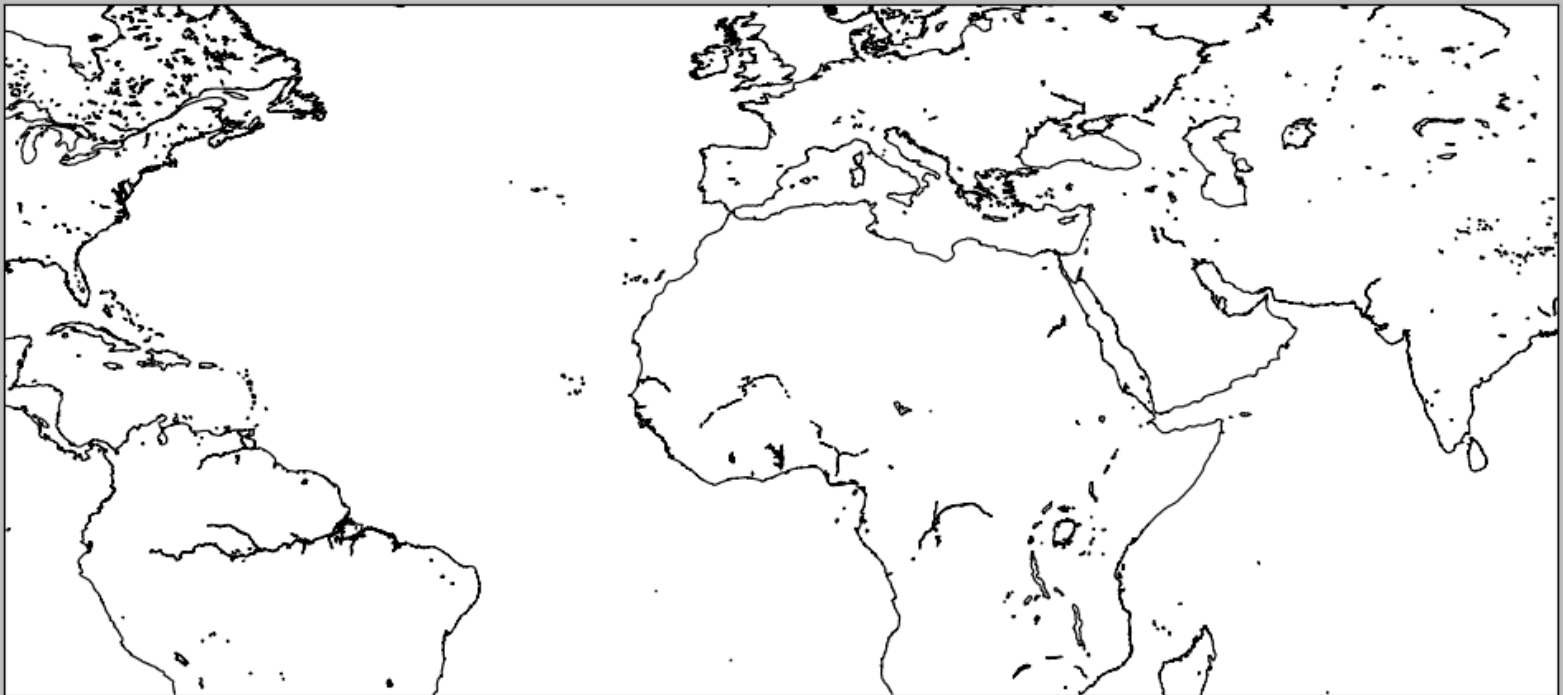# Intro To Python For Data Analysis

Week 4 Plotting a Map

Plotting a Map!

```python
7  import matplotlib
8  matplotlib.use("TkAgg") # For use in batch mode
9  import matplotlib.pyplot as plt
10 from mpl_toolkits.basemap import Basemap
11
12 minLon = -90
13 minLat = -20
14 maxLon = 90
15 maxLat = 60
16
17 plt.figure(1,figsize=(15,15))
18 mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
19 mymap.drawcoastlines()
20 plt.show()
21
```
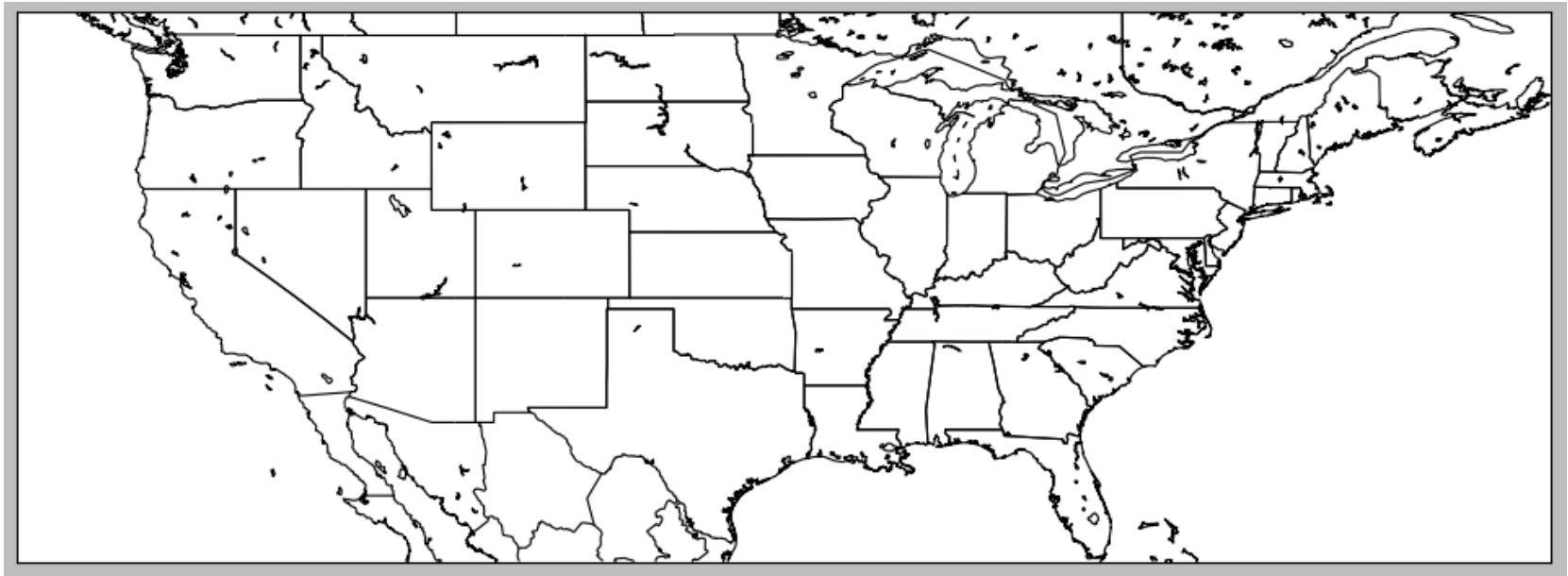
UCI Extension

Look, it's a map!

UCI Extension

Plotting the United States

```python
 7  import matplotlib
 8  matplotlib.use("TkAgg") # For use in batch mode
 9  import matplotlib.pyplot as plt
10  from mpl_toolkits.basemap import Basemap
11
12  minLon = -130
13  minLat = 25
14  maxLon = -60
15  maxLat = 50
16
17  plt.figure(1,figsize=(15,15))
18  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
19  mymap.drawcoastlines()
20  mymap.drawstates(linewidth=1)
21  mymap.drawcountries(linewidth=1)
22  plt.show()
23
```

UCI Extension

Plotting a Map

UCI Extension

SUCCESS!

