



# Massachusetts Cities Clustering

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## **Clustering cities can show prospective students what each city has to offer and help them choose a college to attend**

- Choosing which college or university to attend is one of the biggest decisions that you will make in terms of your personal and professional development
- Off-campus experience offered, including the historical, cultural and social background of the college's city since at the end attending college is preparing us to become active members of our societies
- Knowing in advance the different types of environments offered by the cities would facilitate prospective college students the important task of choosing which college or university to attend

# Data acquisition and cleaning

- The data that will be used for this project will be a List of colleges and universities in Massachusetts published in Wikipedia in the following link: [https://en.wikipedia.org/wiki/List\\_of\\_colleges\\_and\\_universities\\_in\\_Massachusetts](https://en.wikipedia.org/wiki/List_of_colleges_and_universities_in_Massachusetts).

	School	Location	Control	Type	Enrollment	Founded
0	American International College	Springfield	Private not-for-profit	Master's university	2177	1885
1	Amherst College	Amherst	Private not-for-profit	Baccalaureate college	1817	1821
2	Anna Maria College	Paxton	Private not-for-profit	Master's university	1455	1946
3	Assumption College	Worcester	Private not-for-profit	Master's university	2813	1904
4	Babson College	Wellesley	Private not-for-profit	Special-focus institution	3250	1919
5	Bard College at Simon's Rock	Great Barrington	Private not-for-profit	Baccalaureate/associate's college	354	1964
6	Bay Path University	Longmeadow	Private not-for-profit	Baccalaureate college	2370	1897
7	Bay State College	Boston	For-profit	Associate's college	1721	1946
8	Becker College	Worcester	Private not-for-profit	Baccalaureate college	1826	1784
9	Benjamin Franklin Institute of Technology	Boston	Private not-for-profit	Special-focus institution	475	1908

# Insights from the numeric features

- The oldest college in Massachusetts is Harvard University founded in 1636
- The newest college in Massachusetts is Olin College founded in 1997
- The college with the highest enrollment is Boston University with 32603 students
- The college with the lowest enrollment is Conway School of Landscape Design with 18 students
- The average enrollment for a college in Massachusetts is approximately 4780 students
- The total number of students enrolled in Massachusetts is 497170 students
- 1 college was founded in the 17th century
- 2 colleges were founded in the 18th century
- 40 colleges were founded in the 19th century
- 61 colleges were founded in the 20th century

## Insights from the categorical features

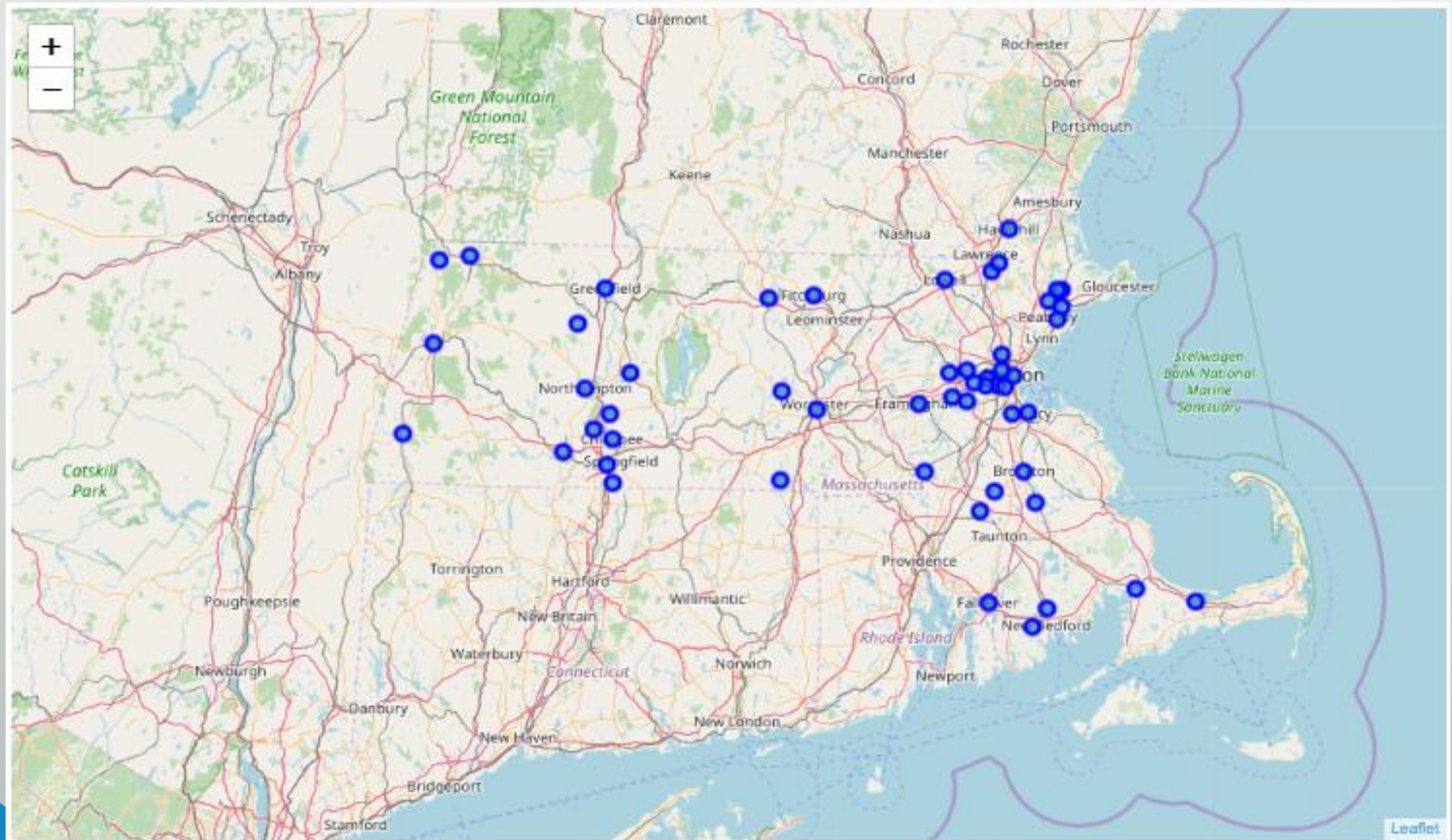
- We can see that there are 104 distinct colleges in the dataset, in a total of 53 different locations
- The location with most colleges is Boston with a total of 24 colleges
- The most common type of college are Special-focus institutions
- Most colleges are in Boston, Worcester and Cambridge
- 72 colleges are Private not-for-profit, 30 are Public and 2 are For-profit
- 28 colleges are Special-focus institutions, 22 are Baccalaureate colleges, 20 are Master's universities, 20 are Associate's colleges and 14 are Research universities

