Jupyter Notebooks in Education *

Poster Session

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Jupyter notebooks are widely used in industry for a range of tasks. This is particularly so in areas that involve significant amounts of data analysis or machine learning; indeed, while 5% of Python developers surveyed in the 2018 JetBrains Python Developer Survey report using Jupyter notebooks for their primary development tool, when restricted to those working in data science roles, Jupyter notebooks tied with the PyCharm IDE as the most popular tool for Python development [1], and in the 2019 StackOverflow developer survey, 9.5% of developers surveyed listed Jupyter notebooks as their preferred development environment [2].

Jupyter notebooks provide a format that allows the user to combine code, explanation, and analysis in a single document. The ability to mix educational or explanatory content, including, but not limited to, images, video, typeset mathematical equations, and live code makes notebooks a highly effective communication tool that enables a 'flowing narrative' for students to follow. This has a significant pedagogical advantage, and it is difficult to produce a similar experience in other formats. However, literature on if or how Jupyter notebooks are currently being used in education is limited, and what literature does exist is often tailored to their use in teaching specific narrow topics [3, 4]. There is little guidance in the literature on best practices for incorporating Jupyter notebooks into the curriculum.

In this poster, we present the results of a survey of educators on their use of Jupyter notebooks for education. Our goal is to provide some perspective on how Jupyter notebooks are currently being used in education and to illustrate common sentiments regarding their strengths and weaknesses in the classroom,

so that others considering the use of Jupyter notebooks in their courses can use them effectively.

References

[1] JetBrains 2018 developer survey. `https://www.jetbrains.com/research/python-developers-survey-2018/`. Accessed 25 Nov. 2019.

[2] StackOverflow 2019 developer survey. `https://insights.stackoverflow.com/survey/2019`. Accessed 25 Nov. 2019.

[3] Roland DePratti. Using Jupyter notebooks in a big data programming course. *J. Comput. Sci. Coll.*, 34(6):157–159, April 2019.

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