

# Applied Data Science Capstone: Explore Museums in the Rural and Suburban Area in Ohio, U.S.

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# ABSTRACT

In this report I used data analysis and visualization with Python and Foursquare API to explore museums in the state of Ohio. The goal is to find out museums in the rural and suburban area that are ideal for weekend/summer getaways for general public and their family while learning cultures and history of Ohio, United States.

# 469 museums distributed in 76 counties in Ohio

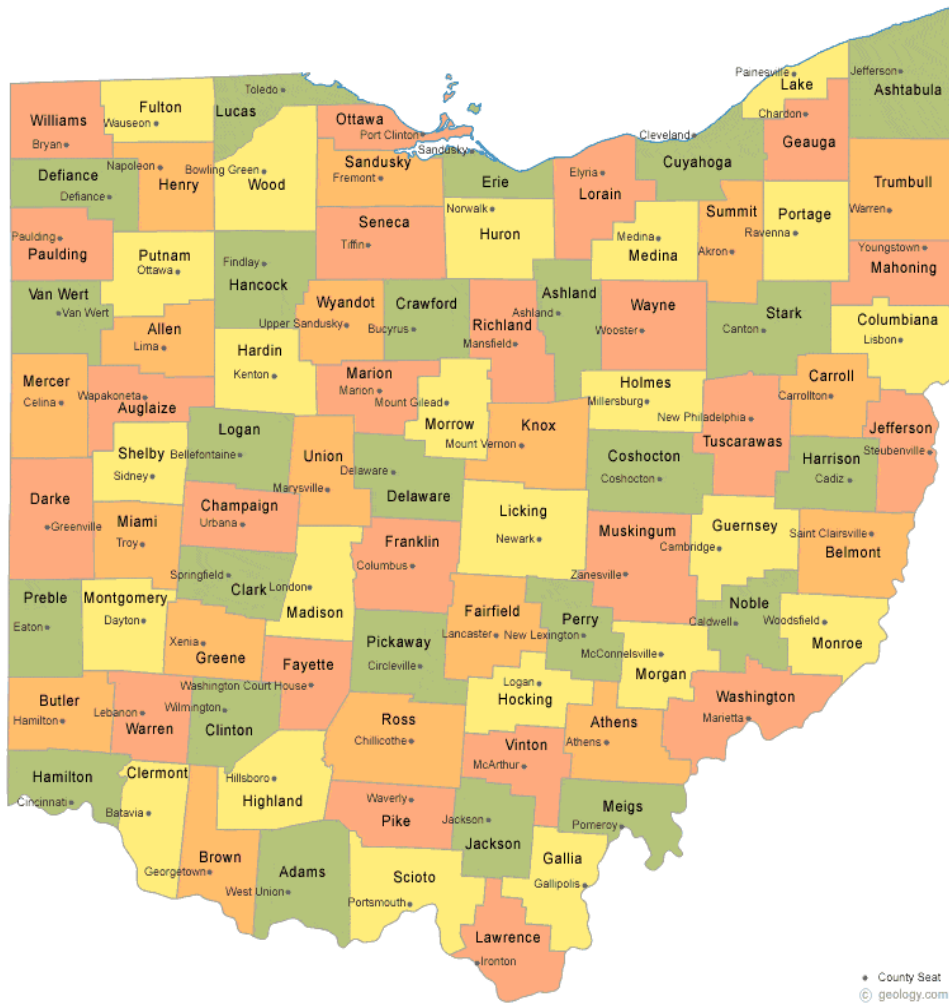


Fig 1. 88 counties and their township in Ohio  
(<https://geology.com/county-map/ohio.shtml>)

