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AA274A Section 1

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Section 1 Write-Up

1 OS Setup

Currently, I am running Windows 10 with Anaconda, however I plan to either use WSL or dual boot for Linux for the homeworks/projects.

2 Using Git

Git is installed

3 Python

I successfully ran all the example scripts. I was able to define and plot the sine function, seen below
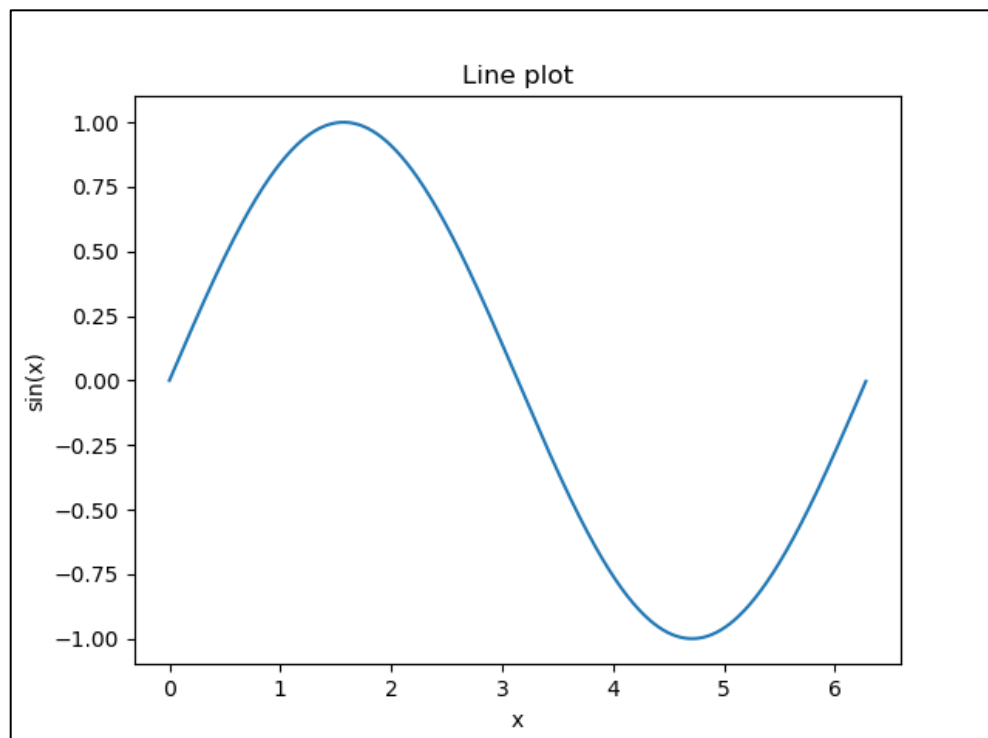

Figure 1: Plot of sine function using Matplotlib

Further, I was able to find the minimum, -1, and the integral from [0,1], 0.460, using SciPy. The code is given below.

```python
#!/usr/bin/env python


#Imports
import numpy as np
import matplotlib.pyplot as plt
from scipy.integrate import quad
from scipy.optimize import minimize


#Functions
x = np.arange(0., 2*np.pi, 0.01)
def sin_np(x):

    return np.sin(x)


y = sin_np(x)


#Integrate
def integrand(x):

    return sin_np(x)


y_int = quad(integrand, 0, 1)
print("Integral of sin(x) from x=0..1: {}".format(y_int[0]))


#Minimize
x0 = 0
print("Nelder-Mead simplex method:")
res = minimize(sin_np, x0, method='nelder-mead', options={'xtol': 1e-8, 'disp': True})


#Plot
plt.plot(x,y)
plt.title("Plot of Sin(x)")
plt.xlabel("x")
plt.ylabel("sin(x)")
plt.show()
```

4 Jupyter

Jupyter is installed, and I was able to run it.