



ADAM SPANNBAUER

Python Developers Survey 2019

Cluster Analysis



Actionable insight

**PYCHARM'S DATA SCIENCE
FEATURES SHOULD EMPHASIZE
MAKING PROGRAMMING
ACCESSIBLE**

RESULTS – CUSTOMER SEGMENTATION

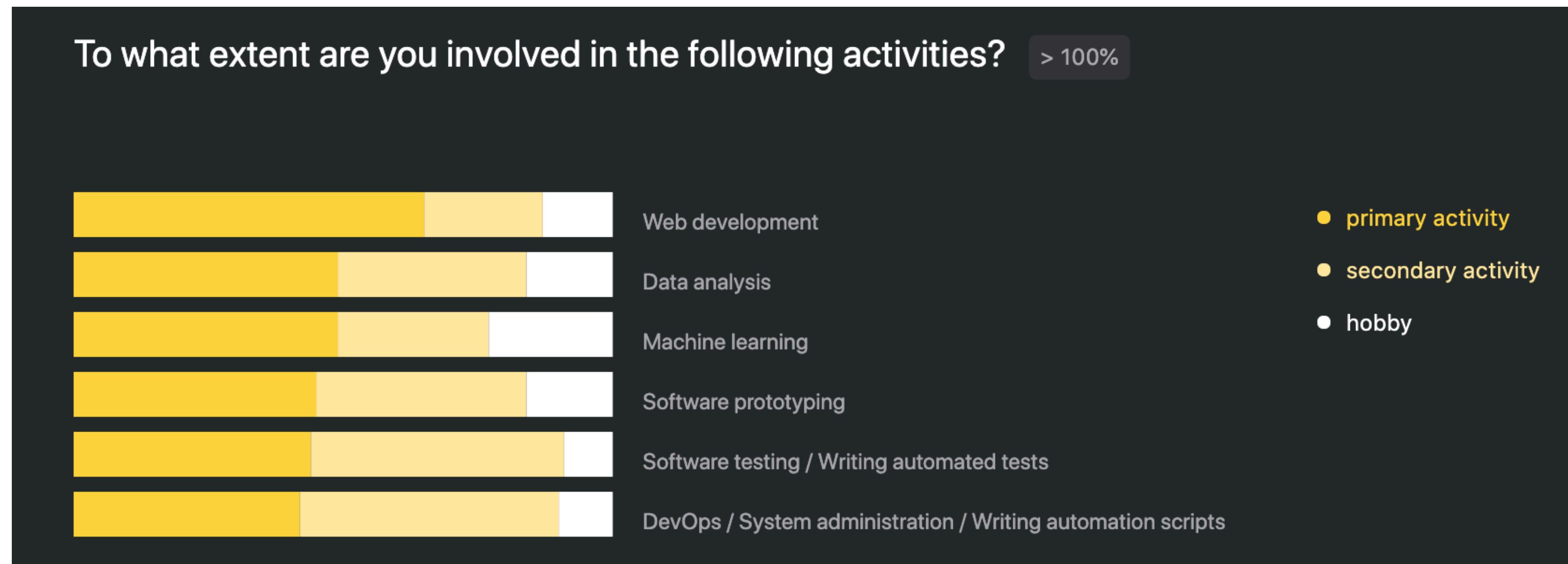
- ▶ 3 main groups of PyCharm customers we've identified *(ordered largest to smallest)*
 1. Less experienced programmers interested in more Data Science focused features
 2. More experienced programmers, interested in more traditional Software Engineering features
 3. Python web developers that are likely more interested in tools for building web applications

ABOUT THE SURVEY

- ▶ Includes questions on:
 - ▶ Python usage / programming experience
 - ▶ Company / team size
 - ▶ Area of work based on:
 - ▶ What tools do you use?
 - ▶ What's your role?

