Results of The Perl Survey 2007

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Introduction

The Perl Survey was run from July to September 2007, and attempted to answer questions like:

- Where do Perl programmers come from?
- What sort of fields do they work in?
- What languages -- computer and spoken -- do Perl programmers use?
- How many use Perl as their primary language?
- What proportion of Perl users participate in the Perl community through mailing lists, user groups, and conferences?
- What platforms is Perl used on?

The Perl Survey is a non-commercial, community-based effort, and these results are being published freely for the benefit of the Perl community. Full exports of the survey's data are also available under a Creative Commons license.

Survey methodology

The survey was performed online, via the website at http://perlsurvey.org/.

Michael Schwern launched the survey during his lightning talk at OSCON on July 26th, 2007. News of the survey was also posted to as many Perl mailing lists and websites as possible, it was promoted at various community events, and participants were encouraged to spread the word to any other Perl programmers they knew.

One goal of the survey was to reach groups of Perl users whose voices aren't usually heard; to that end, we sought translations of the survey questions and invitations to participate into various languages. We also promoted the survey to groups at the periphery of the Perl community, such as system administrators, users of other scripting languages, and so forth. A Google AdWords campaign was also undertaken in the hopes of reaching people who might not otherwise have heard of the survey.

Participants were required to sign up with an email address and respond to a confirmation email before taking the survey. This measure was taken to limit the attractiveness of "ballot stuffing", a technique known to be used in the Perl community in cases where surveys or polls are completely unprotected against repeat submissions.[1]

Participants were advised that the full data set would be made available online, and that in some cases it would be possible to determine an individual respondent's identity based on the data available. For this reason, the most personal question (about income) was made optional. However, if anyone was uncomfortable sharing the other information sought in the survey, they were advised not to participate.

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[1] "[MacPerl] Chris Nandor - Hacking the All-Star game?" http://bumppo.net/lists/macperl/1999/07/msg00113.html

The questions

The survey asked the following questions:

SECTION 1: Basic Demographics

- Sex
- Year of birth
- Country of birth
- Country of residence
- Primary language spoken
- Annual personal income (USD equivalent)
- What industry/ies do you work in?

SECTION 2: Programming Perl and Other Languages

- How many years have you been programming Perl?
- How many years have you been programming in any language?
- What other languages are you fluent in?
- What did we miss?
- How much of your programming, in the last year, has been in Perl?
- What versions of Perl have you used in the last year?
- What platforms have you used Perl on in the last year?

SECTION 3: Perl Community

For these sections, check any items you have done in the last twelve months.

Mailing lists and websites

Have you...

- Been a member/subscriber of a Perl mailing list or Usenet newsgroup
- ... and posted to it
- Been a member/subscriber of a Perl Mongers mailing list
- ... and posted to it
- Contributed to Perlmonks
- Contributed to other Perl websites (forums, wikis, blogs)

Gatherings

Have you...

- Attended a Perl Mongers meeting
- ... in another city
- Attended a Perl conference, or any other conference with considerable Perl content
- ... more than 1000km (approx 600 miles) away
- Presented at a Perl conference, Perl Monger meeting, or about Perl to any other group

Open source software contributions

Have you...

- Contributed to CPAN
- Contributed to Perl 5 (via p5p)
- Contributed to Perl 6 (pugs, parrot, etc)
- Contributed Perl code to other open source software projects
- Founded or led other open source projects in Perl
- Submitted bug reports or feedback to the authors of Perl software

Also:

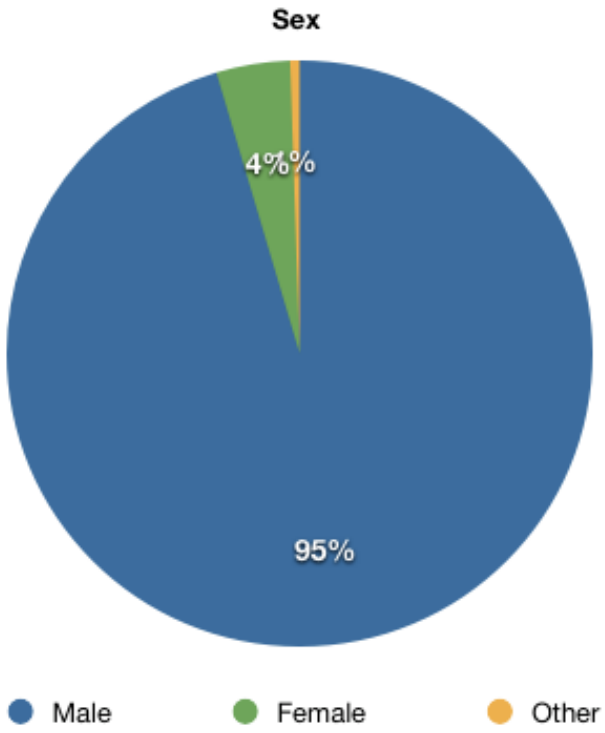
- If you contribute to CPAN, how many distributions do you currently maintain?

Results

Section 1: Demographics

Sex

The survey asked respondents their sex, offering a choice of Male, Female, or Other.



Respondents were overwhelmingly male, with only 4% female and less than 1% other.

Male	4365	95.41%
Female	186	4.07%
Other	24	0.52%

Although the proportion of women and other is very low compared to rates for women in ICT generally, it is higher than the 1.5% reported by the survey of FLOSS (Free, Libre, and Open Source Software) contributors published in 2003.[2]

The following table shows a breakdown by sex for those respondents who had contributed to any CPAN, Perl 5, Perl 6, or other open source projects in the previous year:

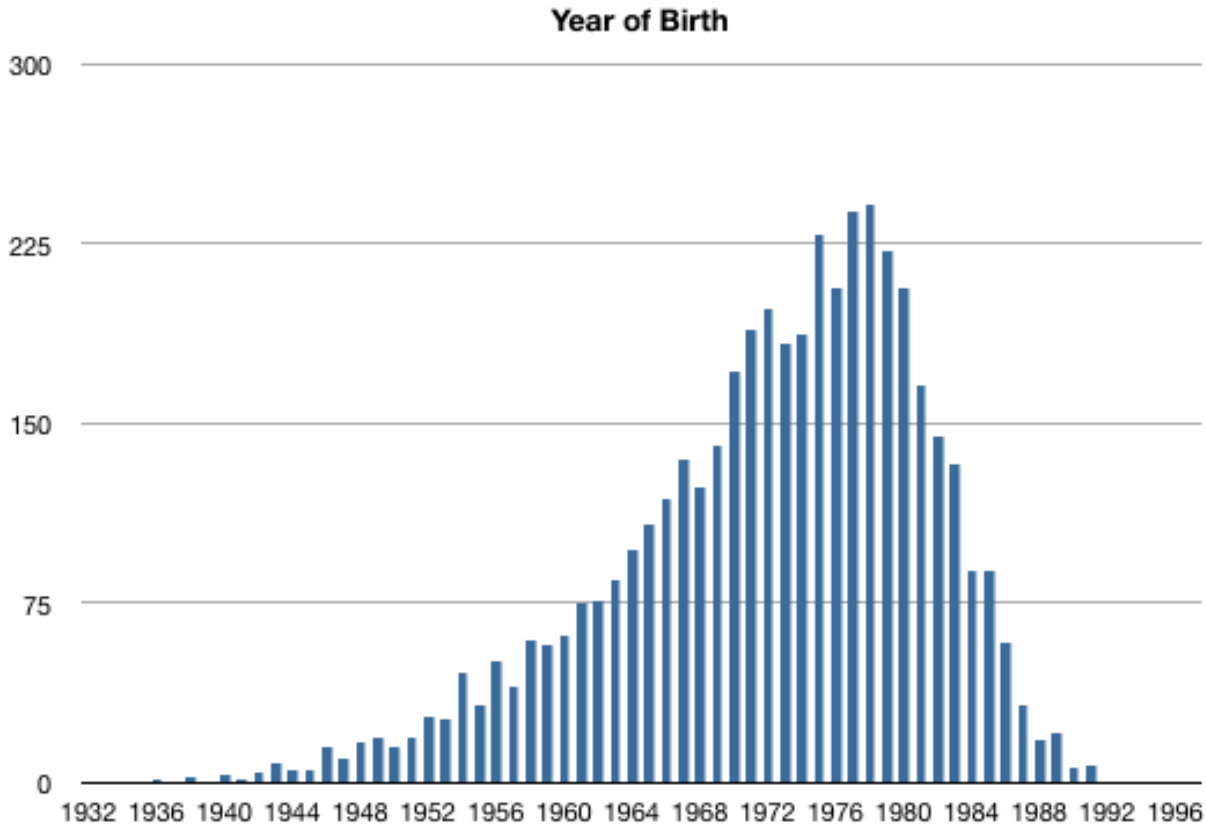
Male	1338	97.24%
Female	29	2.11%
Other	9	0.65%

[2] Free/Libre and Open Source Software: Survey and Study, http://www.infonomics.nl/FLOSS/report/

These figures are more closely analogous to the 2003 FLOSS survey, and show a higher participation rate by women and “other” (2.76% in total vs 1.5%), or 2.11% vs 1.5% if we look at women alone.

