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Chapter 4 - Practical Data Visualization
Segment 4 - Creating Labels and Annotations
```

In [3]:
```
import numpy as np
import pandas as pd
from pandas import Series, DataFrame

import matplotlib.pyplot as plt
from pylab import rcParams
```

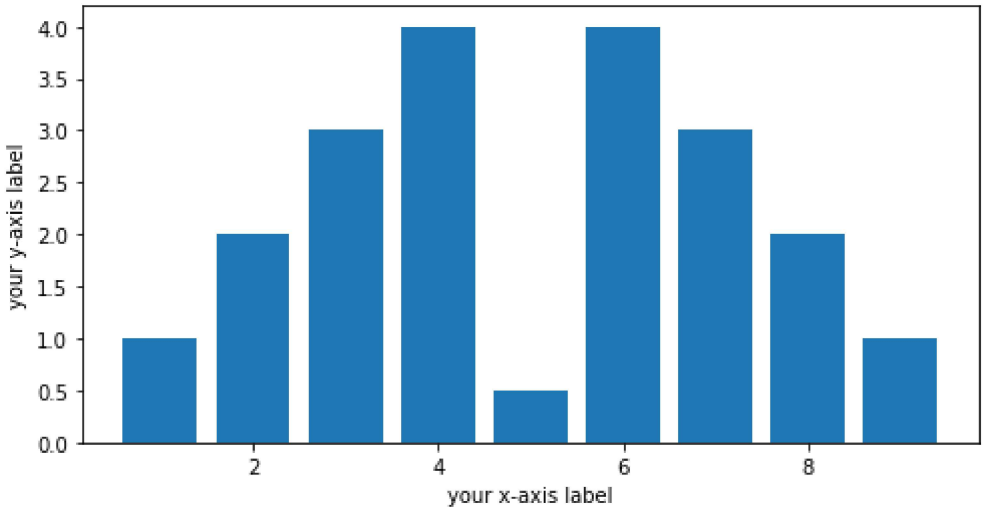
In [4]:
```
%matplotlib inline
rcParams['figure.figsize'] = 8,4
```

```
Labeling plot features

The functional method
```

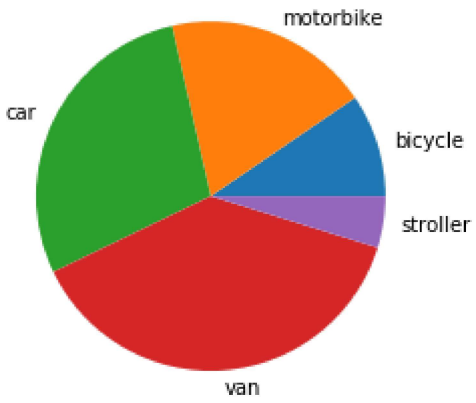
In [5]:
```
x = range(1,10)
y = [1,2,3,4,.5,4,3,2,1]
plt.bar(x,y)
plt.xlabel('your x-axis label')
plt.ylabel('your y-axis label')
```

Out[5]:
```
Text(0, 0.5, 'your y-axis label')
```



In [6]:
```
z = [1,2,3,4,.5]
veh_type = ['bicycle', 'motorbike', 'car', 'van', 'stroller']

plt.pie(z, labels=veh_type)
plt.show()
```




```
The object-oriented method
```

In [11]:
```
address = 'C:/Users/danal/Desktop/ExerciseFiles/Data/mtcars.csv'

cars = pd.read_csv(address)
cars.columns = ['car_names', 'mpg', 'cyl', 'disp', 'hp', 'drat', 'wt', 'qsec', 'v

mpg = cars.mpg
fig = plt.figure()
ax = fig.add_axes([.1,.1,1,1])

