

# Impact of prisons on their surrounding venues



IBM Capstone Project, Coursera.  
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# Business problem

Describe one of the socioeconomic impacts of prisons: the number of venues in their surroundings.

Describe the influence radius of the prisons in the state of Alabama.

Cluster the prisons by the similarities on their influences.

# Target audience

This report is directed towards governments who want to better understand the behaviour of society, and also towards helping investors make more informed decisions on whether to start a venue or not near a facility.

# Data

"https://www.prisonersofthecensus.org"

Beautifulsup Library to extract information of Prisons

GPS location of Venues near  
Prisons

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  <kml xmlns="http://www.opengis.net/kml/2.2">
    <Document>
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        <name>Autauga Metro Jail</name>
        <description><div>Facility type: Local</div><div>Geoid: <a href="http://
www.prisonersofthecensus.org/data/2010blocks/010010202002008/">010010202002008</
a></div><div>County: Autauga County</div><div>2010 Correctional Population: 181</
div></description>
        <styleUrl>http://www.prisonersofthecensus.org/locator2010/map_styles.kml?
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**FOURSQUARE**

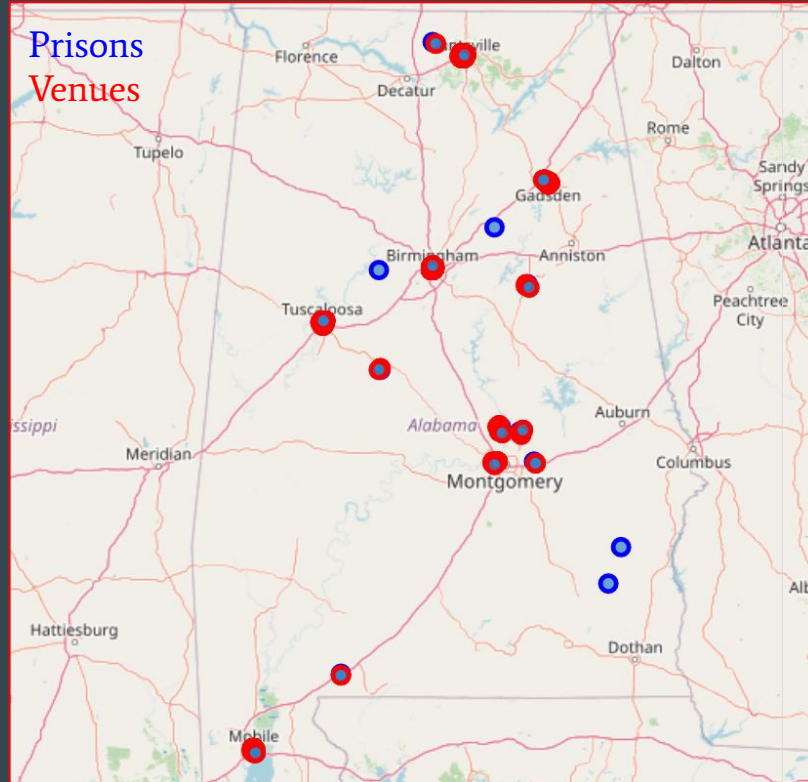
# Find the Distance between prisons and venues

	Name	Population	Longitud	Latitud
0	Autauga Metro Jail	181	-86.473973	32.465298
1	Baldwin County Jail	486	-87.774451	30.885110
2	Daphne City Jail	38	-87.892566	30.595724
3	Loxley Community Work Center	505	-87.778375	30.608661
4	Fairhope City Jail	17	-87.902480	30.524892

