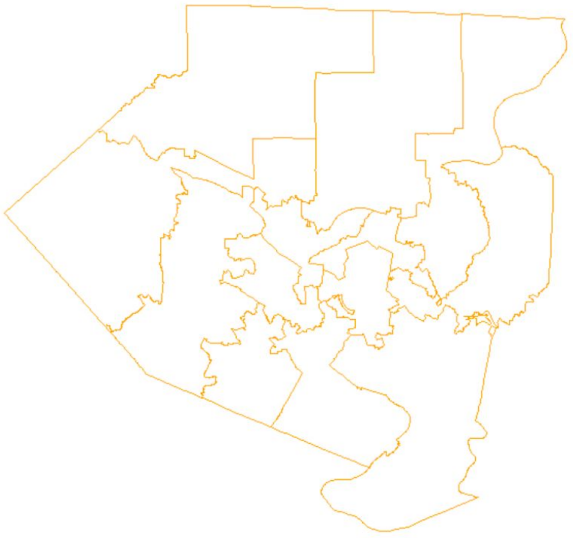
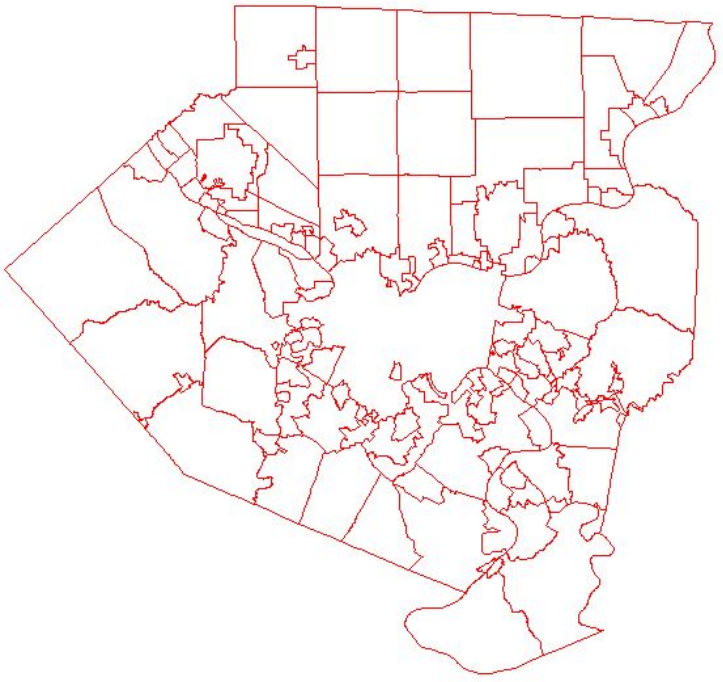
PART A

Allegheny County Council



Allegheny County Mun.



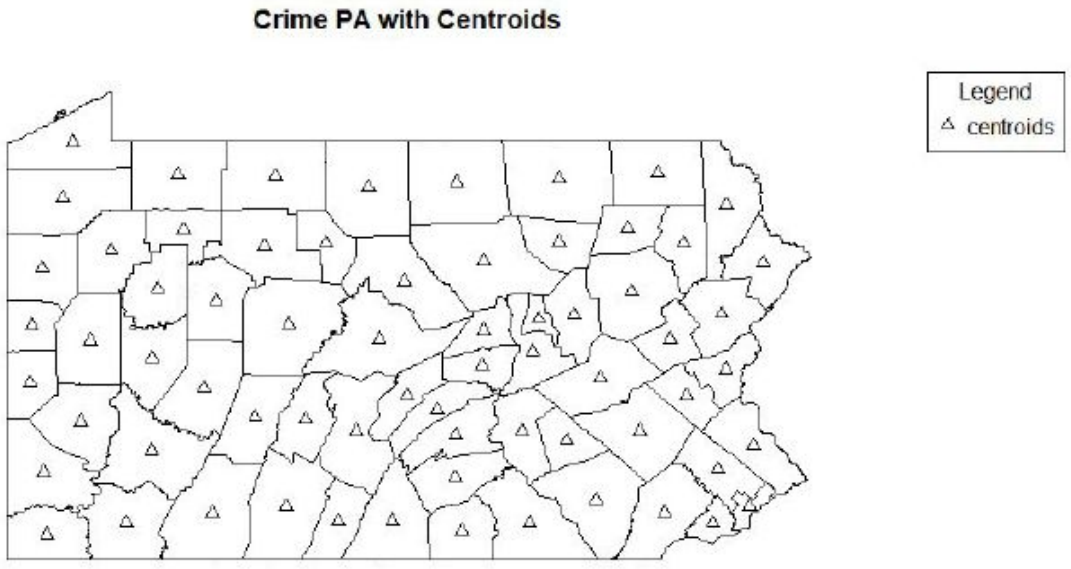
AlleghenyCounty_Council			
		Moran I	Geary
	Rook	0.04388988	0.9270441
	Queen	0.04388988	0.9270441
AlleghenyCounty_Municipal			
		Moran I	Geary
	Rook	-0.00132743	2.126325
	Queen	0.001530271	2.083058