ABOUT THE SURVEY

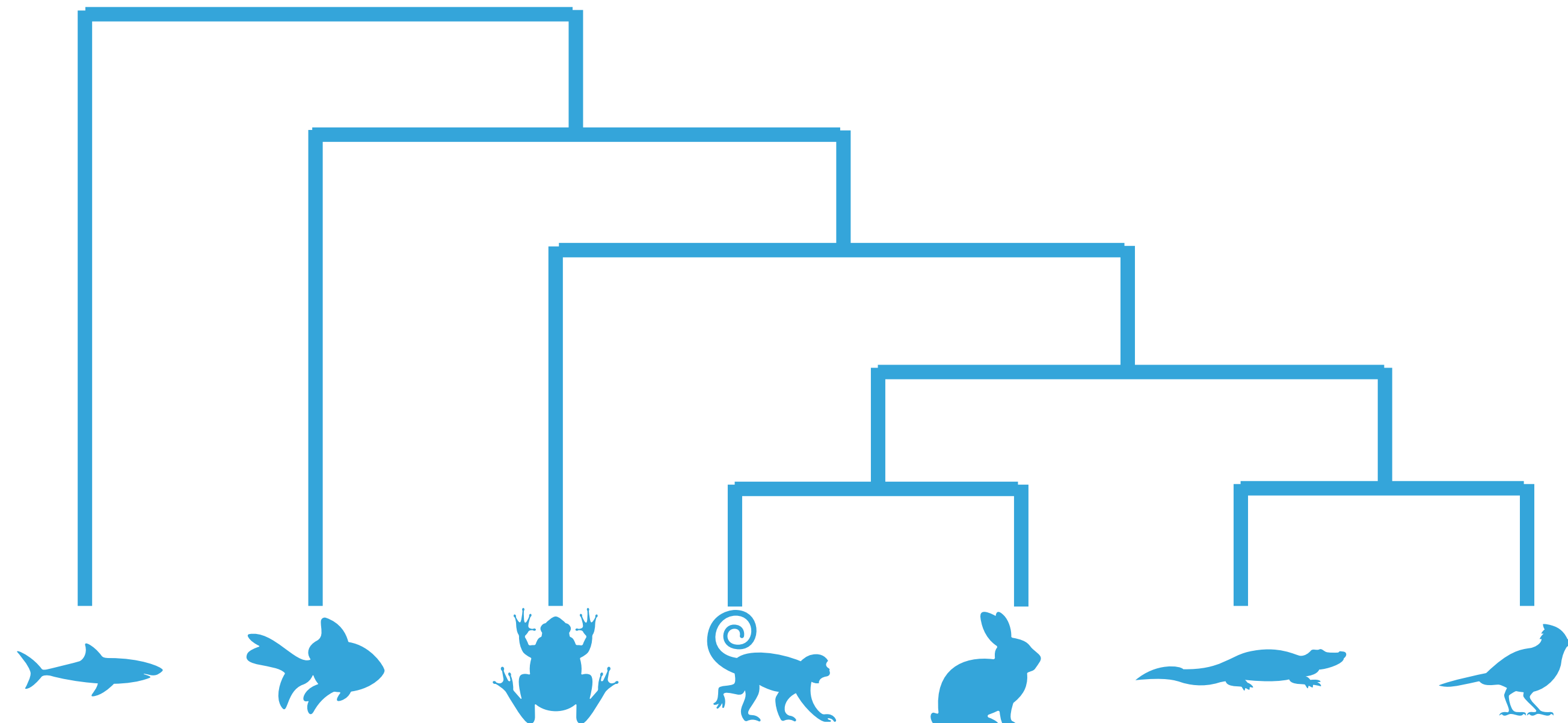
- ▶ JetBrains has published some great exploratory analysis of the data:
<https://www.jetbrains.com/lp/python-developers-survey-2019/>



From JetBrains analysis. Example of a "what's your role?" question. Results have been cropped to top 6 bars from original viz.

ABOUT THE CLUSTERING PROCESS

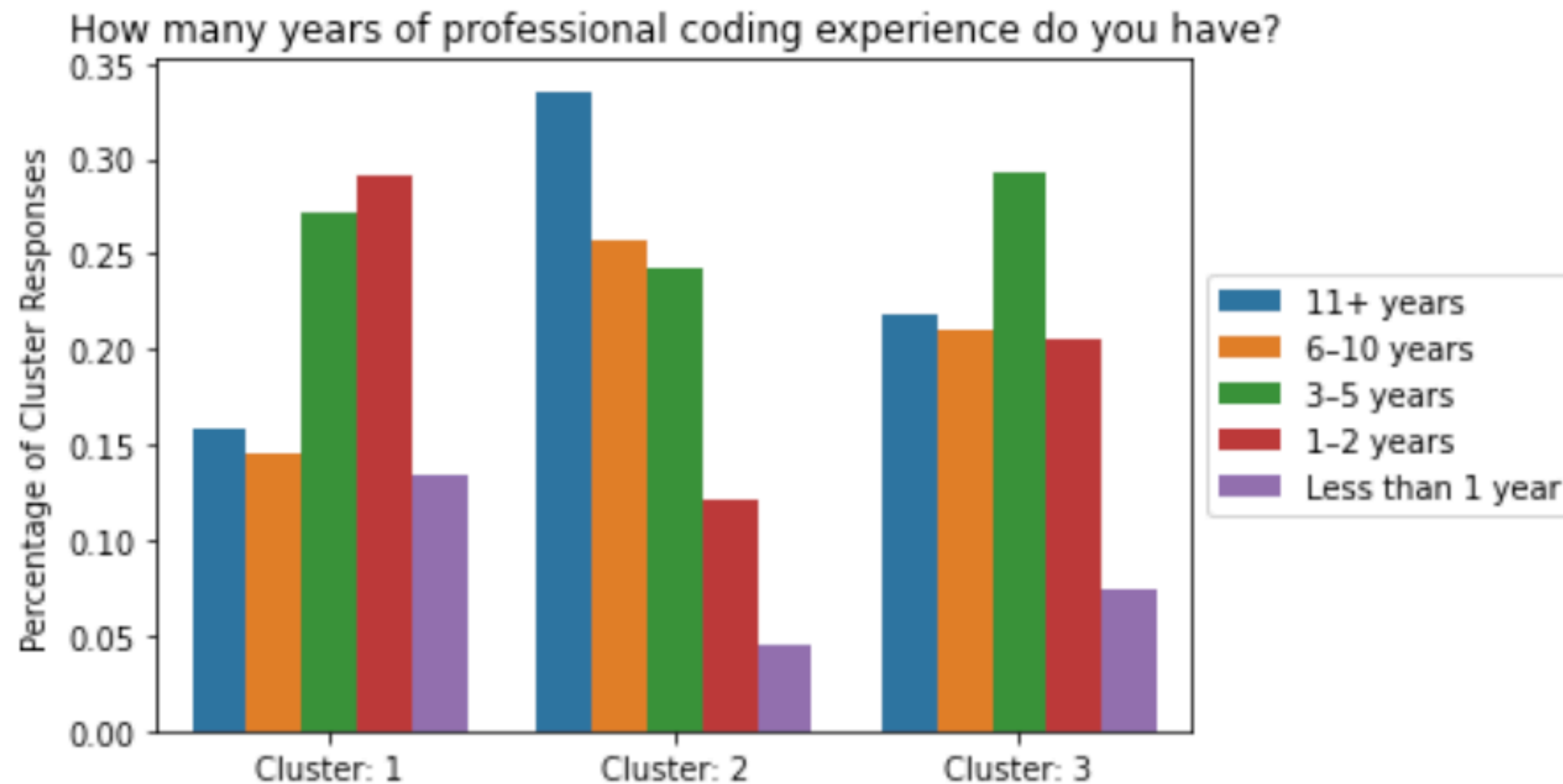
- ▶ 10,169 surgery responders were clustered to find 3 separate groups of PyCharm customer segments