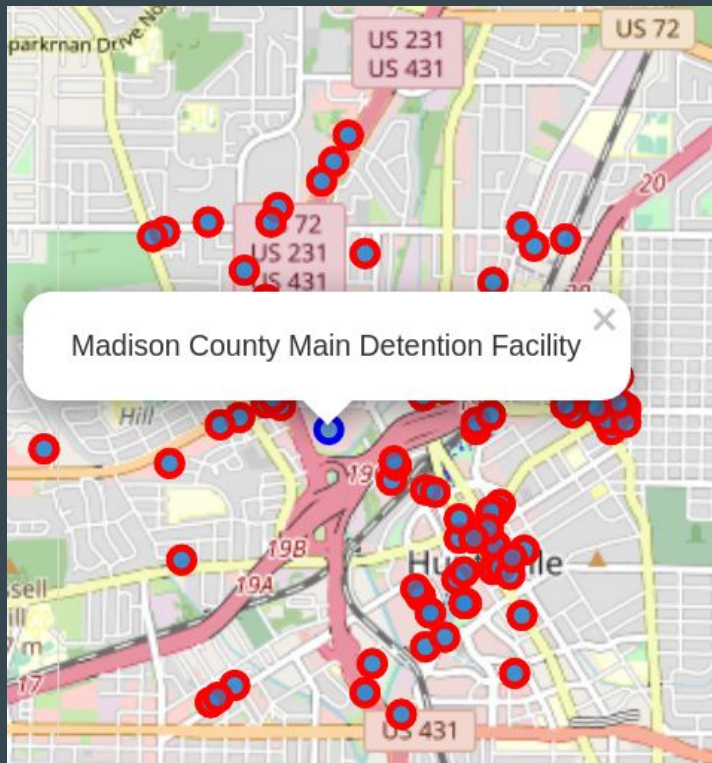
With the prisons coordinates we find the near Venues and calculate the distance to each prison

	Name	Prison Latitude	Prison Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category	Distance
0	Bibb Correctional Facility	32.925245	-87.164289	Piggly Wiggly	32.937650	-87.165119	Convenience Store	1377.942930
1	Bibb Correctional Facility	32.925245	-87.164289	Bjs Restaurant	32.924740	-87.181952	American Restaurant	1653.008469
2	Draper / Staton / Elmore prisons	32.589624	-86.332650	Scarlett Oak Dr	32.601624	-86.344780	Athletics & Sports	1751.429296
3	Draper / Staton / Elmore prisons	32.589624	-86.332650	The Rogers Farm	32.589363	-86.351538	Scenic Lookout	1773.509217
4	Draper / Staton / Elmore prisons	32.572940	-86.327885	The Spillway	32.568231	-86.342427	River	1461.929914

