Poisoning for K-Center Clustering

Here we have n points in blue and k-centers in red. The largest radius is 53.5 fig. 2.

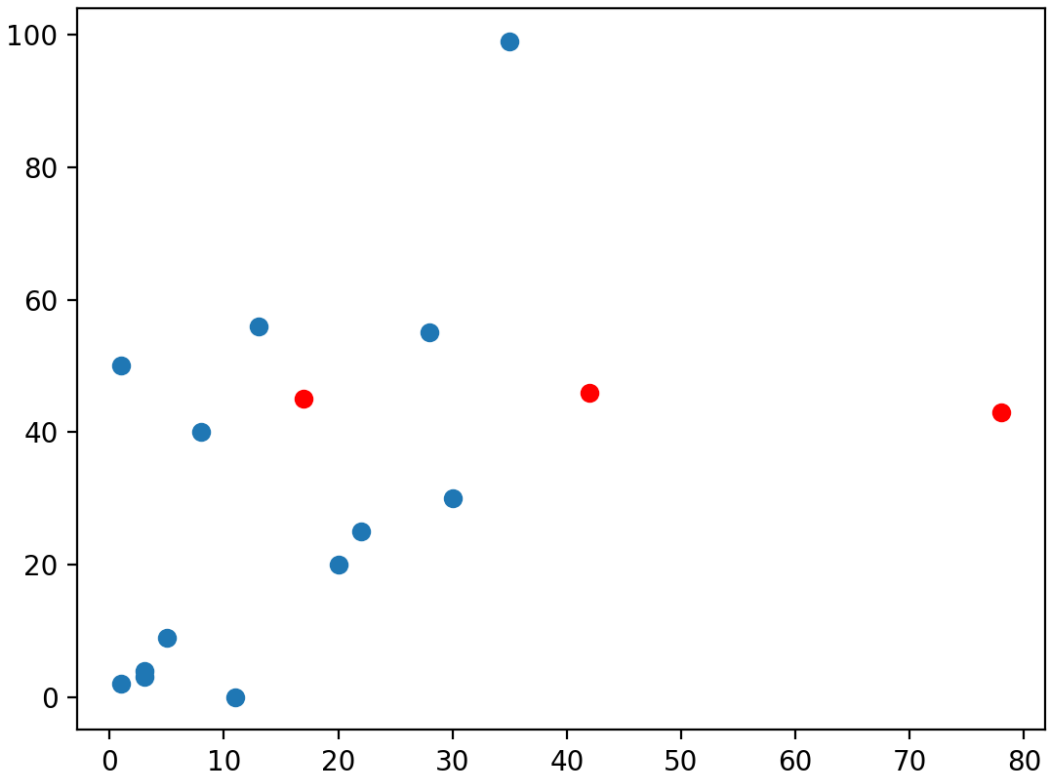

Figure 1

```
angelostraight@MacBook-Pro ~/Desktop/CS/CS401/clusteringResearch/anti-gonzales python driver.py data.txt
Center:  [17.0, 45.0]  With Radius:  45.880278987817846
Center:  [78.0, 43.0]  With Radius:  0
Center:  [42.0, 46.0]  With Radius:  53.46026561849464
```

Figure 2

After we add the poison points, the largest radius grows to 6.5 fig. 4. The poison points are colored green.