## Table with the location of each city

	City	Number of Colleges	Colleges	Latitude	Longitude
0	Amherst	3	Amherst College,Hampshire College,University o...	42.368566	-72.505714
1	Andover	1	Massachusetts School of Law	42.657170	-71.140878
2	Beverly	2	Endicott College,Montserrat College of Art	42.558428	-70.880049
3	Boston	24	Bay State College,Benjamin Franklin Institute ...	42.360253	-71.058291
4	Bourne	1	Massachusetts Maritime Academy	41.741217	-70.598920
5	Bridgewater	1	Bridgewater State University	41.990379	-70.975043
6	Brighton	1	Saint John's Seminary	42.350097	-71.156442
7	Brockton	1	Massasoit Community College	42.083433	-71.018379
8	Brookline	2	Boston Graduate School of Psychoanalysis,Helle...	42.331764	-71.121163
9	Cambridge	6	Cambridge College,Harvard University,Hult Inte...	42.375100	-71.105616



# Massachusetts' map with the cities that have colleges and universities



# Top 10 venues for each city in Massachusetts that has colleges and universities and corresponding cluster using *k*-means with 4 clusters

	City	Number of Colleges	Colleges	Latitude	Longitude	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	Amherst	3	Amherst College, Hampshire College, University of Massachusetts Amherst	42.368566	-72.505714	0	Coffee Shop	Grocery Store	Sandwich Place	Hotel	American Restaurant	Bakery	Pizza Place	Department Store	Liquor Store	Breakfast Spot
1	Andover	1	Massachusetts School of Law	42.657170	-71.140878	1	Coffee Shop	American Restaurant	Pizza Place	Italian Restaurant	Sandwich Place	Restaurant	Gym / Fitness Center	Fast Food Restaurant	Donut Shop	Burger Joint
2	Beverly	2	Endicott College, Montserrat College of Art	42.558428	-70.880049	0	Coffee Shop	Italian Restaurant	Park	Pizza Place	Bakery	Ice Cream Shop	Pub	Sandwich Place	Indie Movie Theater	Brewery
3	Boston	24	Bay State College, Benjamin Franklin Institute of Technology	42.360253	-71.058291	0	Park	Bakery	Seafood Restaurant	Gym	Coffee Shop	Hotel	Historic Site	Pizza Place	Sandwich Place	New American Restaurant
4	Bourne	1	Massachusetts Maritime Academy	41.741217	-70.598920	1	Seafood Restaurant	Donut Shop	Convenience Store	American Restaurant	Park	Sandwich Place	Restaurant	Beach	Gas Station	Breakfast Spot



## Massachusetts' map with the cities that have colleges and universities and their corresponding cluster