# Map of prisons and venues

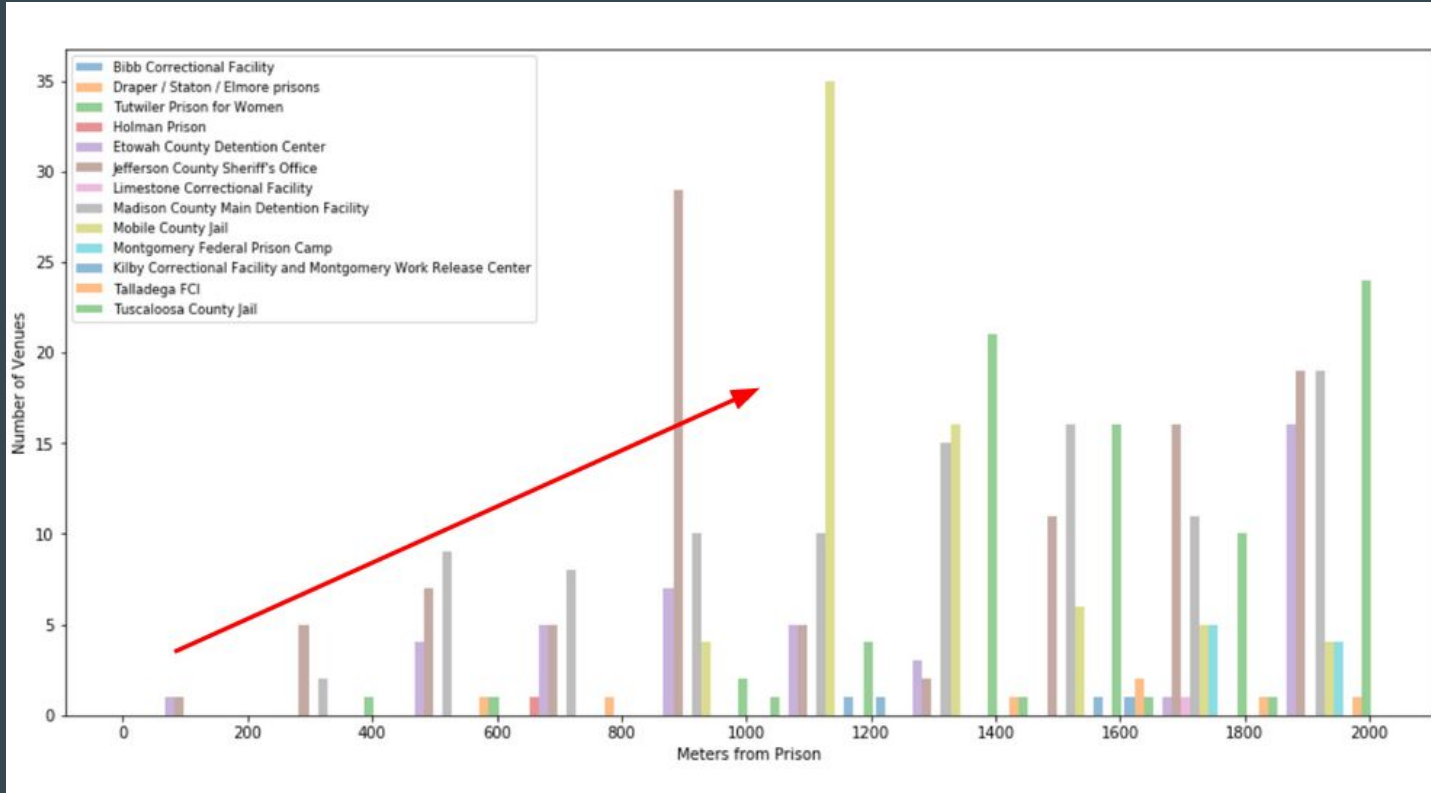


## Example: Madison County Main Detention Facility



# Results

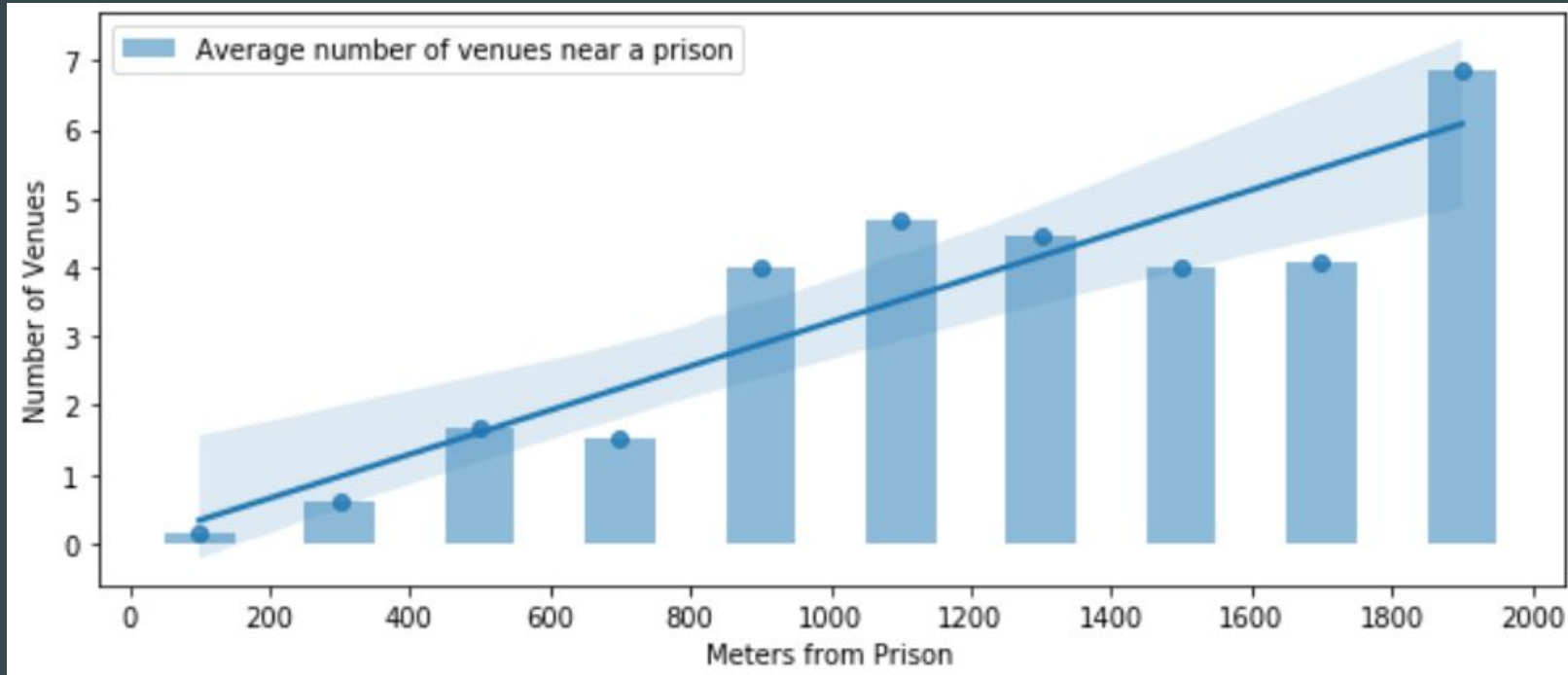
Histogram that count the number of venues near a facility for all prisons. Growing behaviour when we go further away from the prisons (Red arrow)





