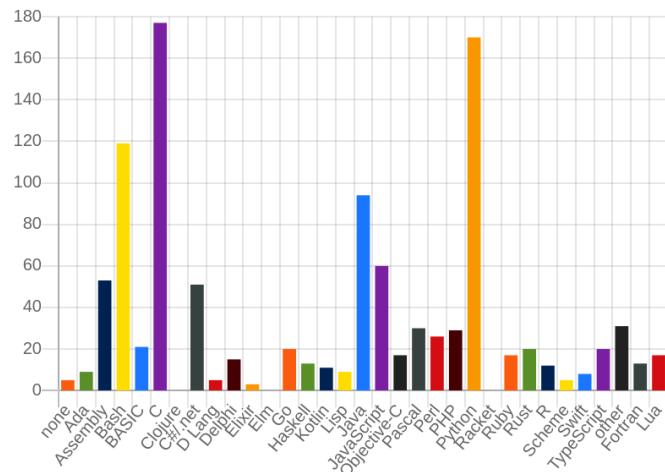
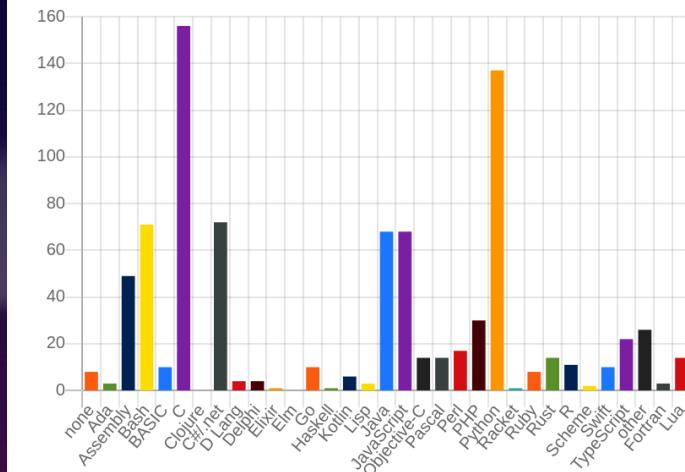
Other programming languages...