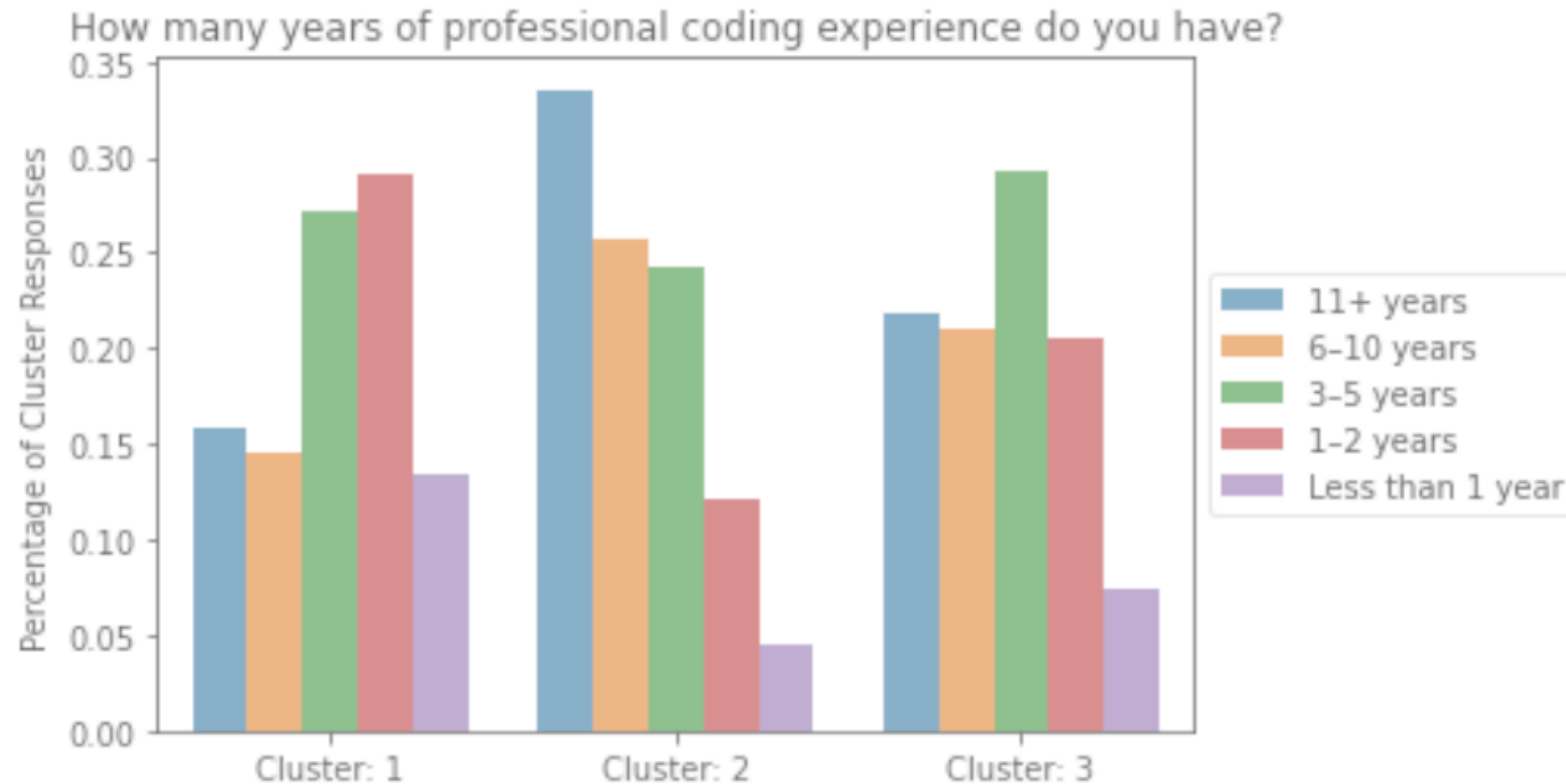
ABOUT THE CLUSTERS



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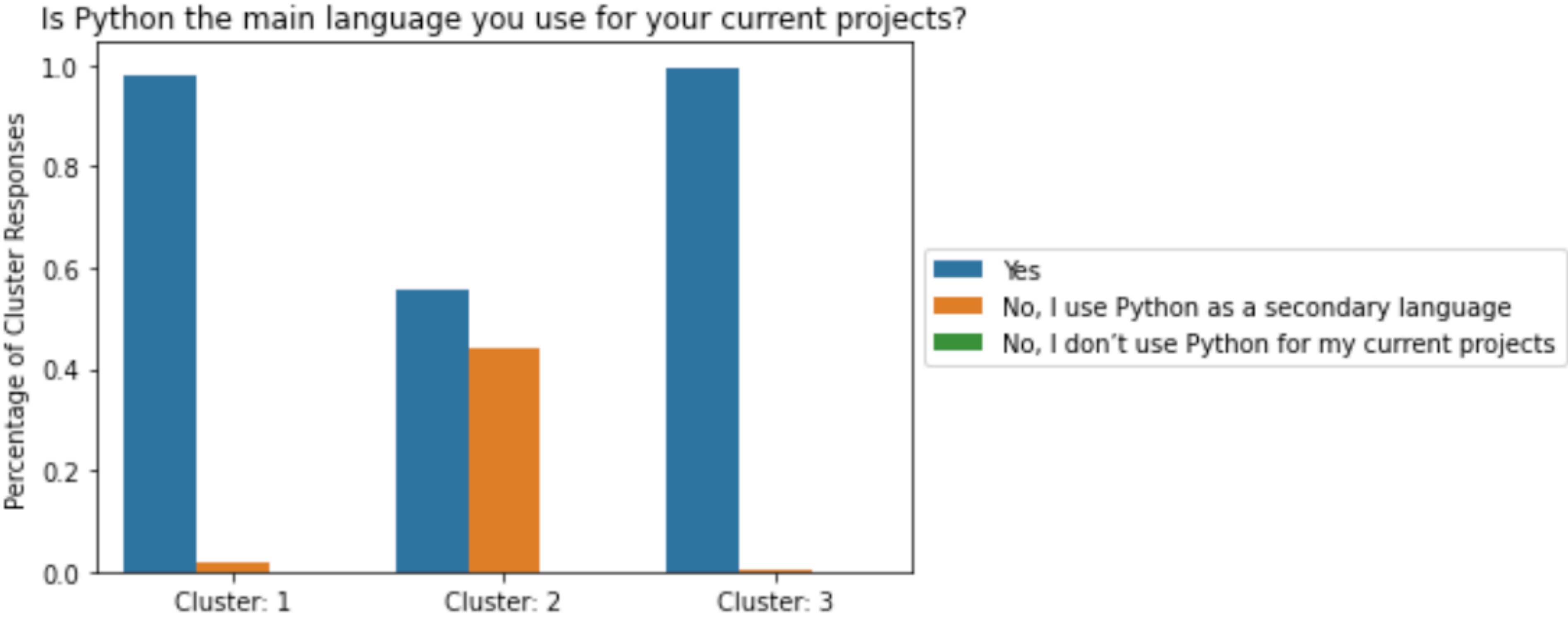
