



Wage Data Analysis in Seattle

Alex Burch, Awe Ryan, Dan Chavez, and Garrett Sanders



Purpose

- Analyze Seattle's public city data to determine which departments are male or female-dominated.
- Identify any pay discrepancies between sexes.

Source Data:

- Data.Gov (Catalog) - Main Site for US Government's Public Datasets
 - Data.Seattle.Gov

Types of Data

Source of Data:

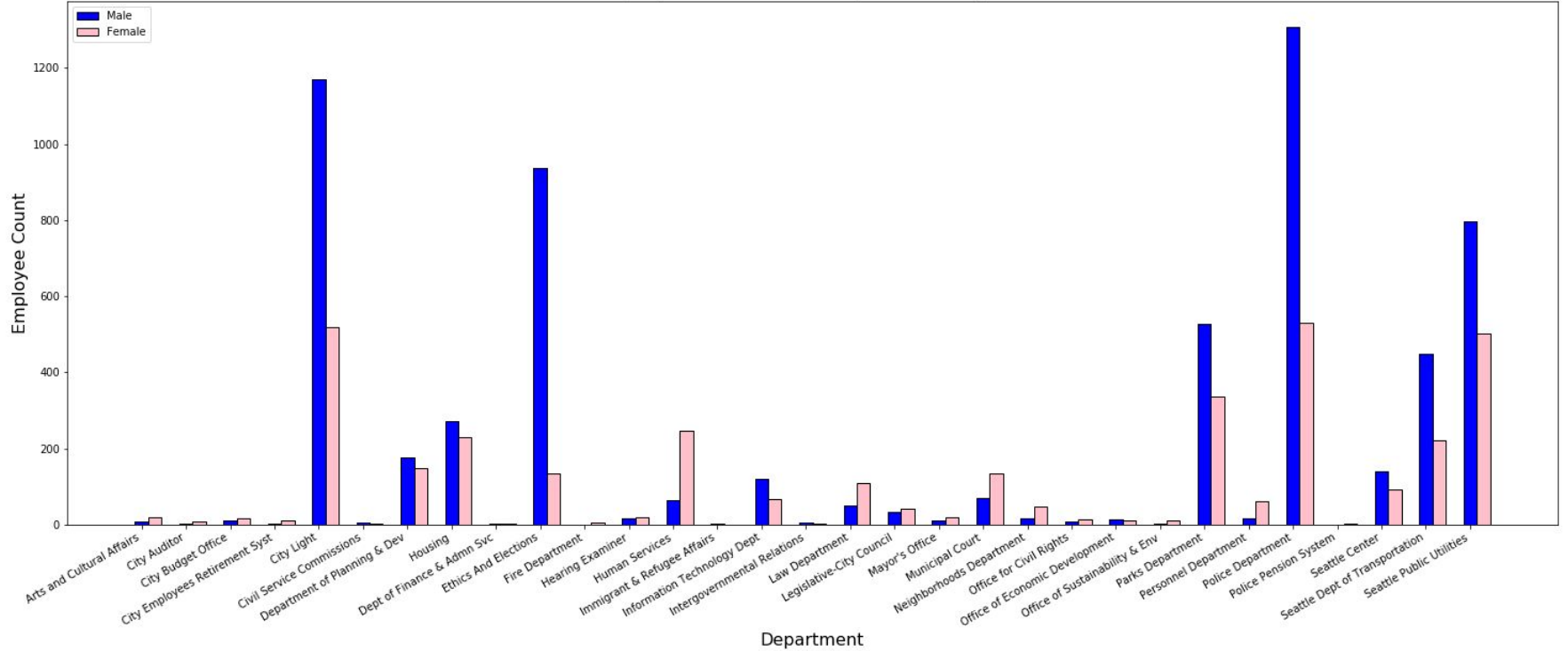
Data.Seattle.Gov - (2020)

- Department
- Job Classification
- Female / Male avg hrly rate
- No. Female/ Male Empl.
- Total Avg Hrly Rate
- Total no. Empl
- Female to male % count