Age

The survey asked respondents to enter their year of birth. Responses ranged from 1900 to 2007; in the following chart, entries earlier than 1930 or later than 1997 have been discarded.

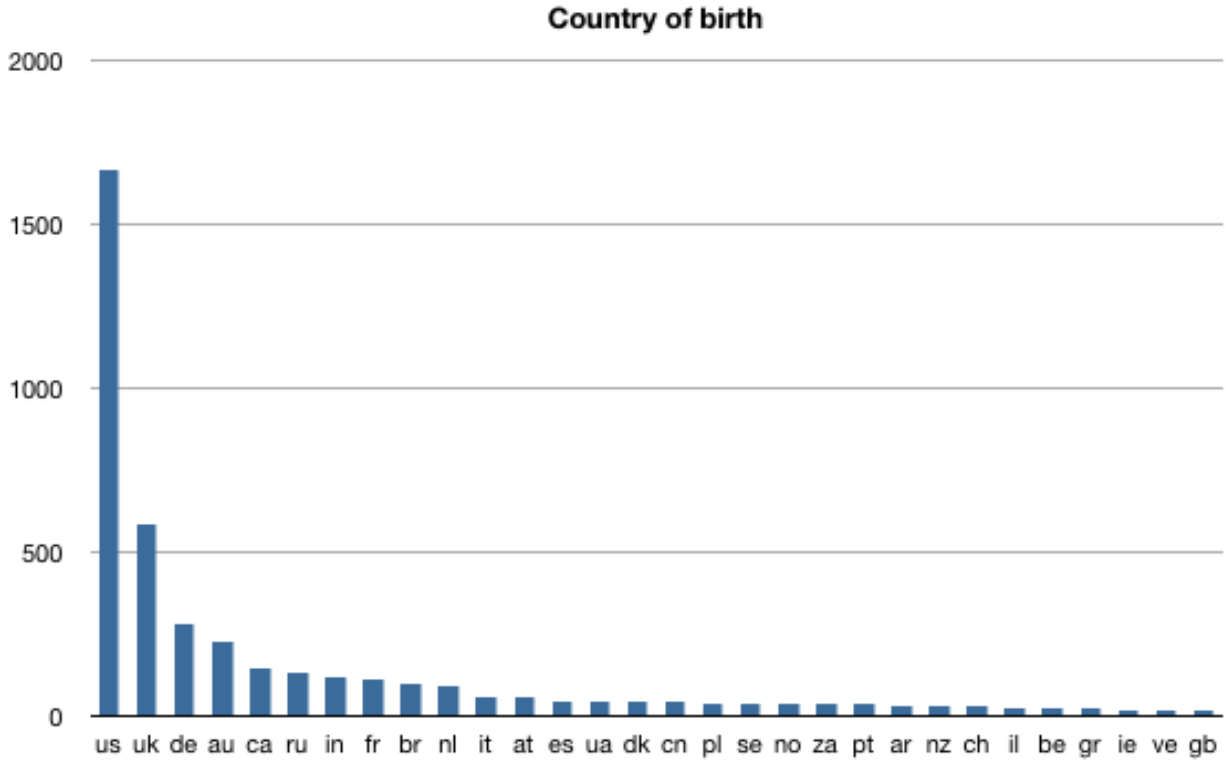


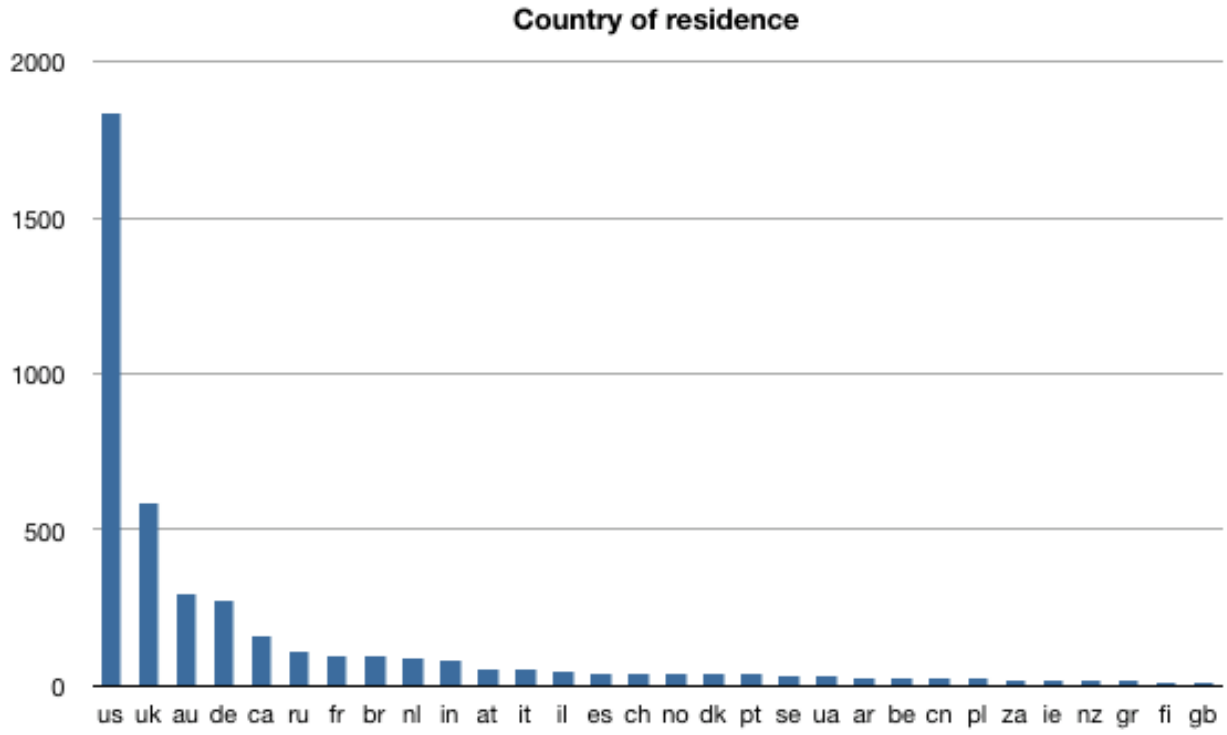
The overall average age was around 35 years old.

As can be seen from the chart, the peak age of Perl programmers is around 25-40 years. While there are many older Perl programmers in the 40-60 age bracket, there are fewer in the under-25 range. It has been suggested that this may be because Perl is seldom a first programming language, and is not commonly taught in schools or universities; instead, it is usually picked up later in a programmer’s career. An alternative explanation is that most Perl programmers learnt Perl during the Internet and dot-com boom of the late 1990s, when Perl was the most prominent web programming language; programmers who were in their 20s at that time would be in their 30s now.

Country of birth and residence

Respondents were asked to select their country of birth and their country of residence from a list. The responses to these were very similar. The following graphs show the top 25 countries in response to each question, using two-character ISO codes for the countries:



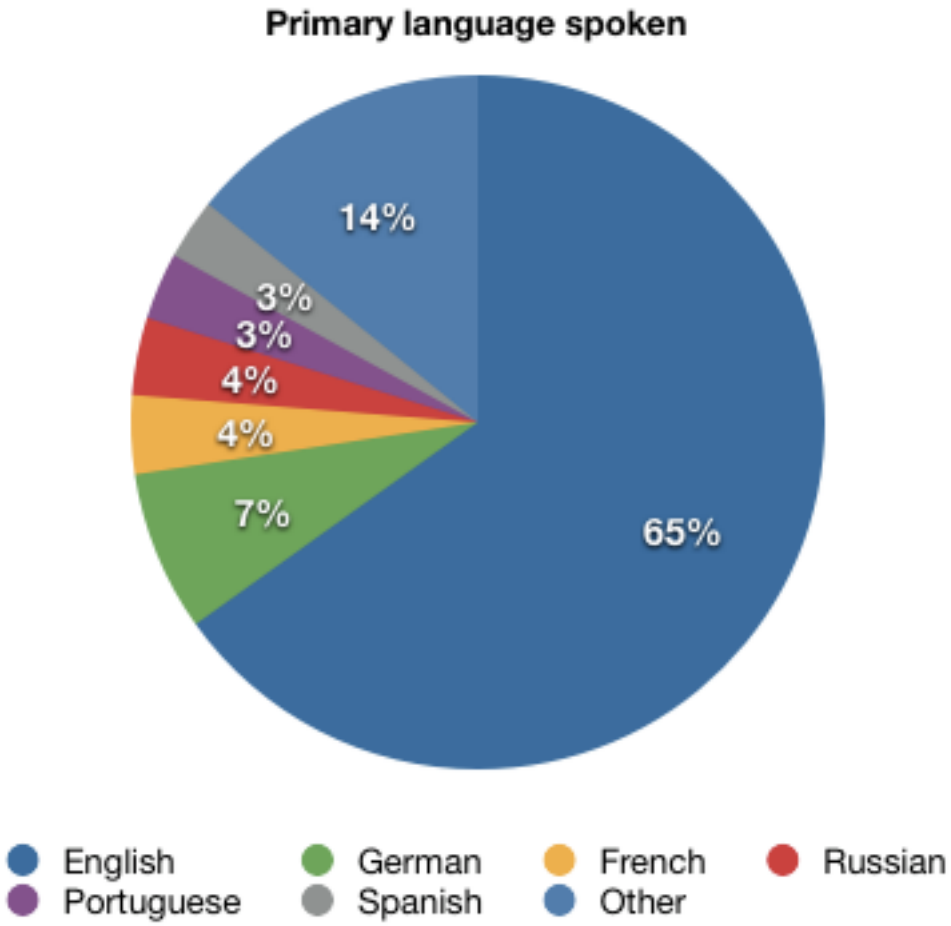


In both cases the US has a strong lead, followed by the UK, Australia, Germany, Canada, and Russia, with slight variations in ordering. The first non-western country to appear in the list is India, with 124 Perl programmers born there and 86 still resident.

Tables showing countries of residence and birth are included in the appendix.

Primary language spoken

The survey asked what language the respondent primarily spoke. The list of languages was selected from a list of the 50 most widely spoken languages in the world[3] with the addition of the official language of any country which had a Perl Mongers group in it.



Unsurprisingly, English speakers constitute almost two thirds of the Perl community. Notable minorities of between 3-7% speak European languages including French, German, Russian, Portuguese, and Spanish, while 14% of Perl programmers primarily speak other languages.

The most widely spoken non-European language was Mandarin (37 respondents) followed by Hebrew (29), Tamil (25) and Hindi (15).

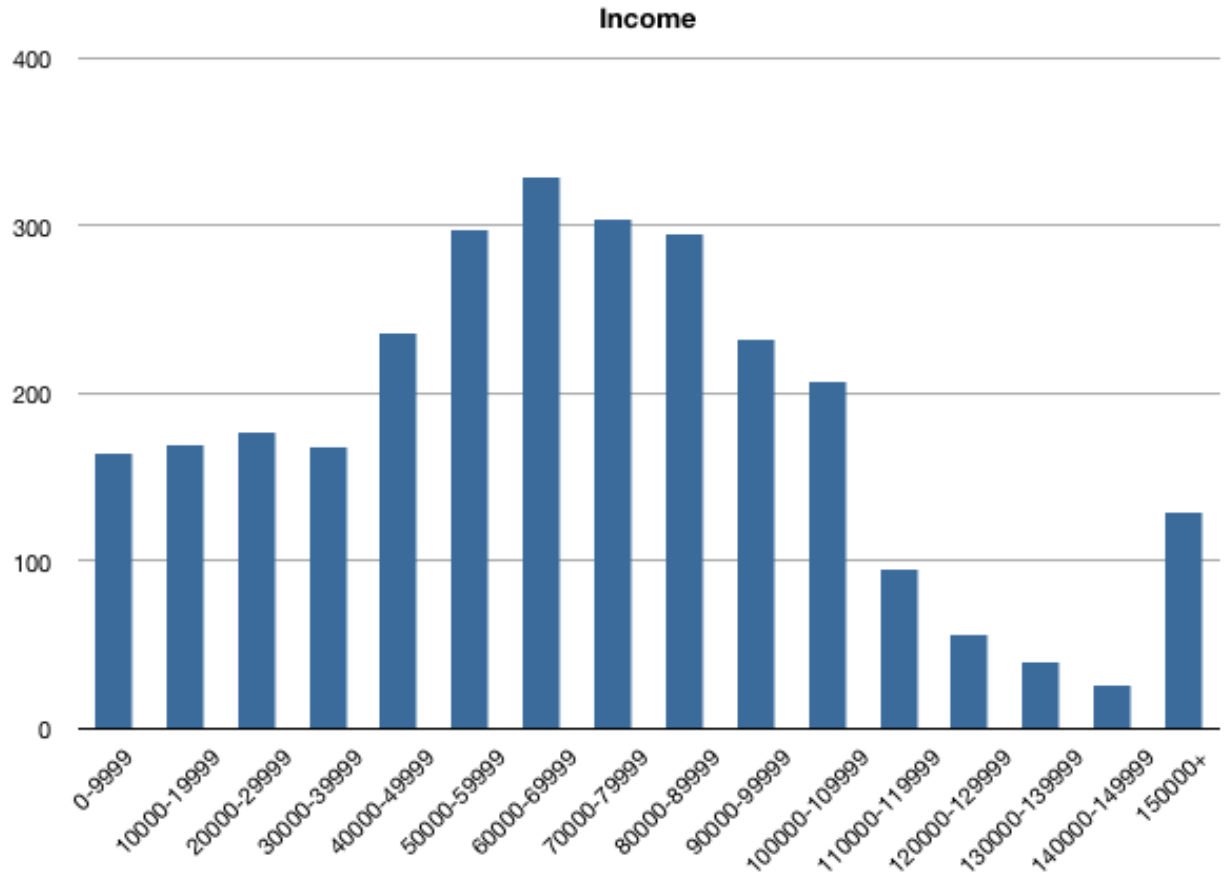
A full list of responses by language is included in the appendix.

Income

Respondents were asked to disclose their annual income in US dollar equivalent terms. Due to the potentially sensitive nature of this information, this question was made optional.

[3] http://www.photius.com/rankings/languages2.html

It can be seen from the chart below that most Perl programmers earn in the $40,000 to $110,000 range, with the peak occurring at $60,000 to $70,000.



Industries

Respondents were asked to list what industries they worked in. The list of industries was loosely based on one used by a major employment website.

This question permitted multiple selections, so the total number of responses is greater than the number of respondents. Here is a list of the top fifteen industries:

Computers - Software	1798
Internet	889
Computers - Services	812
Education	450
Telecommunications	355
Consulting Services	322
Science	307
Financial	242
Government	165
Computers - Hardware	156
Engineering	146
Other	142
Medical/Healthcare	136
Advertising/Marketing/Public Relations	136
Nonprofit	135

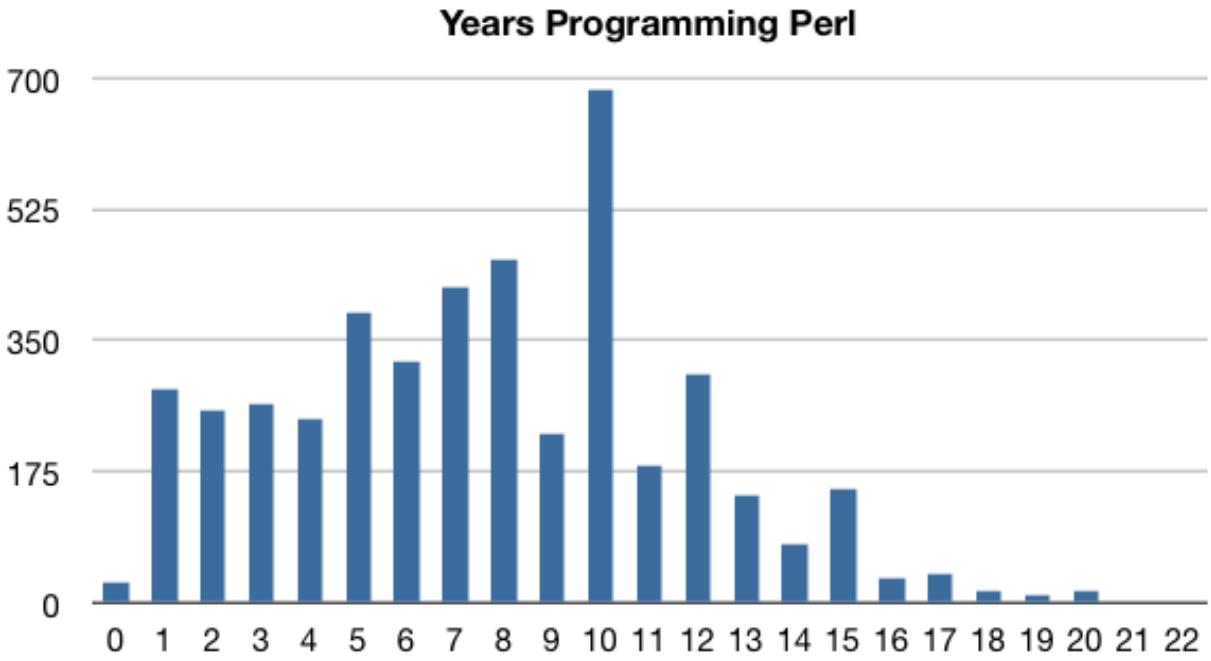
It comes as no great surprise that Perl is primarily used in areas related to computers and technology. Other high-ranking industries include education, science, and finance.