ABOUT THE CLUSTERS



Clusters in order of experience (most to least):

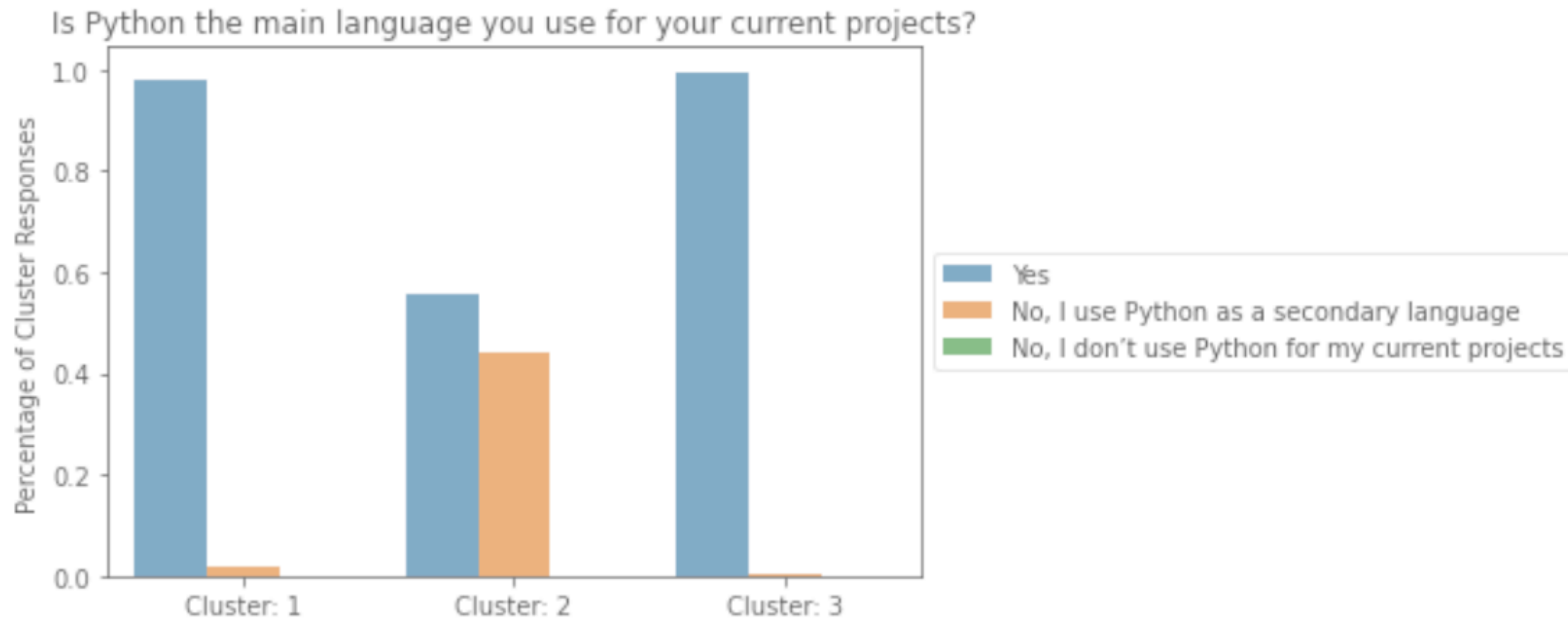
- ▶ Cluster 2
- ▶ Cluster 3
- ▶ Cluster 1

