- Next, we'll talk about step four, reporting insights.

from your analysis as a backup if someone wants

to take a deeper dive into the results.

There are many visualization tools that are available.

Some of the most popular open source ones are listed here,

including R, a software package for data analysis,

which has powerful visualization capabilities.

Python, that we will see in this class,

is a general purpose programming language,

or a scripting language, that allows you to use

a number of packages to support data analysis and graphics.

D3 is a JavaScript library for producing interactive

web-based visualizations and data-driven comments.

Leaflet is a lightweight, mobile-friendly JavaScript library

to create interactive maps.

Lastly, Tableau and Google Charts allow you to create

visualizations in your profiles so you can share them

or put them on a site or a blog, and they provide

cross-platform compatibility to mobile devices.

Timeline is a JavaScript library that allows you

to create timelines over these results.

We'll be using tools that connect well

with Python's Jupyter notebooks,

and we'll be focusing on visualization in an upcoming week.

In summary, you want to report your findings

by presenting your results,

and visualization tools help you do that effectively.

After this video you will be able to determine

what to present in reporting your findings

and identify techniques to communicate your results.

The fourth step in our data science process

is reporting the insights gained from our analysis.

This is a very important step to communicate your insights

and make a case for what actions should follow.

It can change shape based on your audience

and should not be taken lightly.

How do we get started?

The first thing is to look at your results

and decide what to present.

Part of that means determining what part of your analysis

is most important to offer the biggest value

to your scientific community or your company

in your industry to your particular audience.

In deciding what to present,

you should ask yourself these questions.

What is my punchline?

In other words, what are the main results?

What value do these results provide based on

the specific domain that I'm working on,

and the application the question led me to?

How can the model add to this application?

In other words, how do the results compare

to the success criteria determined at the beginning

of the project for that application's specific purpose?

You need to include the answers to these questions

in your report or presentation.

So, make those questions and answers the main topics

and be sure to have the data

or visualizations to back them up.

Keep in mind that not all of your analysis

results may be rosy.

This is often very difficult to communicate.

Your analysis may show results that are counter

to what you were hoping to find,

or results that are inconclusive or puzzling.

You need to show these results as well.

Domain experts that you work with may find

some of these results to be puzzling,

and inconclusive findings lead to additional analysis.

Remember that the point of reporting your findings

is to determine what the next steps should be.

All findings must be presented so that

informed decisions can be made.

If you think about it, the biggest danger

is to make it seem like your results tell

a clear story when they actually don't.

If your conclusions are later found to be wrong,

your credibility could be seriously damaged.

Better to tell a complete and true story,

even if it isn't very clean, than to try to finesse things

and make them sound more clear than they really are.

Visualization is an important tool

in presenting your results.

The techniques that we discuss and explore in data

can be used here as well.

Scatter plots, line graphs, heat maps

and other types of graphs are effective ways

to present your results visually.

You should also have tables with details