A comparison of respondent profiles of the 2018 Stack Overflow official survey and our survey

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To validate the representativeness of our respondents, we compared the profiles of the developers who responded to our survey with those who responded to the 2018 Stack Overflow official survey (101,548 respondents, https://insights.stackoverflow.com/survey/2018).

The results are shown below:

1) **Gender**.
The SO official survey had a similar distribution as ours in respondent gender but with slightly more female respondents (6.9% vs 2.9%) (see Figure 1).
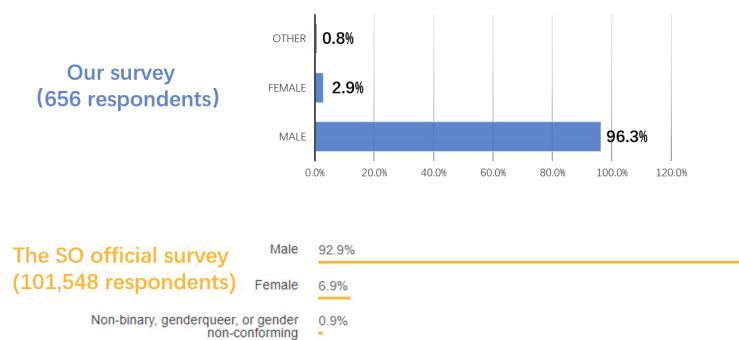

Figure 1: Gender distribution of our survey and the 2018 SO official survey.

2) **Age**.
Half (or more) of the respondents of the two surveys were "25-34 years old" (see Figure 2). The proportions of the respondents who were "35-44 years old" in the two surveys were similar (22.6% vs 17.8%), but the proportion of respondents to our survey who were "18-24 years old" was lower than that of the SO official survey (8.8% vs 23.6%).
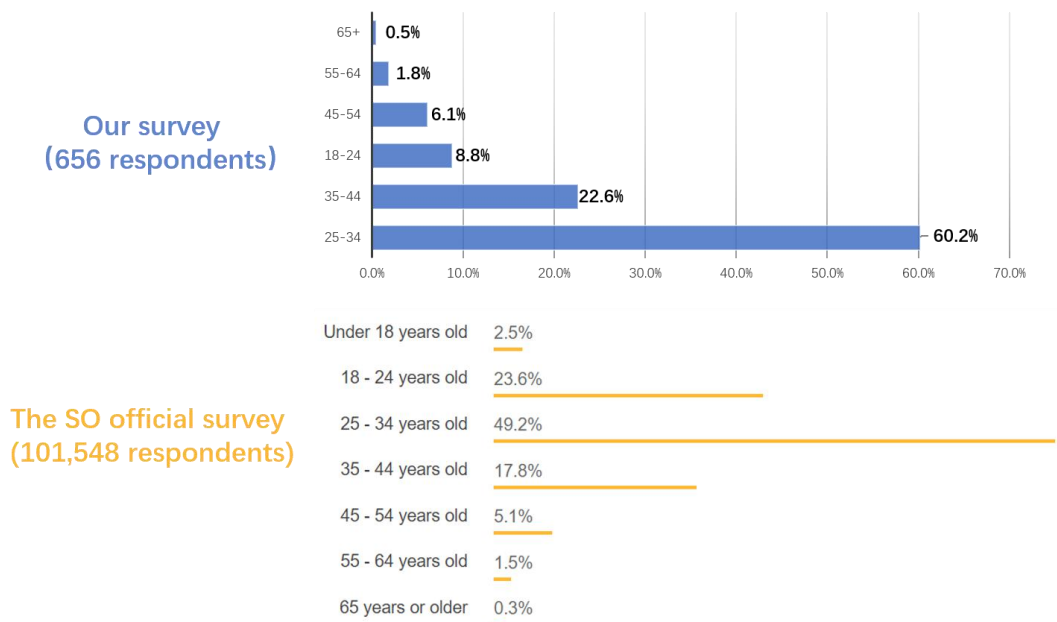
Figure 2: Age distribution of our survey and the 2018 SO official survey.

3) **Development experience**.