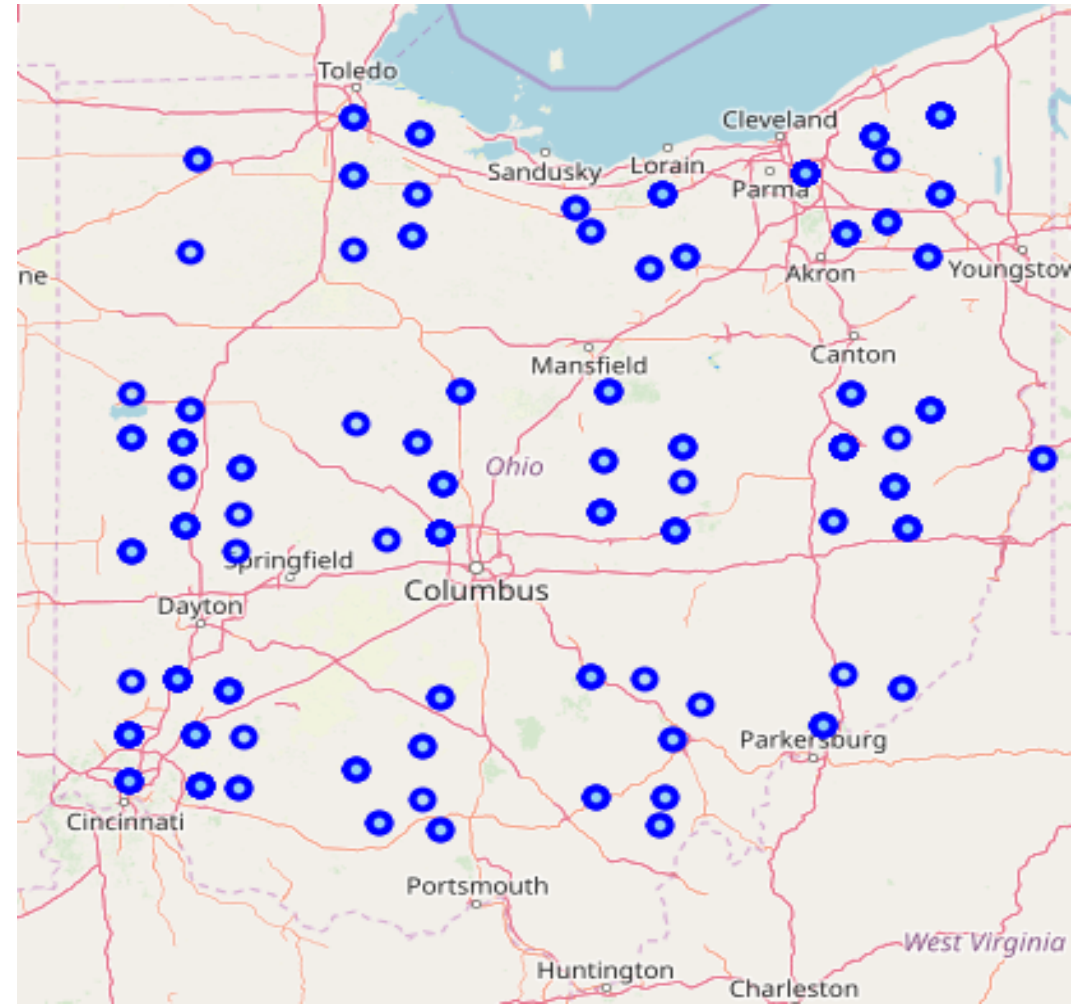


Fig 2. locations of museums in different counties.

# List of Museums in Ohio

(5 out of 469 museums are shown)

Museum	Town/city	County	Region	Type	Summary
<b>103rd Ohio Volunteer Infantry Museum</b>	Sheffield Lake	Lorain	Northeast	Civil War	Open by appointment
<b>1810 House</b>	Portsmouth	Scioto	Southwest	Historic house	Operated by the Scioto County Historical Society
<b>A.B. Graham Memorial Center</b>	Conover	Miami	Southwest	Biographical	Honors
<b>Adena Mansion</b>	Chillicothe	Ross	Southwest	Historic house	Early 19th-century mansion on 300 acres.....
<b>AHA! A Hands-On Adventure</b>	Lancaster	Fairfield	Central	Children's	

# Museums in 76 counties and 253 towns/cities (the first 5 rows are shown)

County	Town / city	Region	Museums
Adams	Peebles	Southwest	Serpent Mound
Adams	Winchester	Southwest	National Barber Museum and Hall of Fame
Allen	Delphos	Northwest	Delphos Canal Commission Museum, Delphos Museu...
Allen	Lima	Northwest	Allen County Museum, ArtSpace Lima
Ashland	Ashland	Northeast	Ashland County Historical Society Museum

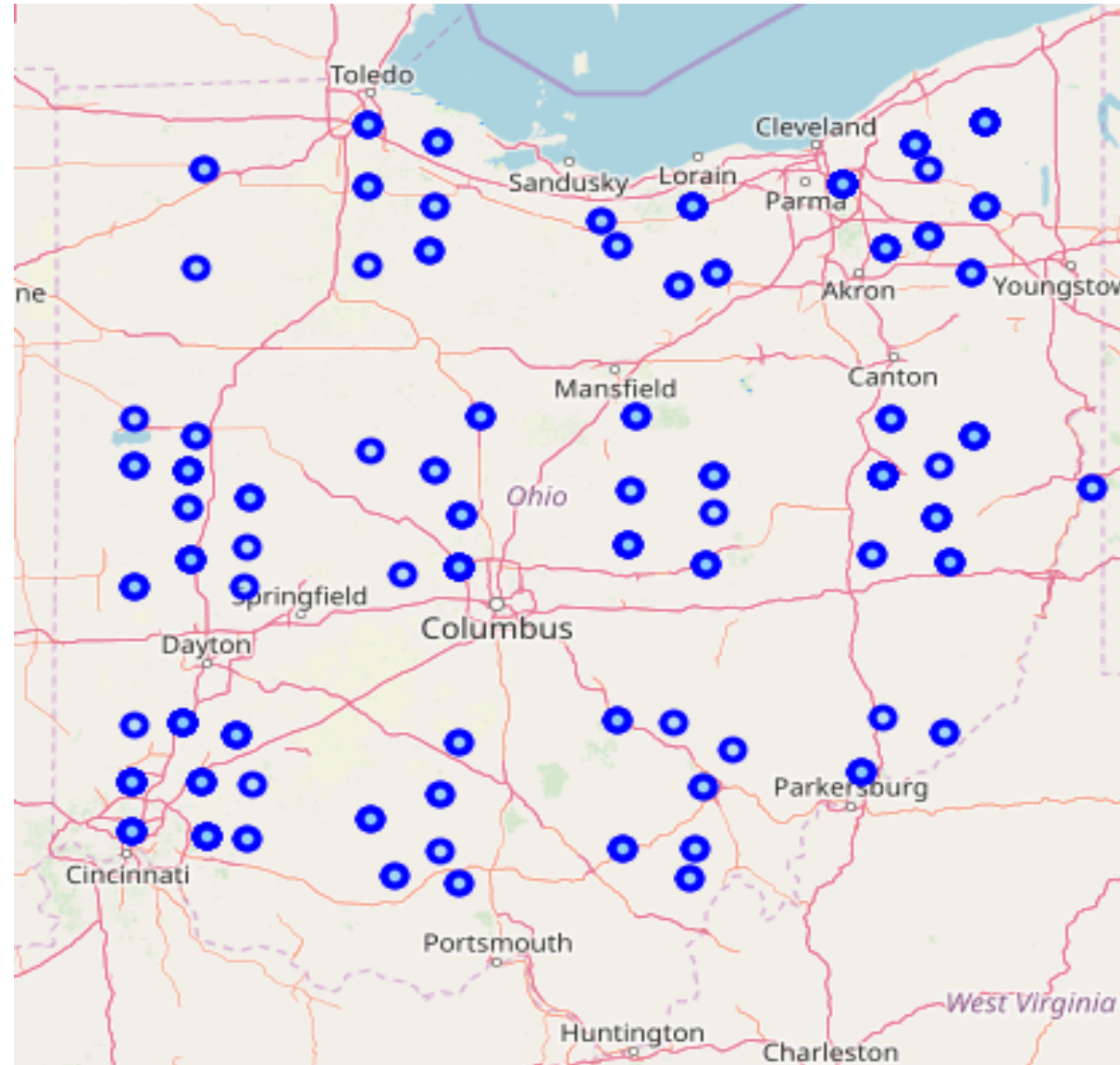
County	Museums
Adams	Serpent Mound, National Barber Museum and Hall...
Allen	Delphos Canal Commission Museum, Delphos Museu...
Ashland	Ashland County Historical Society Museum, Cleo...
Ashtabula	Ashtabula Maritime Museum, Blakeslee Log Cabin...
Athens	Dairy Barn Arts Center, Kennedy Museum of Art,...

# Museums in different counties with coordinates

(data for 5 out of 253 cities / towns shown)

County	Town / city	Region	Museums	Latitude	Longitude
Adams	Peebles	Southwest	Serpent Mound	39.0317	-83.4221
Adams	Winchester	Southwest	National Barber Museum and Hall of Fame	39.0317	-83.4221
Allen	Delphos	Northwest	Delphos Canal Commission Museum, Delphos Museu...	40.5318	-84.2350
Allen	Lima	Northwest	Allen County Museum, ArtSpace Lima	40.5318	-84.2350
Ashland	Ashland	Northeast	Ashland County Historical Society Museum	41.0358	-82.2500