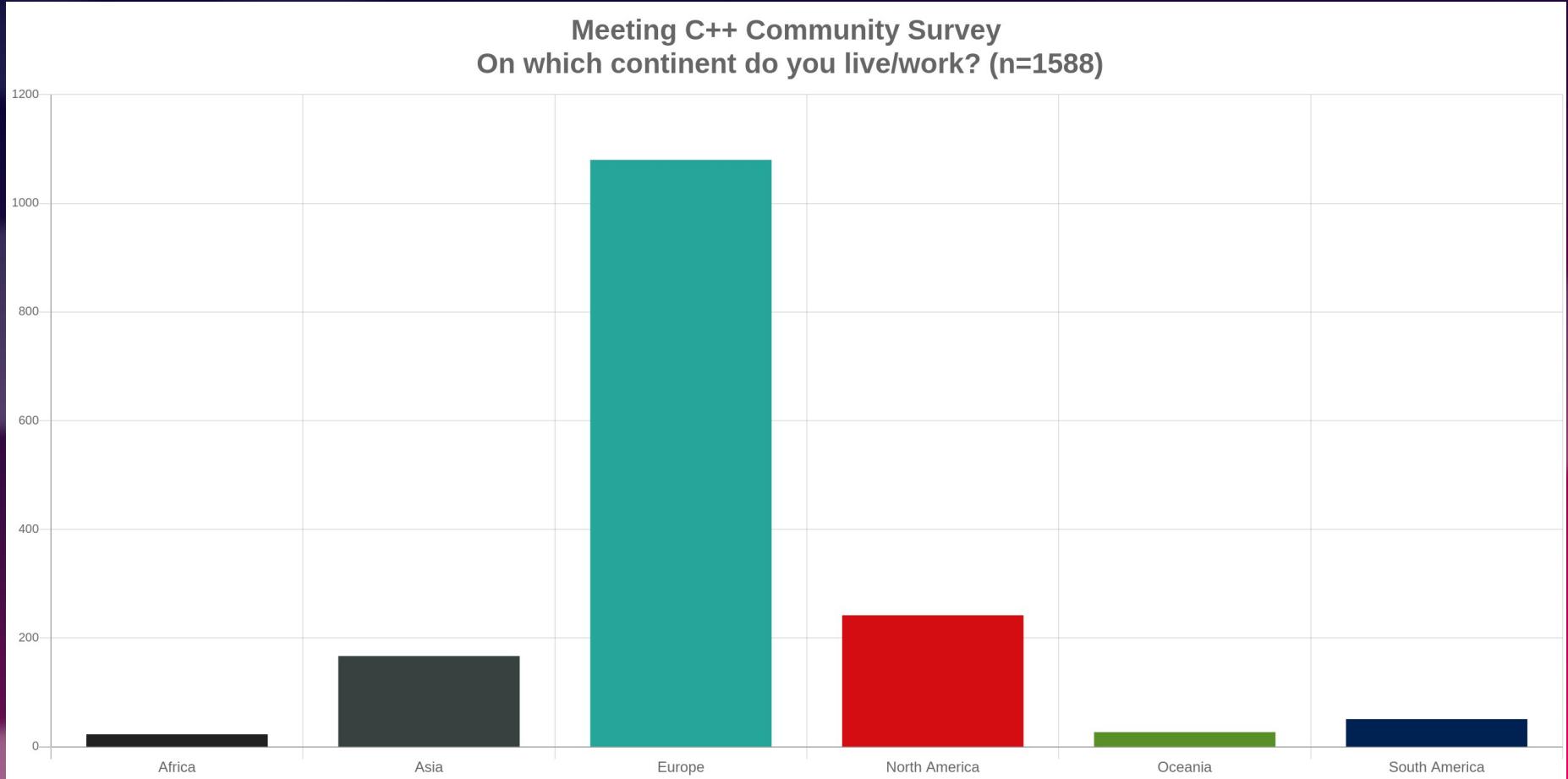
never

sometimes

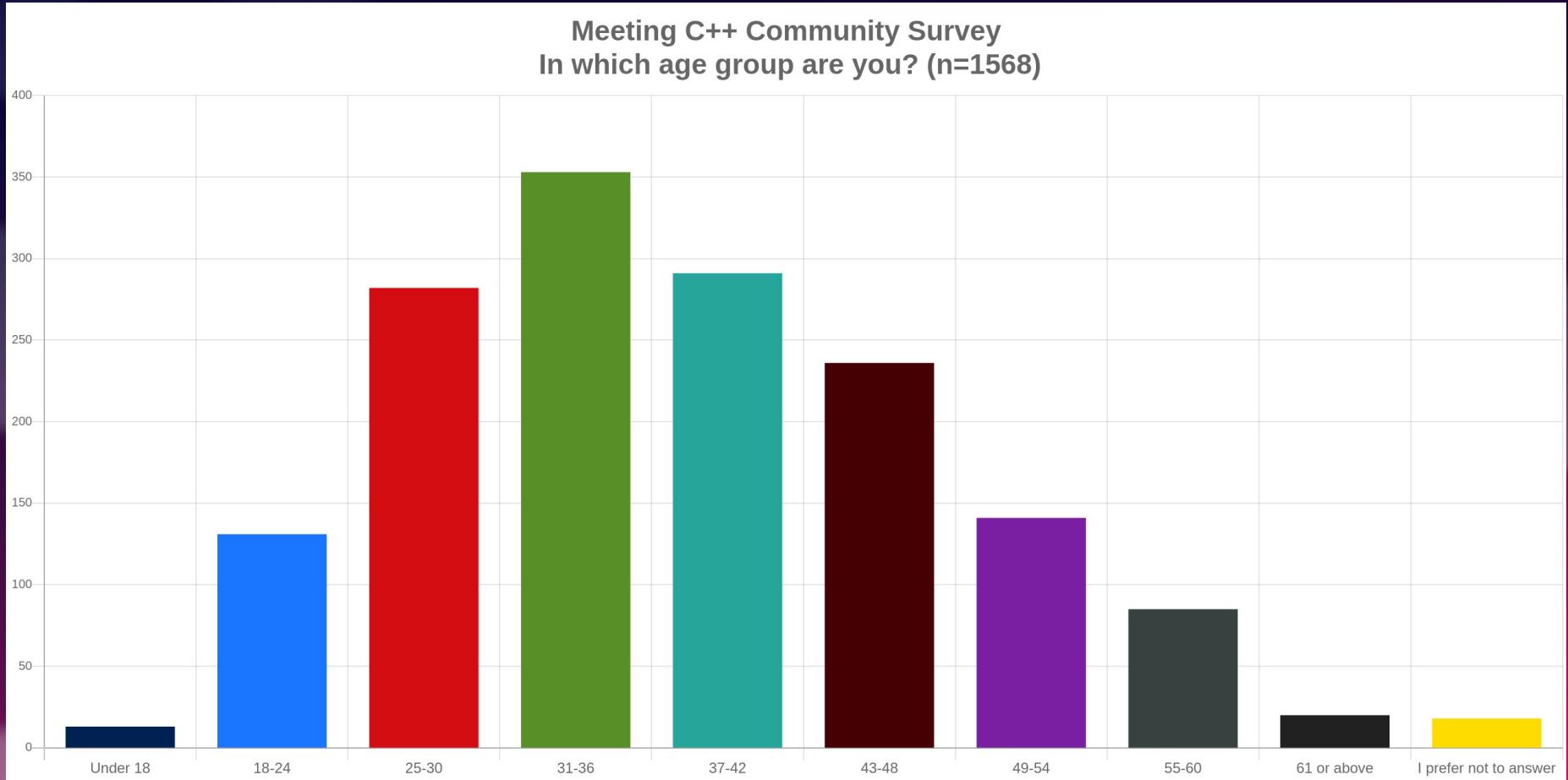
daily



Yes, mostly Europe currently