The design of the question options of the two surveys are different, and the respondents to our survey generally had more development experiences than those to the SO official survey (see Figure 3).
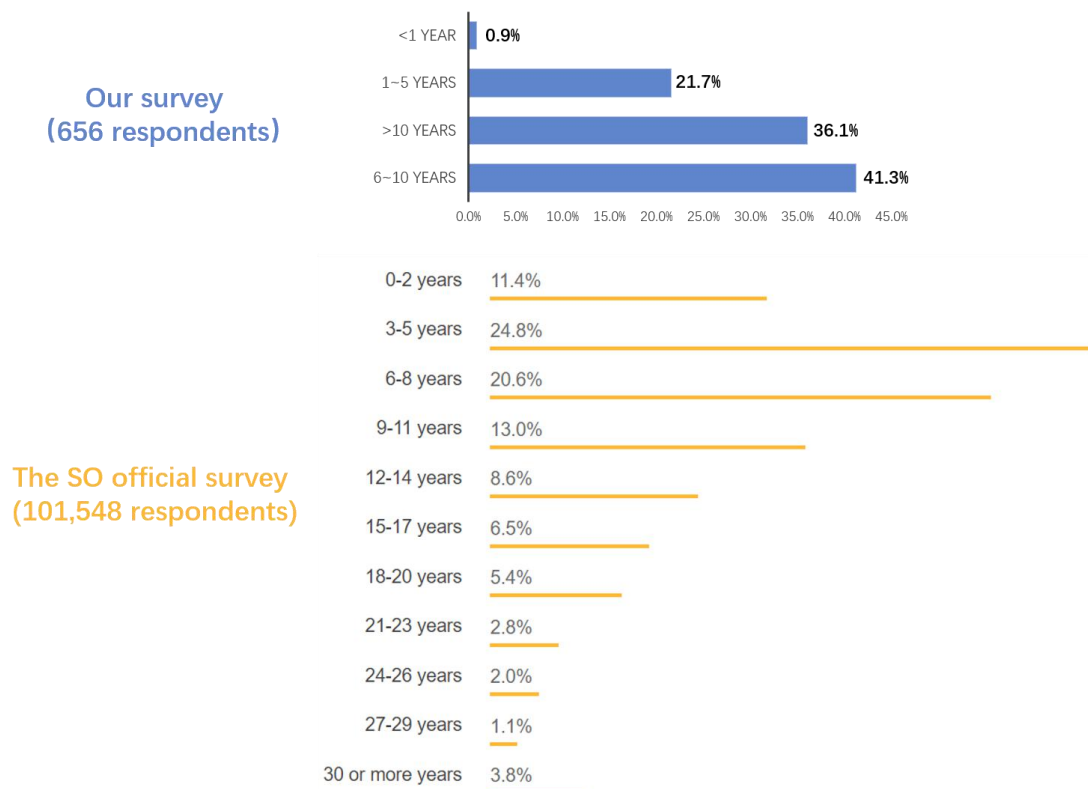

Figure 3: Development experience distribution of our survey and the 2018 SO official survey.

4) **Student proportion**.

The proportion of students responding to the two surveys were different: many more students (more than 25%) participated in the SO official survey, only accounting for 6.4% in our survey (see Figure 4).
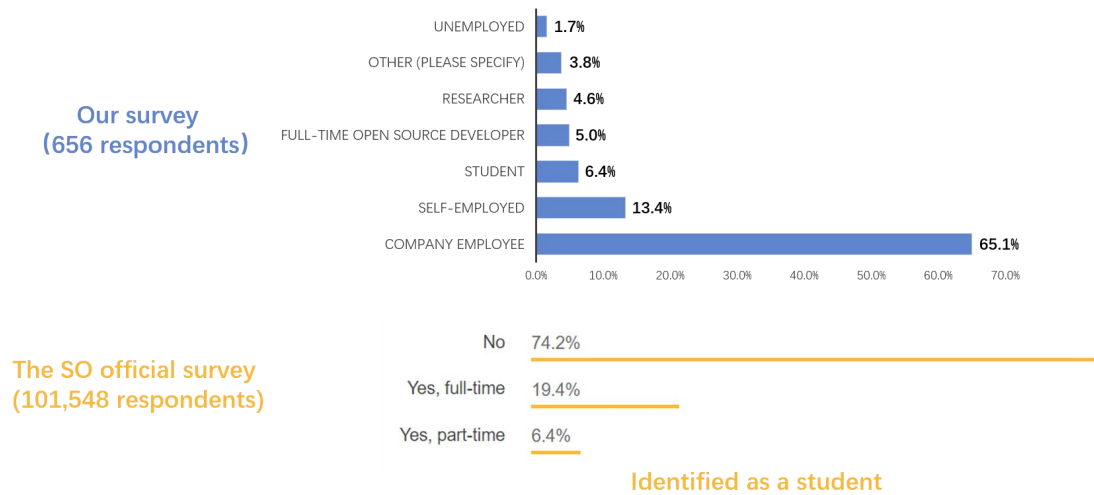

Figure 4: Proportions of students responding to our survey and the 2018 SO official survey.