The complete list of industry responses is included in the appendix.

Section 2: Programming Perl and other languages

Years programming Perl

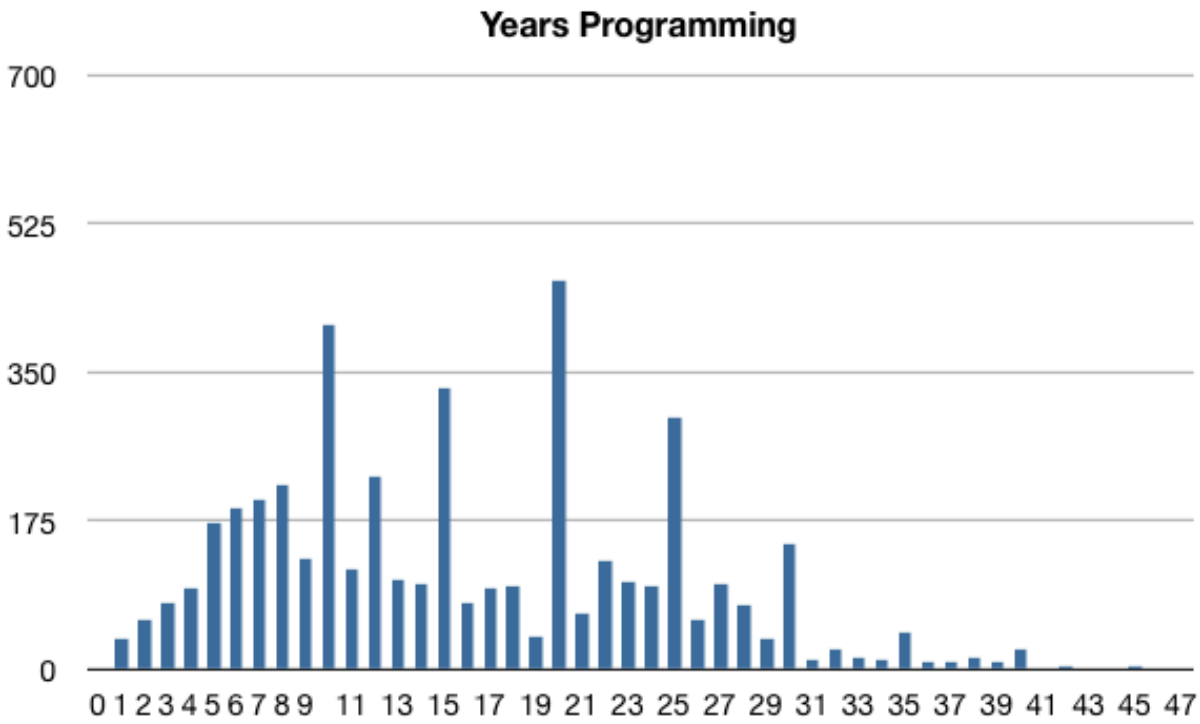
We asked how many years the respondents had been programming in Perl.



Answers range from zero (presumably new Perl programmers rounding down answers of < 6 months) to 22 years: the age of the Perl programming language. Many Perl programmers have been programming Perl for around 10 years; the spike at that point probably reflects the popularity of Perl as a web programming language in the late 1990s, as well as a tendency for the respondents to enter a round number.

Years programming overall

Next we asked how many years the respondents had been programming in any language. The answers show a range of experience from very new programmers to those with more than 40 years' experience.



One interesting point about this graph is the appearance of spikes for any year which is a multiple of five; this is presumably due to respondents approximating their answers.

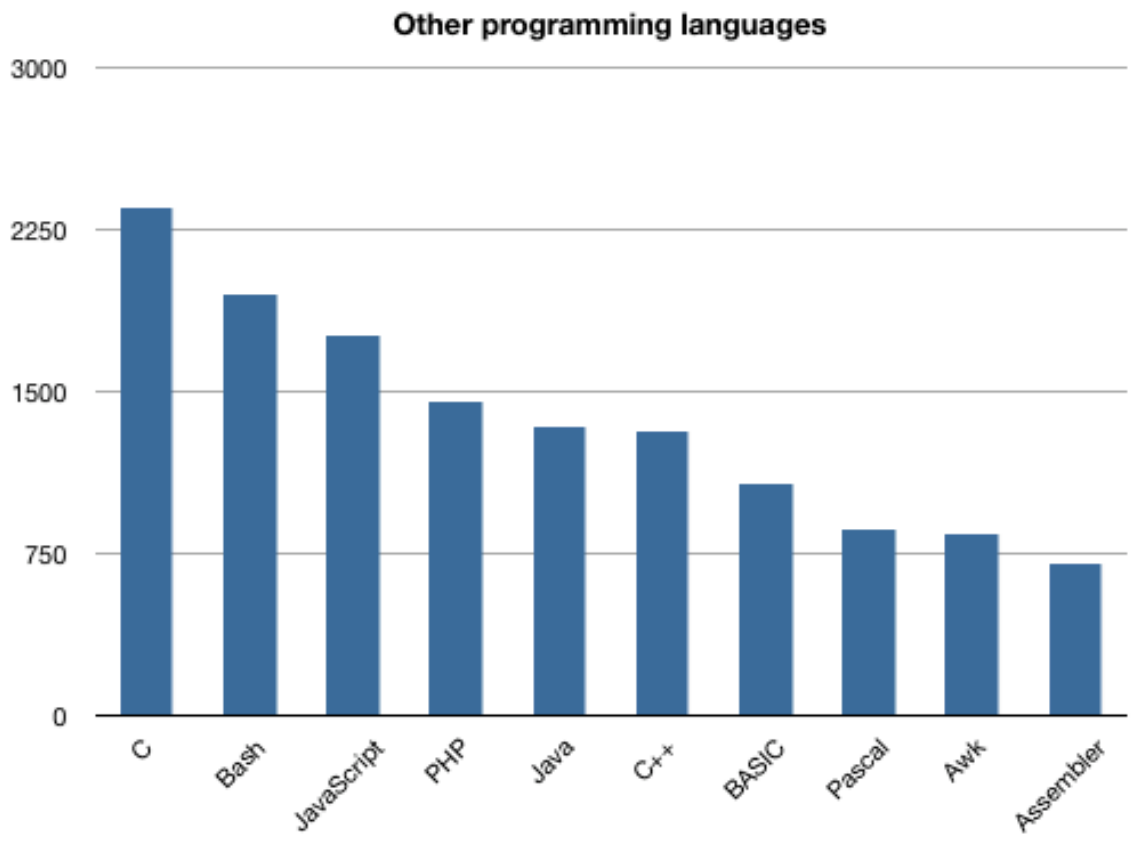
Other programming languages used

We asked people to list which other programming languages they were fluent in. This question allowed multiple selections.

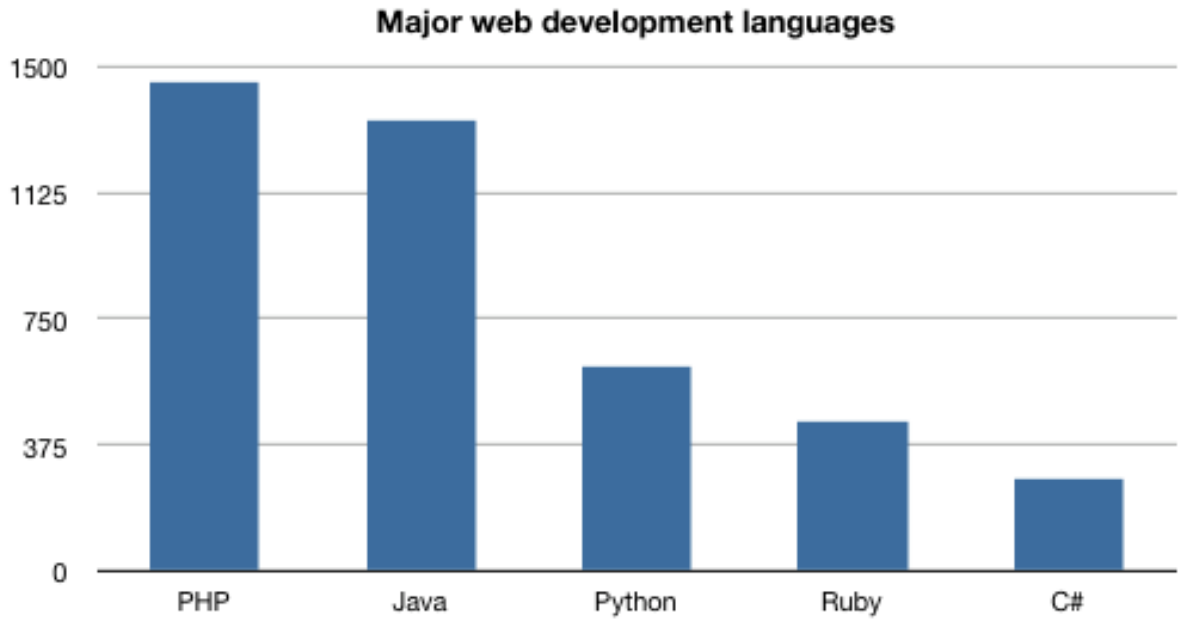
The list of languages was taken from the TIOBE Programming Community Index[4] with some modifications (addition of Assembler being the most prominent).

