# Error Bars

Matplotlib line plots and bar charts can include error bars. Error bars are useful to problem solvers because error bars show the confidence or precision in a set of measurements or calculated values. Bar charts without error bars give the illusion that a measured or calculated value is known to high precision or high confidence.

# Error bars in bar plots

To construct a bar plot with error bars, first import Matplotlib. If using a Jupyter notebook, include the line %matplotlib inline

```
import numpy as np
import matplotlib.pyplot as plt
# include if using a Jupyter notebook
%matplotlib inline
```

# Error bars in line plots

Error bars can also be added to line plots created with Matplotlib.
The ax.errorbar() method is used to create a line plot with error bars. The two positional arguments supplied to ax.errorbar() are the lists or arrays of x, y data points. The two keyword arguments xerr= and yerr= define the error bar lengths in the x and y directions.

The general format of Matplotlib's `ax.errorbar()` method is below:

```
ax.errorbar(x, y,
            xerr=<error bar width>
            yerr=<error bar height>
            fmt=<format>)
```