1. Define a sin function using NumPy

In [1]:
```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

def f(x):
    return np.sin(x)
```

2. Find the minimum of the function using SciPy

In [2]:
```
from scipy.integrate import quad
```

In [3]:
```
I = quad(f, 0, 1)
print("Integral of sin(x) from 0..1: {}".format(I[0]))
```

```
Integral of sin(x) from 0..1: 0.459697694132
```

3. Integrate the function from [0, 1] using SciPy

In [5]:
```
from scipy.optimize import minimize
```

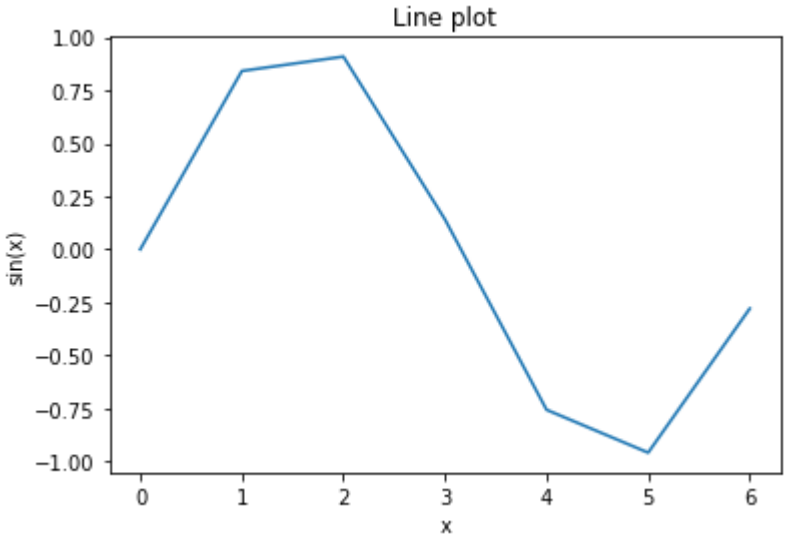
In [7]:
```
x0 = np.array([1.3])
res = minimize(f, x0, method='nelder-mead', options={'xtol': 1e-8, 'disp': True})
```

```
Optimization terminated successfully.
         Current function value: -1.000000
         Iterations: 33
         Function evaluations: 66
```

4. Plot the function using Matplotlib from [0, 2π]

In [8]:
```
x = np.arange(2*np.pi)
y = f(x)

plt.plot(x,y)
plt.title("Line plot")
plt.xlabel("x")
plt.ylabel("sin(x)")
plt.show()
```



In [ ]:
```

```