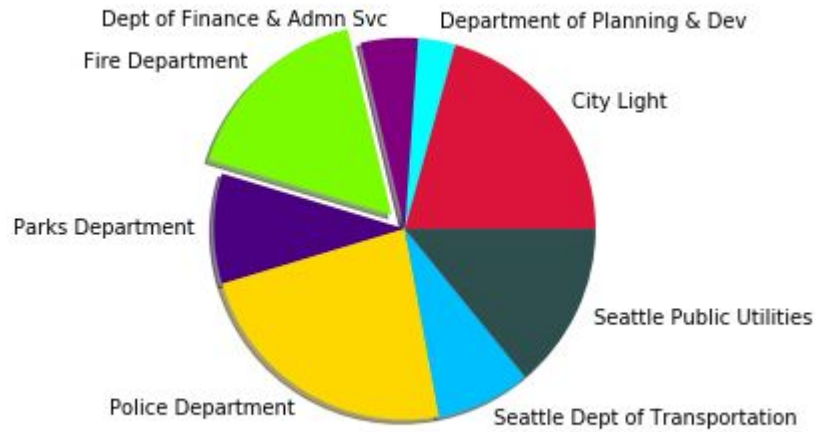
Data Wrangling

- Grouping by Departments Initial Data touch up
 - Exporting CSV file from external website
- Functions used:
 - Groupby functions combining Departments
 - Sorting
 - Index formatting
 - Dropna function to remove NaN values (Needed to create charts)

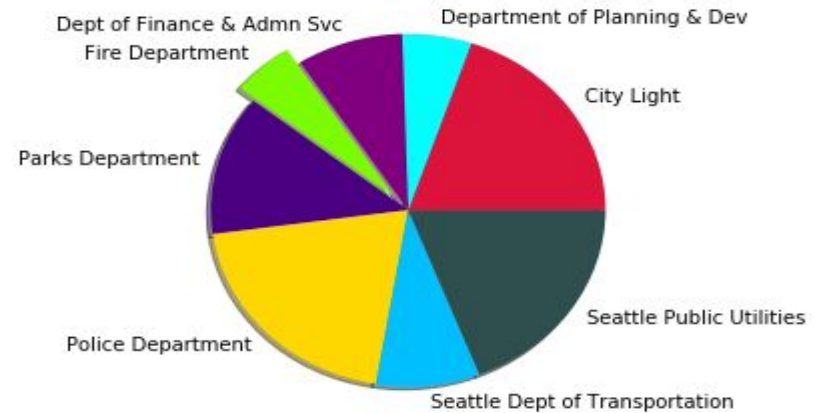
Employee Count across Departments By Sex