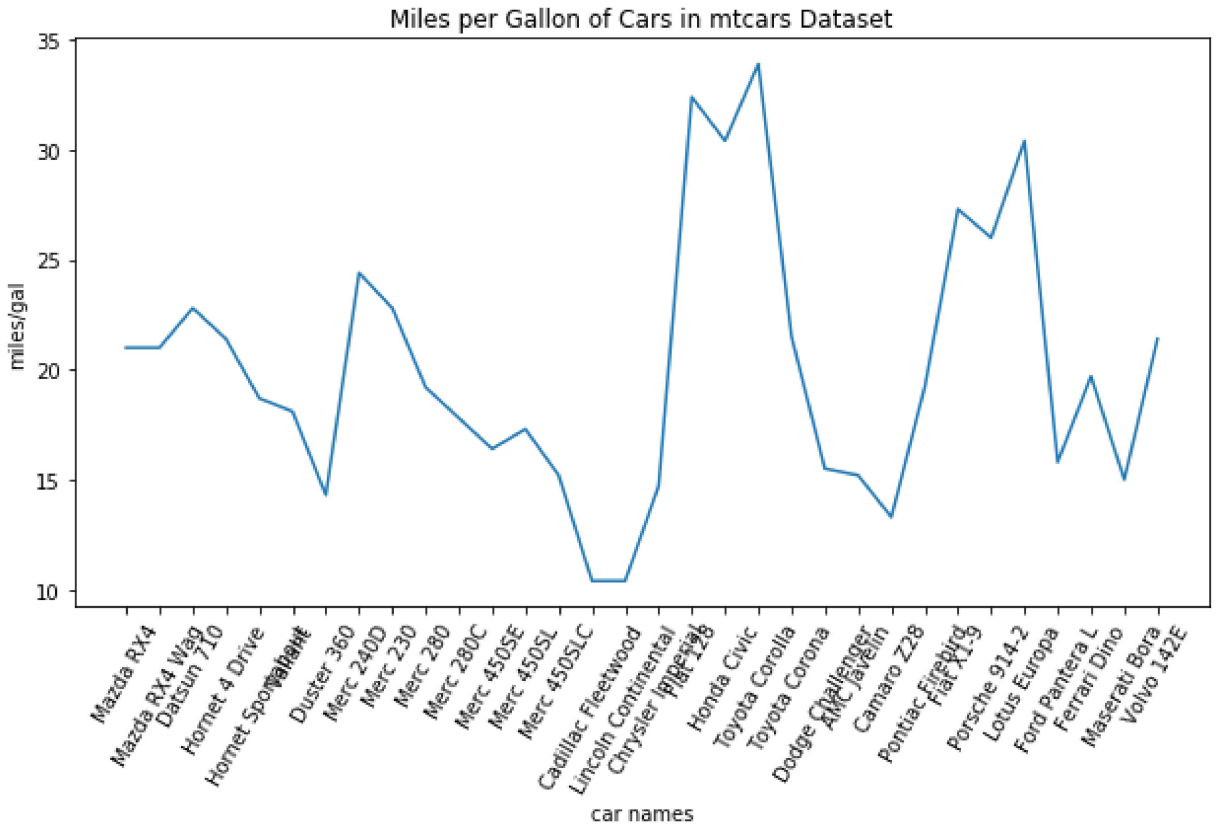
mpg.plot()

ax.set_xticks(range(32))

ax.set_xticklabels(cars.car_names, rotation=60, fontsize='medium')
ax.set_title('Miles per Gallon of Cars in mtcars Dataset')

ax.set_xlabel('car names')
ax.set_ylabel('miles/gal')
```

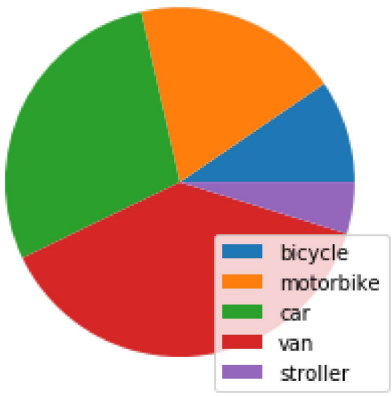
Out[11]:
```
Text(0, 0.5, 'miles/gal')
```



```
Adding a legend to your plot

The functional method
```

In [12]:
```
plt.pie(z)
plt.legend(veh_type, loc='best')
plt.show()
```



In [13]:
```
fig = plt.figure()
ax = fig.add_axes([.1,.1,1,1])

mpg.plot()

