```python
import pandas as pd
import numpy as np
from sklearn.linear_model import LinearRegression
from pandas import DataFrame

df=pd.read_csv('california_housing.csv')
df=df.drop(df.columns[0],axis=1)
y=np.array(df.iloc[:,8])
x=np.array(df.iloc[:,:8])
m=np.array([8.3153, 41.0, 6.894423, 1.053714, 323.0, 2.533576, 37.88, -122.23])
reg=LinearRegression()
reg.fit(x,y)
c=np.array(reg.coef_)
print(f'coefficients: {c}')
yIntercept=reg.intercept_
print(f'Intercept: {yIntercept}')
predict=c[0]*m[0]+c[1]*m[1]+c[2]*m[2]+c[3]*m[3]+c[4]*m[4]+c[5]*m[5]+c[6]*m[6]+c[7]*m[7]+yIntercept
print(predict)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython % /usr/local/bin/python3 /Users/raulrodriguez/Documents/Wor
coefficients: [ 4.36693293e-01  9.43577803e-03 -1.07322041e-01  6.45065694e-01
 -3.97638942e-06 -3.78654265e-03 -4.21314378e-01 -4.34513755e-01]
Intercept: -36.94192020718442
4.1563233799805275
raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython %
```

```
3   tion of Ex. 1'''
4   import pandas as pd
5   import numpy as np
6   from sklearn.linear_model import LinearRegression
7   import matplotlib.pyplot as plt
8   import seaborn as sns
9   from mpl_toolkits import mplot3d
10
11  df=pd.read_csv('california_housing.csv')
12  df=df.drop(df.columns[0],axis=1)
13  y=np.array(df.iloc[:,8])
14  x=np.array(df.iloc[:,:8])
15  reg=LinearRegression()
16  reg.fit(x,y)
17  c=np.array(reg.coef_)
18  yIntercept=reg.intercept_