ABOUT THE CLUSTERS

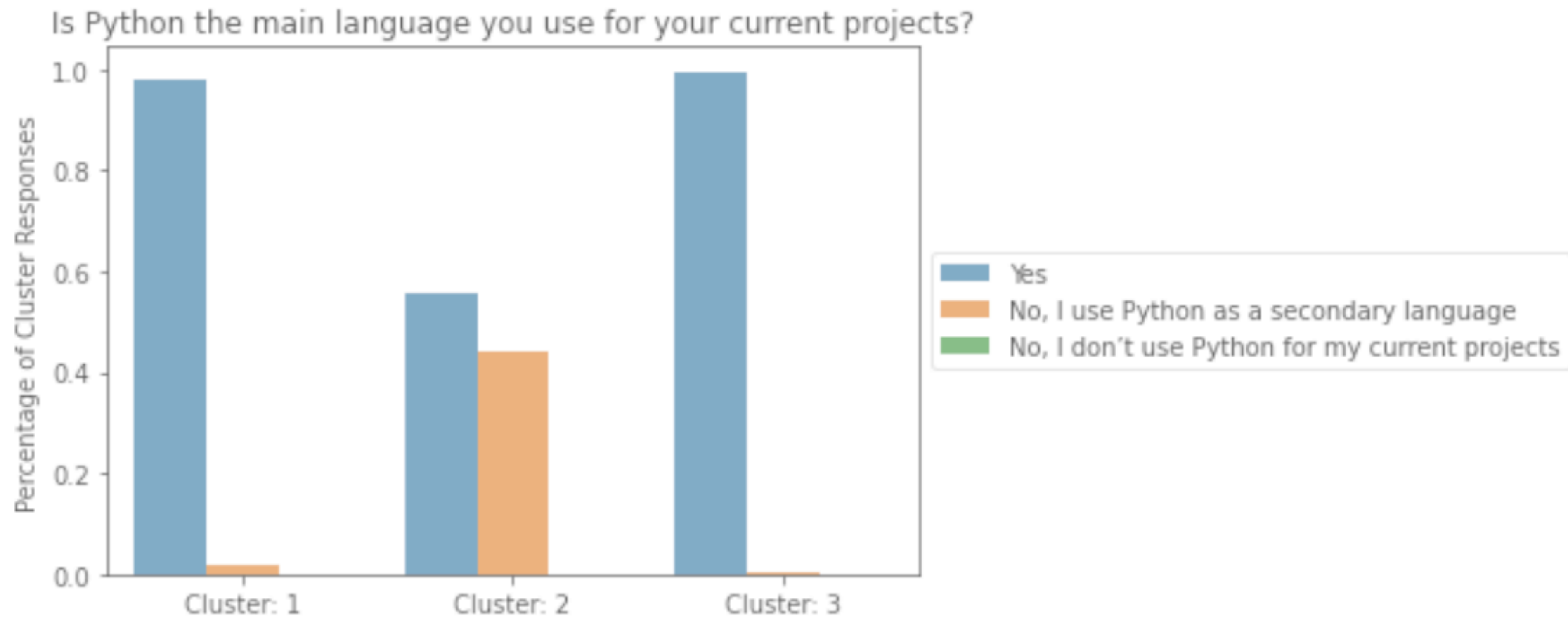


ABOUT THE CLUSTERS

- Clusters 1 and 3 are **very** Python focused



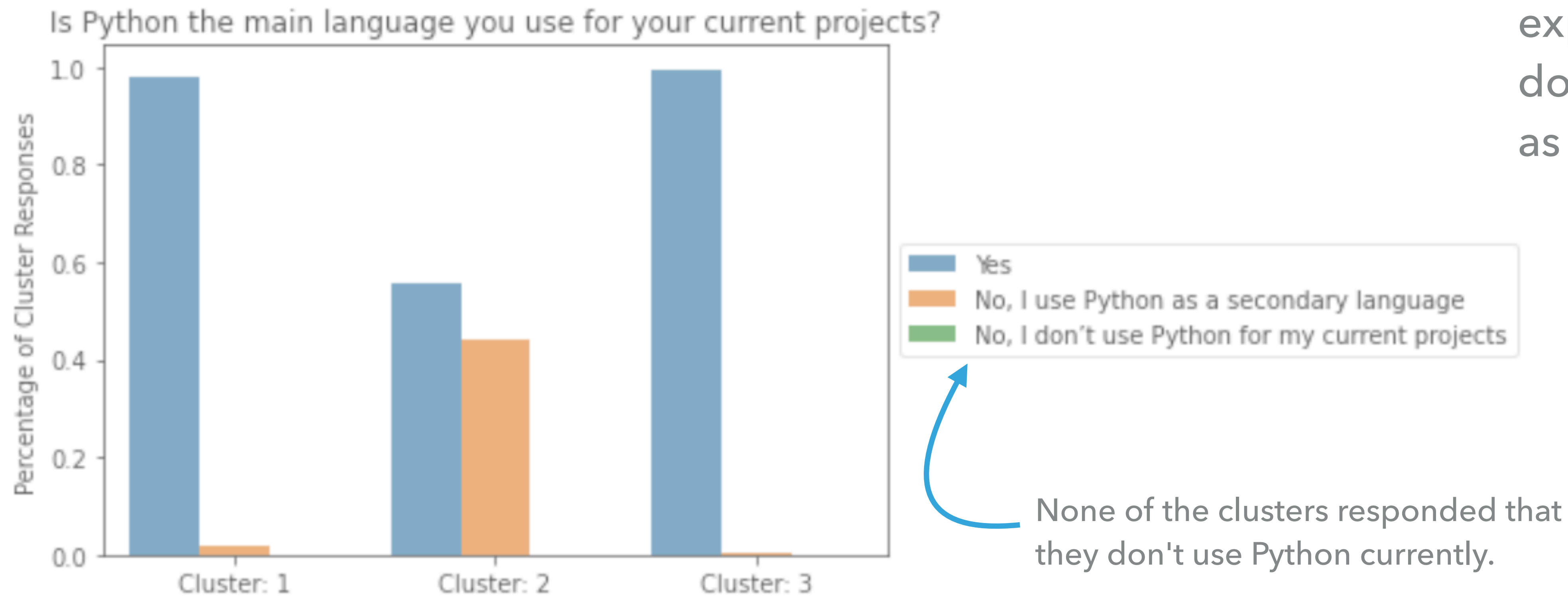