# Locate Museums on the Map



# Selected Dataset:

## Listing 16 towns/cities in Ohio with “Ohio” as part of their name

County	Town / city	Region	Museums	Latitude	Longitude
Athens	Athens	Southeast	Dairy Barn Arts Center, Kennedy Museum of Art, Southeast Ohio History Center	39.3322	-82.1606
Brown	Ripley	Southwest	John P. Parker House, John Rankin House, Ohio Tobacco Museum, Ripley Museum	39.1515	-84.0200
Darke	Bradford	Southwest	Bradford Ohio Railroad Museum	40.0208	-84.4843
Fairfield	Lancaster	Central	AHA! A Hands-On Adventure, Decorative Arts Center of Ohio, Georgian Museum, Ohio Glass Museum, Sherman House Museum	39.5627	-82.5039
Franklin	Bexley	Central	Ohio Governor's Mansion, Schumacher Gallery	40.0835	-83.1538
Franklin	Canal Winchester	Central	Mid-Ohio Historical Museum	40.0835	-83.1538
Franklin	Hilliard	Central	Early Television Museum, Hilliard Ohio Historical Society Museum	40.0835	-83.1538
Franklin	Worthington	Central	Doll Museum at the Old Rectory, Ohio Railway Museum, Orange Johnson House	40.0835	-83.1538
Greene	Xenia	Southwest	Greene County Ohio Historical Society Museum, Xenia Station	39.5102	-84.0648
Lake	Mentor	Northeast	Indian Museum of Lake County, Ohio, James A. Garfield National Historic Site, Mentor Safety Village	41.5113	-81.2920
Lorain	Sheffield Lake	Northeast	103rd Ohio Volunteer Infantry Museum	41.3055	-82.2045
Medina	Chippewa Lake	Northeast	Northern Ohio Railway Museum	41.0812	-82.1025
Monroe	Clarington	Southeast	Ohio Valley River Museum	39.5210	-81.1701
Pickaway	Ashville	Central	Ohio's Small Town Museum	39.4845	-83.1601
Richland	Mansfield	Northeast	Bible Walk, Kingwood Center, Mansfield Art Center, Mansfield Fire Museum, Mansfield Memorial Museum, Oak Hill Cottage Museum, Ohio State Reformatory	40.5945	-82.4306
Scioto	Portsmouth	Southwest	1810 House, Southern Ohio Museum	39.0056	-83.1605
Seneca	Tiffin	Northeast	American Civil War Museum of Ohio	41.1520	-83.2730
Washington	Marietta	Southeast	Campus Martius Museum, The Castle, Henry Fearing House Museum, Ohio River Museum, Peoples Mortuary Museum, Toy and Doll Museum of Marietta	39.384	-81.5112



