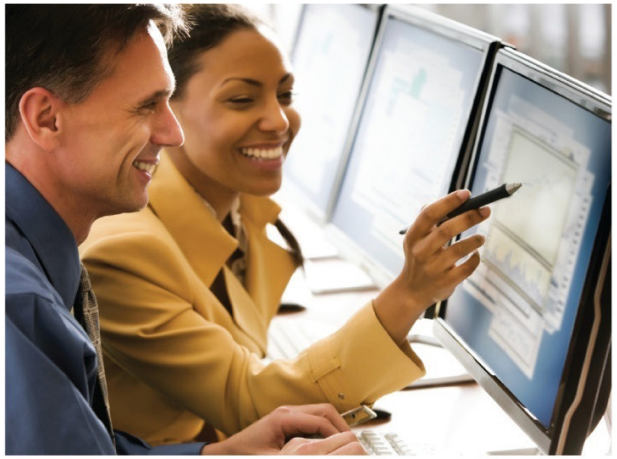
Variables and Commands

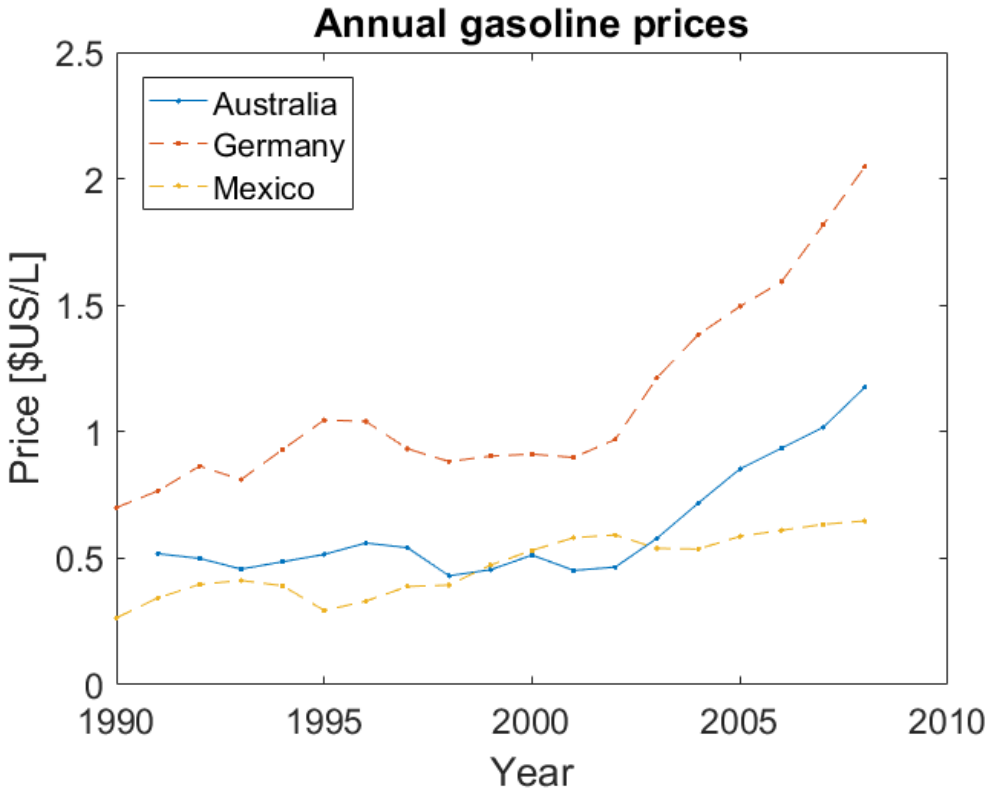
MATLAB® Fundamentals for Aerospace Applications



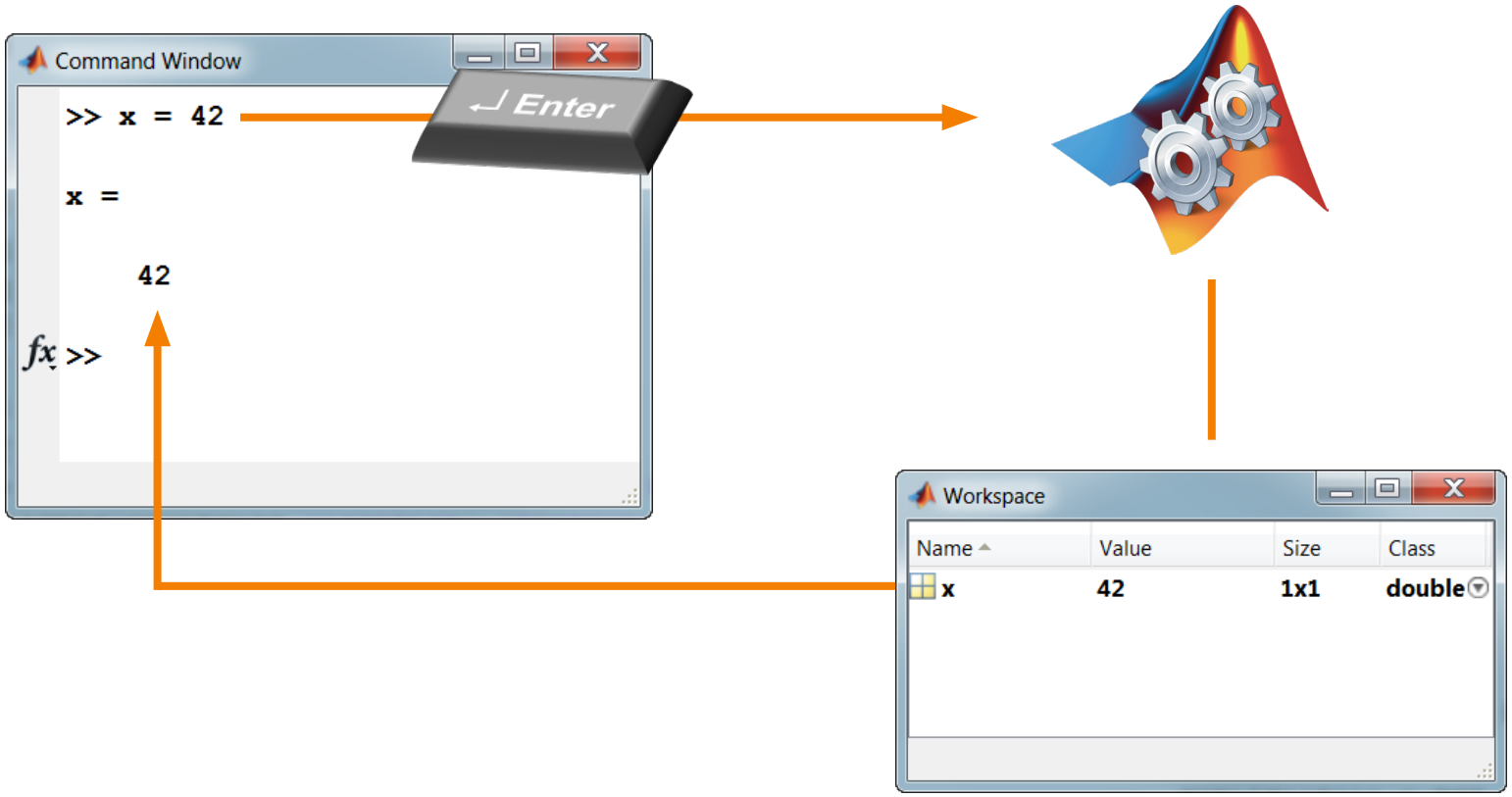
Outline

- Entering commands
- Creating numeric variables
- Creating character variables
- Making and annotating plots
- Getting help
- Creating and running scripts
- Formatting live scripts

Course Example: Comparing Prices Visually



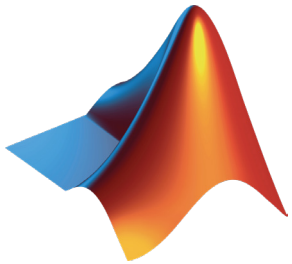
Entering Commands



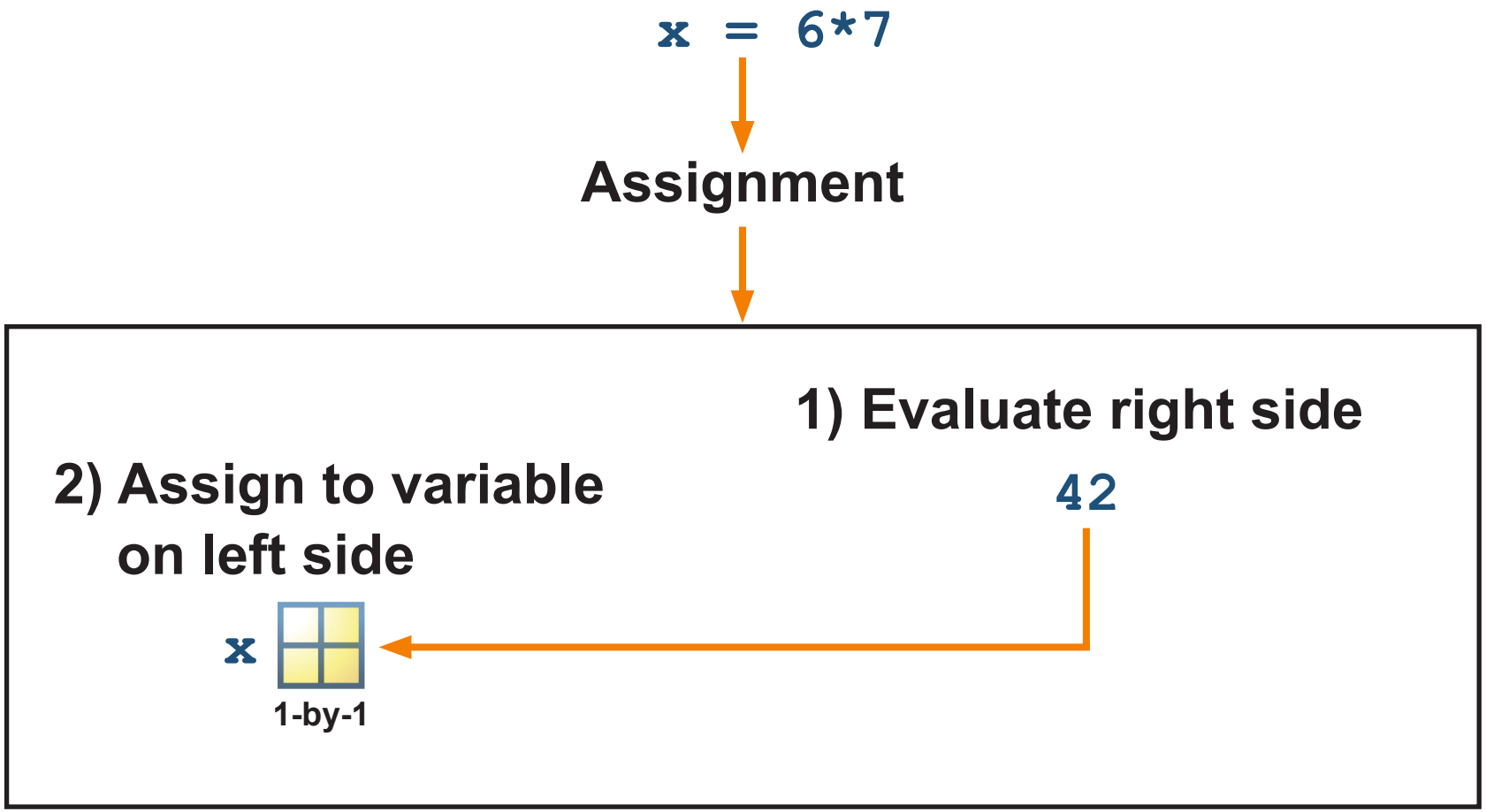
Getting Data into MATLAB®

`load`

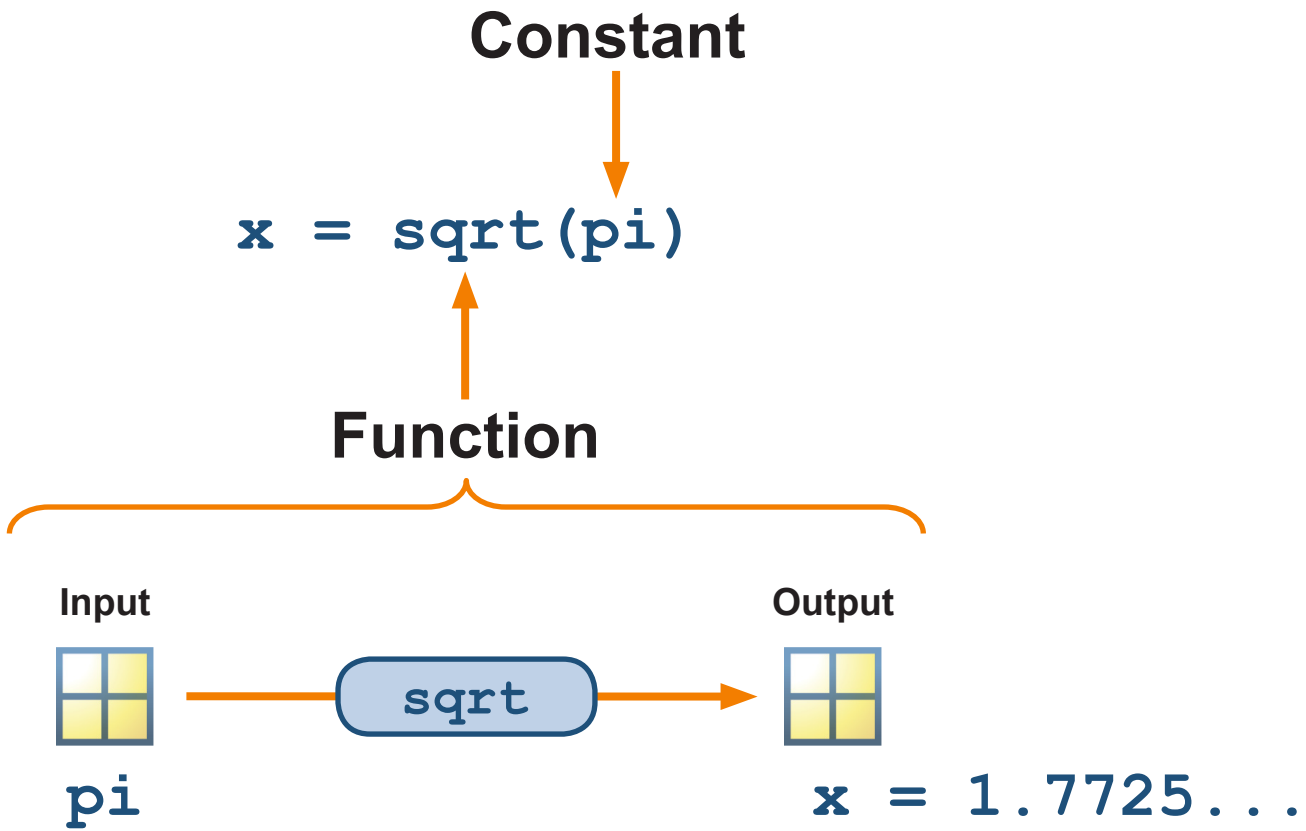
`=`



Assigning Values to Variables

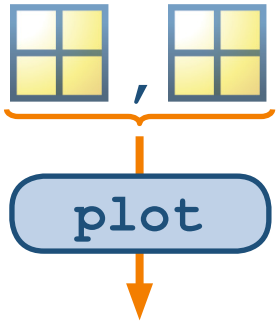


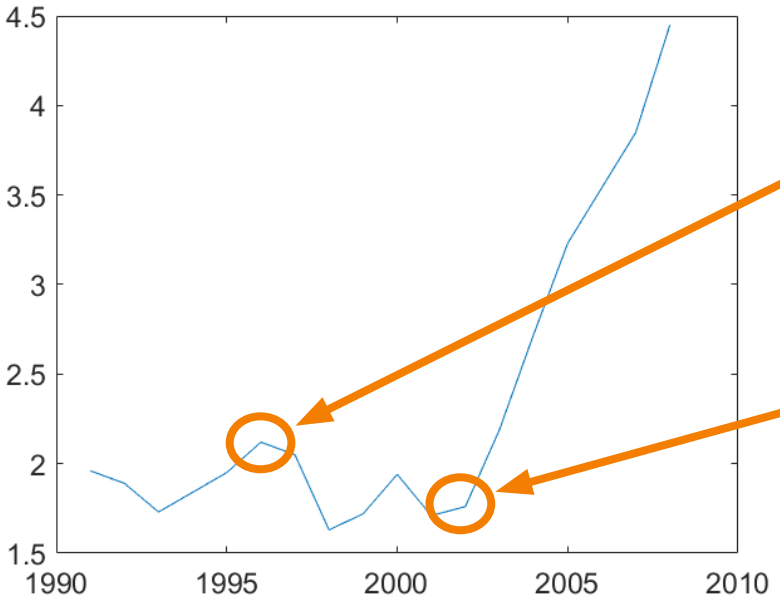