5) **OSS participation**

The question in the SO official survey was more general: "Do you contribute to open source projects?", and 43.6% of the respondents selected "Yes" (see Figure 5). This proportion corresponds to the proportion of respondents to our survey who selected "Sometimes", "Usually", and "Always", 67.1%, which is higher than that of the SO official survey.
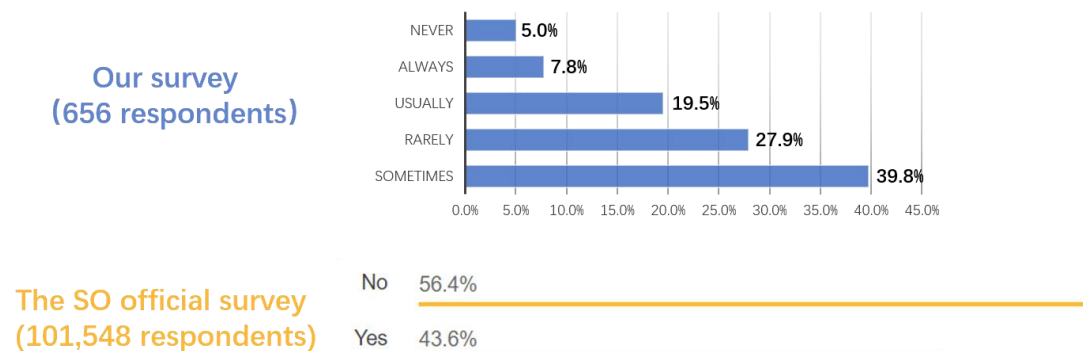

Figure 5: OSS participation in our survey and the 2018 SO official survey.

6) **Education**

Finally, regarding the **highest level of formal education** that the respondents had completed, the distributions for the two surveys were similar (see Figure 6); the top 2 in both surveys were bachelor's degree (48.2% vs 46.1%) and master's degree (29.0% vs 22.6%).
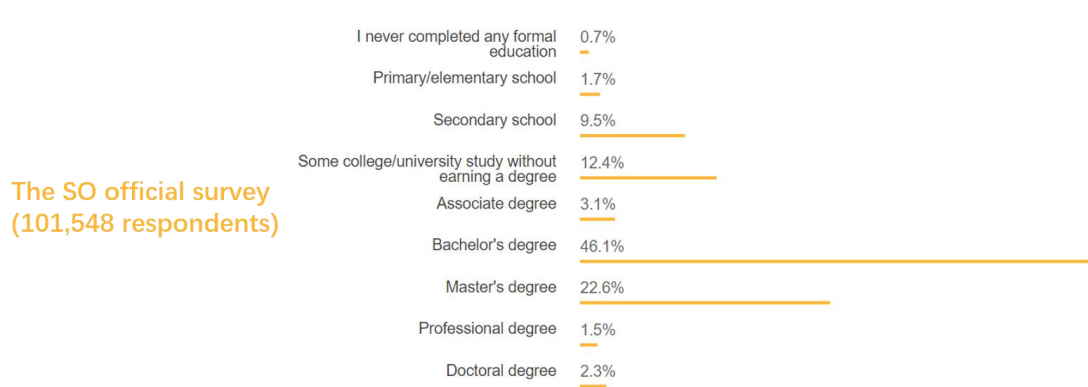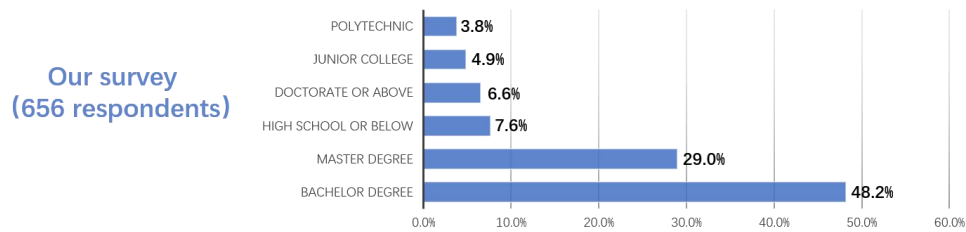
Figure 6: Education level in our survey and the 2018 SO official survey.

Overall, we see that **the major difference between the two surveys is that students accounted for a much higher proportion of the SO official survey respondents (6.4\% vs 25\%), which may have led to the slightly higher ages, more development experience, and more OSS participation experience among our respondents. We believe that these differences do not affect the validity of our findings.**