# List of Venues in Selected Museums in Ohio

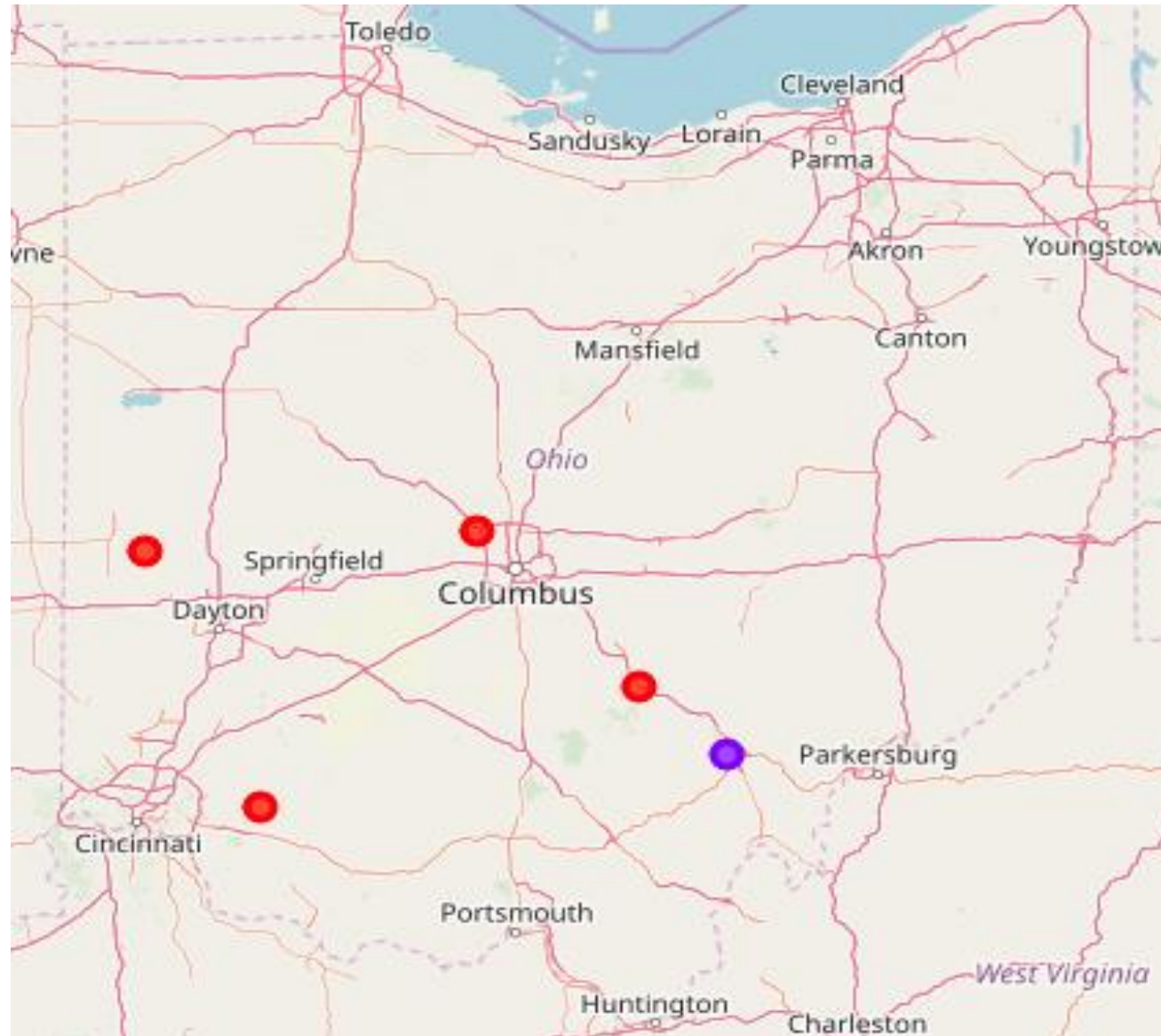
## Analyzed using Foursquare API

Museum	Coffee Shop	Disc Golf	Electronics Store	Food	Gym	IT Services	Park	Rest Area	Trail
AHA! A Hands-On Adventure, Decorative Arts Cen...	1	0	0	0	0	0	0	3	1
Ohio Governor's Mansion, Schumacher Gallery	0	1	1	1	1	1	1	0	0
Mid-Ohio Historical Museum	0	1	1	1	1	1	1	0	0
Early Television Museum, Hilliard Ohio Histori...	0	1	1	1	1	1	1	0	0
Doll Museum at the Old Rectory, Ohio Railway M...	0	1	0	0	0	0	1	0	0

# Ranking of Venues in Selected Museums

Museum	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
AHA! A Hands-On Adventure, Decorative Arts Cen...	Rest Area	Trail	Coffee Shop	Park	IT Services	Gym	Food	Electronics Store
Doll Museum at the Old Rectory, Ohio Railway M...	Park	IT Services	Gym	Food	Electronics Store	Disc Golf	Trail	Rest Area
Early Television Museum, Hilliard Ohio Histori...	Park	IT Services	Gym	Food	Electronics Store	Disc Golf	Trail	Rest Area
Mid-Ohio Historical Museum	Park	IT Services	Gym	Food	Electronics Store	Disc Golf	Trail	Rest Area
Ohio Governor's Mansion, Schumacher Gallery	Park	IT Services	Gym	Food	Electronics Store	Disc Golf	Trail	Rest Area

# Clustering Museums Investigated in This Report



# DISCUSSION

- As an Ohioan who has raised my family here, in the beginning of this project I was mainly intended to find out the location of museums in the state of Ohio, as nowadays my family and I spent most outdoor activities in state/metro parks, theme/water parks and shopping. Admittedly the small set of the data, which is the counties containing museums with the name of “Ohio”, in this project is not optimized, since most Ohio’s museums do not have the name of “Ohio” included.
- More thorough and detailed analyses should be performed, and more interesting and useful information could be extracted. Nevertheless, this report demonstrates that we could use Foursquare API to analyze data more than neighborhoods in the metropolitan area and there are a lot more to explore museums in Ohio.

# CONCLUSION

- It is a bit challenging to put things together for this Capstone project, as I purposely picked a less popular topic with few data available online.
- Using the knowledge learned through the courses, in this report I intended to explore the museums in the State of Ohio as an Ohioan, although it is not a typical “neighborhood” people have defined. To me, physically visiting museums can never be replaced by virtual museums,
- Data analyses and visualization with Python and Foursquare API help us to find out what they may expect in the neighborhood of museums before visiting them in person, and whether people should visit those museums with or without kids and teenagers.