ABOUT THE CLUSTERS



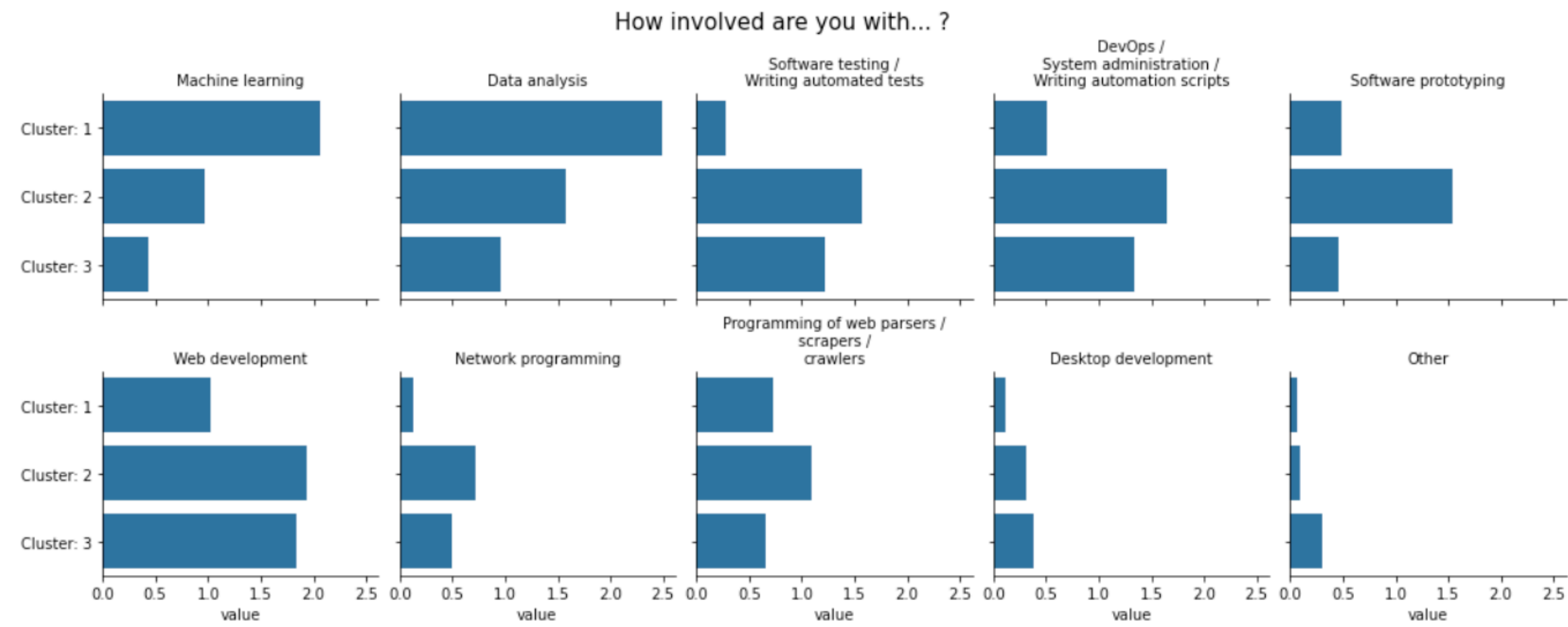
- ▶ Clusters 1 and 3 are **very** Python focused
- ▶ Our most experienced group don't prefer Python as much

