

EXERCISE 6.7

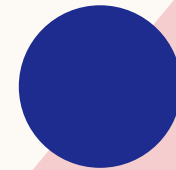
CREATING DATA ANALYTICS DASHBOARDS

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BUSINESS CASE

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Data Source: New York City Citywide Payroll Data (Fiscal Year)

<https://data.cityofnewyork.us/City-Government/Citywide-Payroll-Data-Fiscal-Year-/k397-673e>

This data provides salary information for city employees across the five boroughs of New York City.

Based on my first round of exploration and data cleaning, the variables in this data set could potentially answer questions such as:

- Which titles or agencies pay the most or the least?
- Do employees receive the same pay in all 5 boroughs?
- What is the location of each job title?
- Does one borough hire more of less of a certain job title than the other boroughs?

Guidance Questions to frame a Business Case:

Who? Who would be interested in knowing about job categories, the number of jobs, and how much they pay?

What? What jobs are available to become an employee of New York City? Official Government jobs from all agencies across the five boroughs of New York City.

When? Payroll information from 2015 to 2022.

Where? The five boroughs of New York City.

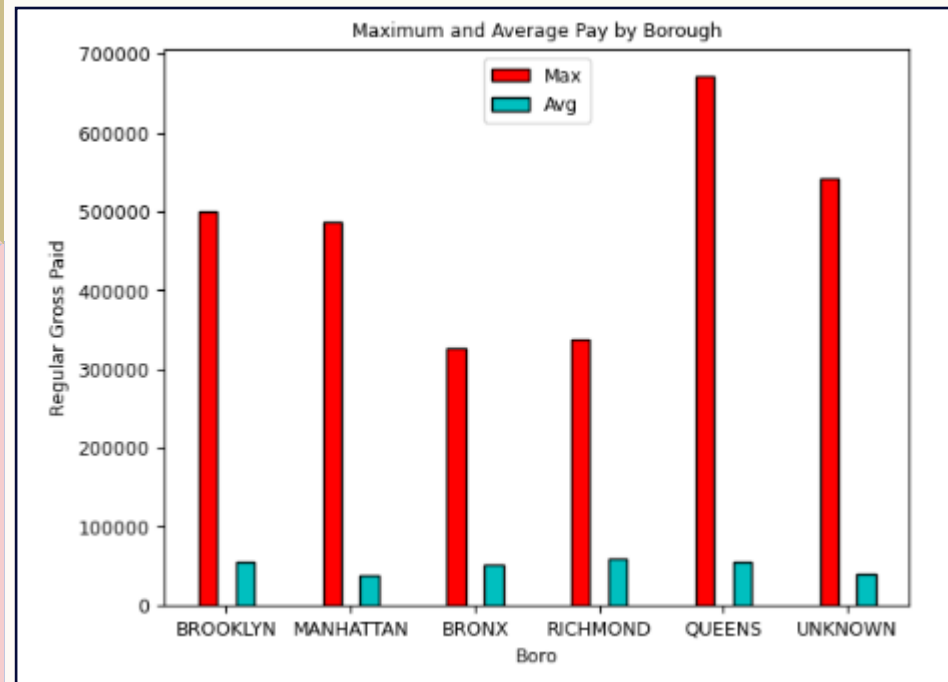
Why?: Government Payroll is public information so that citizens can know how much of their taxes go to pay salaries. It also provides insight to how much one can earn by becoming a government employee.

INTRODUCTORY STORYPOINT₄

Do employees earn the same pay in all 5 boroughs?

Analysis to find the answer

- Create statistical baseline statistics on Regular Gross Paid
- Segment audience by Borough Name



- The average pay amount for Brooklyn, Queens, Staten Island, and the Bronx is all within the 50,000 range. The variation in this average could be due to specific job types having more or less presence in each borough. Manhattan has the lowest average pay at 37,000.
- The Max Pay amount in Brooklyn and Manhattan is the highest pay around 500,000, while Bronx and Staten Island have highest pay around 300,000.