UCI Extension

Intro To Python For Data Analysis

Week 4 Plotting a Map

Plotting scatter data on a map!

```python
6
7   import matplotlib
8   matplotlib.use("TkAgg") # For use in batch mode
9   import matplotlib.pyplot as plt
10  from mpl_toolkits.basemap import Basemap
11
12  minLon = -130
13  minLat = 25
14  maxLon = -60
15  maxLat = 50
16
17  plt.figure(1,figsize=(15,15))
18  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
19  mymap.drawcoastlines()
20  mymap.drawstates(linewidth=1)
21  mymap.drawcountries(linewidth=1)
22  mymap.scatter(-117.1625,32.7150,latlon=True, c='blue', s=100)
23  plt.show()
```

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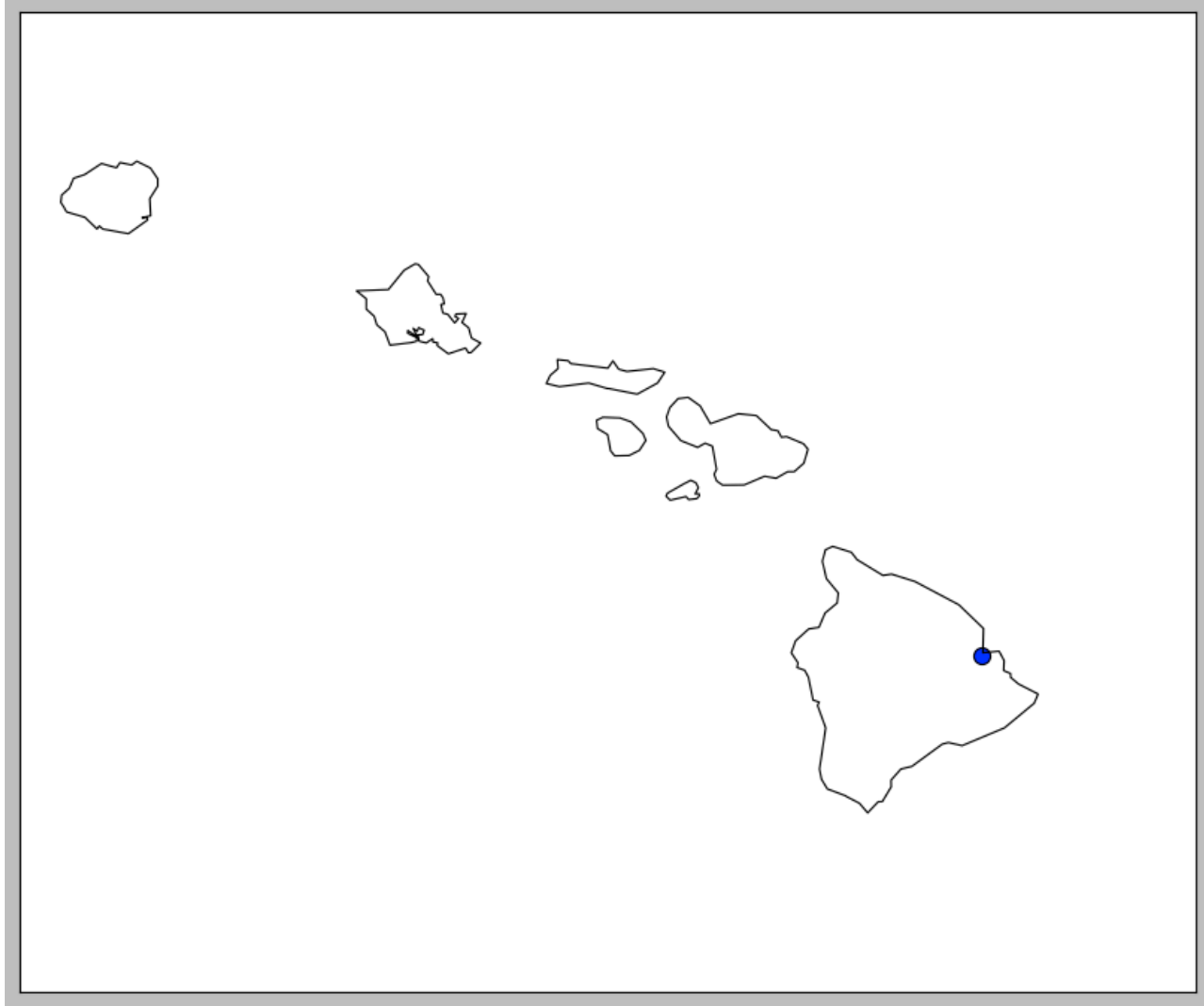
Plotting a Map