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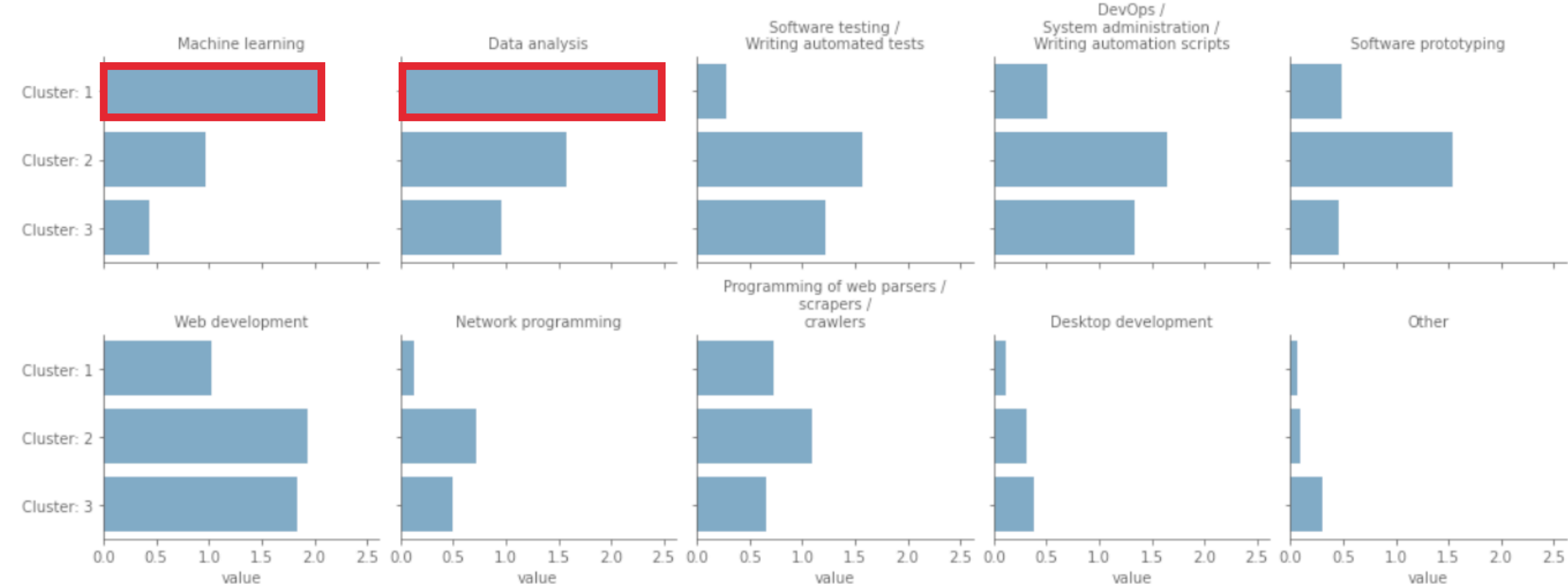


There were other 'involved' questions, but these were the top 10 for differentiating cluster members.

ABOUT THE CLUSTERS

Our least experienced cluster is the most involved with more "Data Science" techniques.

How involved are you with... ?

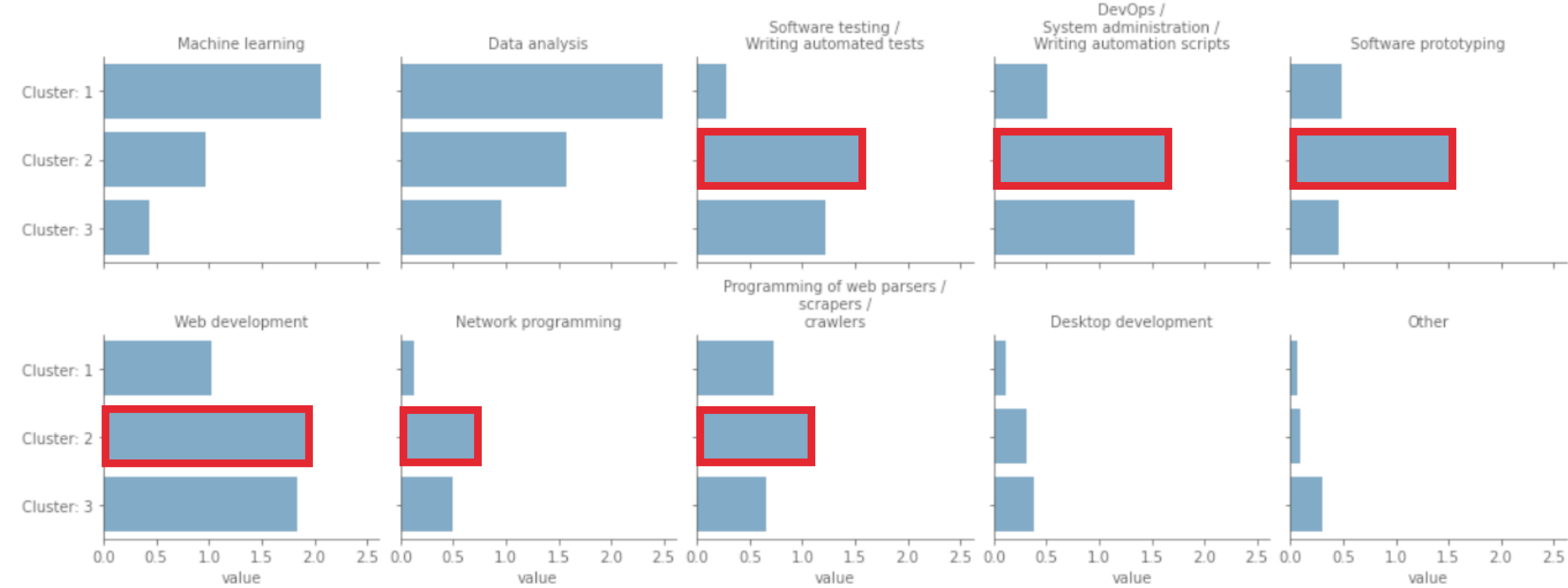


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ABOUT THE CLUSTERS

Our most experienced cluster is the most involved with varying techniques

How involved are you with... ?