Because our Moran's I statistic for both Rook's and Queen's adjacency is greater than 0 but less than 0.3, we can say there is autocorrelation though it is not very strong.

In Geary's C, a value between 0 & 1 indicates a positive autocorrelation and value greater than one means negative autocorrelation so we can say there is positive autocorrelation.

In the municipalities dataset, rooks case shows negative autocorrelation while queens case shows a positive autocorrelation. The geary value is greater than 1 in both cases so it shows negative autocorrelation

PART B



Rest is pending for this part…..

PART C

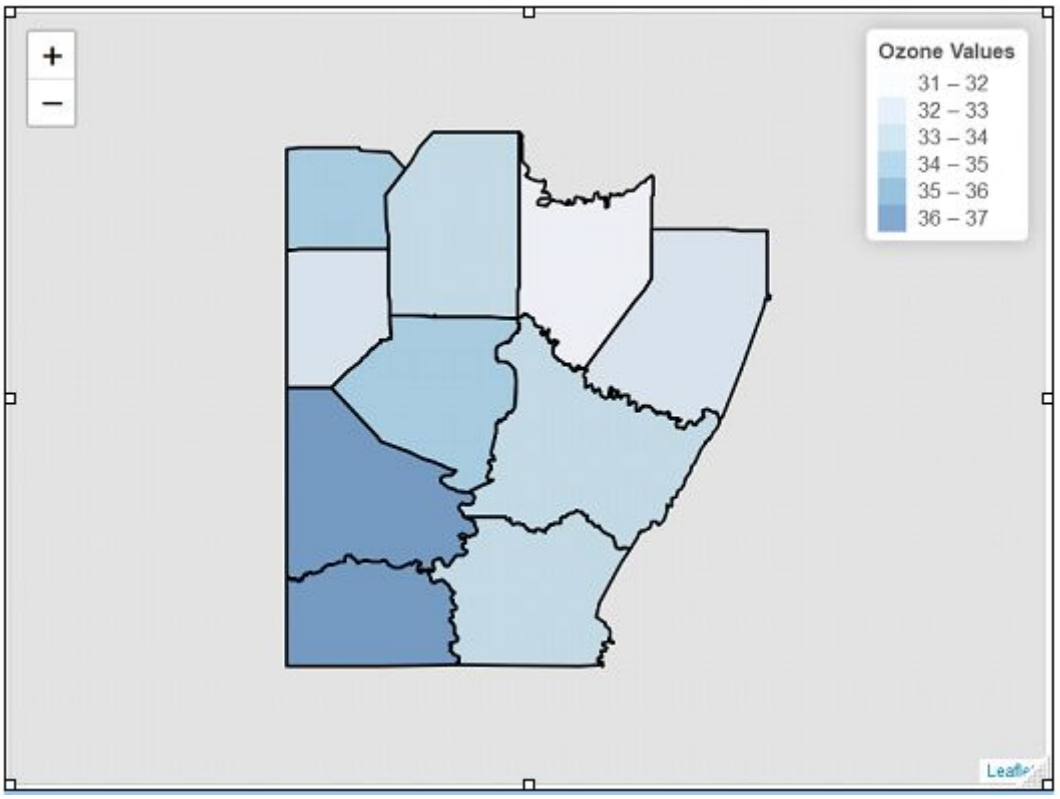
Interpolation with IDW

	x	y
0	-79.91287	40.91113
1	-79.46588	40.81461
2	-79.08792	40.65152
3	-80.33295	40.99304
4	-80.34930	40.68440
5	-79.46670	40.31117
6	-79.98108	40.46988
7	-80.24858	40.19130
8	-79.64728	39.92059
9	-80.22289	39.85479