UCI Extension

Plotting Hawaii with a dot on Hilo

```python
 7  import matplotlib
 8  matplotlib.use("TkAgg") # For use in batch mode
 9  import matplotlib.pyplot as plt
10  from mpl_toolkits.basemap import Basemap
11
12  minLon = -160
13  minLat = 18
14  maxLon = -154
15  maxLat = 23
16
17  plt.figure(1,figsize=(15,15))
18  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
19  mymap.drawcoastlines()
20  mymap.drawstates(linewidth=1)
21  mymap.drawcountries(linewidth=1)
22  # plot Hilo
23  mymap.scatter(-155.09,19.71,latlon=True, c='blue', s=100)
24  plt.show()
```
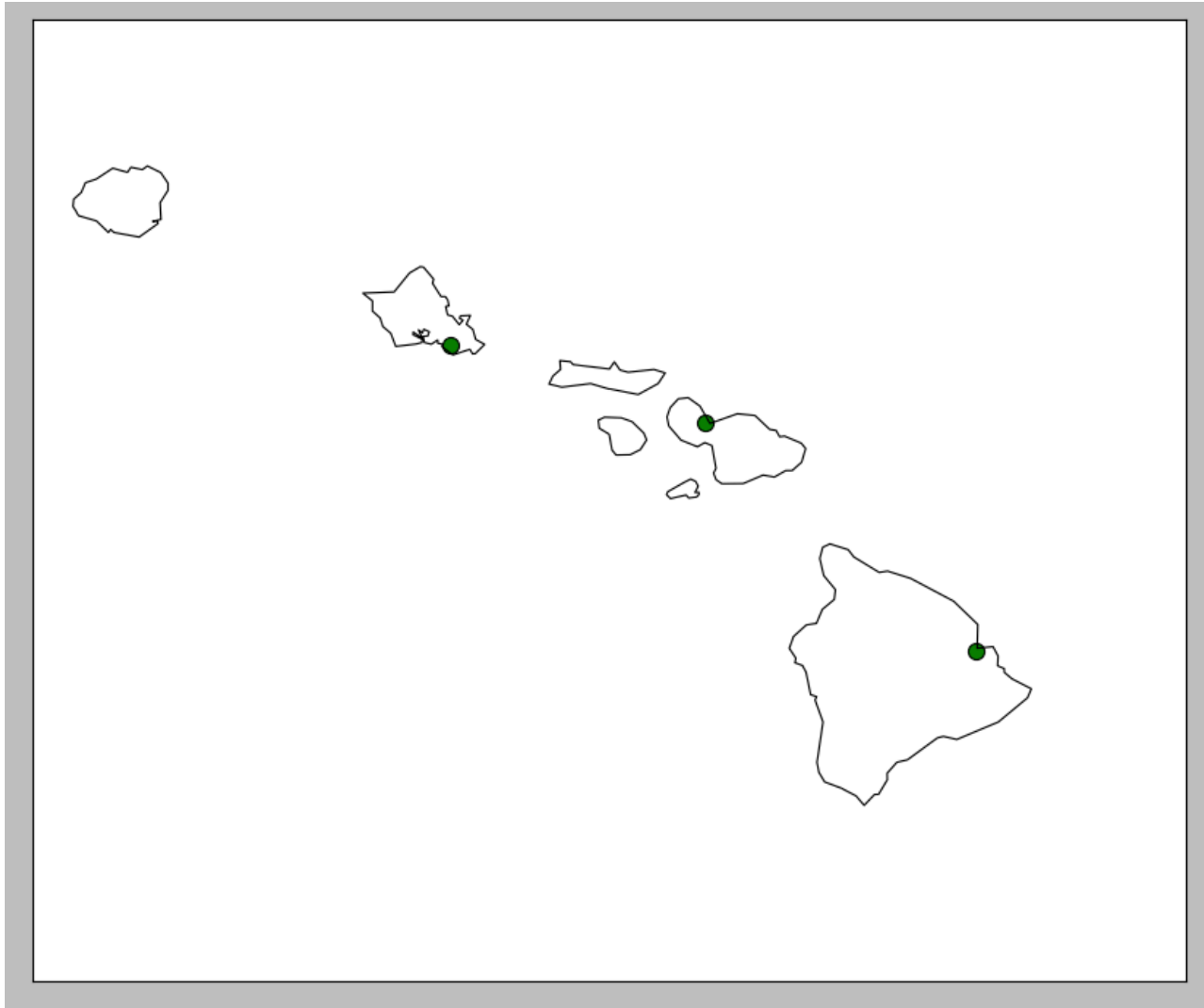
Plotting a Map