Using Built-In Functions and Constants



Plotting

```
plot(Year,Australia)
```

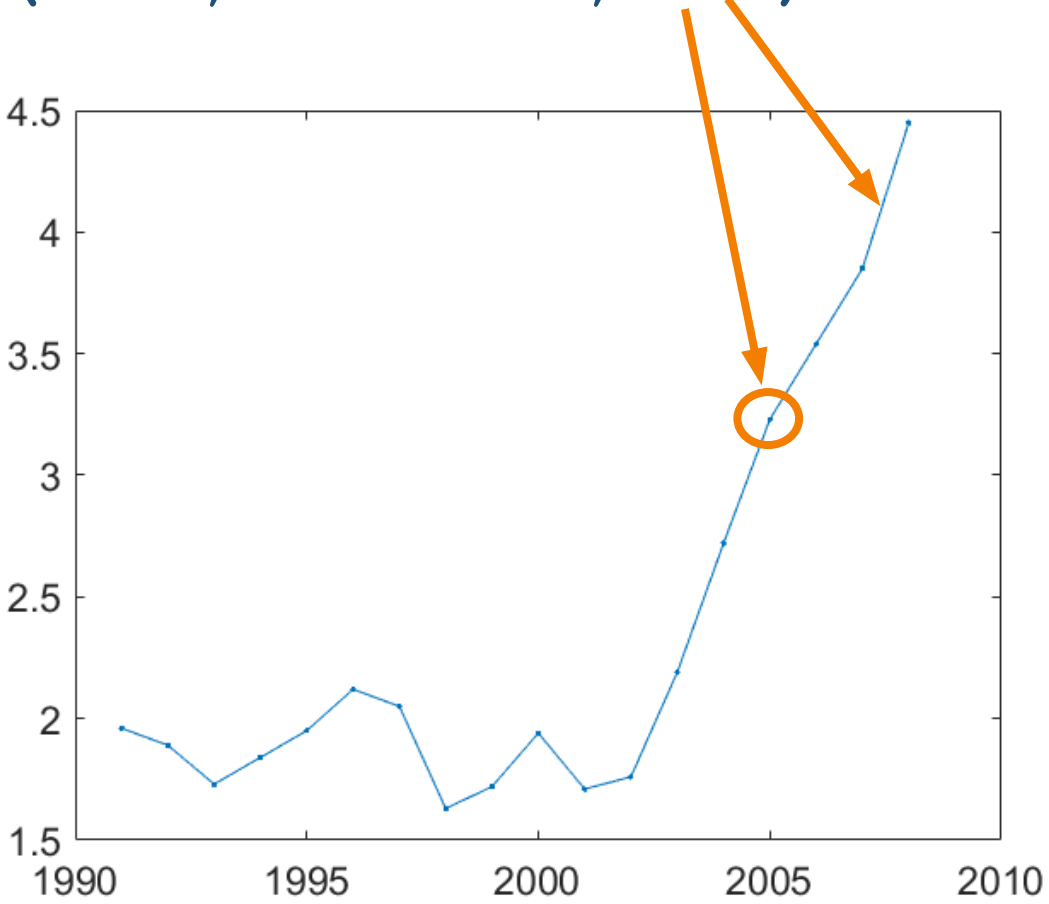




1990	NaN
1991	1.9600
1992	1.8900
1993	1.7300
1994	1.8400
1995	1.9500
1996	2.1200
1997	2.0500
1998	1.6300
1999	1.7200
2000	1.9400
2001	1.7100
2002	1.7600
2003	2.1900
2004	2.7200
2005	3.2300
2006	3.5400
2007	3.8500
2008	4.4500