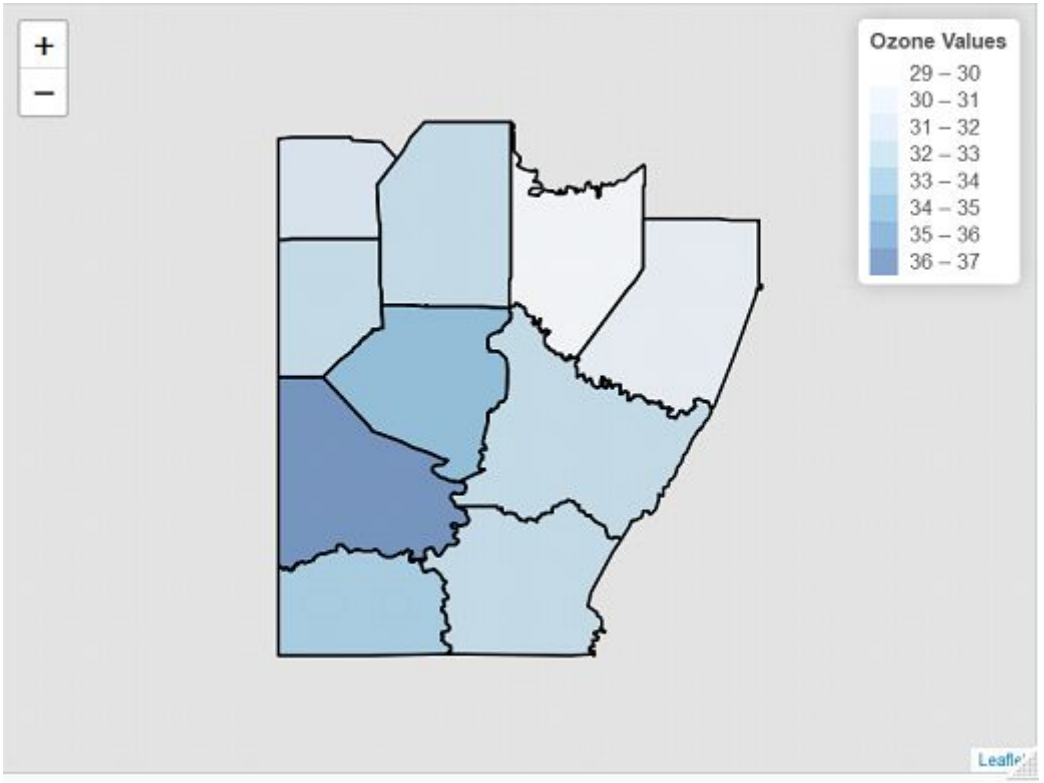
Interpolation using OK

	x	y	okvalue
0	-79.91287	40.91113	31.97286
1	-79.46588	40.81461	29.29037
2	-79.08792	40.65152	30.11185
3	-80.33295	40.99304	31.05456
4	-80.34930	40.68440	32.18366
5	-79.46670	40.31117	32.79216
6	-79.98108	40.46988	34.26030
7	-80.24858	40.19130	36.65150
8	-79.64728	39.92059	32.50851
9	-80.22289	39.85479	34.12065

IDW Map:


+
−
Ozone Values
31 – 32
32 – 33
33 – 34
34 – 35
35 – 36
36 – 37
Leaflet

OK Map


+
−
Ozone Values
29 – 30
30 – 31
31 – 32
32 – 33
33 – 34
34 – 35
35 – 36
36 – 37
Leaflet

Report:

IDW techniques does its estimation based on distance-weighted sum of the sample values in some surrounding neighborhood and therefore the IDW technique forces a set structure on the data.The problem that arises here is the arbitrariness in the choice of distance weighting function used and in the definition of the neighbourhood. OK method improves on this which does its interpolation by analyzing the control point data.

We can see OK map produces clearer demarcation of polygons so we can say it has better performance/results between the two techniques.