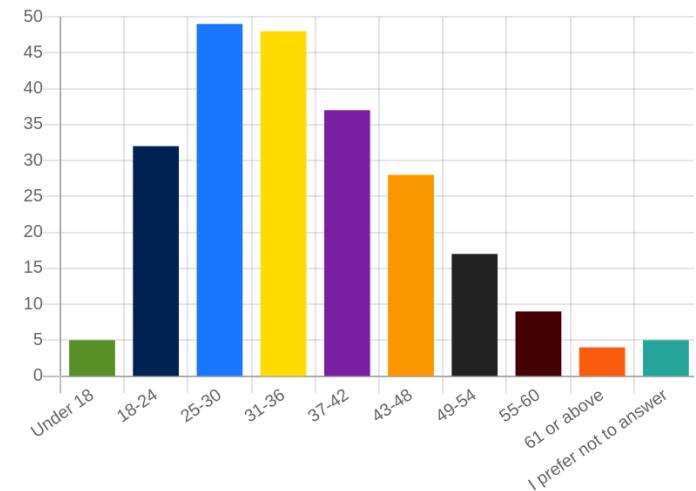


Age Distribution

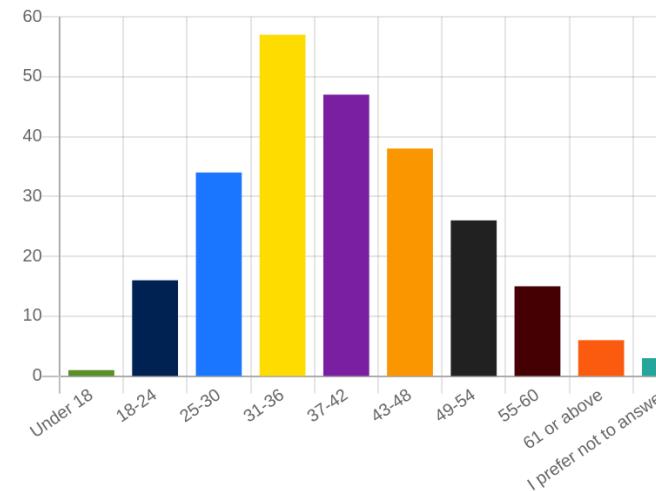


Combined with boost

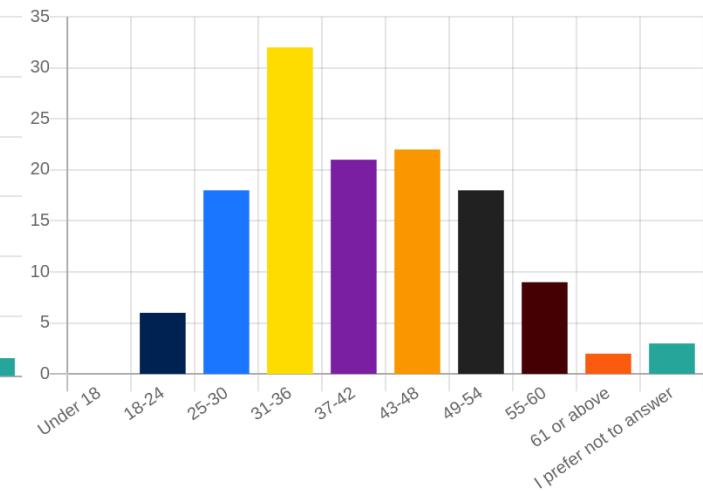