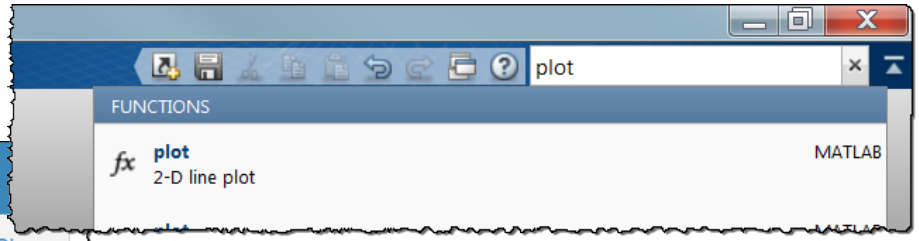
Plot Options

```
plot(Year,Australia,'.-')
```

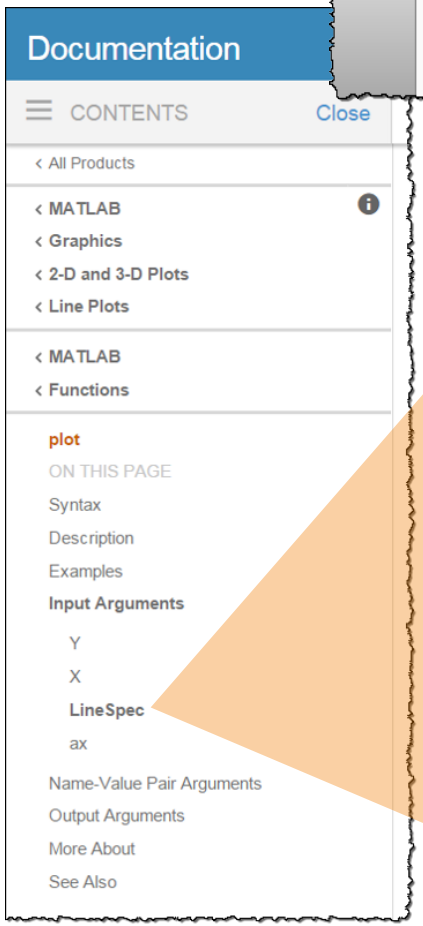


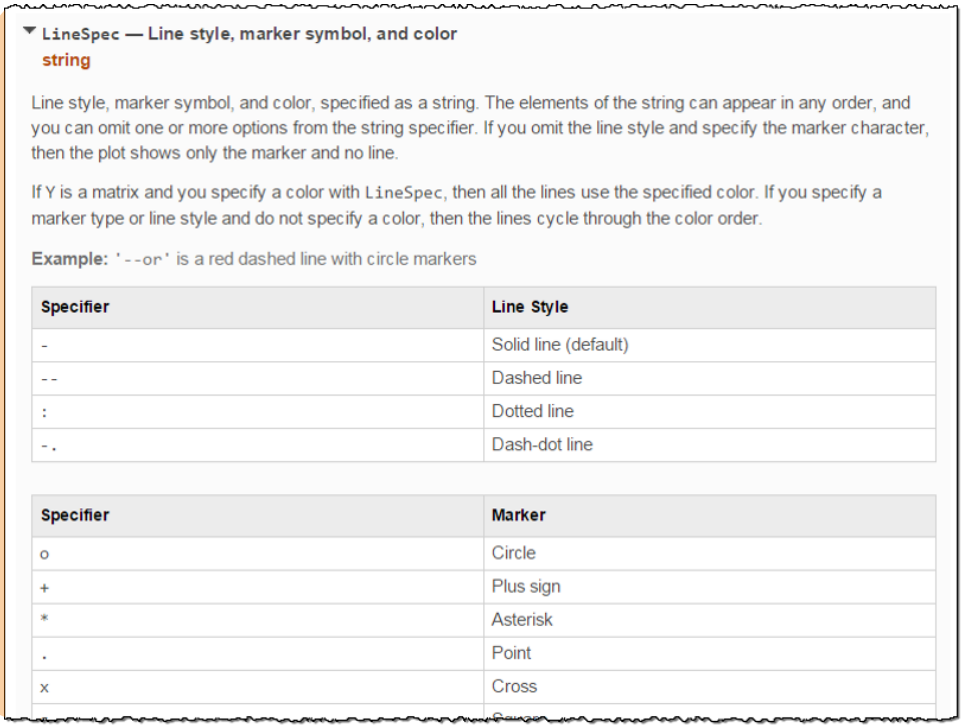
Obtaining Help

search



browse





Creating Characters and Text

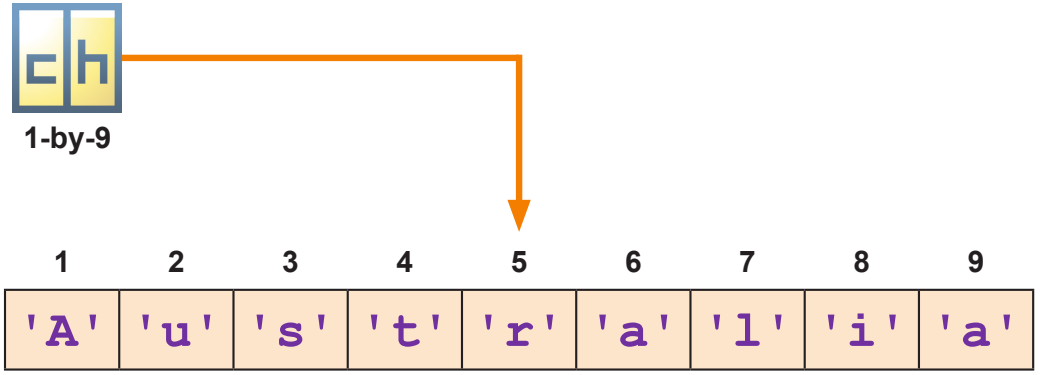
```
y = x
```

variable called `x`

```
y = 'x'
```

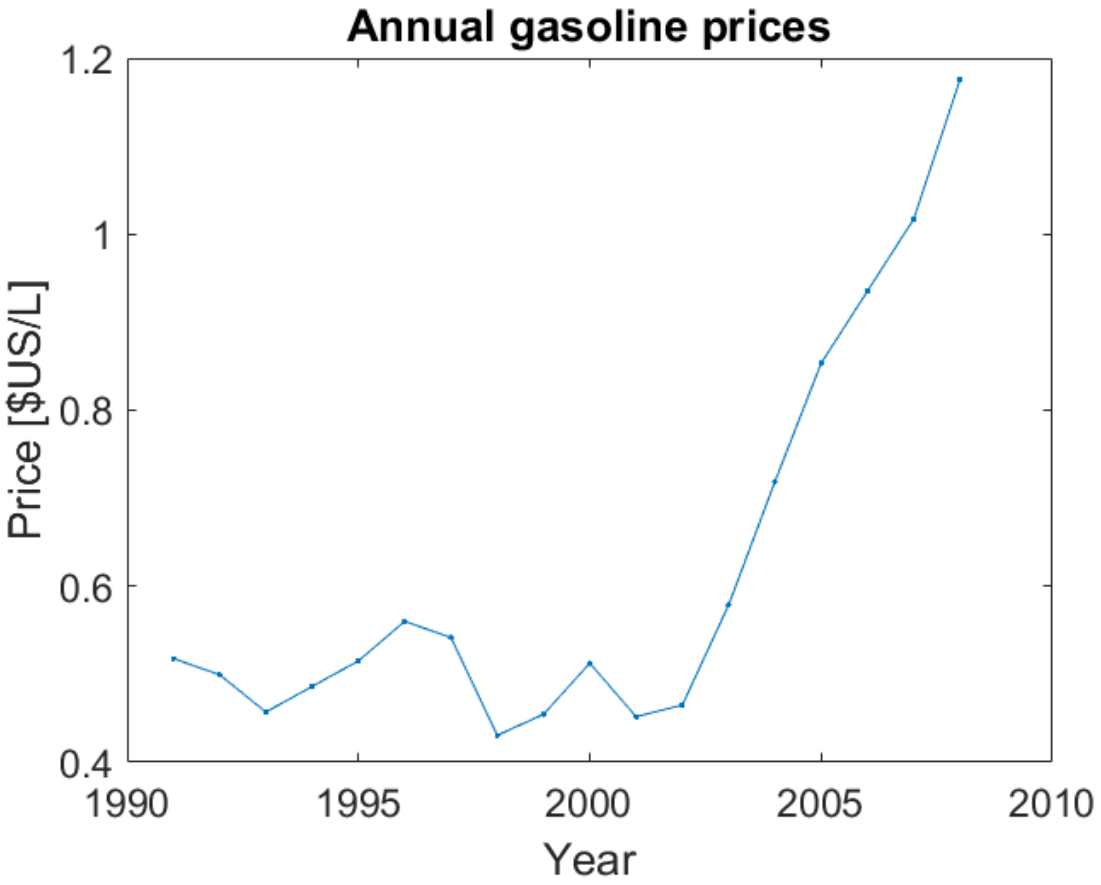
character "x"

```
country = 'Australia'
```