UCI Extension

Plotting a Map

```
 7  import matplotlib
 8  matplotlib.use("TkAgg") # For use in batch mode
 9⊖ import matplotlib.pyplot as plt
10  from mpl_toolkits.basemap import Basemap
11
12  minLon = -160
13  minLat = 18
14  maxLon = -154
15  maxLat = 23
16
17  # lat,lon for Hilo, Wailuku, Honolulu
18  latitudes = [-155.09,-156.50,-157.82]
19  longitudes = [19.71,20.90,21.30]
20
21  plt.figure(1,figsize=(15,15))
22  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
23  mymap.drawcoastlines()
24  mymap.drawstates(linewidth=1)
25  mymap.drawcountries(linewidth=1)
26
27  mymap.scatter(latitudes,longitudes,latlon=True, c='green', s=100)
28  plt.show()
```
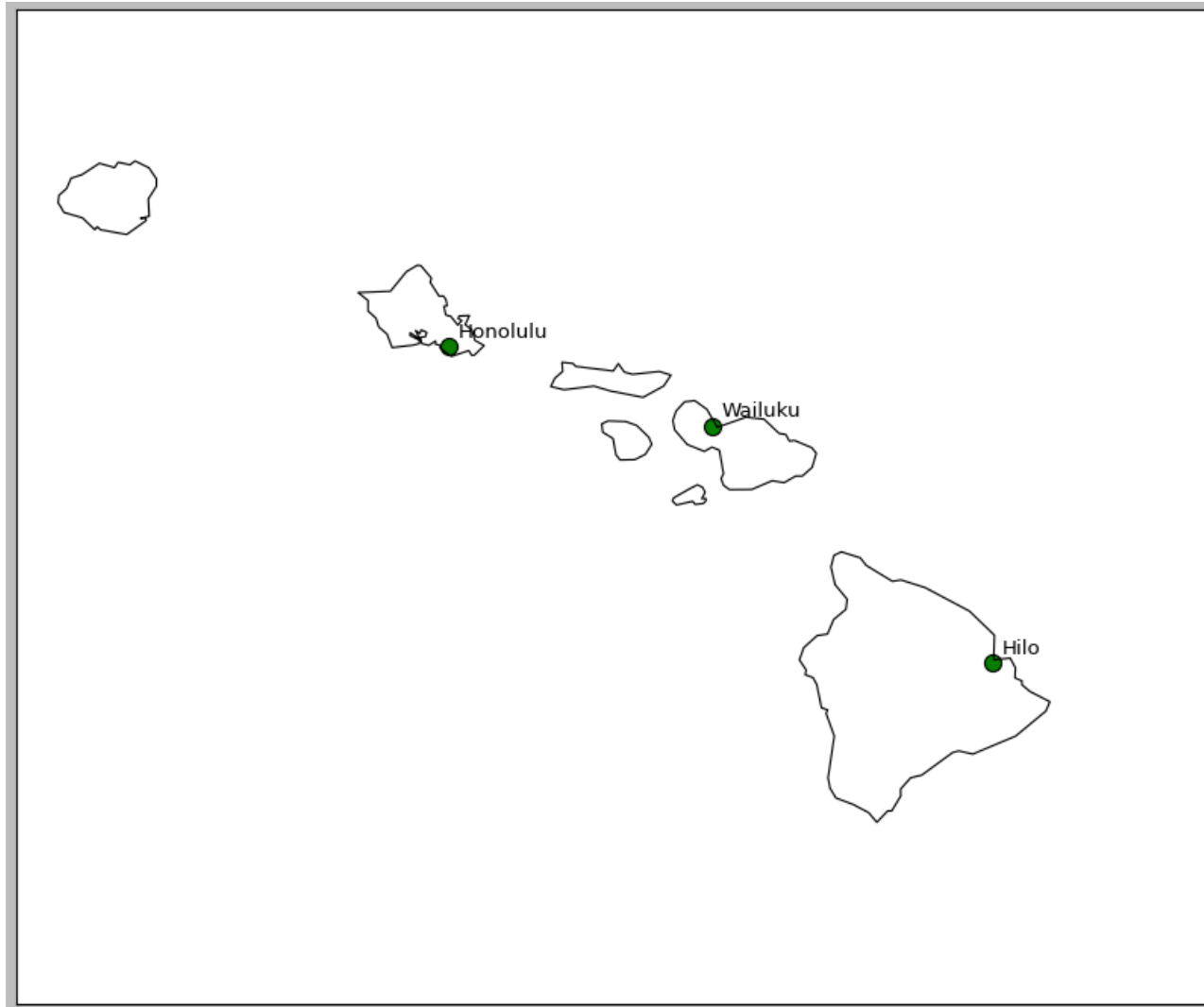
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Plotting a Map

