

# Segmenting and Clustering Neighborhoods in Novi, MI

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## *Applied Data Science Capstone Project Report*

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### Introduction to the Opportunity in Novi

Novi is a city in Oakland County in the U.S. state of Michigan. The city is located approximately 25 miles northwest of the center of Detroit. Novi was originally a township organized in 1832, but it continues to be one of the fastest growing cities in Michigan today.

As the city grows and develops, it becomes increasingly important to examine and understand it quantitatively. The city of Novi provides open data for everyone and encourages entrepreneurial use to develop services for the benefit of its citizens.

Developers, investors, policy makers and city planners have an interest in answering the following questions as the need for additional services:

- ***What's the population increasing rate?***
- ***Is population increasing correlated to economy***
- ***How is crime incident rate per 100,000 people***
- ***Does the Twelve Oak Mall really need another coffee shop?***

### Data

To understand and explore we will need the following City of Novi Open Data:

- Novi Demographics:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/demographics.population.count?ref=search-entity&year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/demographics.population.count?ref=search-entity&year=2017)
- Novi Geographic:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/geographic.population.density?year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/geographic.population.density?year=2017)
- Novi Education:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/education.graduation.rates.percent\\_less\\_than\\_9th\\_grade?year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/education.graduation.rates.percent_less_than_9th_grade?year=2017)
- Novi Jobs/Earnings Information:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/jobs.earnings.median\\_earnings?year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/jobs.earnings.median_earnings?year=2017)
- Novi Public Safety:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/crime.fbi\\_ucr.count?crime\\_type=Aggravated%20assault&year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/crime.fbi_ucr.count?crime_type=Aggravated%20assault&year=2017)

- Novi Finance:  
[https://www.opendatanetwork.com/entity/1600000US2659440/Novi\\_MI/finance.michigan\\_debt\\_health?year=2017](https://www.opendatanetwork.com/entity/1600000US2659440/Novi_MI/finance.michigan_debt_health?year=2017)
- Novi Developers Access to venue data: <https://foursquare.com/>

**Using these data will allow exploration and examination to answer the questions:**

- **The demographic data will show us the population increasing rate.**
- **The earning and finance data will enable us to conclude economy statuation of Novi.**
- **The public safety data will let us to compare the population density and crime.**
- **Venue data can let us to determine whether to open another coffee shop in the mall.**