

IBM Coursea Capstone

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Business problem

- Our client is non-profit counseling organization in Durham, North Carolina that helps first time home buyers. This organization is interested in providing insightful information to home buyers about schools and other venues of interest such as malls, shops, restaurants etc. nearby each school so that they have a better understanding of other available options and make an informed decision. Unfortunately, schools rating are not usually listed in map or geo providers such as Google Maps or Foursquare. So the business problem is: Where are the schools located in city of Durham and what are their ratings and top venues nearby them?

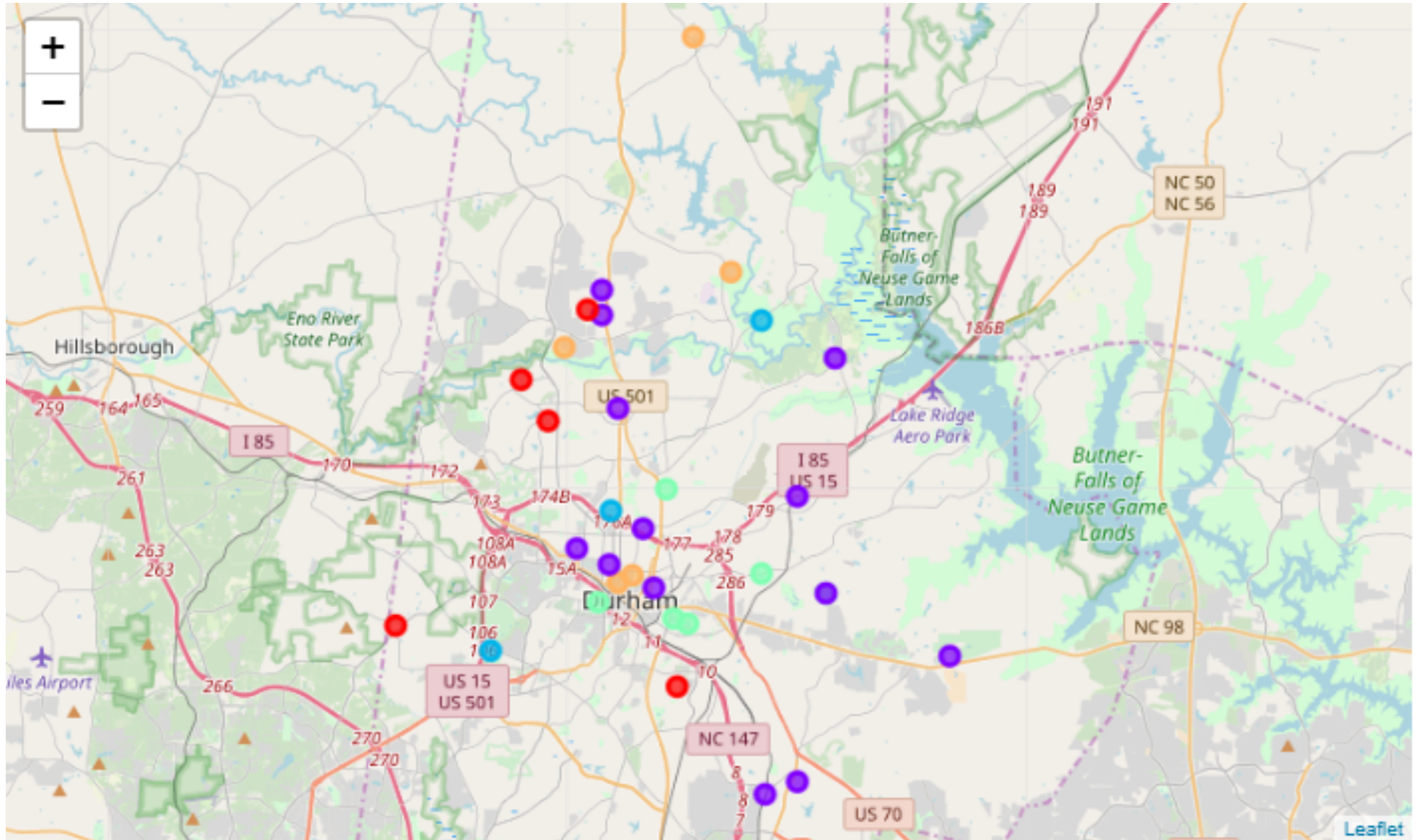
Data frame includes schools names, address, rating, grade span, and coordinates