19  print(x[:,0])
20  X1, X2 = np.meshgrid(x[:,0], x[:,1])
21  Z = yIntercept + c[0]*X1 + c[1]*X2
22  #3D plot
23  fig = plt.figure()
24  ax = plt.axes(projection = '3d')
25  ax.plot_wireframe(X1, X2, Z, color = 'blue')
26  #3D scattet plot (data points)
27  ax.scatter3D(x[:,0], x[:,1], y, c=y, cmap='Greens')
28  ax.set_title('3D Graph')
29  plt.show()
```

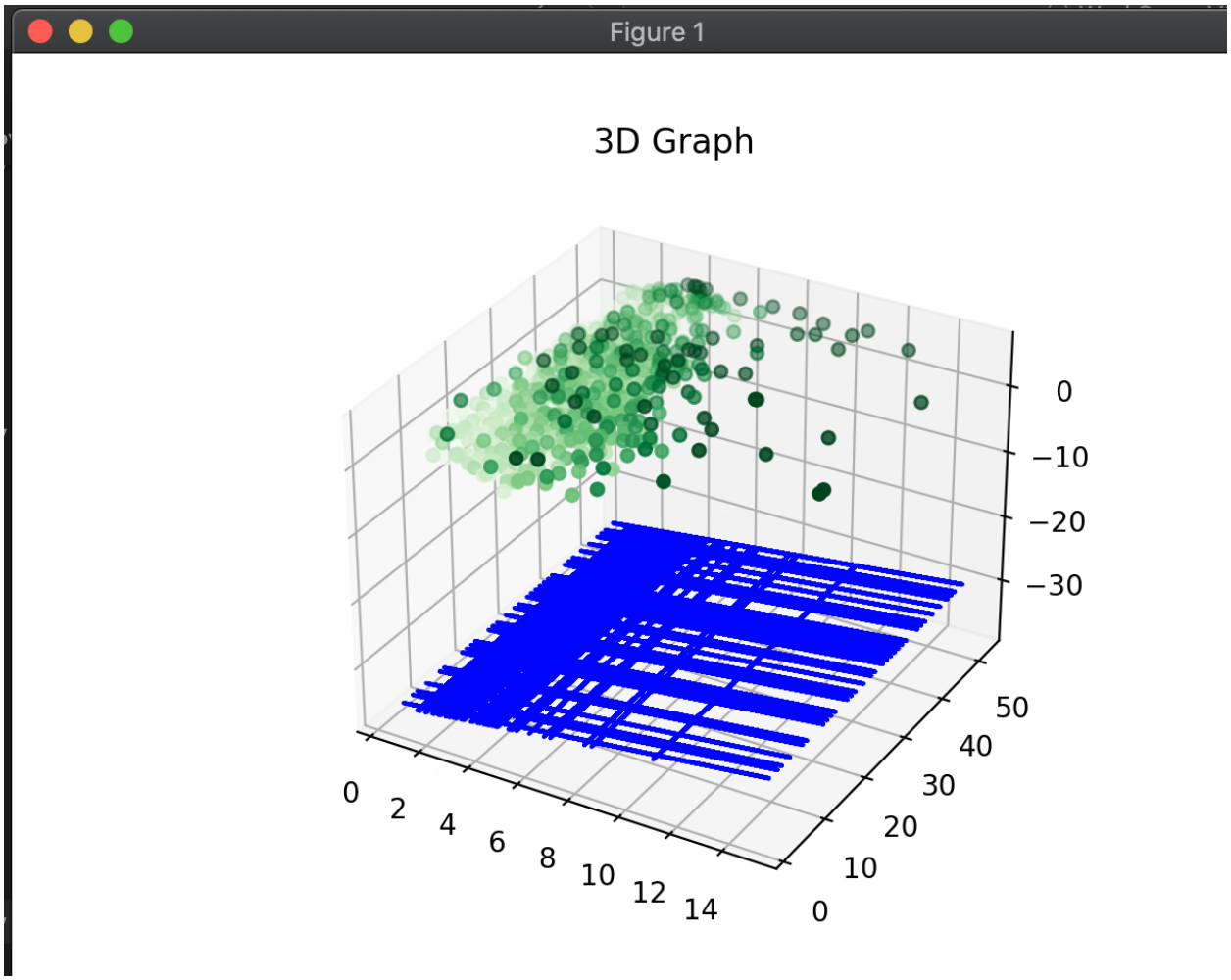
Figure 1
3D Graph
0
−10
−20
−30
0
2
4
6
8
10
12
14
0
10
20
30
40
50

```python
import pandas as pd
import numpy as np
from sklearn.linear_model import LinearRegression
from scipy import stats

df=pd.read_csv('california_housing.csv')
df=df.drop(df.columns[0],axis=1)
y=np.array(df.iloc[:,8])
x=np.array(df.iloc[:,:8])
li=[]
for i in range(len(x)):
    if i==8:
        break
    slope, intercept, r, p, std_error = stats.linregress(x[:,i], y)
    li.append(r)
li=np.array(li)
li=abs(li)
max=li.argmax()
print(f'most important feature is: {df.columns[max]}')
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
/usr/local/bin/python3 /Users/raulrodriguez/Documents/WorkSpaceVSPython/Lab5_3ML.p
raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython % /usr/local/bin/python3 /Users/
most important feature is: MedInc
raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython %
```

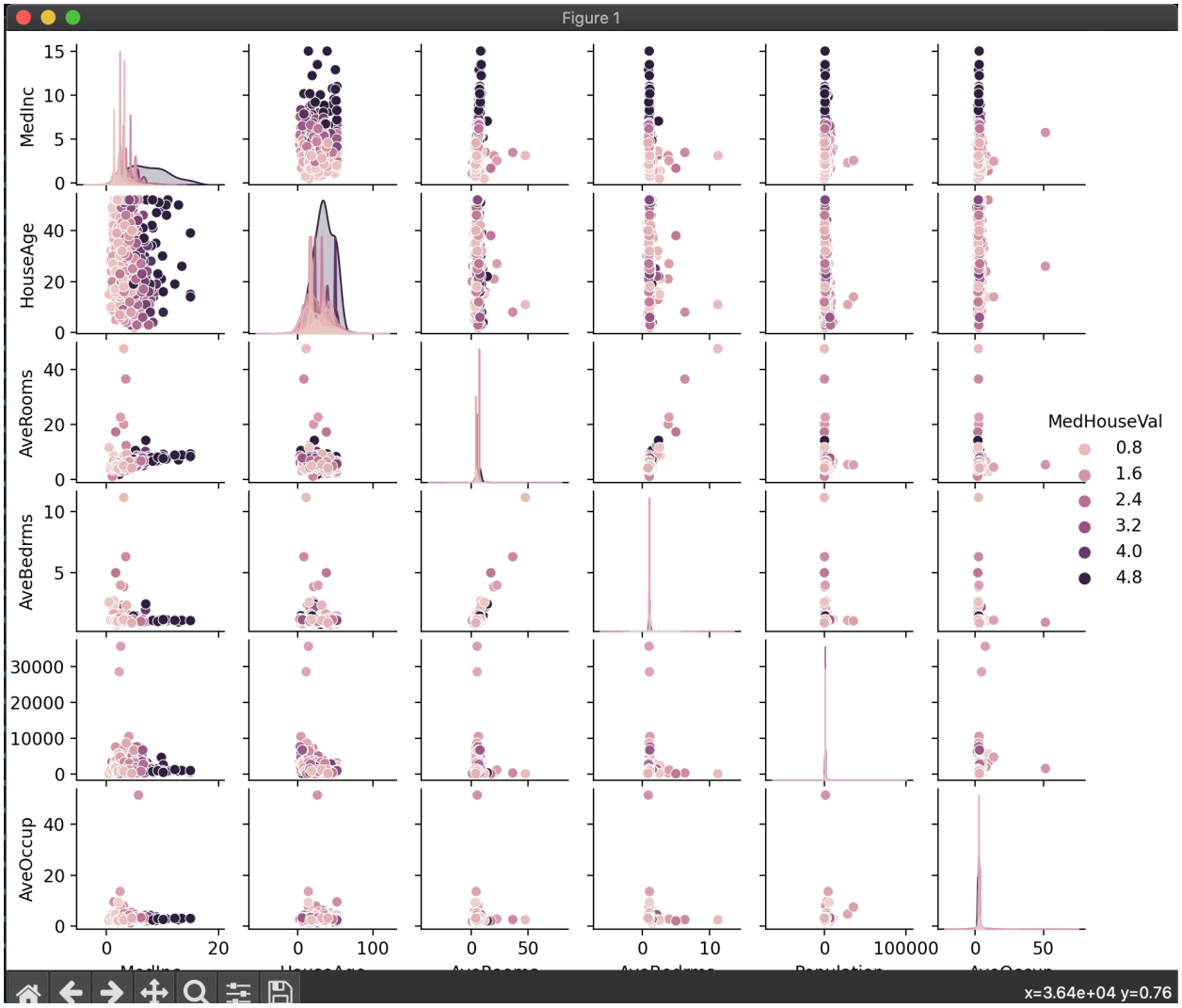
Figure 1
MedInc
HouseAge
AveRooms
AveBedrms
AveOccup
MedHouseVal
0.8
1.6
2.4
3.2
4.0
4.8
x=3.64e+04 y=0.76