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Plotting a Map

```python
17  # lat,lon for Hilo, Wailuku, Honolulu
18  latitudes = [-155.09,-156.50,-157.82]
19  longitudes = [19.71,20.90,21.30]
20  labels = ['Hilo','Wailuku','Honolulu']
21  labelYOffset = .05
22  labelXOffset = .05
23
24  plt.figure(1,figsize=(15,15))
25  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
26  mymap.drawcoastlines()
27  mymap.drawstates(linewidth=1)
28  mymap.drawcountries(linewidth=1)
29
30  mymap.scatter(latitudes,longitudes,latlon=True, c='green', s=100)
31  X, Y = mymap(latitudes,longitudes)
32  for x,y,label in zip(X,Y,labels):
33      plt.text(x + labelXOffset,y + labelYOffset,label)
34  plt.show()
```
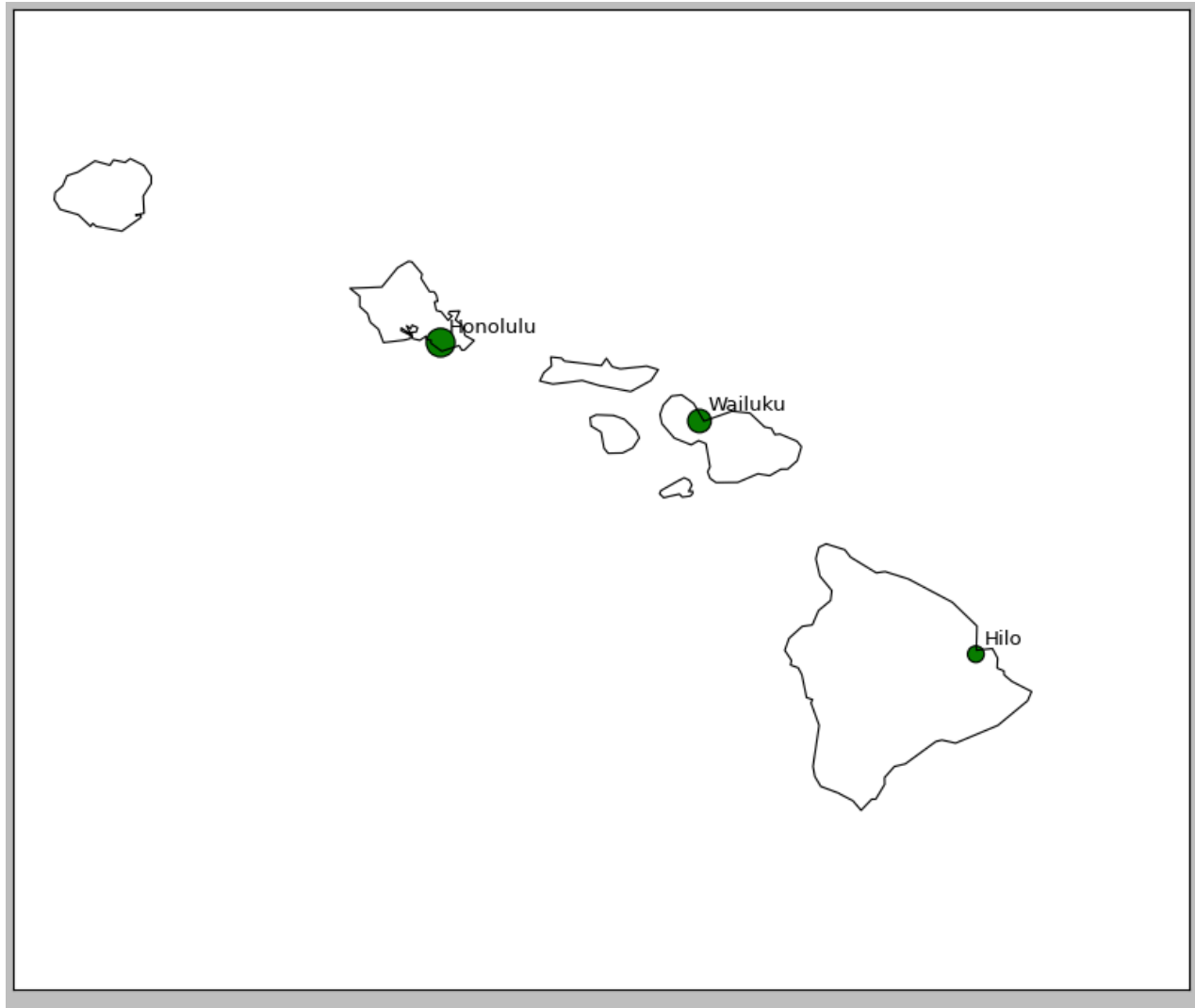
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Plotting a Map

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Plotting a Map

```python
17  # lat,lon for Hilo, Wailuku, Honolulu
18  latitudes = [-155.09,-156.50,-157.82]
19  longitudes = [19.71,20.90,21.30]
20  labels = ['Hilo','Wailuku','Honolulu']
21  labelYOffset = .05
22  labelXOffset = .05
23
24  plt.figure(1,figsize=(15,15))
25  mymap = Basemap(minLon,minLat,maxLon,maxLat,projection='cyl',resolution='i')
26  mymap.drawcoastlines()
27  mymap.drawstates(linewidth=1)
28  mymap.drawcountries(linewidth=1)
29
30  mymap.scatter(latitudes,longitudes,latlon=True, c='green', s=[100,200,300])
31  X, Y = mymap(latitudes,longitudes)
32  for x,y,label in zip(X,Y,labels):
33      plt.text(x + labelXOffset,y + labelYOffset,label)
34  plt.show()
```

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Plotting a Map

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SUCCESS!

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