never



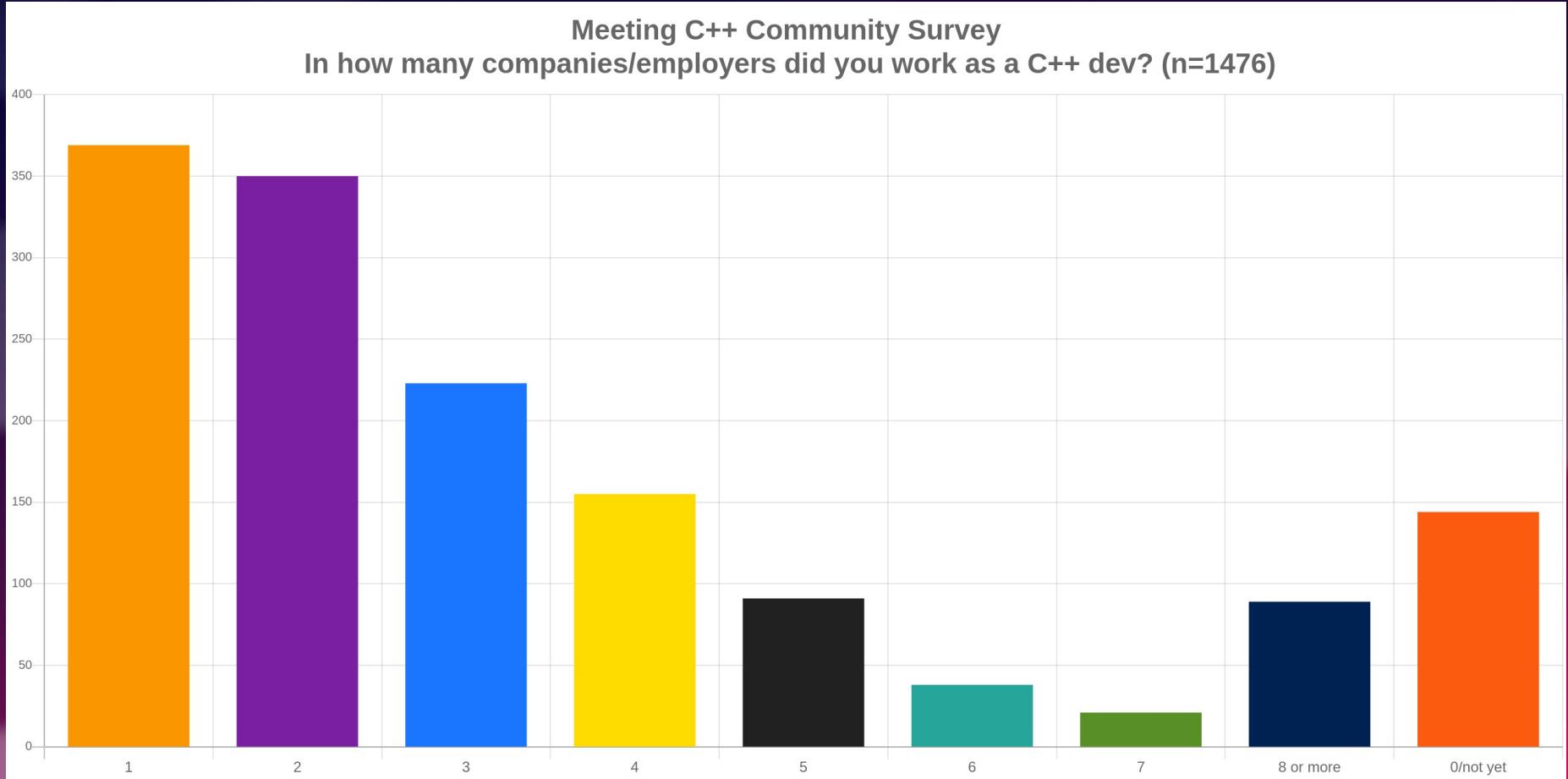
sometimes



daily

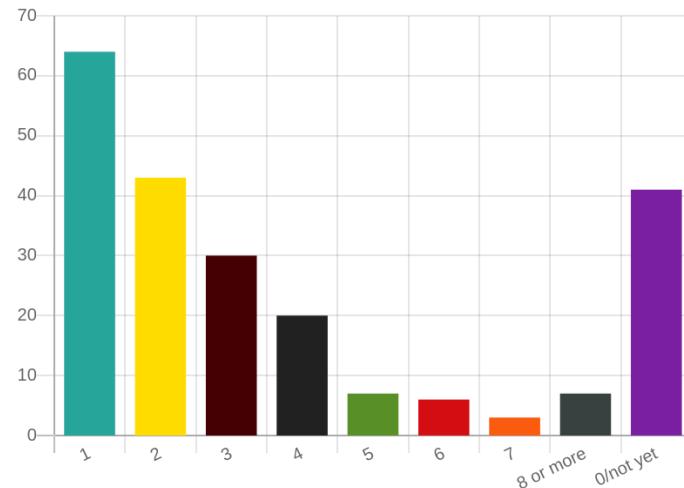


How many companies did you work for?

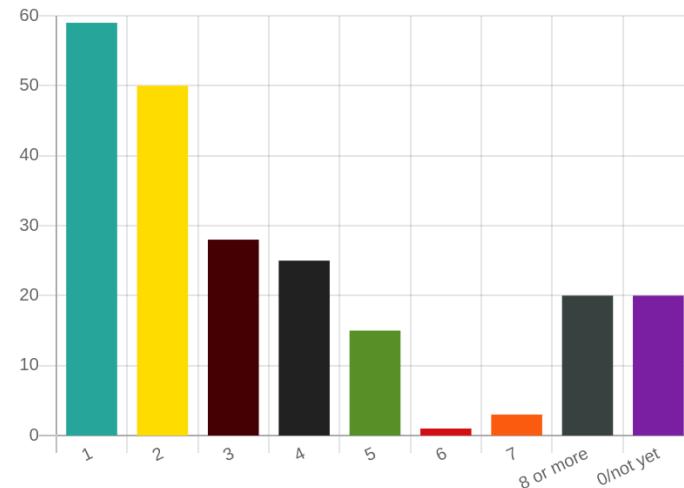


Combined with boost

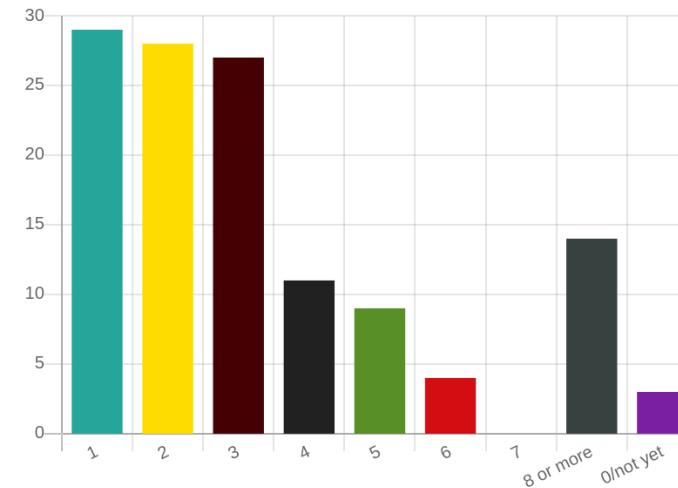
never



sometimes



daily

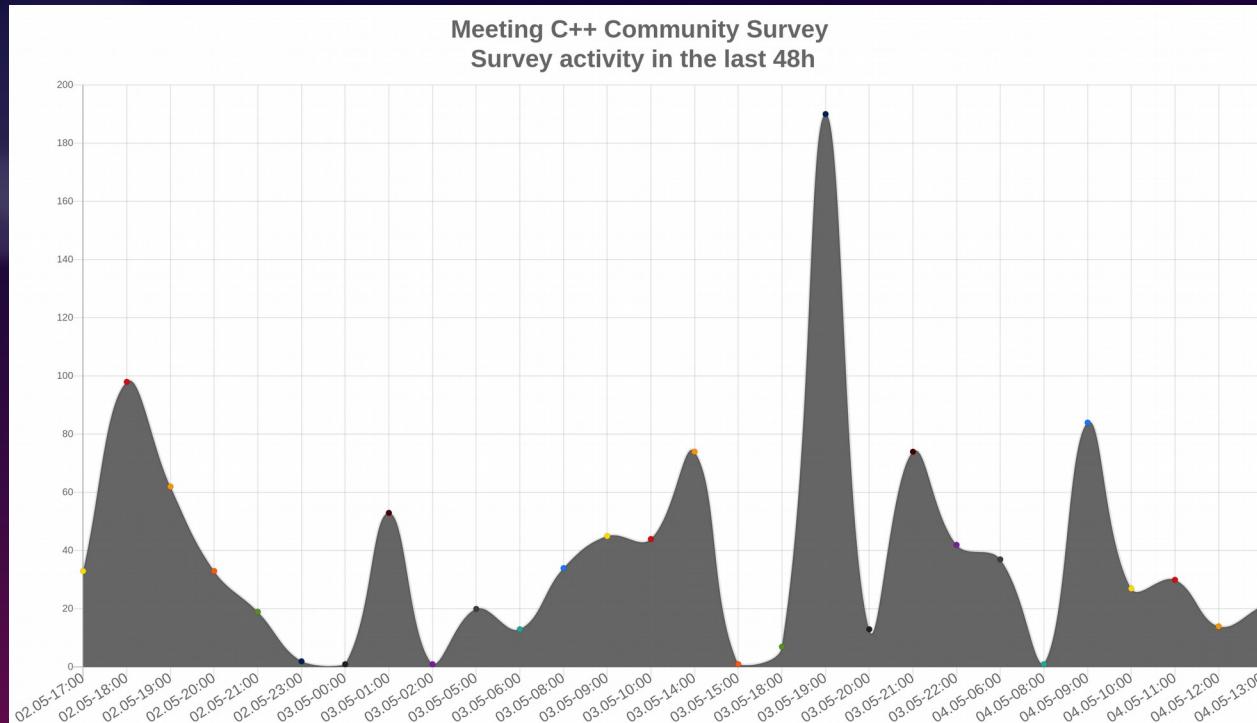


Additions & New Questions

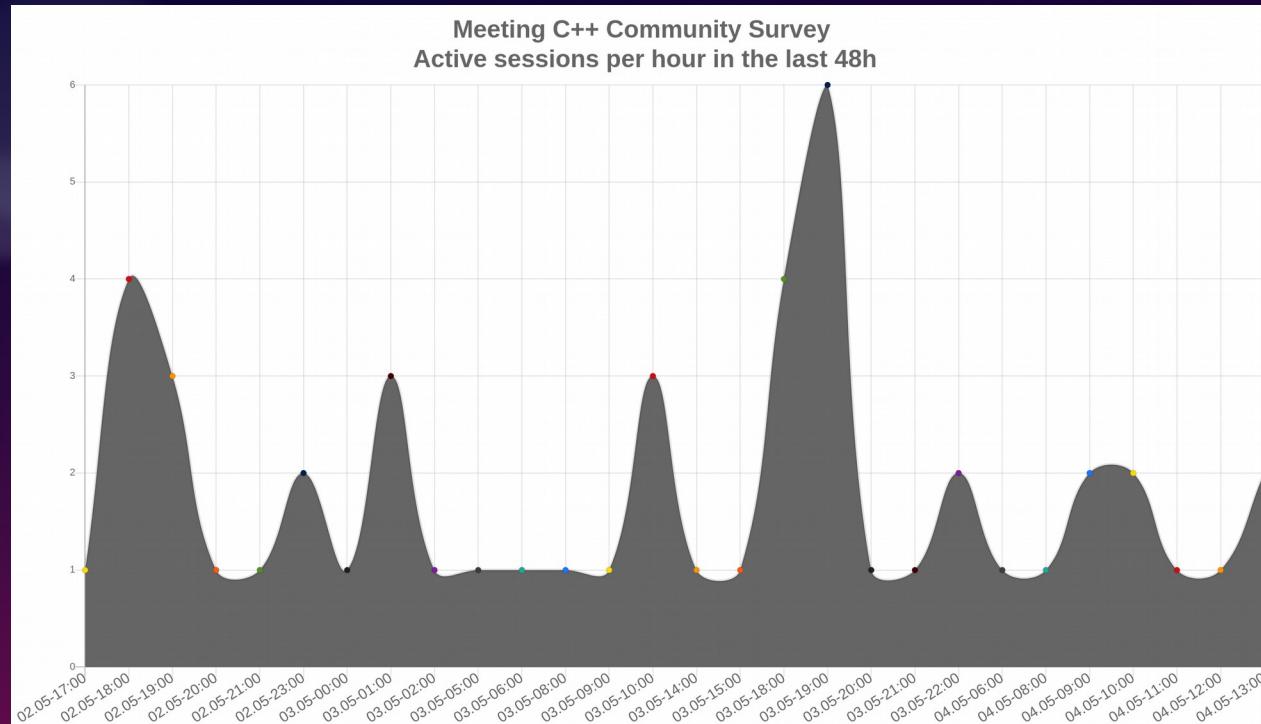
- Qt
 - Qt 5.15
 - Qt 6 in December
- Package Managers
 - Spack
- Everything after “other”
 - If “other” other is in the last options
- Newest Questions
 - Testing
 - Do you use dear ImGui?
 - Standard Attributes
- Planned Questions
 - C++20 Library/Lang Features
 - Your Question?