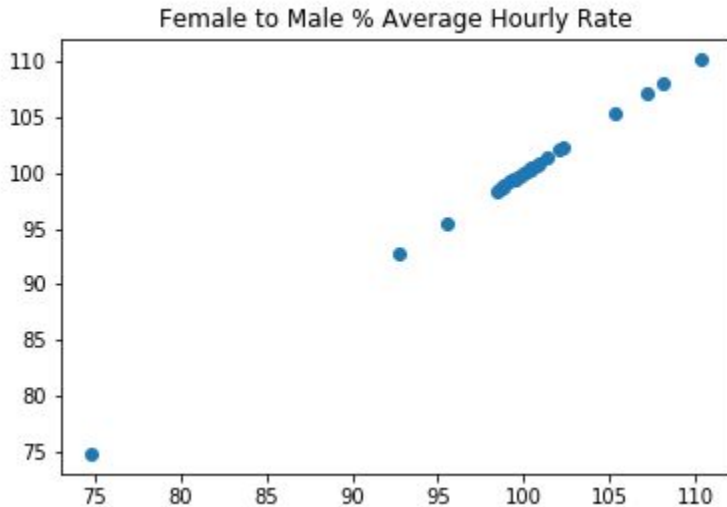


Male Workers



Female Workers

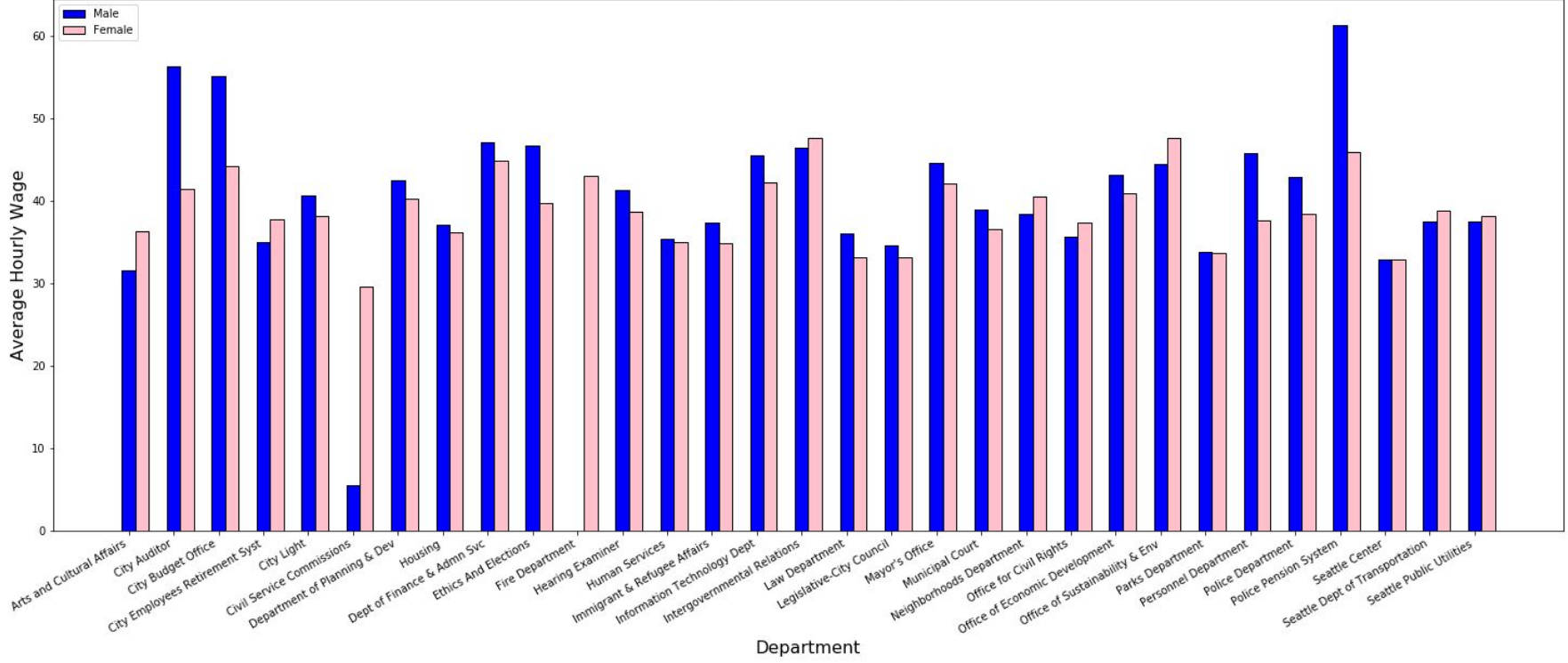




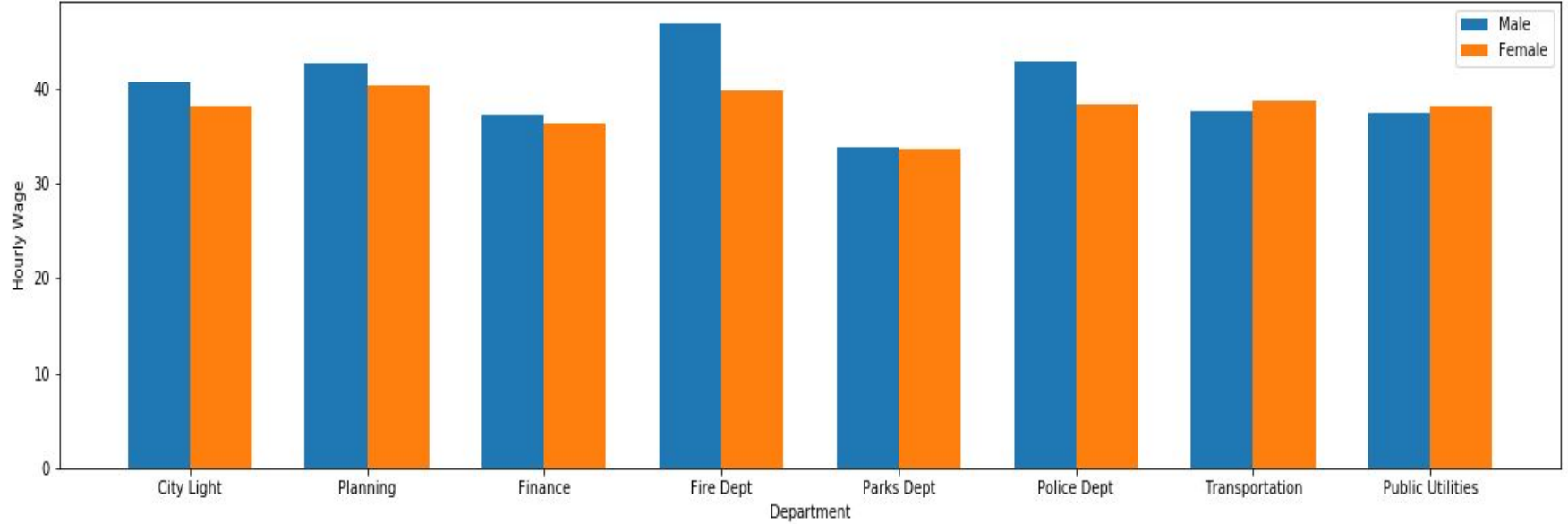
- Ratio of womens hourly rate compared to men's hourly rate is 99.76%