Annotating Plots

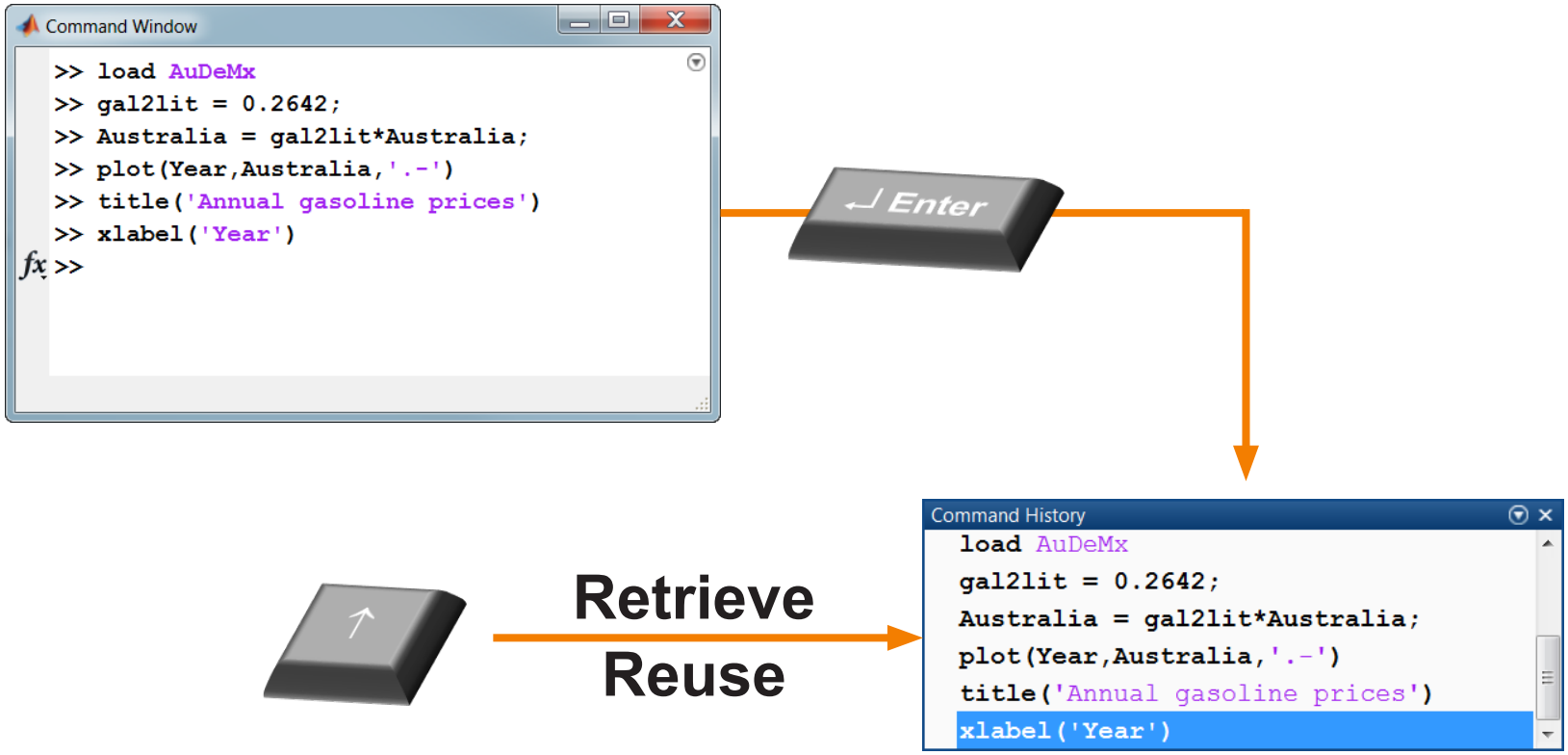
`title(ch)`



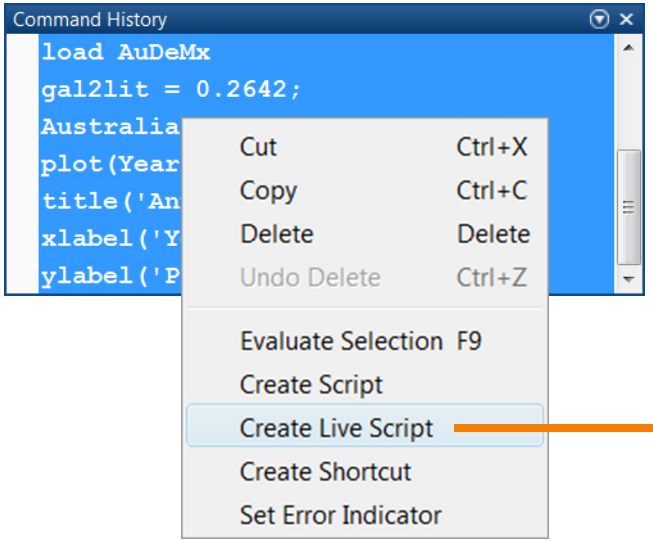
`ylabel(ch)`

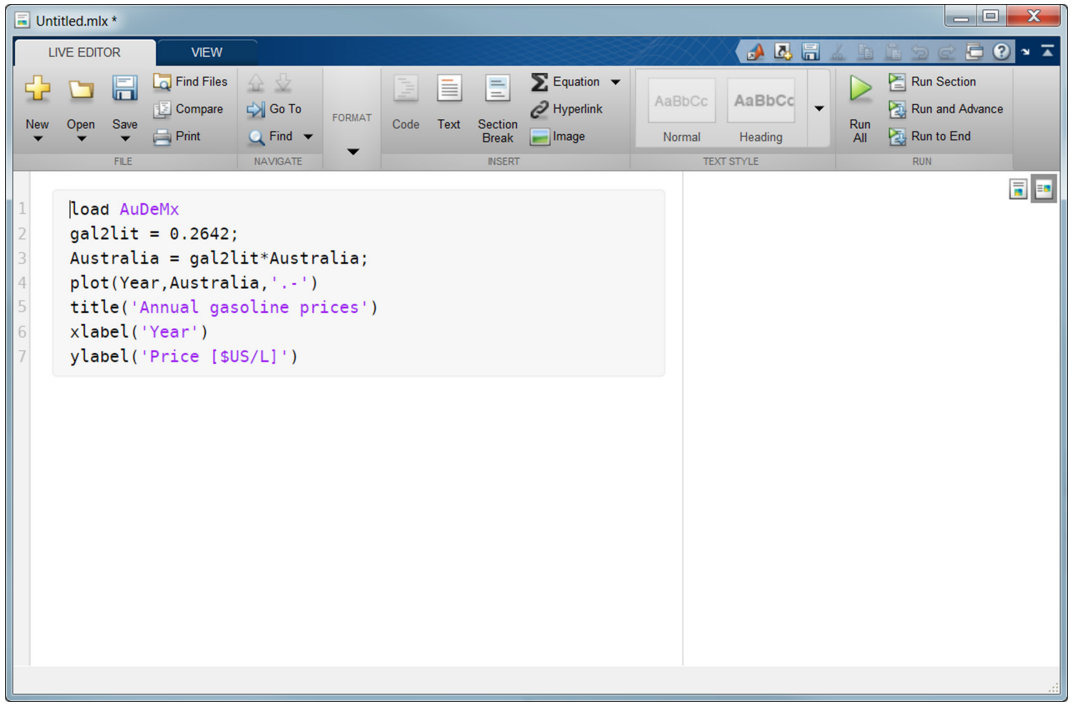
`xlabel(ch)`

The Command History

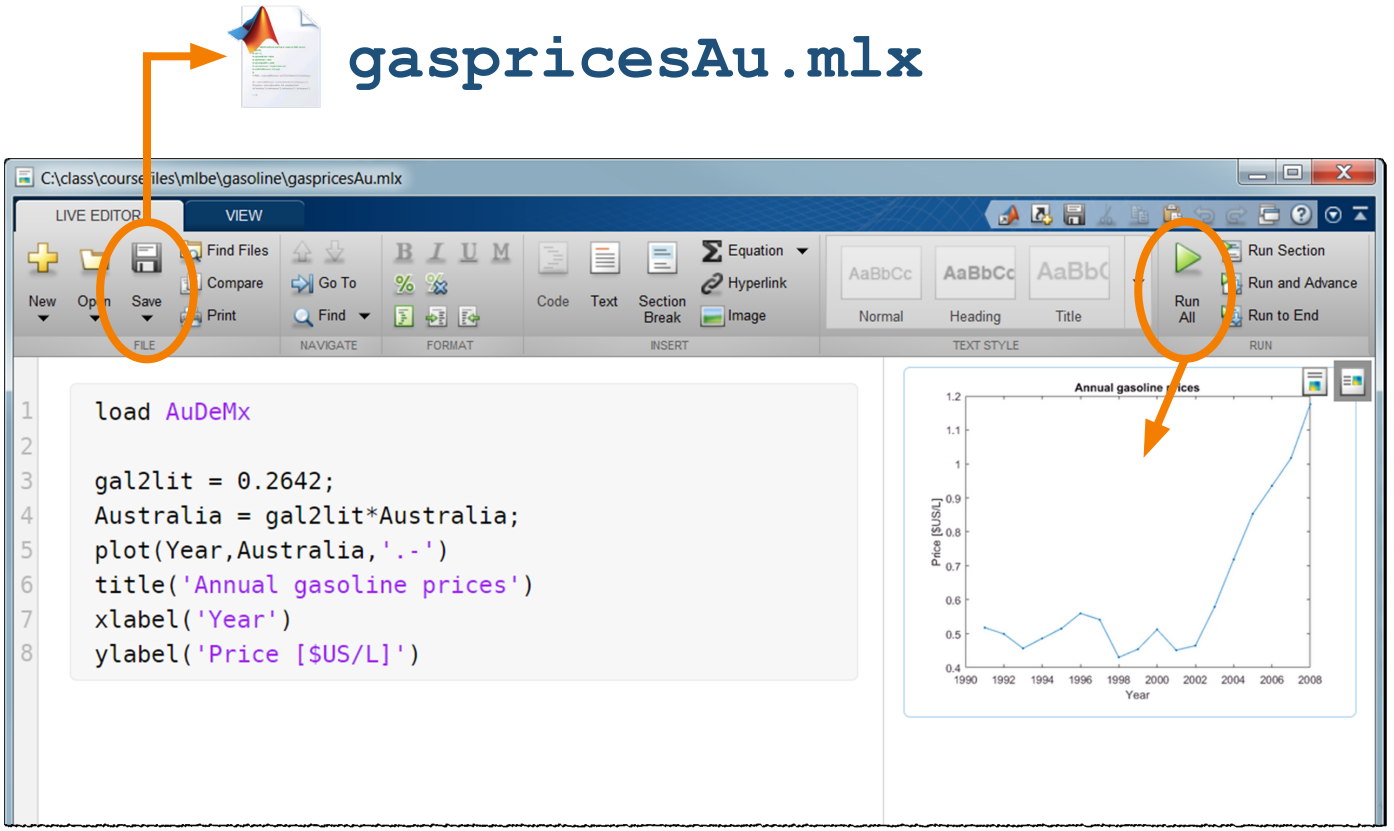


The MATLAB® Live Editor



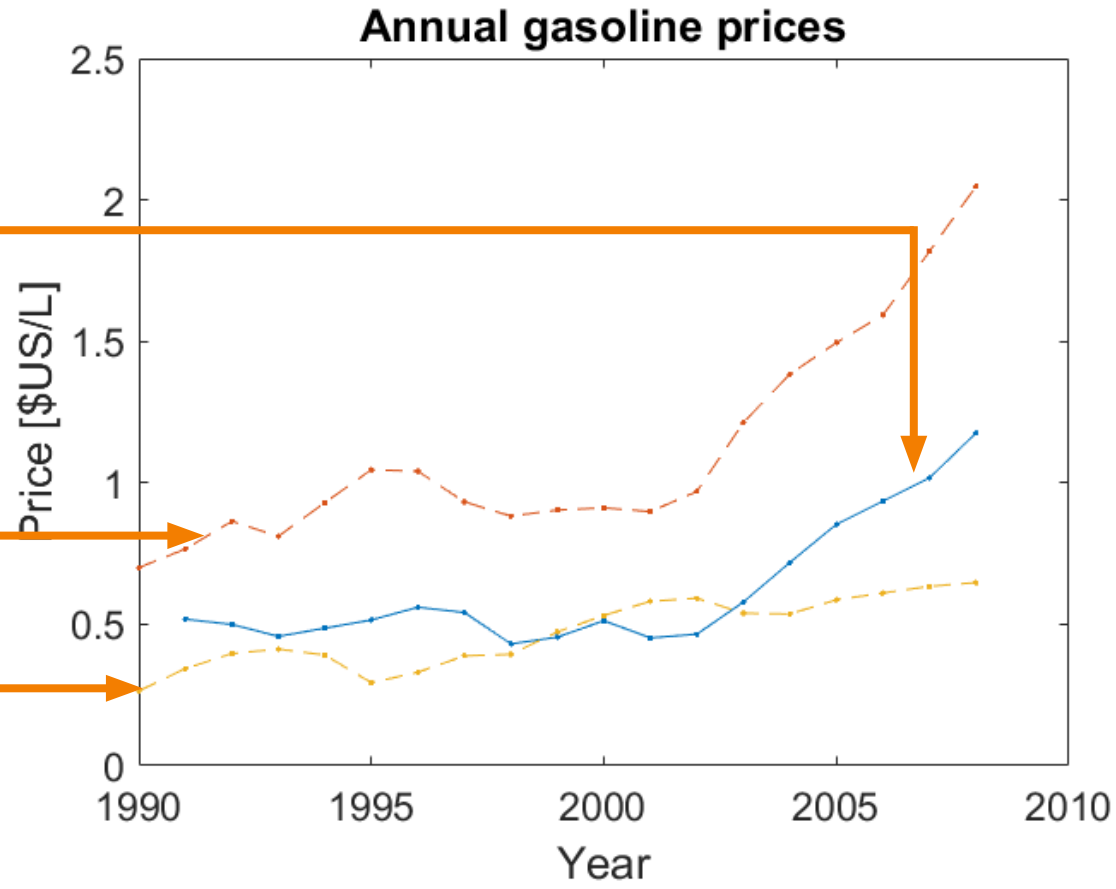


