

## Checkpoint 1: Relational Analysis Findings

### The Brave Ducks


#### Income neighborhood

Recall our definitions for different income neighbors are following:


- a **low-income neighborhood** is a community that has less than \$30,000 of median income,
- a **middle-income neighborhood** is a community that has a median income between \$30,000 - \$75,000,
- a **high-income neighborhood** is a community that has a median income of over \$75,000.

Q0: How many people are living in **low, middle, high** income neighborhoods?


The result for low income neighborhoods:

	 population ▾
1	401566

The result for middle income neighborhoods:

	 population ▾
1	1904676

The result for high income neighborhoods:

	 population ▾
1	410739


We can see that most people are living in middle-income neighborhoods which is expected. Based on a population distribution, we can say that 14.8% of the population lives in low income neighborhoods, 70.1% of the population lives in middle income neighborhoods and 15.1% of the population lives in high income neighborhoods.

Q1: Using our definition of types of "income neighborhood", what is the total number of officer allegations for all **low, middle, high income** neighborhoods?

The result for low income neighborhoods:

	 count ▾
1	63011

The result for middle income neighborhoods:

	 count ▾
1	113982


The result for high income neighborhoods:

	 count ▾
1	27813


We can observe that the number of officer allegations in high income neighborhoods are much less than the other two income neighborhoods with regards to total counts. When we take the result from q0's sql queries, we can calculate that the office allegation per capita for low income neighborhoods is 0.16, middle income neighborhoods is 0.06 and high income neighborhoods is 0.07. This shows that there are **significantly more** officer allegations among low income neighborhoods on a per capita basis.

Q2: What is the rate of increase for officer complaints for **low, middle, high** neighborhoods between 2002-2007 and 2007-2012 timeframes, 2007-2012 and 2012-2017 timeframes?


Low income neighborhoods between 2002-2007 v.s. 2007-2012

	 percentageincrease ▾
1	1.4933712121212122


Low income neighborhoods between 2007-2012 v.s. 2012-2017

	 percentageincrease ▾
1	1.1578947368421053


Middle income neighborhoods between 2002-2007 v.s. 2007-2012

	 percentageincrease ▾
1	1.3782742681047766


Middle income neighborhoods between 2007-2012 v.s. 2012-2017

	 percentageincrease ▾
1	1.145631067961165

High income neighborhoods between 2002-2007 v.s. 2007-2012

	 percentageincrease ▾
1	1.3009174311926606


High income neighborhoods between 2007-2012 v.s. 2012-2017

	 percentageincrease ▾
1	1.3228155339805825


We can see that for all three neighborhoods, the number of officer allegations cases are rising. What surprises our group is that there is a huge jump in cases between 2002-2007 to 2007-2012 timeframes for low income neighborhoods. We suspect that this was due to the timeframe of the financial crisis and the political and income disparity that caused such big increases between 2007-2012 especially for the low income neighborhoods.

Q3: What is the percentage of misconduct allegations (illegal search, use of force, etc) out of all allegations for these **low, middle, high** neighborhoods?


Low income neighborhood:

	 misconductpercentage ▾
1	0.07660738714090287

Middle income neighborhood:

	 misconductpercentage ▾
1	0.09828943795818626


High income neighborhood:

	 misconductpercentage ▾
1	0.05738278516445067


As we can see, the percentage is quite different for different neighborhoods. It seems that for high income neighborhoods, it is 50% less likely that there would be police misconduct allegations than for middle income neighborhoods.

Q4: Among the officer allegations with complaints filed in the **low, middle, high** neighborhood, what percentage of the cases are dismissed?


Low income neighborhood:

	 dismissedcases ▾
1	0.44388646288209604

Middle income neighborhood:

	 dismissedcases ▾
1	0.4524800554977454

High income neighborhood:

	 dismissedcases ▴▾
1	0.44518272425249167

As from the result, almost half of cases for complaint filed results in "No Action Taken". This is unanimous across all neighborhoods. We, as a group, are wondering which factors induce such a high rate. But this is a question that might be worth mentioning in the future direction of our research.