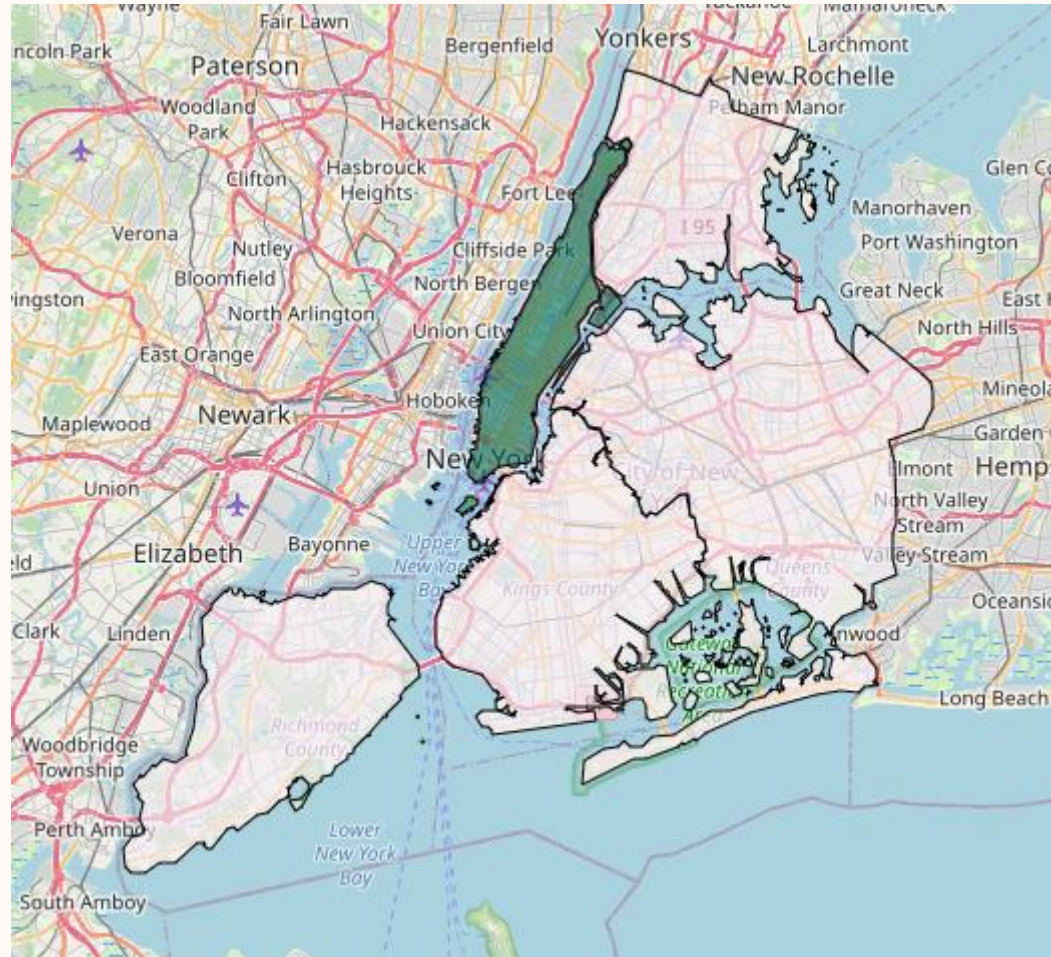
Hypothesis Moving Forward:

- Overall, it will be more valuable to understand the specific job types rather than location that lead to these maximum pay amounts.

PIVOTAL HYPOTHESIS

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Based on Introductory Storypoint, the location of the job does not appear to be the determining factor to how much pay an employee earns.



Second observation was mapping the count of jobs in each Borough of New York City.

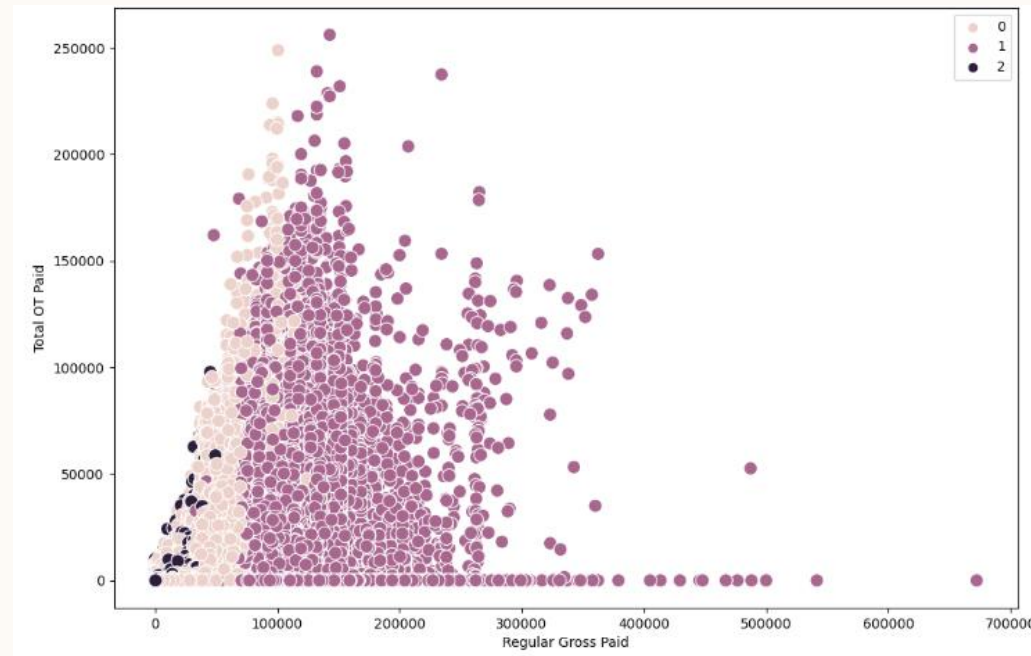
This map made it clear the vast majority of jobs are located in Manhattan and therefore that location is not a strong influencing factor on amount of pay.