Live Scripts



Adding Plots

```
plot(...)
hold on
plot(...)
plot(...)
hold off
```

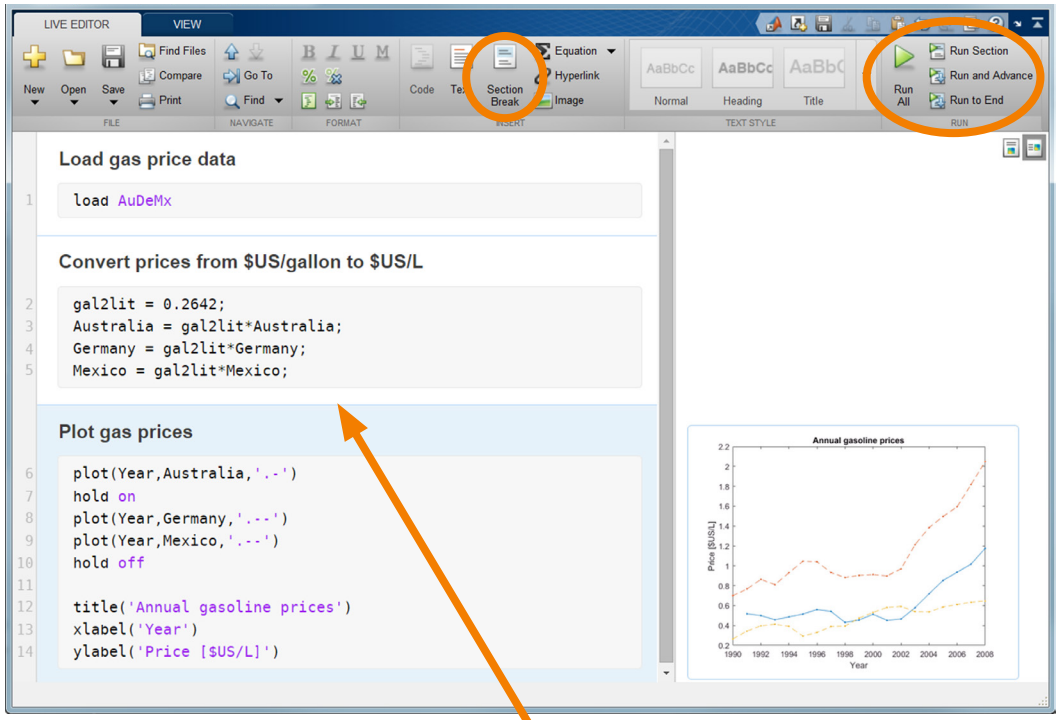


Code Sections

Load price data

Convert prices from gallons to liters

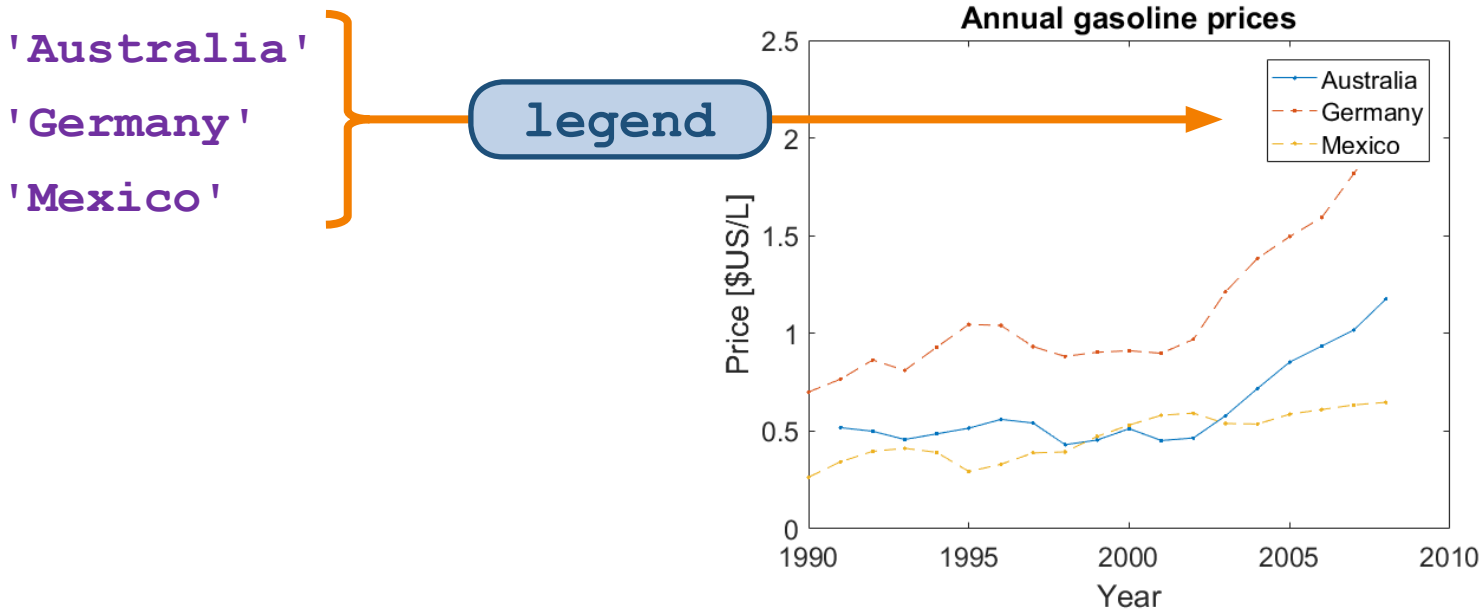
Plot results



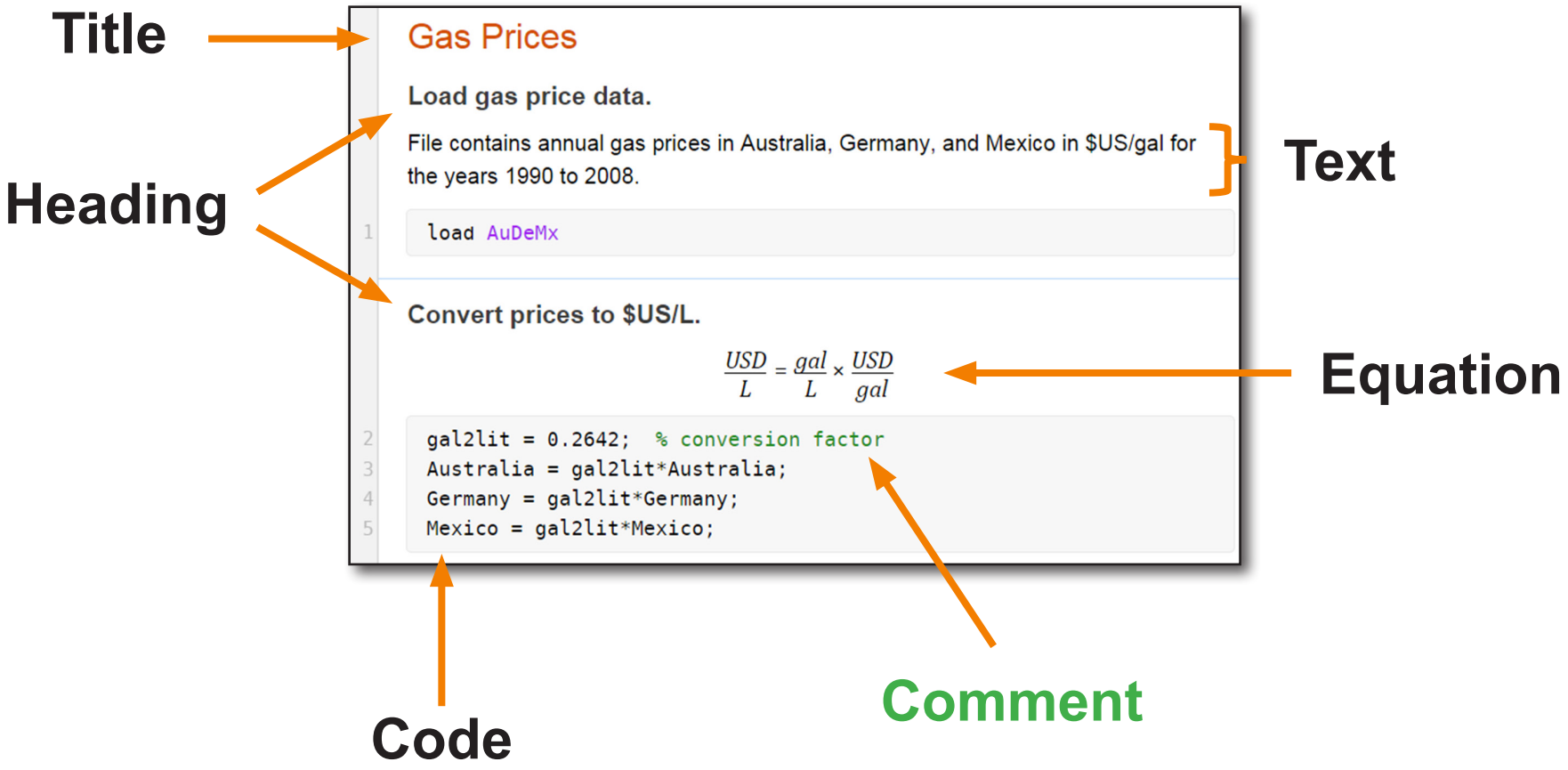
Section break

Adding A Plot Legend

```
legend('Australia','Germany','Mexico')
```



Providing Documentation



Summary

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Test Your Knowledge

1. (Select all that apply) Which of the following will create a scatter plot of `frogs` on the horizontal axis and `GDP` on the vertical axis, with red markers at the data points?

   A. `plot(GDP,frogs,'ro')`

   B. `plot(GDP,frogs,'o','r')`

   C. `plot(frogs,GDP,'ro')`

   D. `plot(frogs,GDP,'red')`

2. **T/F**: Script files can access and modify any variables already in the base MATLAB workspace.