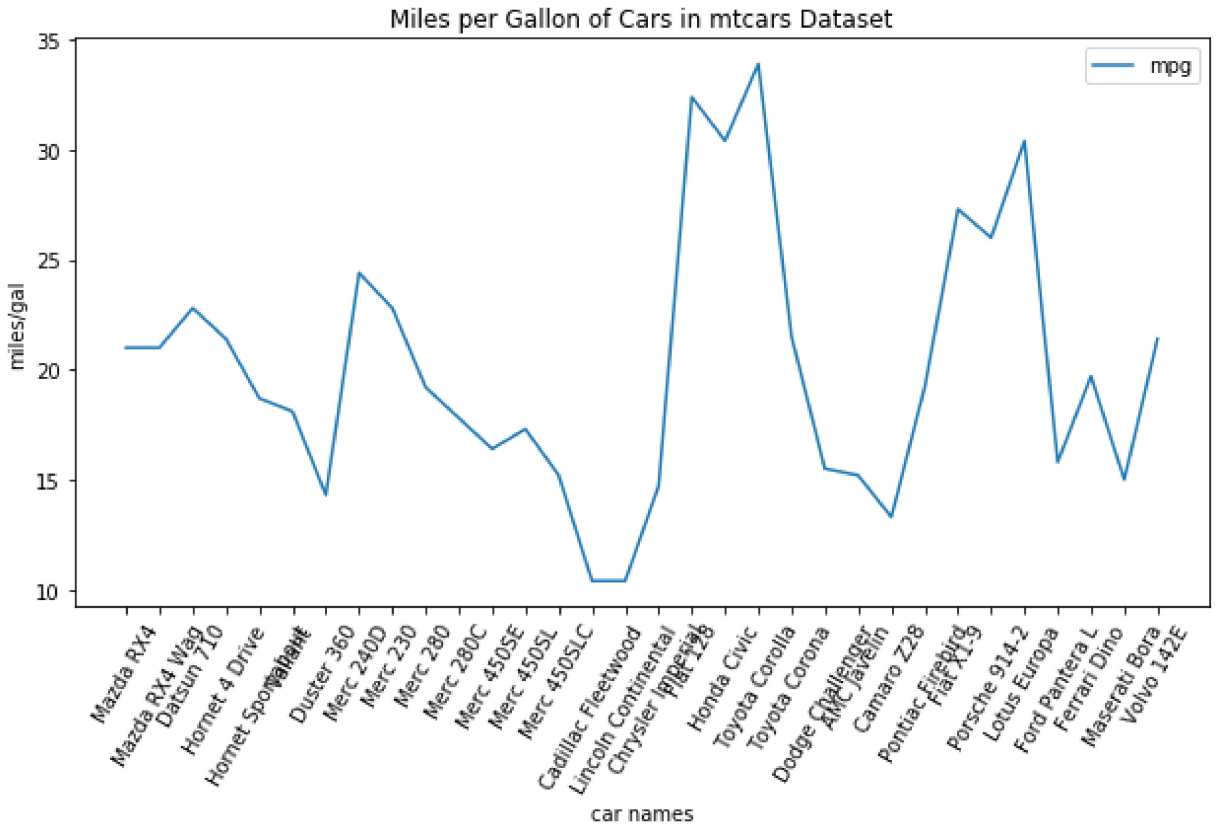
ax.set_xticks(range(32))

ax.set_xticklabels(cars.car_names, rotation=60, fontsize='medium')
ax.set_title('Miles per Gallon of Cars in mtcars Dataset')

ax.set_xlabel('car names')
ax.set_ylabel('miles/gal')

ax.legend(loc='best')
```

Out[13]: <matplotlib.legend.Legend at 0x243af6c89c8>



Annotating your plot

In [14]:
```
mpg.max()
```

Out[14]: 33.9

In [27]:
```
fig = plt.figure()
ax = fig.add_axes([.1,.1,1,1])

mpg.plot()

ax.set_xticks(range(32))

ax.set_xticklabels(cars.car_names, rotation=60, fontsize='medium')
ax.set_title('Miles per Gallon of Cars in mtcars Dataset')

ax.set_xlabel('car names')
ax.set_ylabel('miles/gal')

ax.legend(loc='best')

ax.set_ylim([0,45])

ax.annotate('Toyota Corolla' , xy=(19,33.9), xytext=(21,35),
            arrowprops=dict(facecolor='black',shrink=0.05))
```

Out[27]:
```
Text(21, 35, 'Toyota Corolla')
```