Therefore it is necessary to explore other categories, such as the Agency, where the job belongs in order to find influencing factors on the amount an employee earns.

INITIAL ANALYSIS

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While exploring this data for cluster analysis, it became clear that there is a relationship between the number of Regular Hours Worked and Overtime Hours, as well as, a relationship between Regular Gross Paid and Overtime Paid.



Regular Gross Paid and Total OT Paid
This chart has the most interesting relationship. The three clusters show that the audience can be divided into groups based on Regular Gross Paid, but the amount of OT Paid can increase within each of these three groups. This matches the information found in the previous exercise related to supervised machine learning, where it seems the number of regular hours worked has a mild influence on the number of over time hours worked.

Overall initial analysis resulted in two main observations

- Location is not a strong indicator of how much money an employee earns.
- As Regular Hours increase, Overtime Hours increase too.

Therefore, main business case is who would want to know which specific jobs pay the most?
Job seekers!

FINAL TABLEAU STORY

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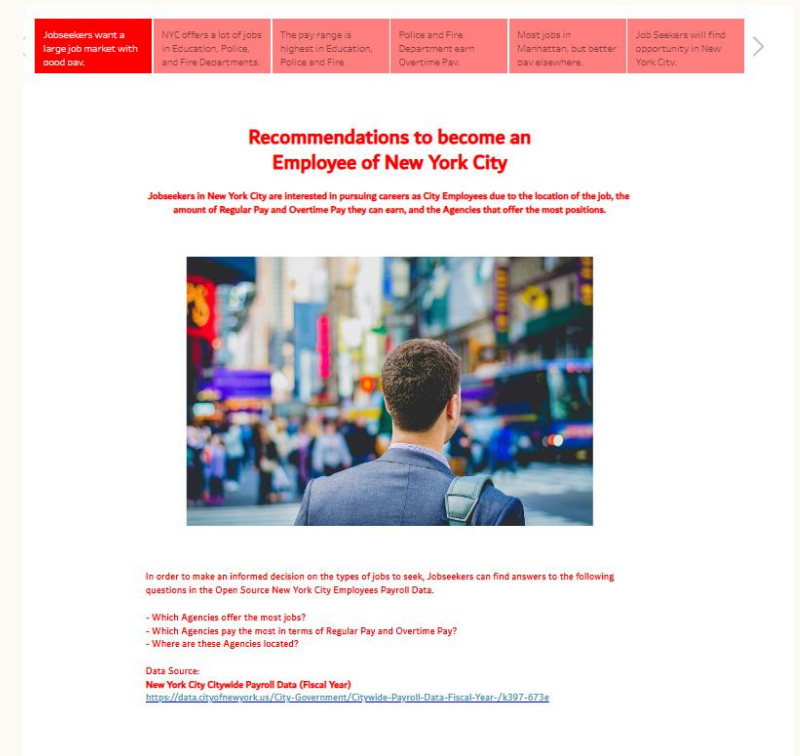
Recommendations to Become an Employee of New York City

Recommendations for Employment on NYC Payroll | Tableau Public

Jobseekers in New York City are interested in pursuing careers as City Employees due to the location of the job, the amount of Regular Pay and Overtime Pay they can earn, and the Agencies that offer the most positions.

In order to make an informed decision on the types of jobs to seek, Jobseekers can find answers to the following questions in the Open Source New York City Employees Payroll Data.

- Which Agencies offer the most jobs?
- Which Agencies pay the most in terms of Regular Pay and Overtime Pay?
- Where are these Agencies located?



GIT HUB REPOSITORY

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This analysis can be found on my profile in GitHub:

<https://github.com/MelEtch/NYCPayroll>

Open Source Data Analysis

In order to earn experience in sourcing public data, I completed a project for Career Foundry that included selecting a public open source data set, cleaning it and preparing it for introductory analysis, building visualizations including maps, time series, and cluster analysis, and creating a dashboard based on the open-ended data exploration but resulting in actual recommendations.

Challenge: Taking an unknown data set and learning as much as possible about the data in order to propose business questions that could be answered, then answering those questions and providing recommendations.

Solution: Use New York City Citywide Payroll Data which provides salary information for city employees across the five boroughs of New York City. Clean, explore, and analyze the data in Python, using Jupyter Notebook and Anaconda. Identify potential business questions and audience that would be interested in understanding :

- Which Agencies offer the most jobs?
- Which Agencies pay the most in terms of Regular Pay and Overtime Pay?
- Where are these Agencies located?

Build a dashboard in Tableau to communicate findings and recommendations to an audience of Job Seekers.



THANK YOU

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