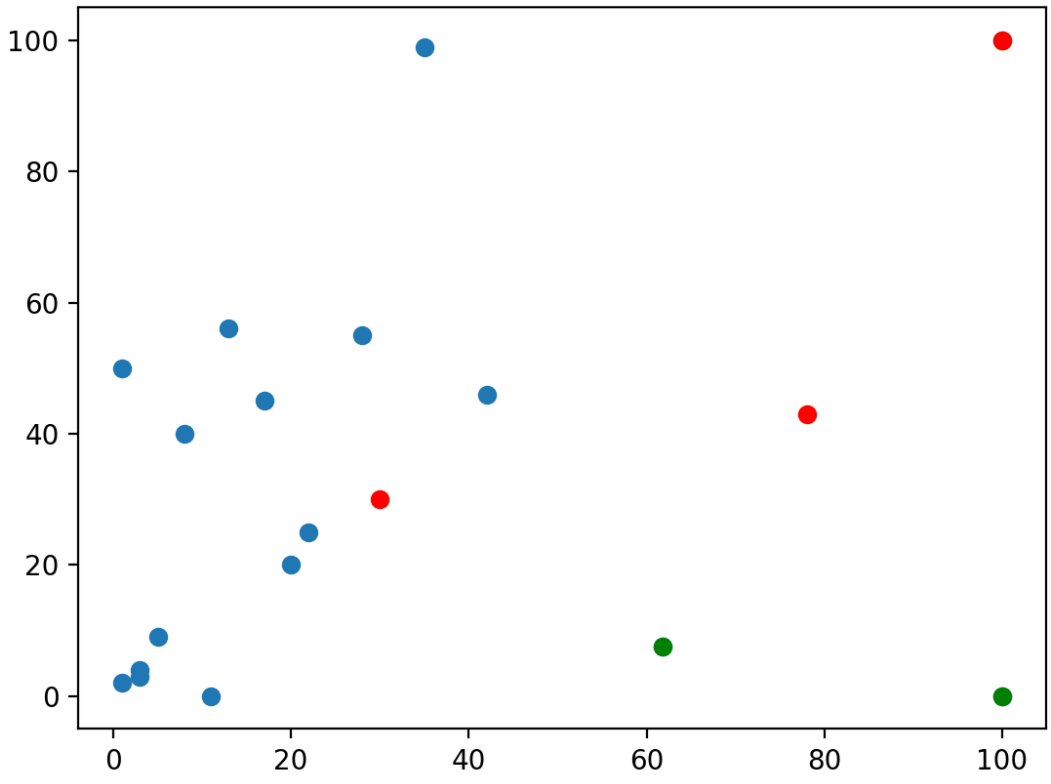

Figure 3

```
Center:  [30.0, 30.0]  With Radius:  40.31128874149275
Center:  [100.0, 100.0]  With Radius:  65.00769185258002
Center:  [78.0, 43.0]  With Radius:  48.30113870293329
```

Figure 4

This time we will add 6 poison points. Note that the points select are in correct order. For example: in fig. 6 we have three centers (28,55), (1,2) and (17,45) the Gonzalez algorithm arbitrarily picked the first point (28,55). The next point which is the furthest point is (1,2), the last point (17,45) was picked from the min max algorithm where we list all minimum distance from each center then we take the max of those distances.

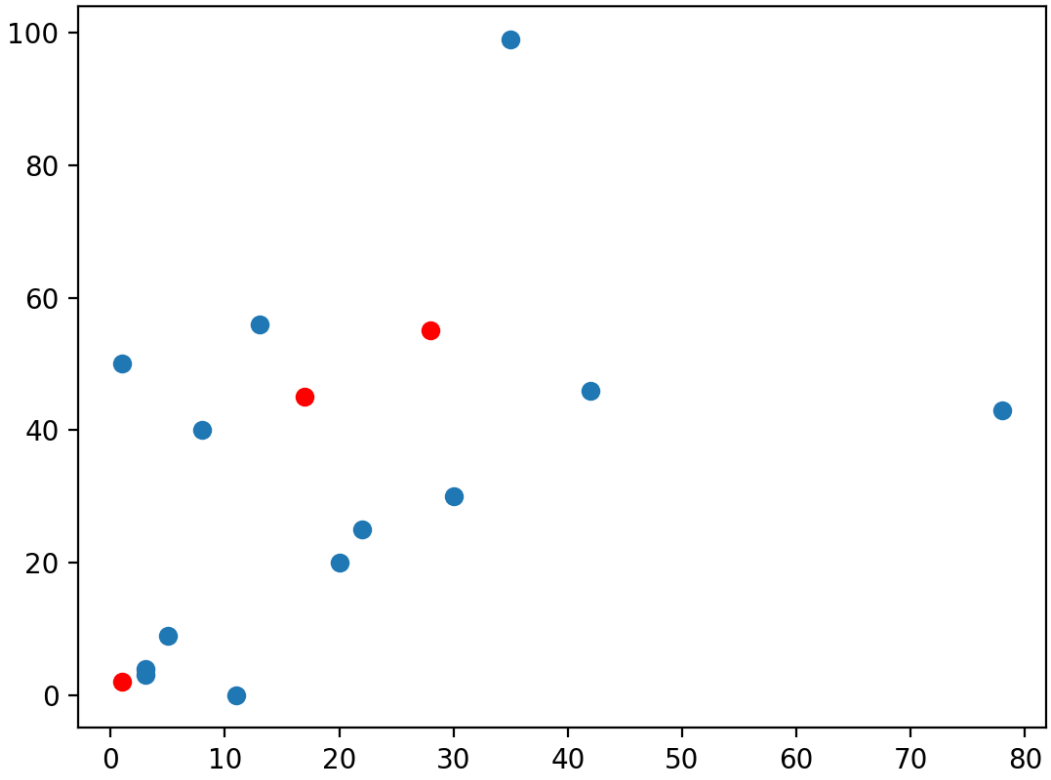

Figure 5

```
angelostraight@MacBook-Pro ~/Desktop/CS/CS401/clusteringResearch/anti-gonzales python driver.py data.txt
Center:  [28.0, 55.0]  With Radius:  51.419840528729765
Center:  [1.0, 2.0]  With Radius:  10.19803902718557
Center:  [17.0, 45.0]  With Radius:  25.179356624028344
```

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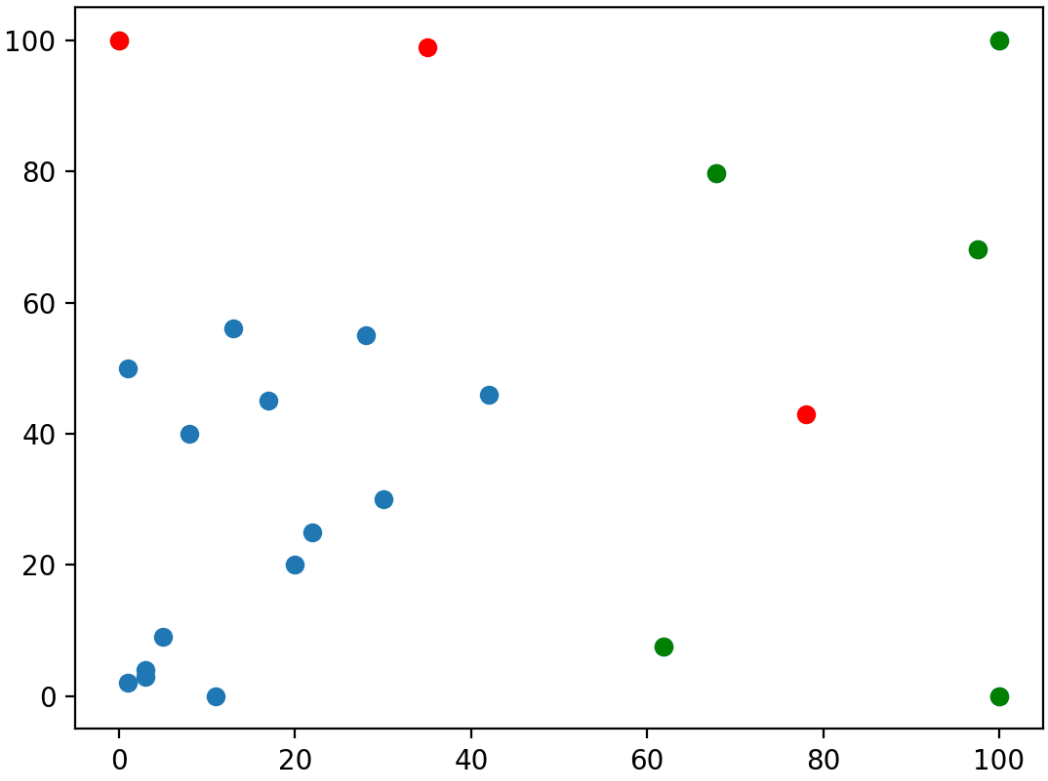
Figure 6

Again the radius grows.




```
Center:  [78.0, 43.0]  With Radius:  87.23531395025755
Center:  [0.0, 100.0]  With Radius:  60.53098380168622
Center:  [35.0, 99.0]  With Radius:  56.92099788303083
```