Respondents claimed to be fluent in 4.8 languages on average. Almost half the respondents said they were fluent in C, with Bash scripting and Javascript next in line.

[4] http://www.tiobe.com/tpci.htm

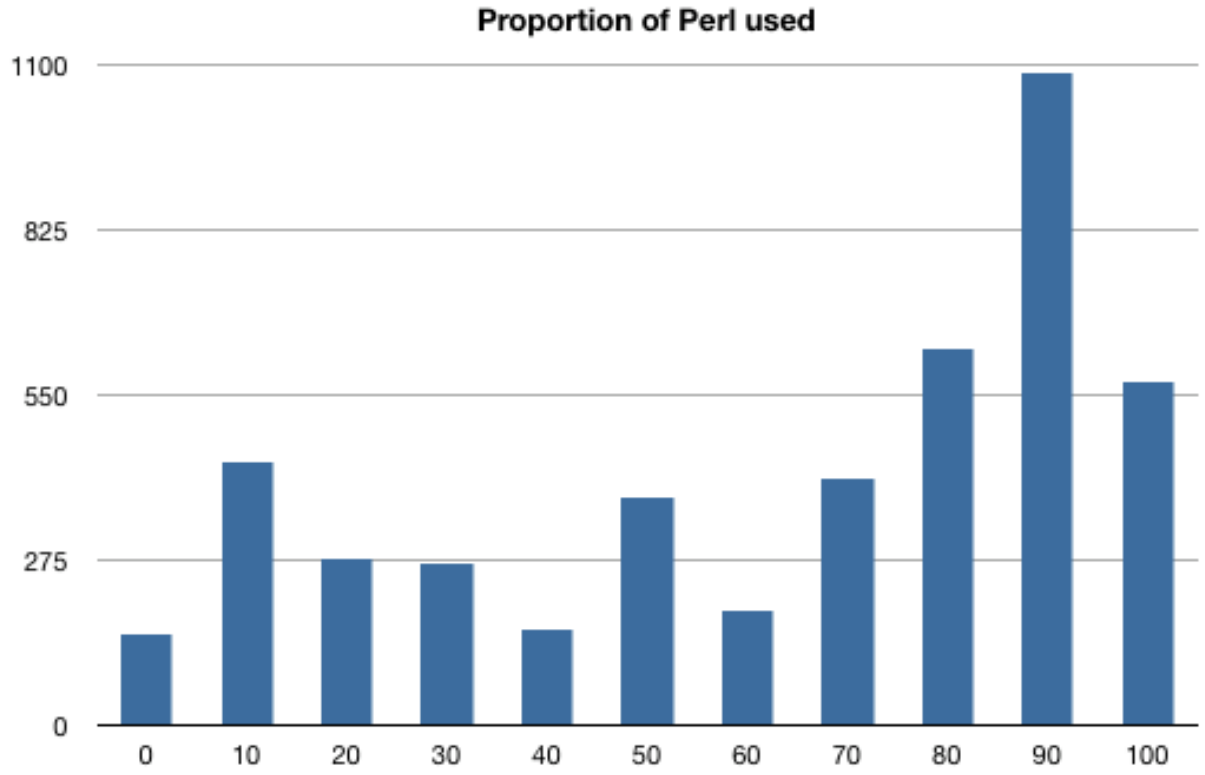


Of the major competitors to Perl in the web development space, almost one third of respondents were fluent in PHP and nearly as many in Java. Only 13% were fluent in Python and 10% in Ruby.



Proportion of Perl

In the last 12 months, what proportion of a programmer's time is spent working in Perl as opposed to other languages?

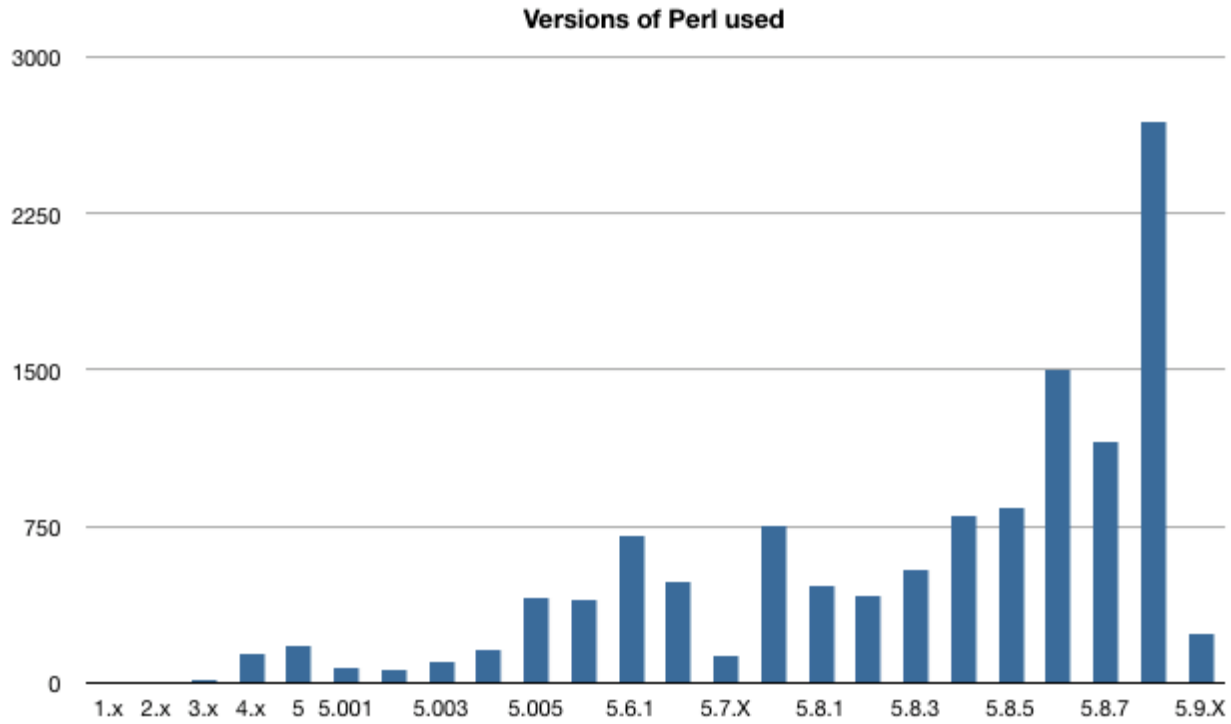


About half of our respondents use Perl 80-100% of the time; the rest mix it up with other languages or only write Perl occasionally.

Perl versions

What versions of Perl have people used in the last 12 months? Respondents were asked to select multiple items from a list.