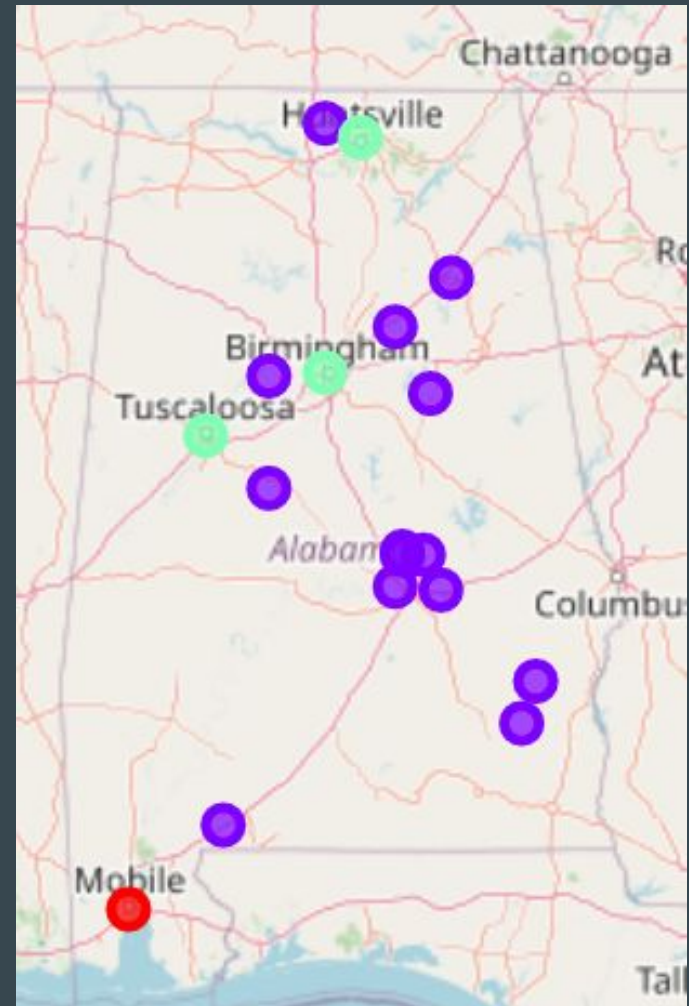
# Results

Small number of venues in the vicinity.  
Linear relationship between the average number  
of venues near prison  
and the distance from the prison



# Results: Cluster of prisons

The violet dots are the prisons with almost no venues near them, the red dot is the Mobile County Jail that has a medium amount of venues, concentrated in the range of 1000-1200m. The last cluster corresponds to the green dots, which includes Jefferson County Sheriff's Office, Madison County Main Detention Facility and the Tuscaloosa County Jail. These facilities are the ones with the most venues in their surroundings.



# Discussion

The top 5 biggest cities in the state of Alabama are: Birmingham ,Montgomery ,Mobile, Huntsville, Tuscaloosa. There is a strong correlation between the city size and the number of venues near a facility. Green dots are in Birmingham,Huntsville and Tuscaloosa. Mobile is the red dot, and In Montgomery there are a lot of facilities but they are far away from the city.

As a business recommendation, we recommend investors try to stay at least 1000 meters away from a facility, depending on the city

# Conclusion

We describe the impact of a prison on the number of venues on their surroundings. We find that in the vicinity of a facility it is difficult to find a venue. There is also a clear growing pattern in the number of venues as we go farther and farther away from the facilities. There is a linear positive relationship between the average number of venues near a prison and the distance from it. Finally, we cluster the prisons by the similarities on their influences, finding that the biggest cities are the ones that have prisons with most venues around. We recommend the investors that try to stay at least 1000 meters away from a facility, but this depends on the city.