#CppPollOfToday

Usage statistics



Usage statistics

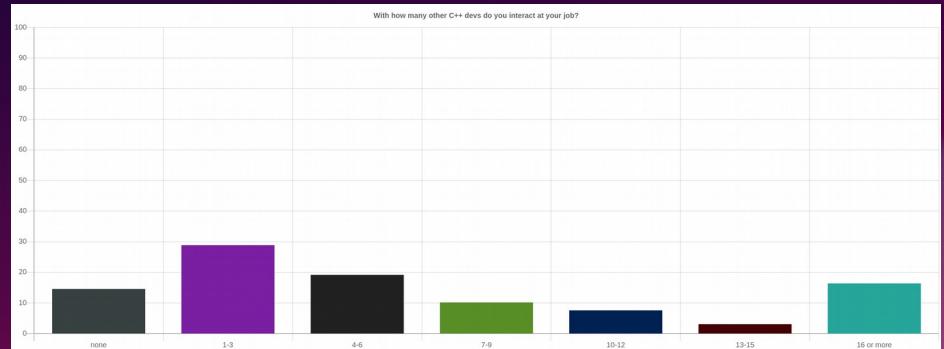
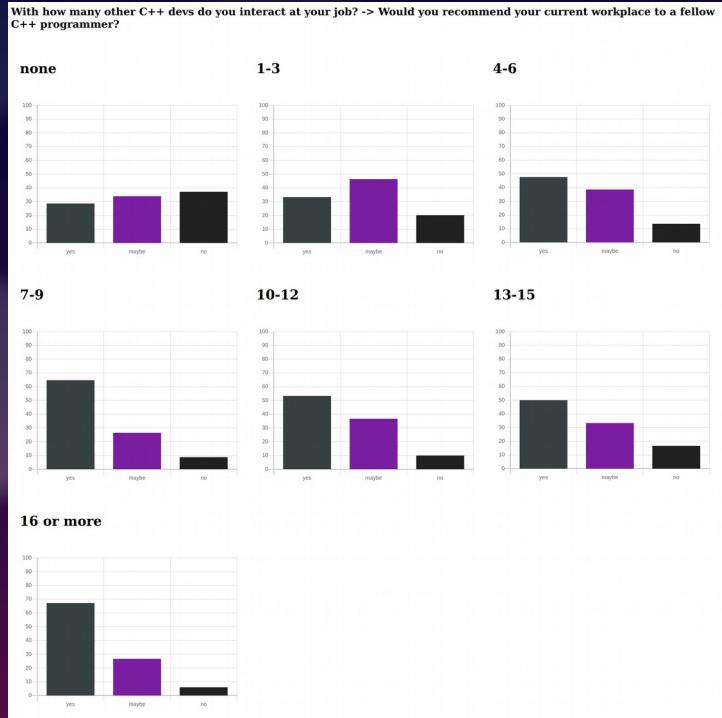


Take the survey:

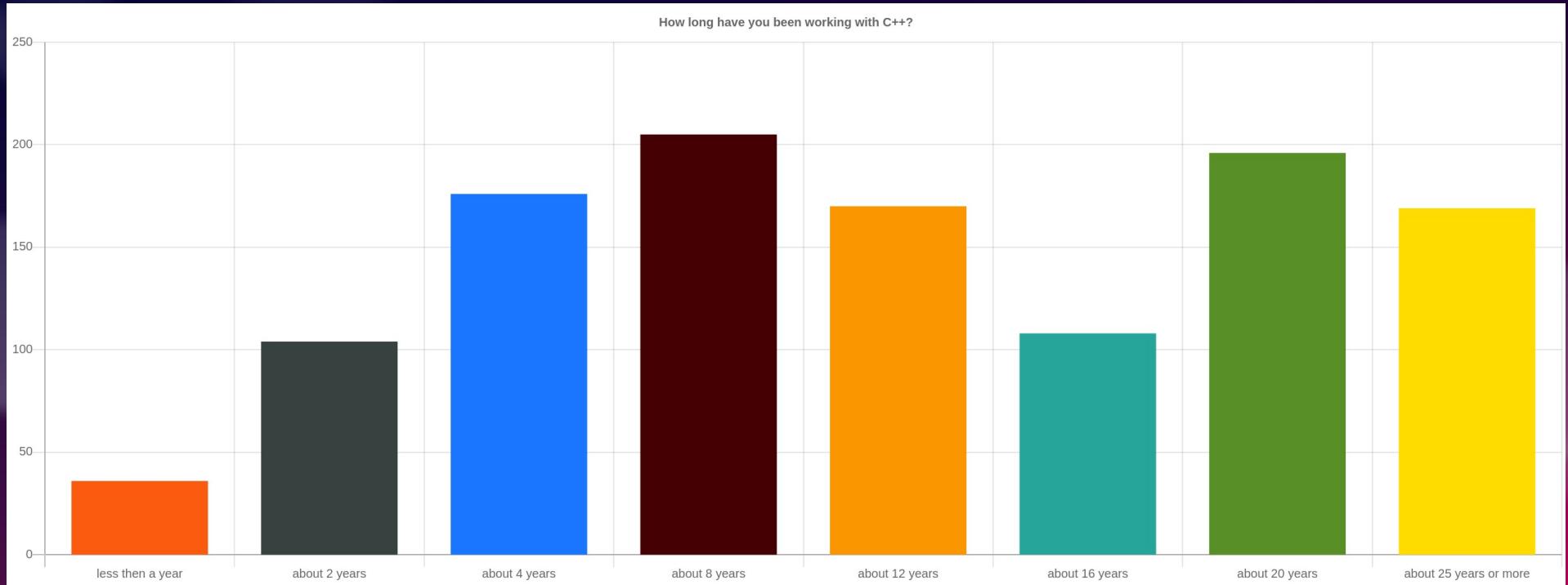
survey.meetingcpp.com

Bonus slides

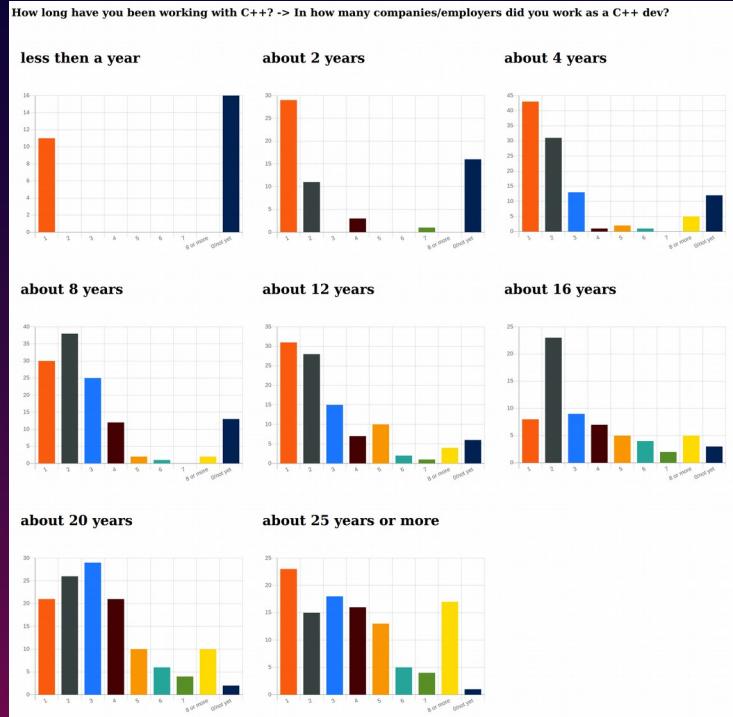
Combine questions



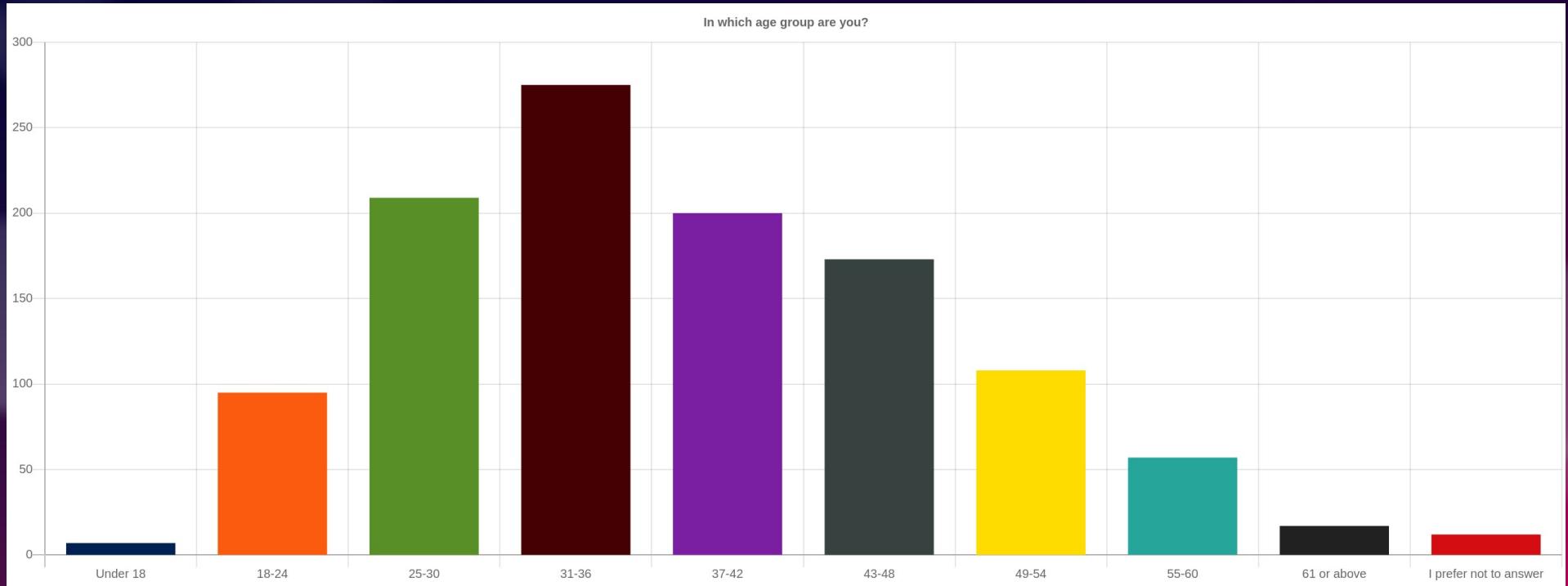
Combine questions



Combine questions



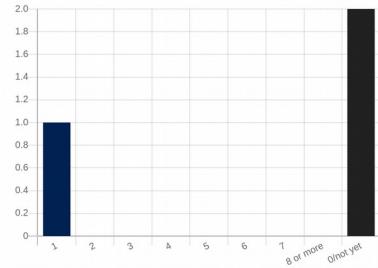
Combine questions



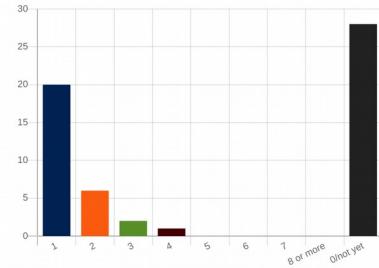
Combine

In which age group are you? -> In how many companies/employers did you work as a C++ dev?

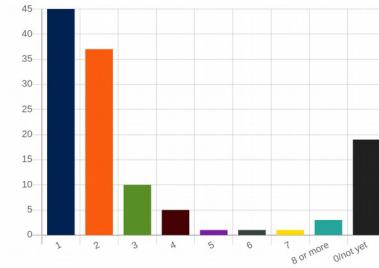
Under 18



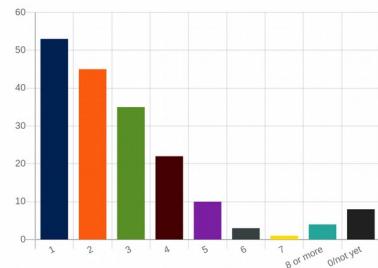
18-24



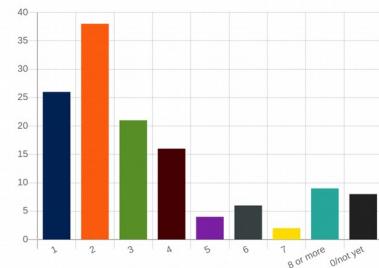
25-30



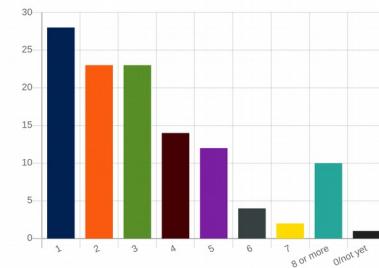
31-36



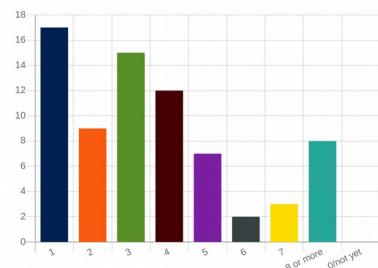
37-42