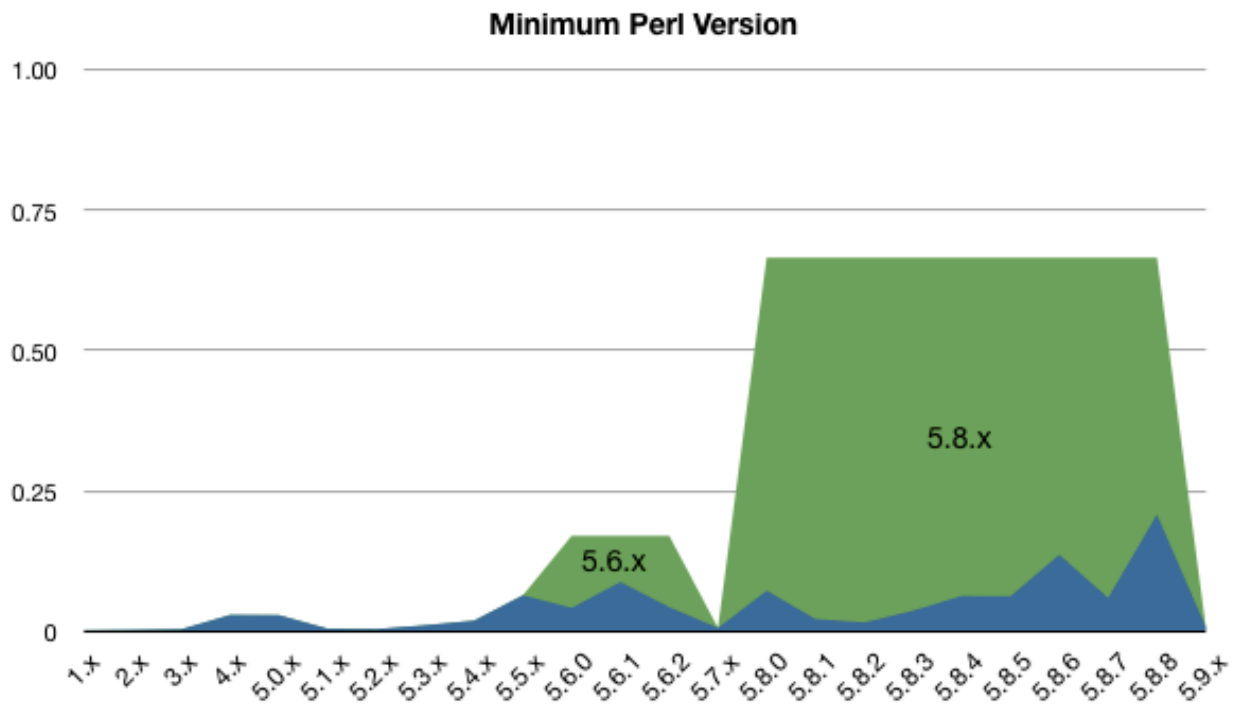
A simple chart of responses shows that Perl 5.8.X, and particularly 5.8.8, are the most popular.



However, there are still a noticable minority using Perl 5.6.X (first released in 2000), 5.005 (released 1998), and earlier. Responses claiming to use Perl 5.000 (released 1995) may be unsure of their exact Perl version, but know that it's five-point-something; it is unlikely that so many people are actually using that version.

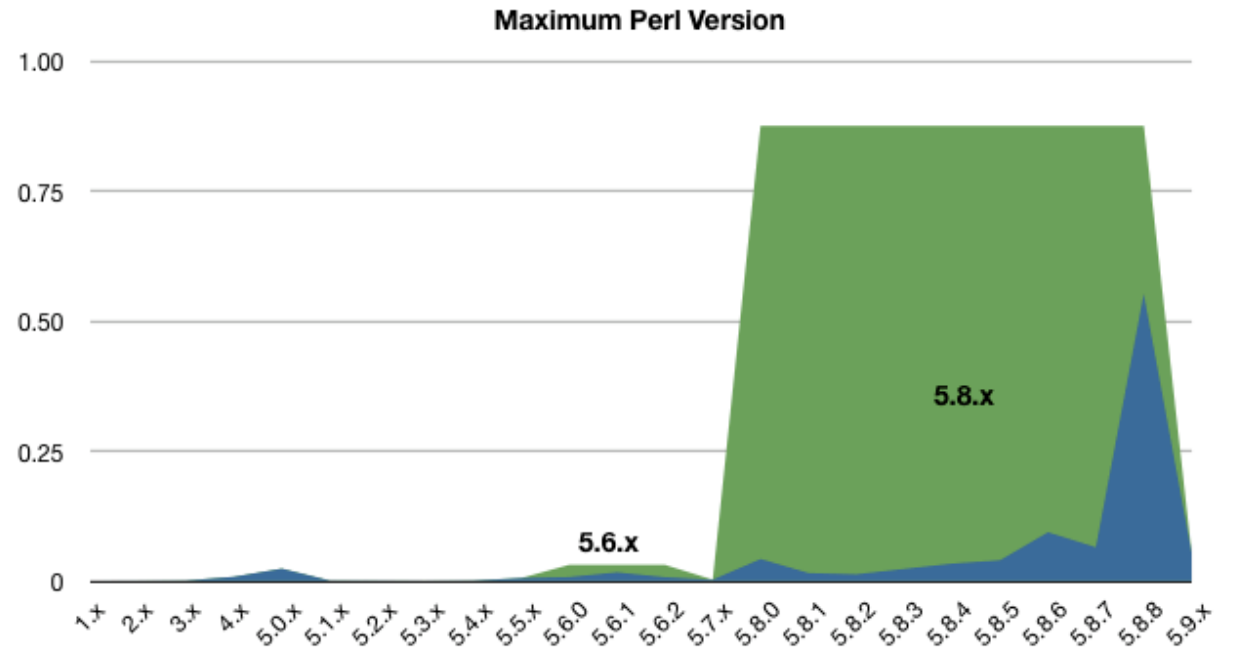
Michael Schwern has prepared the following charts further analysing the versions of Perl which people use.

First, what is the minimum version that people use? That is, if someone uses Perl 5.005, 5.6.1, and 5.8.4, their minimum version is 5.005.



This chart shows that approximately 2/3 of respondents are using at least Perl 5.8.X, and a further 17% are using 5.6.X. These figures have important implications for Perl application or module developers considering which versions of the language they should support.

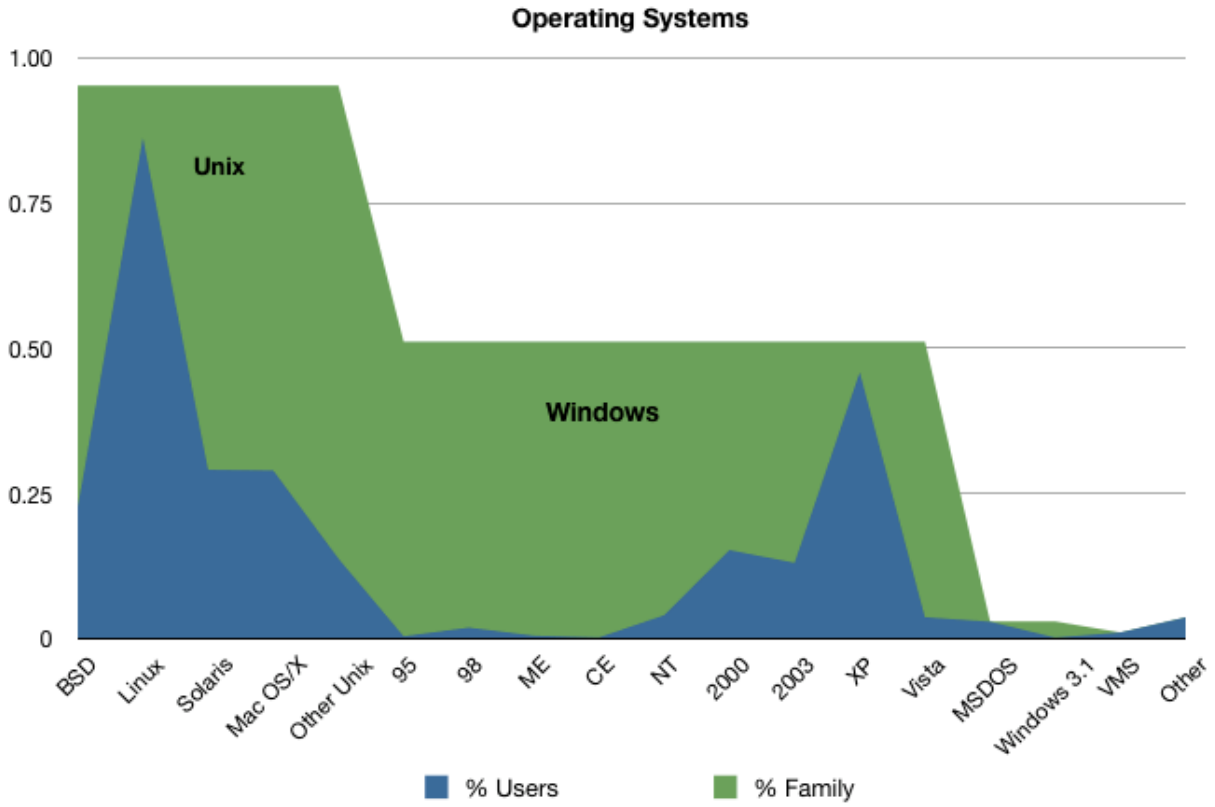
Next, what is the most recent version that people use?



This shows that about 87% of respondents are using Perl 5.8.X at least some of the time.