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ABOUT THE CLUSTERS

Cluster 3 report web dev as their main task

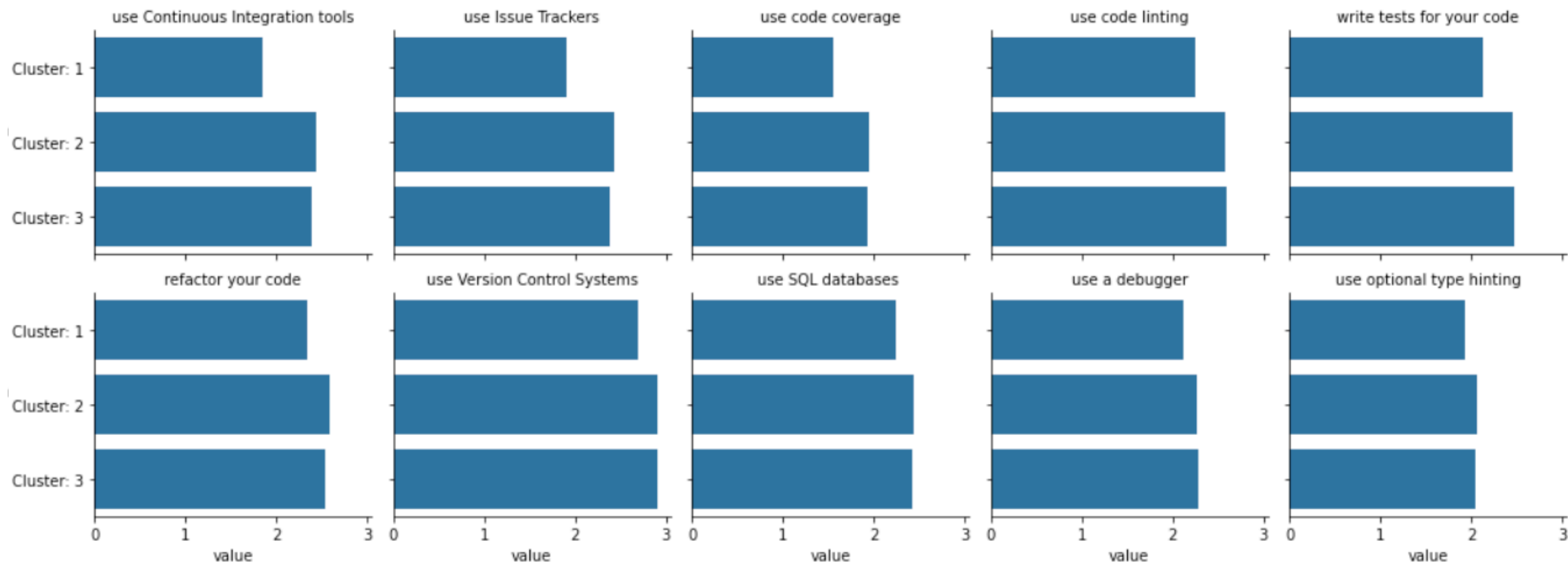
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ABOUT THE CLUSTERS

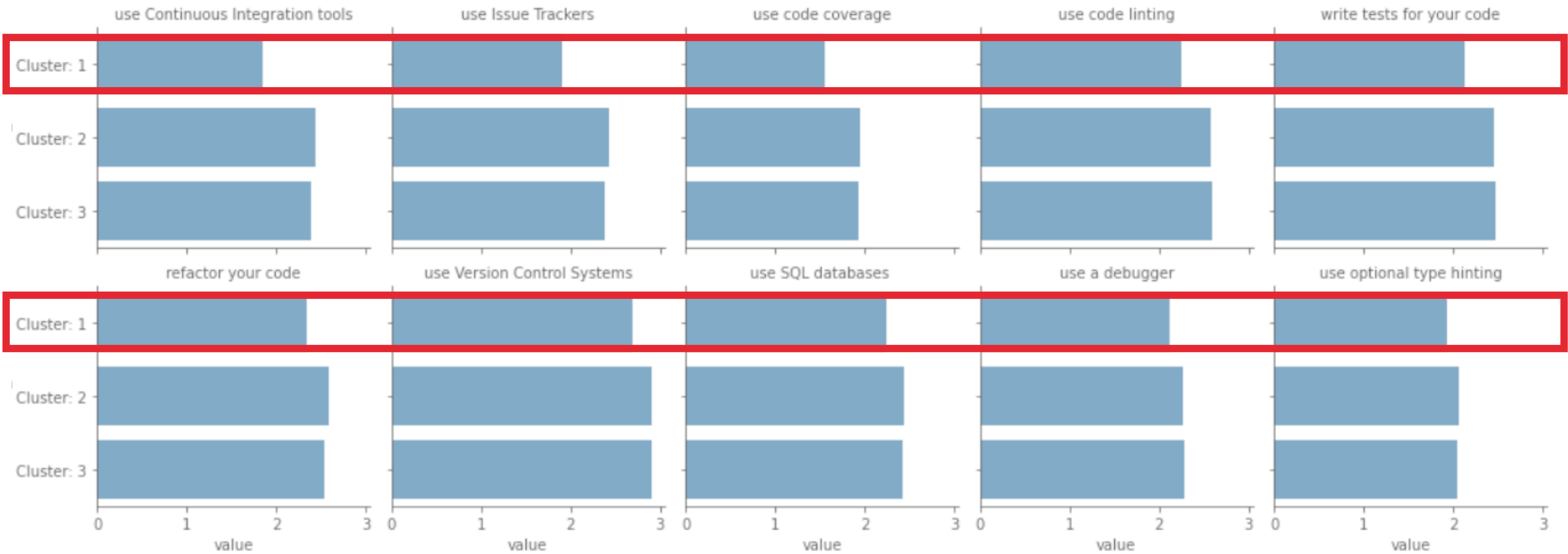
How often do you... ?



ABOUT THE CLUSTERS

Cluster 1 (less experienced programmers) does most of these traditional programming tasks the least.

How often do you... ?



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