Plotting

Learn how to plot DataFrames using the pyplot API from Matplotlib.

Chapter Goals:

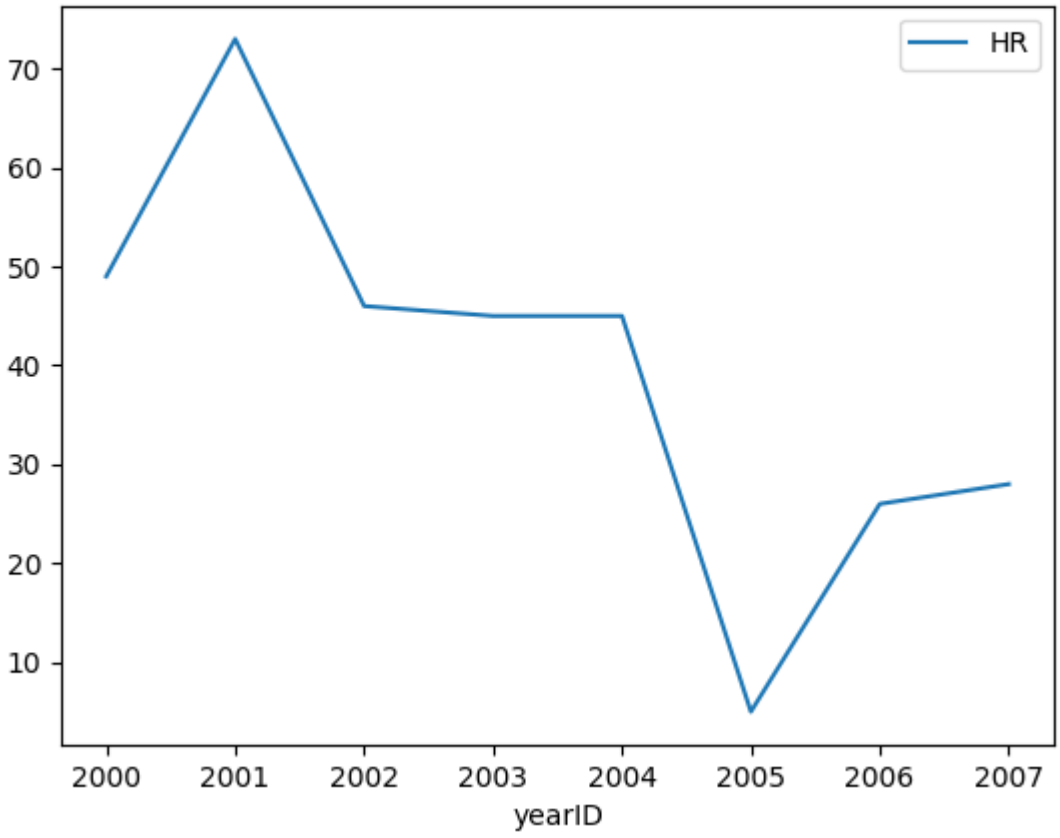
- Learn how to plot DataFrames using the pyplot API

A. Basics

The main function used for plotting DataFrames is `plot`. This function is used in tandem with the `show` function from the pyplot API, to produce plot visualizations. We import the pyplot API with the line:
`import matplotlib.pyplot as plt`

```
# predefined df
print('{}\n'.format(df))

df.plot()
plt.show()
```

The above code results in this plot:



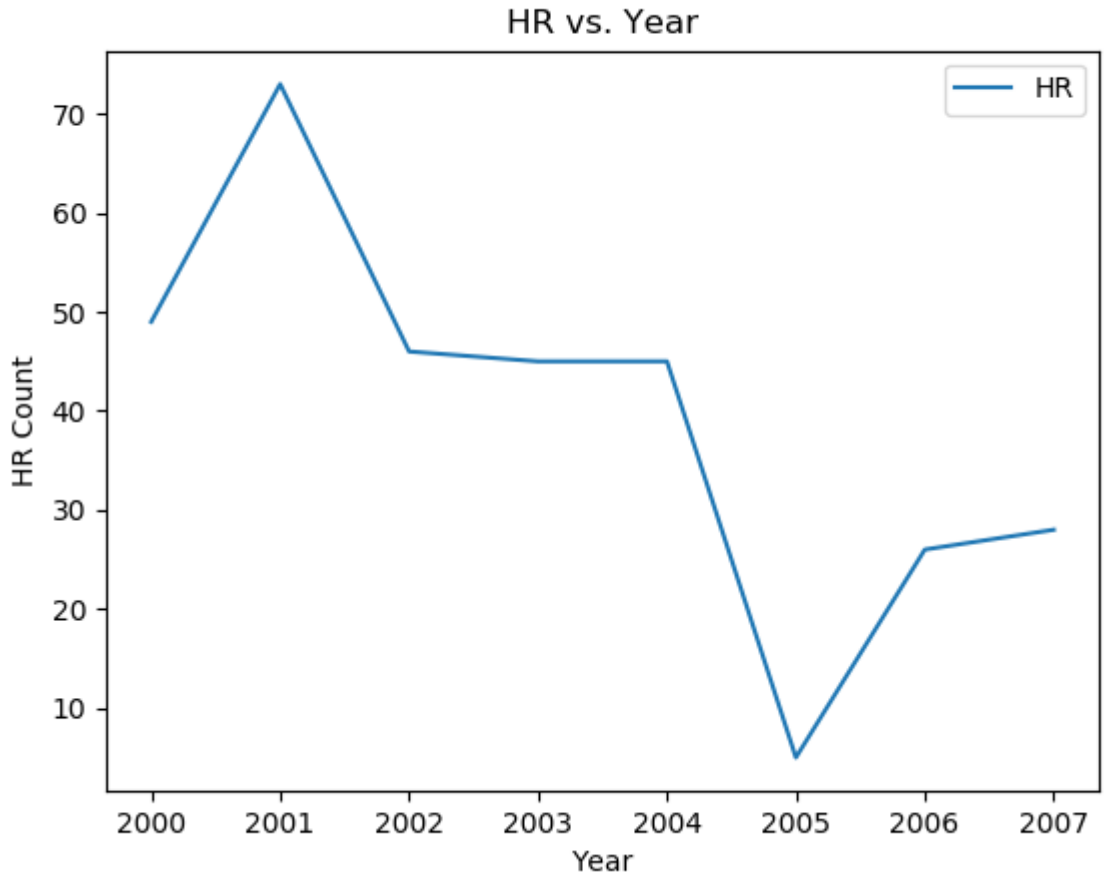
After calling `df.plot`, which creates our line plot, we then use `plt.show` to open a separate window containing the visualization of the plot. You can also use `plt.savefig` to save the plot to a PNG or PDF file.

```
# predefined df
print('{}\n'.format(df))

df.plot()
plt.savefig('df.png')  # save to PNG file
```

The plot we created has no title or *y*-axis label. We can manually set the plot's title and axis labels using the pyplot API.

```
# predefined df
print('{}\n'.format(df))

df.plot()
plt.title('HR vs. Year')
plt.xlabel('Year')
plt.ylabel('HR Count')
plt.show()
```

The above code results in this plot:



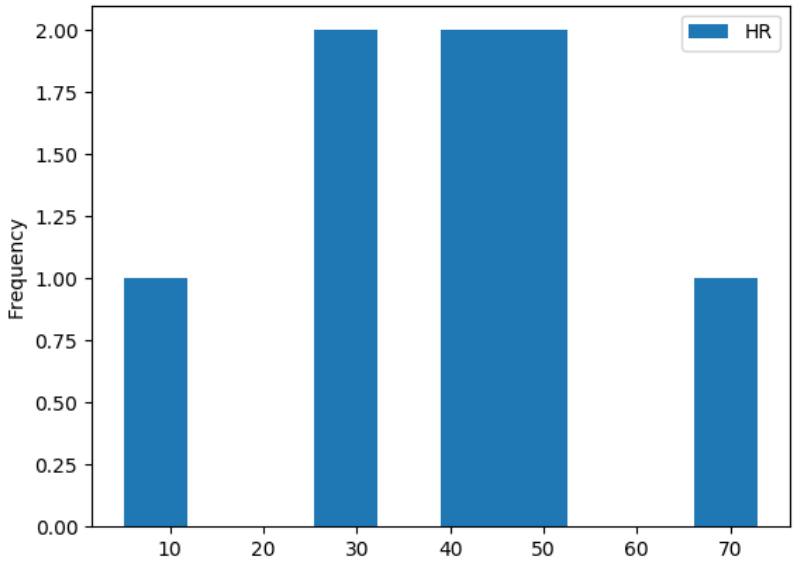
We use the `title` function to set the title of our plot, and the `xlabel` and `ylabel` functions to set the axis labels.

