Q_1_a_Post_Processing

February 27, 2023

1 Import the necessary libraries

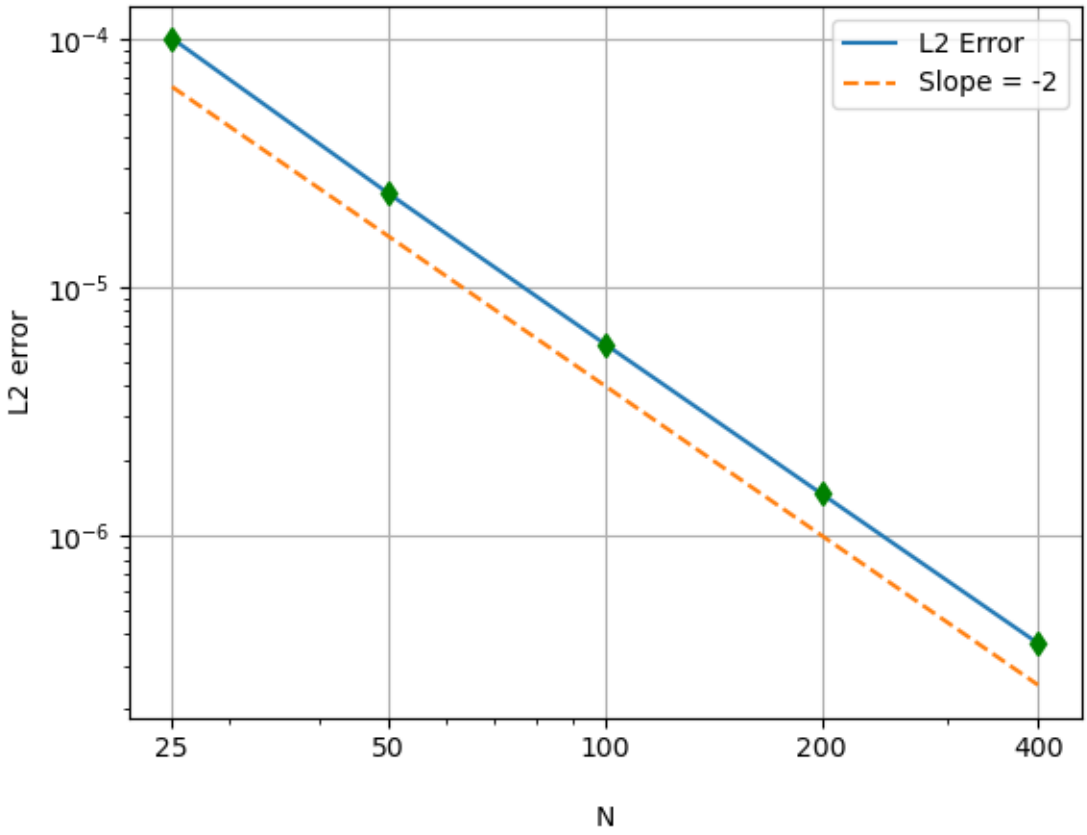
[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

2 Reading the file different values of N

[2]:
```
Input_File = open("Values_of_N.txt", "r")
N_s = []
for line in Input_File:
    if line[0] != "/" and (not line[0].isspace()):
        N_s.append(line)
Input_File.close()
```

[3]:
```
N_num = []
for N in N_s:
    N_num.append(float(N.strip()))
```

[4]:
```
fig = plt.figure()
L2_Error = pd.read_csv("Q_1_a_L2_Error.csv", delimiter = ",",header=None).
 ↪to_numpy()
plt.loglog(N_num,L2_Error)
plt.plot(N_num,(5*np.array(N_num))**(-2),"--")
plt.plot(N_num,L2_Error,"gd")
plt.legend(["L2 Error","Slope = -2"])
plt.xlabel("N")
plt.ylabel("L2 error")
plt.xticks(ticks=N_num,labels=N_s)
plt.grid()
plt.show()
fig.savefig("Q_1_a_L2_Error_vs_N.png",dpi = 500, bbox_inches="tight")
```


L2 Error
Slope = -2
10^{-4}
10^{-5}
10^{-6}
L2 error
25
50
100
200
400
N