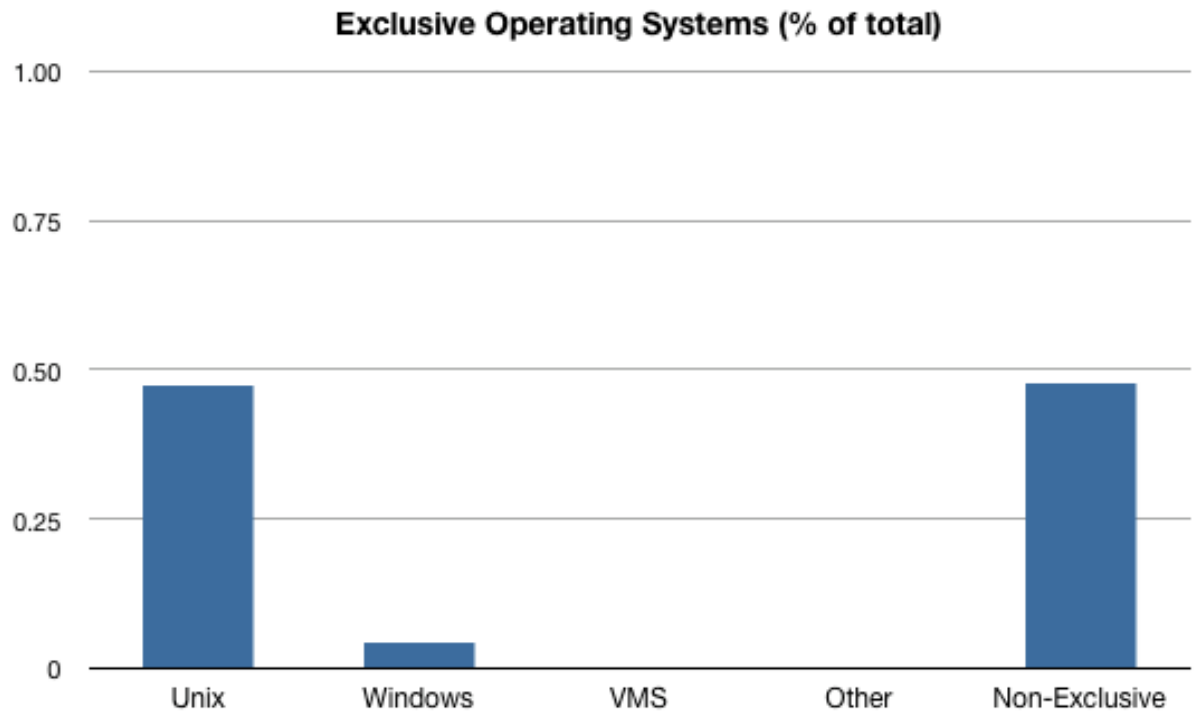
Operating systems

What platforms do people use Perl on? Respondents were asked to list those which they'd used in the last 12 months.



The Unix family were the most widely used, with almost all users (95%) using some form of Unix within the last year. Windows followed, with 51% of users using it in the last year. Other platforms such as MS-DOS, VMS, and more obscure platforms had only a few users.

Many respondents used Perl on more than one family of operating systems (eg. both Unix and Windows), but some use only one family exclusively:

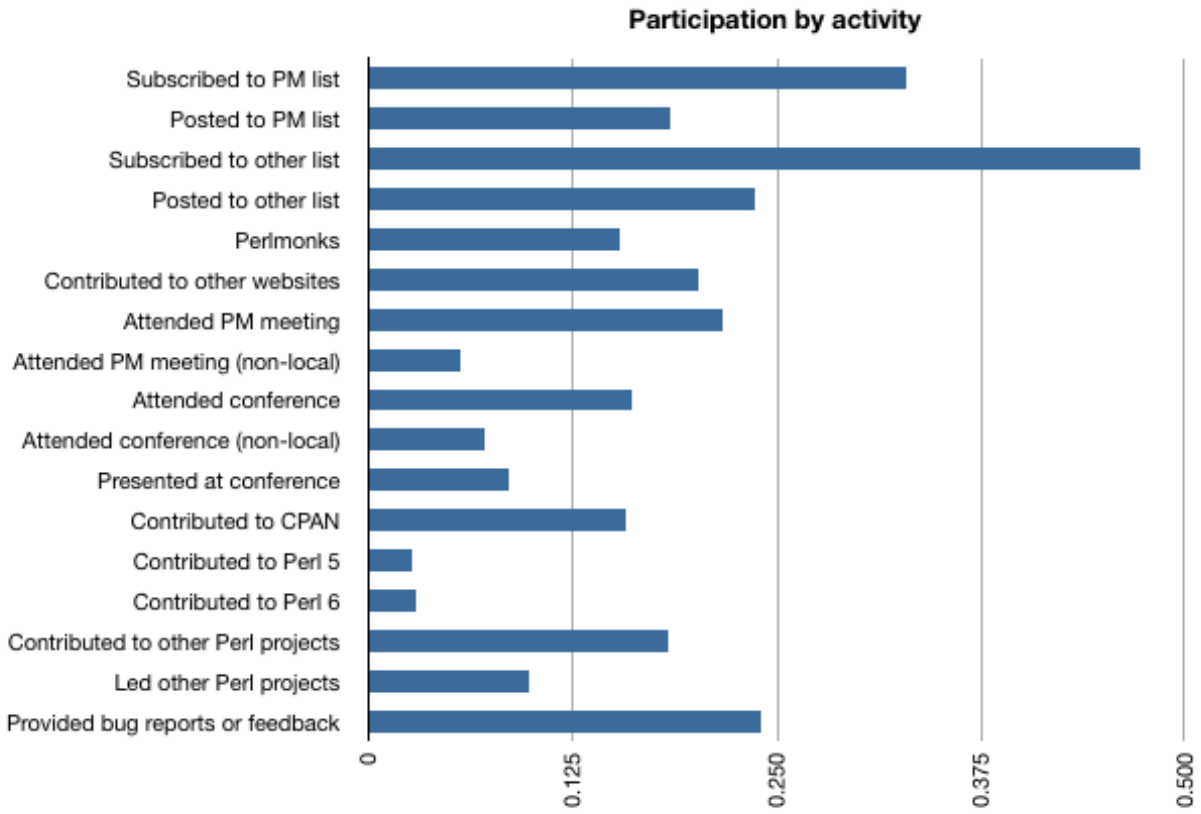


Almost half the respondents were exclusively Unix users; a far smaller proportion were exclusively Windows users, and almost nobody was an exclusive user of any other operating system (3 VMS users, 5 others).

Section 3: Community involvement

Activities

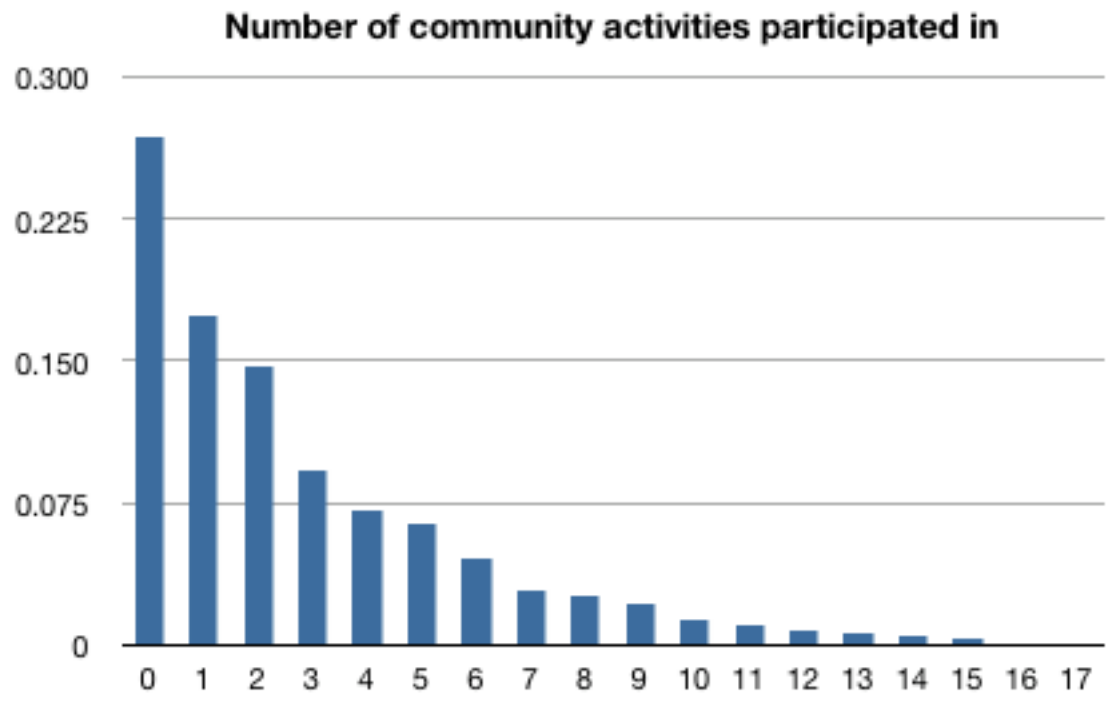
We asked respondents to check a series of boxes indicating what Perl community activities they participated in. In the following chart, “PM” stands for Perl Mongers, an international organisation of Perl user groups.