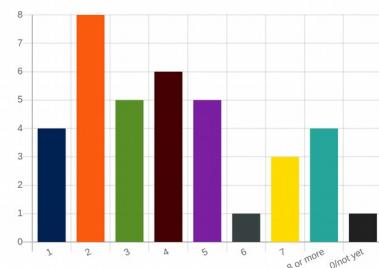
43-48



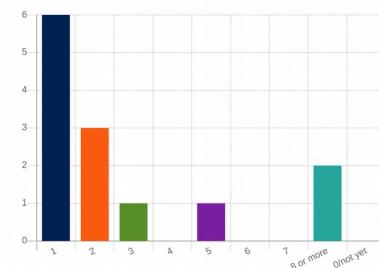
49-54



55-60



61 or above



Filter on time

Select question:

Have you attended CppCon?

Select start month:

4

Select end month:

9

Show results as percent

Load results

Bugs

- Next Question SQL Query
 - Worked well with not a lot of data, then slowed down the load time
 - Changed to different queries and some algorithm

Planned features

- Source ability
 - Some sessions are tagged to a source from which they came from
 - Showing results for this
- More Questions...
 - C++20
 - Other questions?

Questions?

- survey.meetingcpp.com
- online.meetingcpp.com

Questions?

survey.meetingcpp.com

online.meetingcpp.com