	Name	Address	Rating	Grade span	Latitude	Longitude
0	Bethesda Elementary	2009 S Miami Boulevard, Durham, NC	18.0	KG-5	35.9407	-78.8378
1	Brogden Middle	1001 Leon Street, Durham, NC	37.0	6-8	36.0245	-78.9093
2	Central Park School For Child	724 Foster Street, Durham, NC	74.0	KG-5	36.0046	-78.901
3	Chewning Middle	5001 Red Mill Road, Durham, NC	21.0	8	36.0717	-78.8235
4	Club Boulevard Elementary	400 W Club Boulevard, Durham, NC	22.0	KG-5	36.0192	-78.8966
5	Durham School of the Arts	401 North Duke Street, Durham, NC	75.0	6-12	36.0025	-78.9064
6	Durham's Performance Learning Center	401 North Driver Street, Durham, NC	8.0	8-12	35.9896	-78.8795
7	E K Powe Elementary	913 9th Street, Durham, NC	15.0	KG-5	36.0133	-78.9222
8	Easley Elementary	302 Lebanon Circle, Durham, NC	74.0	KG-5	36.0754	-78.9269
9	Eastway Elementary	610 North Alston Avenue, Durham, NC	11.0	KG-5	35.9912	-78.885
10	Eno Valley Elementary	117 Milton Road, Durham, NC	25.0	KG-5	36.0854	-78.913

Top 10 venues near each school

	School	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Bethesda Elementary	Fast Food Restaurant	Pawn Shop	Moving Target	Lingerie Store	Basketball Court	Fried Chicken Joint	Park	Japanese Restaurant	Construction & Landscaping	Diner
1	Brogden Middle	Clothing Store	Pizza Place	Shoe Store	Rental Car Location	Lingerie Store	Jewelry Store	Pharmacy	Gym / Fitness Center	Park	American Restaurant
2	Central Park School For Child	Bar	Hotel	Pizza Place	Gastropub	American Restaurant	Mexican Restaurant	Italian Restaurant	Brewery	Pub	Deli / Bodega
3	Chewning Middle	Garden	Zoo Exhibit	Ethiopian Restaurant	Flower Shop	Financial or Legal Service	Fast Food Restaurant	Farmers Market	Farm	Fabric Shop	Exhibit
4	Club Boulevard Elementary	Convenience Store	Sandwich Place	Park	Fast Food Restaurant	Chinese Restaurant	Peruvian Restaurant	Theme Park Ride / Attraction	Big Box Store	Dog Run	Food Truck
5	Durham School of the Arts	Bar	Hotel	Pizza Place	Brewery	American Restaurant	Mexican Restaurant	Gastropub	Italian Restaurant	Seafood Restaurant	Bakery
6	Durham's Performance Learning Center	Convenience Store	Fast Food Restaurant	Grocery Store	Gas Station	Hardware Store	Bakery	Park	Discount Store	Café	Food
7	E K Powe Elementary	Café	Record Shop	Bakery	Gastropub	Sandwich Place	Pizza Place	Shipping Store	Bookstore	Yoga Studio	Ice Cream Shop
8	Easley Elementary	Office	Candy Store	Intersection	Trail	Fast Food Restaurant	Farmers Market	Farm	Fabric Shop	Exhibit	Event Space
9	Eastway Elementary	Coffee Shop	Brewery	Building	Café	Food Truck	Garden	Spa	Gas Station	Tattoo Parlor	Park
10	Eno Valley Elementary	Mexican Restaurant	Video Store	Pizza Place	Food & Drink Shop	Basketball Court	Discount Store	Chinese Restaurant	Pharmacy	Sandwich Place	Gym

Schools clustered based on their rating and top ten venues close to them



The final table showing schools name, grade span, address, rating, cluster label, and all 10 most common venues around them

	School	Grade Span	Address	Rating	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Bethesda Elementary	KG-5	2009 S Miami Boulevard, Durham, NC	18	1	Fast Food Restaurant	Pawn Shop	Moving Target	Lingerie Store	Basketball Court	Fried Chicken Joint	Park	Japanese Restaurant	Construction & Landscaping	Diner
1	Brogden Middle	6-8	1001 Leon Street, Durham, NC	37	2	Clothing Store	Pizza Place	Shoe Store	Rental Car Location	Lingerie Store	Jewelry Store	Pharmacy	Gym / Fitness Center	Park	American Restaurant
2	Central Park School For Child	KG-5	724 Foster Street, Durham, NC	74	4	Bar	Hotel	Pizza Place	Gastropub	American Restaurant	Mexican Restaurant	Italian Restaurant	Brewery	Pub	Deli / Bodega
3	Chewning Middle	8	5001 Red Mill Road, Durham, NC	21	1	Garden	Zoo Exhibit	Ethiopian Restaurant	Flower Shop	Financial or Legal Service	Fast Food Restaurant	Farmers Market	Farm	Fabric Shop	Exhibit
4	Club Boulevard Elementary	KG-5	400 W Club Boulevard, Durham, NC	22	1	Convenience Store	Sandwich Place	Park	Fast Food Restaurant	Chinese Restaurant	Peruvian Restaurant	Theme Park Ride / Attraction	Big Box Store	Dog Run	Food Truck
5	Durham School of the Arts	6-12	401 North Duke Street, Durham, NC	75	4	Bar	Hotel	Pizza Place	Brewery	American Restaurant	Mexican Restaurant	Gastropub	Italian Restaurant	Seafood Restaurant	Bakery

Conclusion

We were able to provide a table showing similar schools in terms of rating and other top venues around them so that potential home buyers would have a better perspective about the area where they could start their house search which is more aligned with their criteria.