A Large Scale Survey of Motivation in Software Development and Analysis of its Validity - Demographics

Idan Amit
idan.amit@mail.huji.ac.il

Dror G. Feitelson
feit@cs.huji.ac.il

Department of Computer Science
The Hebrew University, Jerusalem 91904, Israel

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1 Comparison to the Stack Overflow Survey Demographics

It is hard to define 'developer' (e.g., by education, profession, minimal activity) and therefore to define a representative developers population. However, a possible comparison is provided by the 'Stack Overflow' (SO) annual developer survey. SO is a leading questions and answers website for programming, with more than 100 million monthly visitors. The 2021 survey, overlapping our survey period, was answered by over 80 thousand developers [2]. As far as we know, this is the largest survey of developers and therefore an interesting comparison.

Our survey participants come from 74 countries, compared to 180 countries in SO. In our survey the leading countries are the United States, Germany, Great Britain, India, and France. These are the same leading countries as in SO, but in SO India is in second place and the Western countries have a somewhat lower representation.

4.2% of our participants identified as females, 95.1% as males, and the rest as others. This is close to the ratio of participant not identifying as males in the 2021 SO survey, which was 5.3%. It is also close to ratios of 4.8% [3] and 11.2% [1] in other sources.

Figure 1 presents the age distribution. The distributions are rather close with slightly higher ages in our survey.

80.7% of the participants in our survey work as professional programmers, compared to 69.7% in SO. The average years of programming experience in our survey (professional or not) is 11.1, representing very experienced developers. Figure 2 shows that in both surveys about half of the participants have at least 10 years of experience.
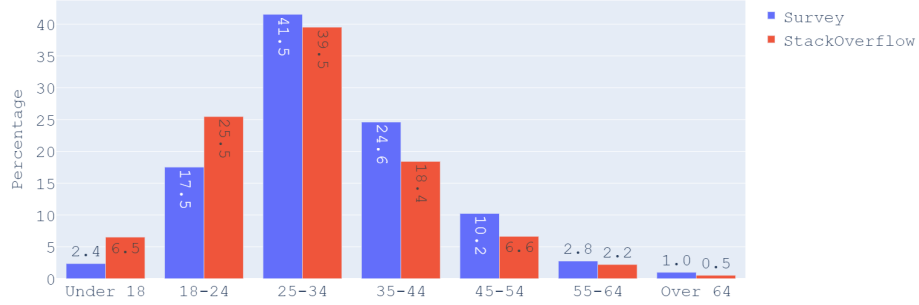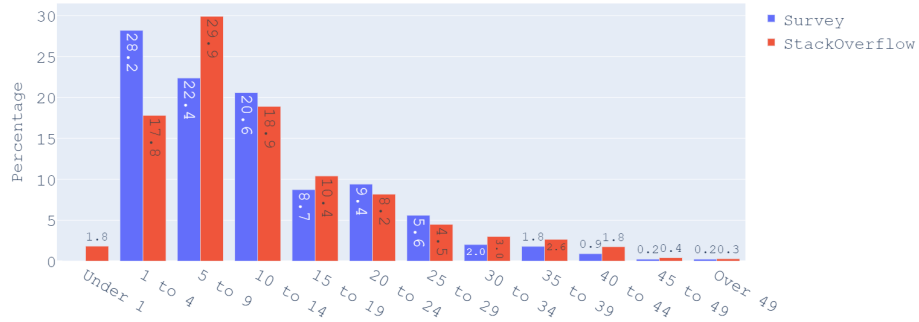
Figure 1:   Age Distribution

Figure 2:   Years of Experience Distribution

Our survey had more participants with high degrees than SO, as shown in Figure 3. The academic domains in our survey were: computer science 46.3%, technology 32.0%, science 9%, business 3.4%, math 2.5%, arts 2.1%, and the rest from other domains.

To conclude, the demographics in our survey are close but not the same as those in Stack Overflow. For example, more people identify as professional developers in our survey. But it seems that the threat of not representing the developers community is low.

References

[1] ROBLES, G., ARJONA REINA, L., SEREBRENIK, A., VASILESCU, B., AND GONZÁLEZ-BARAHONA, J. M. Floss 2013: A survey dataset about free software contributors: Challenges for curating, sharing, and combining. In
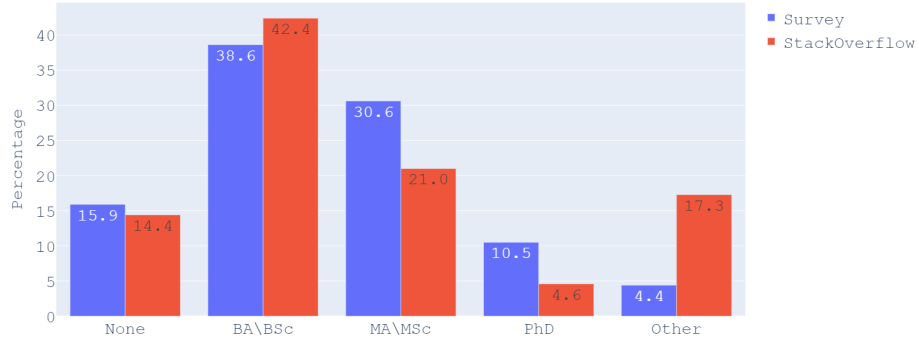
Figure 3: Academic Background

Proceedings of the 11th Working Conference on Mining Software Repositories (2014), pp. 396–399.

[2] STACKOVERFLOW. 2021 annual developer survey, 2021.

[3] TERRELL, J., KOFINK, A., MIDDLETON, J., RAINEAR, C., MURPHY-HILL, E., PARNIN, C., AND STALLINGS, J. Gender differences and bias in open source: Pull request acceptance of women versus men. *PeerJ Computer Science 3* (2017).