YOU_a4q6

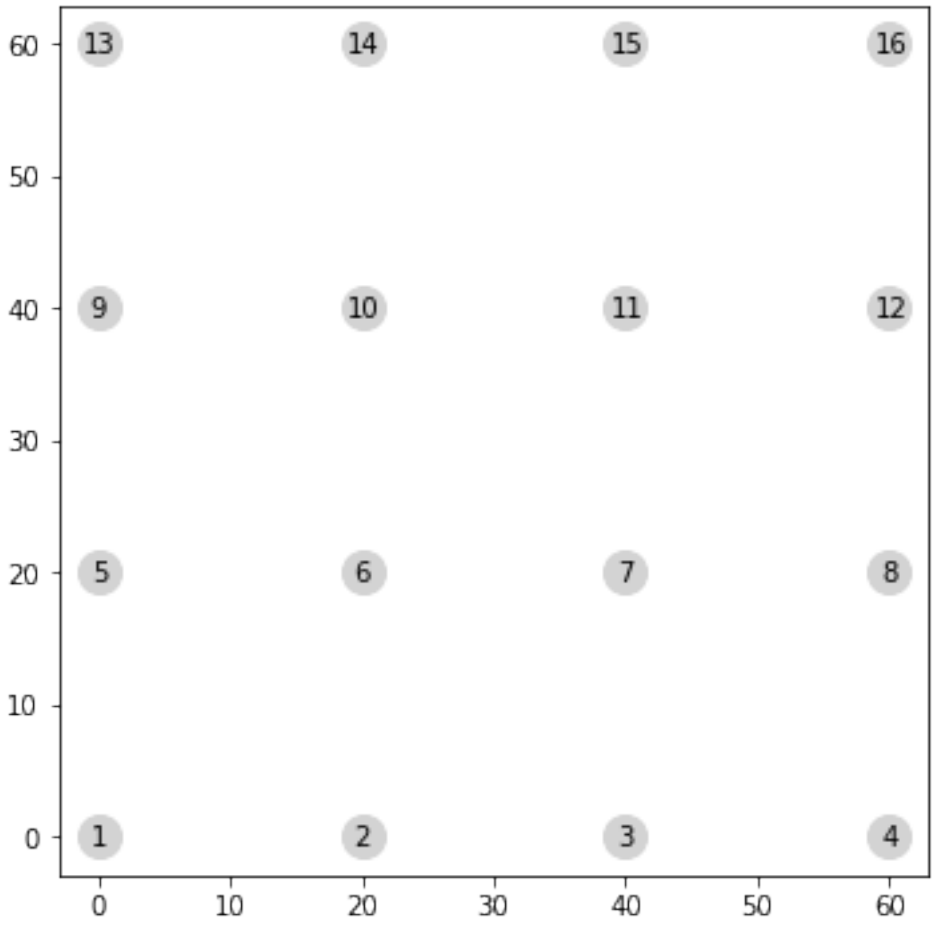
November 18, 2021

1 A4-Q6: Unlock Code

[1]:
```
import numpy as np
from scipy.interpolate import make_interp_spline
import matplotlib.pyplot as plt
```

[2]:
```
# Display grid of 16 circles
def DrawGrid():
    plt.figure(figsize=(6,6))
    [gx, gy] = np.meshgrid([0, 20, 40, 60], [0, 20, 40, 60])
    plt.plot(gx, gy,'o', color='lightgray', markersize=16); plt.axis('square');
    for k,xy in enumerate(zip(gx.flatten(), gy.flatten())):
        os = 0.6 if k+1<10 else 1.1
        plt.text(xy[0]-os, xy[1]-0.7, str(k+1))
```

[3]:
```
DrawGrid()
```



1.1 (a) Fit Points with a Spline

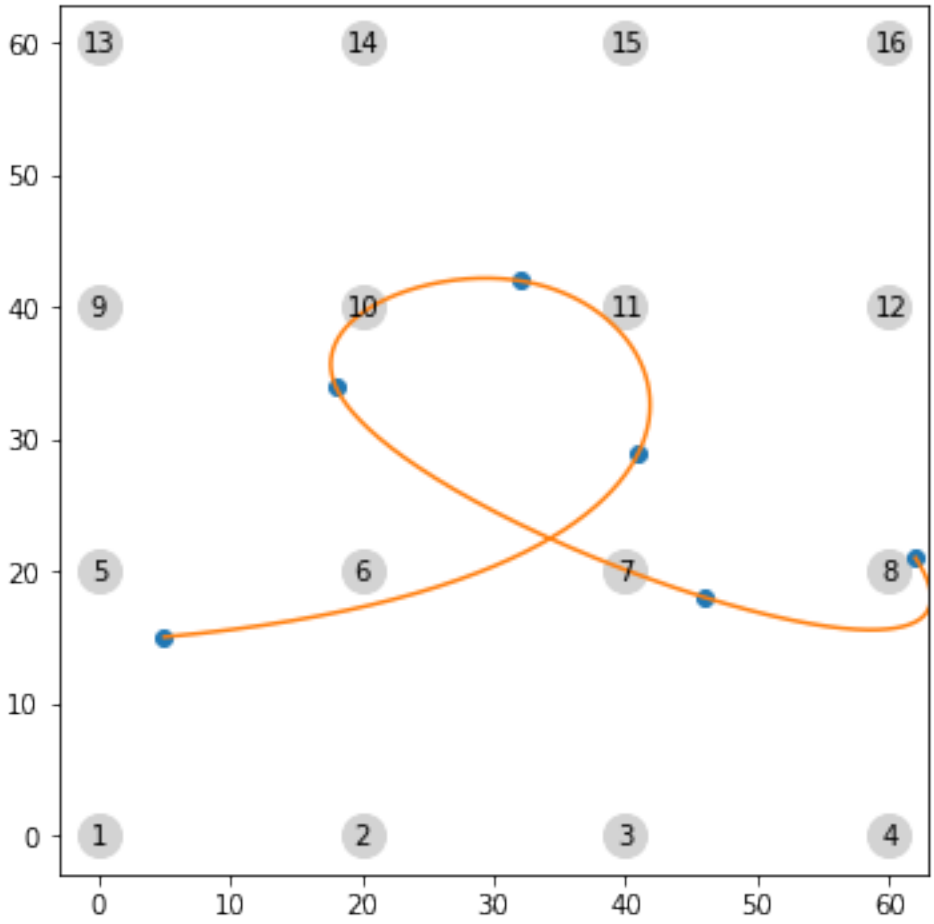
[4]:
```
# === YOUR CODE HERE ===
t = [0,487,997,1507,2010,2498]
x = [62,46,18,32,41,5]
y = [21,18,34,42,29,15]
spl = make_interp_spline(t, np.c_[x, y])
```

[5]:
```
tt = np.linspace(0, 2498, 100000)
xx,yy = spl(tt).T
```

1.2 (b) Plot the Spline

[6]:
```
# === YOUR CODE HERE ===
DrawGrid()
plt.plot(x, y, 'o')
plt.plot(xx,yy,'-')
```

[6]: [<matplotlib.lines.Line2D at 0x7f70a1f18990>]



1.3 (c) Unlock Pattern

the code is 6-11-10-7-8

[ ]: