Plots with DVC

Now that we are tracking metrics, we have basic insights into the performance of our ML projects. Sometimes, however, simple metrics are not enough. We can create visualizations if we want to get more in-depth knowledge of how our model is performing.

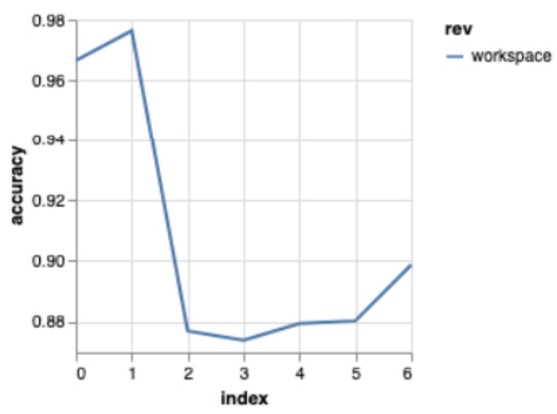
DVC has a feature to generate these visualizations in the form of plots.

We can create these plots using the `dvc plots show` command, based on the metrics files we discussed in the previous lesson. For example, say we have a metrics file called `logs.csv`:

```
epoch,accuracy,loss,val_accuracy,val_loss
0,0.9418667,0.19958884770199656,0.9679,0.10217399864746257
1,0.9763333,0.07896138601688048,0.9768,0.07310650711813942
2,0.98375,0.05241111190887168,0.9788,0.06665669009438716
...
```

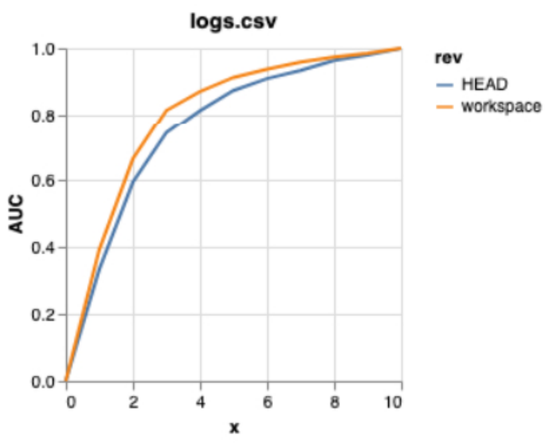
We can use the `-x` and `-y` options to modify the plot's axes. For example:

```
dvc plots show -y 'val_accuracy'
```



Furthermore, DVC allows us to visually compare different experiments with `dvc plots diff`. This command is very similar but takes the data from multiple experiments. This is useful when we want to see which one performs better quickly. For example:

```
dvc plots diff --targets logs.csv --x-label x
```



DVC can generate a variety of visualizations, including the linear plots shown above and confusion matrices. Types of visualizations are defined as templates, which are located in the `.dvc/plots` directory. We can define these templates ourselves, or use the available built-in templates:

- `default`: linear plot
- `scatter`: scatter plot
- `smooth`: linear plot with LOESS smoothing
- `confusion`: confusion matrix

When generating a plot, DVC combines this template with the data and creates one `json` file that contains the plot. This file is then rendered on a static HTML page, from where it can be saved as an SVG or PNG file.