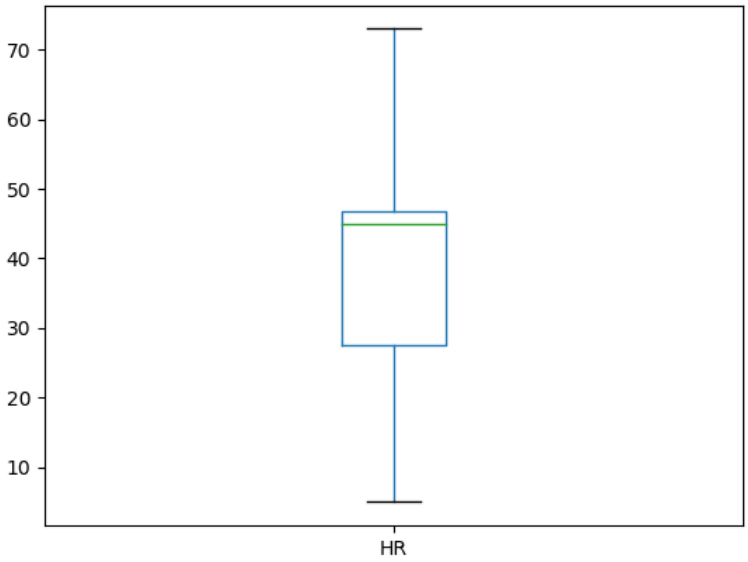
B. Other plots

In addition to basic line plots, we can create other plots like histograms or boxplots by setting the `kind` keyword argument in `plot`.

```
# predefined df
print('{}\n'.format(df))

df.plot(kind='hist')
df.plot(kind='box')
plt.show()
```

The above code results in these plots:





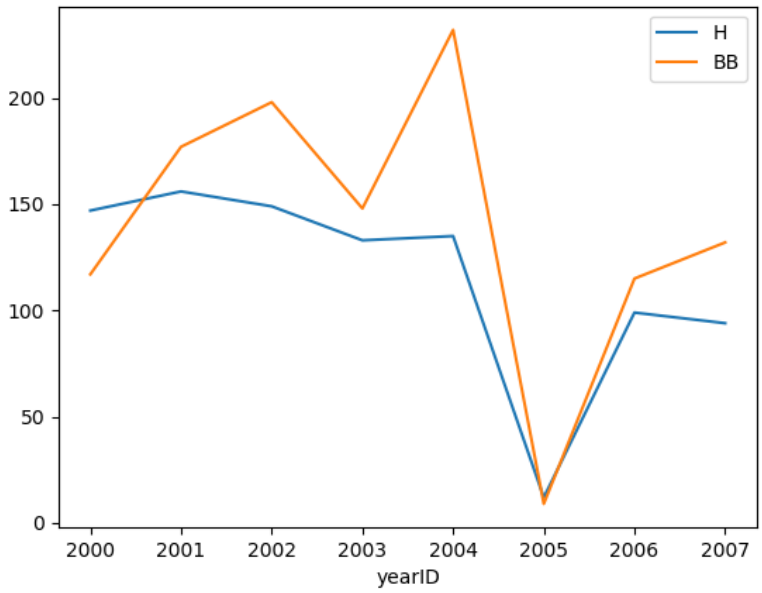
There are numerous different kinds of plots we can create by setting the `kind` keyword argument. A list of the accepted values for `kind` can be found in the documentation for `plot`.

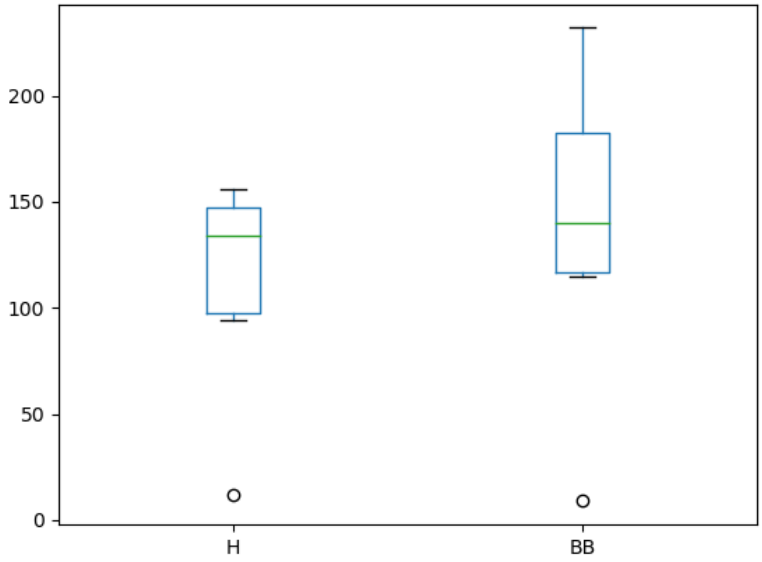
C. Multiple features

We can also plot multiple features on the same graph. This can be extremely useful when we want visualizations to compare different features.

```
# predefined df
print('{}\n'.format(df))

df.plot()
df.plot(kind='box')
plt.show()
```

The above code results in these plots:





These are a line plot and boxplot showing both hits (`H`) and walks (`BB`). Note that the circles in the boxplot represent outlier values.