As can be seen, the most popular form of participation in the Perl community is through subscription to a mailing list, either a Perl Monger list associated with a group in a given geographic area (33%), or another list, probably a technical discussion list (47%).

Other notable forms of participation include providing bug reports or feedback to authors of Perl software (24%), attending Perl Monger meetings (22%), and contributing to Perl-related websites (20%).

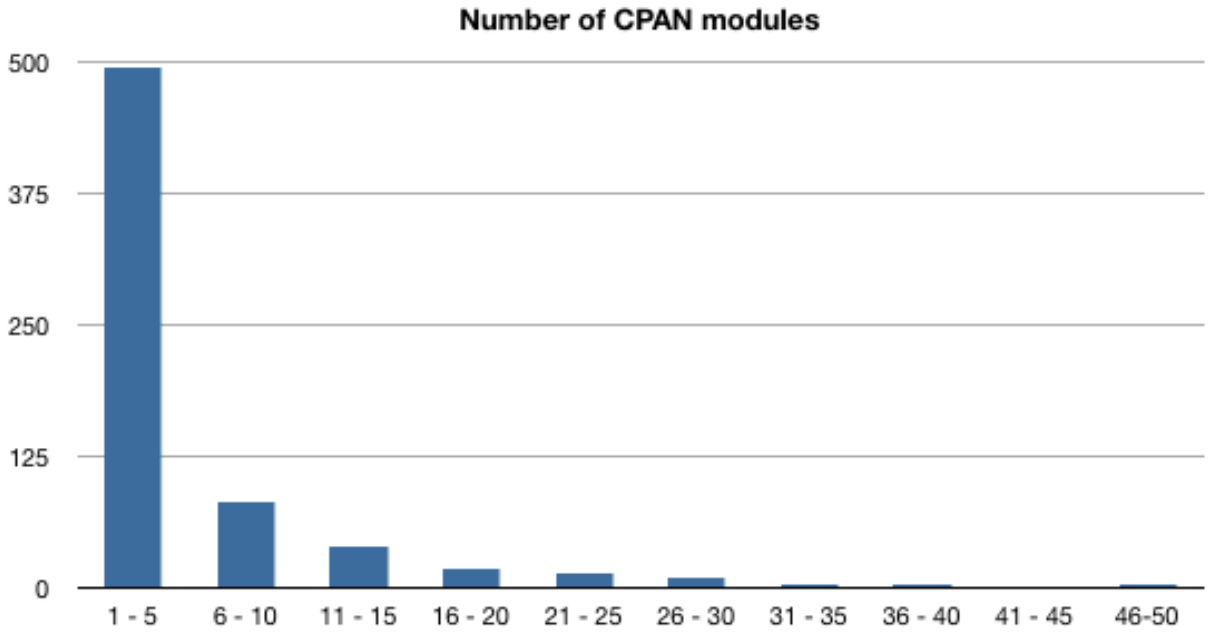
However, not all respondents were heavily involved in the Perl community. The following chart shows how many activities the participants took part in:



27% of respondents have not participated in the Perl community in any way in the last 12 months, while more than half participated in fewer than three ways. This is actually an excellent thing for the Perl Survey, in that we were aiming to reach people on the margins of the community.

CPAN Modules

Finally, we asked people how many CPAN modules they maintain. By far the majority of the respondents (3994, or 85%) did not maintain any CPAN modules. Of those who did, most maintained a small handful of modules, but a significant minority maintain more. The highest number of modules maintained was 149.



Future work

The above analysis is only scratching the surface of the data we have. For each simple answer above, a dozen questions arise.

- Who are these people who aren't involved in the Perl community? Are they perhaps non-English speakers? Can we reach out to them?
- Can we correlate income against local cost of living and determine which countries pay most for Perl programmers?
- How mobile is the Perl community? Can we see any patterns of migration of Perl programmers born in one country but now living in another?
- ... and more.

All the data for the Perl Survey is available for download, in CSV format (for import into spreadsheets) and as a MySQL dump. It is licensed under a Creative Commons Attribution (CC-BY) license, allowing you to use it (even for commercial purposes) providing you acknowledge the Perl Survey as the source of your information.

Please download the data and perform your own analyses on it. If you come up with anything interesting, let us know at info@perlsurvey.org and we'll link to it from the site.

Acknowledgements

Michael G. Schwern provided the original idea for the Perl Survey, and performed some of the analysis given above; most of the charts related to Perl versions and operating systems are his.

Google provided a grant to assist in the promotion of the survey via Google AdWords advertisements, and for some of my time in preparing this report.

There are innumerable others who helped spread the word, offered translations into other languages, made suggestions, or helped out in other ways. My thanks to all of you.

Appendix

Country of birth

us	1666
uk	588
de	282
au	230
ca	146
ru	134
in	124
fr	113
br	104
nl	94
it	61
at	58
es	50
ua	45
dk	44
cn	44
pl	42
se	41
no	40
za	39
pt	39
ar	37
nz	36
ch	31
il	29
be	29
gr	24
ie	20
ve	19
gb	19
kr	18
fi	17
mx	16
my	16
ro	16
id	16
tw	14
hr	12
bg	12
cl	12
jp	11
fx	11
cz	9
um	8
tr	7
yu	7

sk	7
hu	6
hk	5
bd	5
pk	5
ph	5
zw	5
ng	4
lb	4
vn	4
uy	4
co	4
md	4
kz	3
tn	3
ir	3
is	3
cu	3
by	3
sg	3
np	2
ug	2
lt	2
lv	2
mz	2
si	2
th	2
lk	2
ee	2
ke	2
pe	2
su	2
ge	2
gt	2
ae	2
cy	2
lu	2
kg	2
sv	1
py	1
ba	1
pf	1
zm	1
nt	1
ye	1
kh	1
ci	1
mm	1
ga	1
uz	1
mk	1

tf	1
et	1
vi	1
na	1
bh	1
kp	1
pg	1
mc	1
mu	1
eg	1
jm	1
fj	1
pa	1

Country of residence

us	1838
uk	588
au	295
de	276
ca	165
ru	113
fr	100
br	97
nl	92
in	86
at	58
it	57
il	48
es	46
ch	45
no	44
dk	42
pt	42
se	38
ua	36
ar	31
be	31
cn	30
pl	29
za	21
ie	19
nz	18
gr	18
fi	17
gb	15
um	15
ro	14
my	14
jp	13
ve	13
cl	11
id	10
hr	10
mx	10
kr	10
fx	10
bg	10
cz	9
tw	6
sg	6
tr	5
uy	4
ee	4

bd	4
gt	3
is	3
hk	3
md	3
sk	3
vu	2
si	2
pk	2
by	2
yu	2
pf	2
co	2
pe	2
mc	2
hu	2
lv	2
vn	2
ng	2
bb	1
kz	1
zw	1
ph	1
cu	1
lt	1
mu	1
nc	1
gf	1
cy	1
as	1
lu	1
mt	1
cm	1
lb	1
aq	1
ae	1
ao	1
do	1
vi	1
kp	1

Primary language spoken

English	2979
German	342
French	168
Russian	165
Portuguese	143
Spanish	130
Dutch	96
Italian	59
Norwegian	42
Other	42
Danish	40
Chinese (Mandarin)	37
Polish	35
Swedish	35
Hebrew	29
Tamil	25
Greek	24
Finnish	16
Romanian	15
Hindi	15
Korean	12
Ukrainian	11
Catalan	11
Bulgarian	11
Serbo-Croatian	8
Japanese	8
Chinese (Cantonese)	8
Malayalam	7
Telugu	6
Filipino	6
Turkish	6
Kannada	6
Marathi	5
Bengali	5
Hungarian	5
Afrikaans	4
Arabic	3
Urdu	2
Persian	2
Armenian	2
Slovenian	2
Chinese (Other)	2
Macedonian	1
Sunda	1
Javanese	1
Vietnamese	1
Gujarati	1
Oriya	1

Industry

Computers - Software	1798
Internet	889
Computers - Services	812
Education	450
Telecommunications	355
Consulting Services	322
Science	307
Financial	242
Government	165
Computers - Hardware	156
Engineering	146
Other	142
Medical/Healthcare	136
Advertising/Marketing/Public Relations	136
Nonprofit	135
Publishing	124
Entertainment	82
Creative/Design	80
Retail	71
Electronics	66
Manufacturing	60
Transportation	44
Customer Service	36
Hospitality/Tourism	34
Energy/Utilities	33
Insurance	31
Real Estate	31
Consumer Products	27
Military	24
Automotive	23
Construction/Mining	17
Environmental	15
Human Resources	15
Legal	15
Agriculture/Forestry/Fishing	13
Sports and Recreation	12
Architectural Services	8
Textiles	1