Department	Percentage comparison	Variance from average (99.76%)
Police Pension System	74.82%	24.94%
Office of Economic Development	105.3%	5.54%
Intergovernmental Relations	107.15%	7.39%
Neighborhoods Department	108.05%	8.29%
City Auditor	110.27%	10.51%

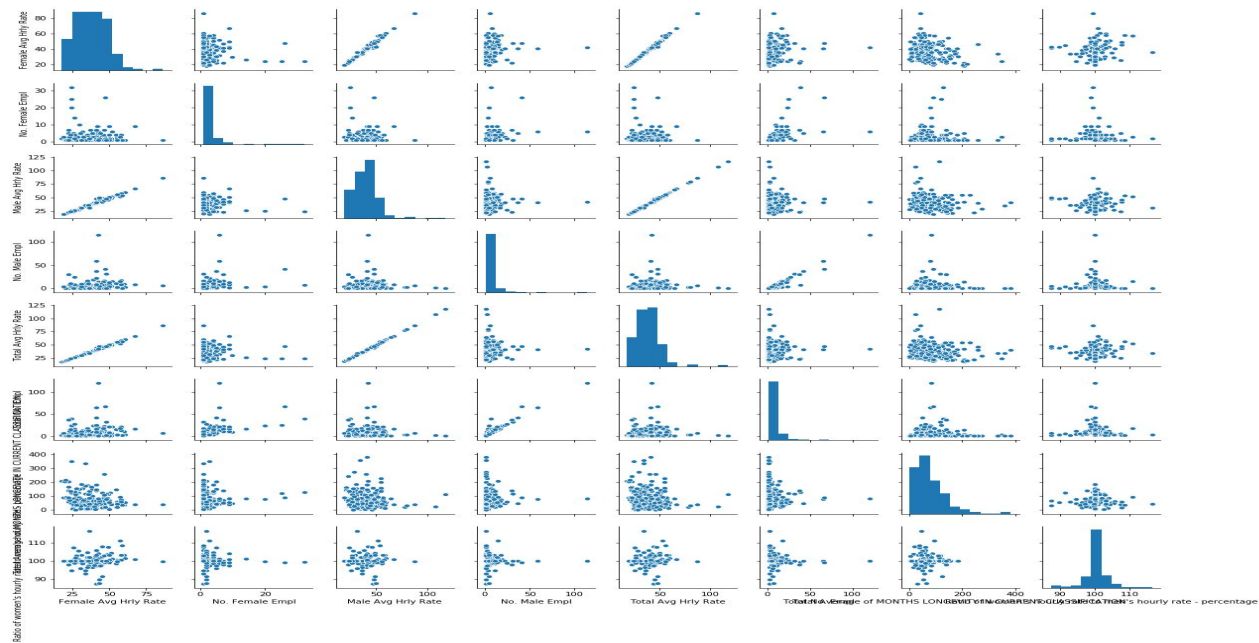
Average Hourly Wage by Sex

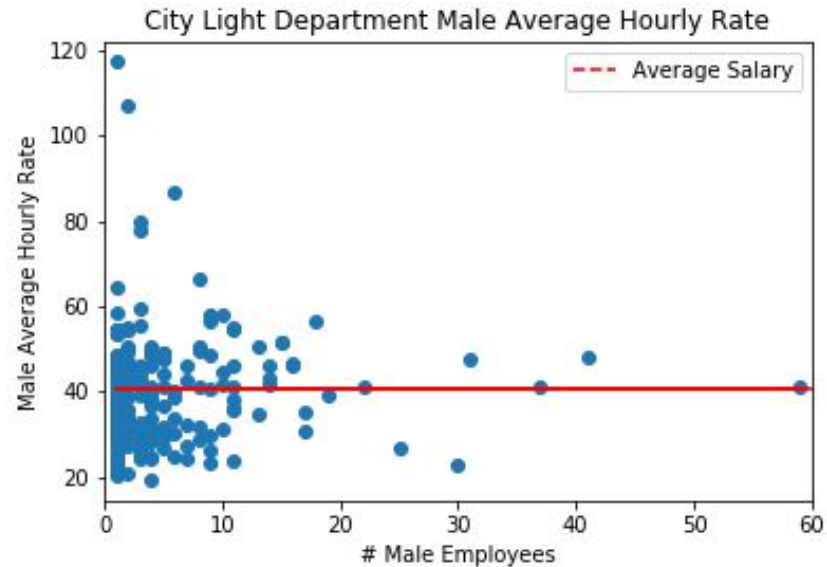
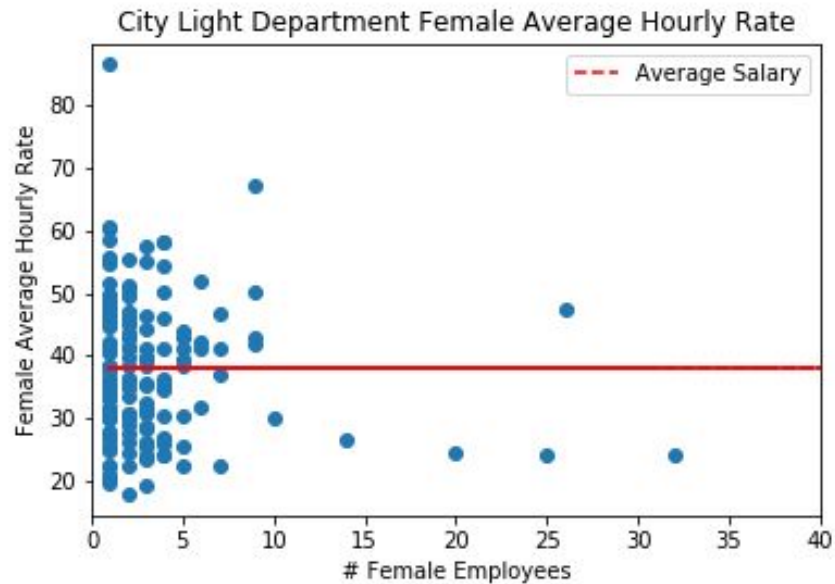


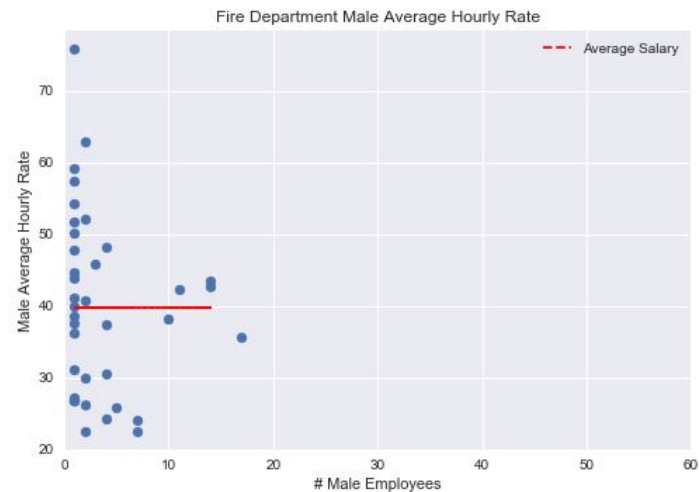
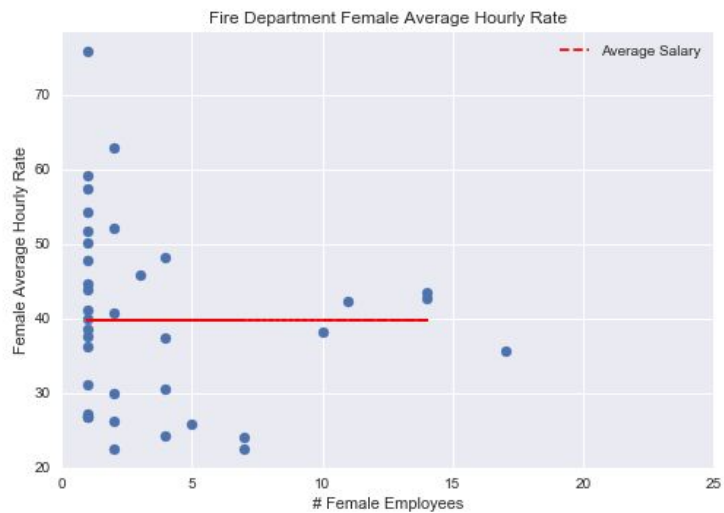
Hourly Wage by Gender

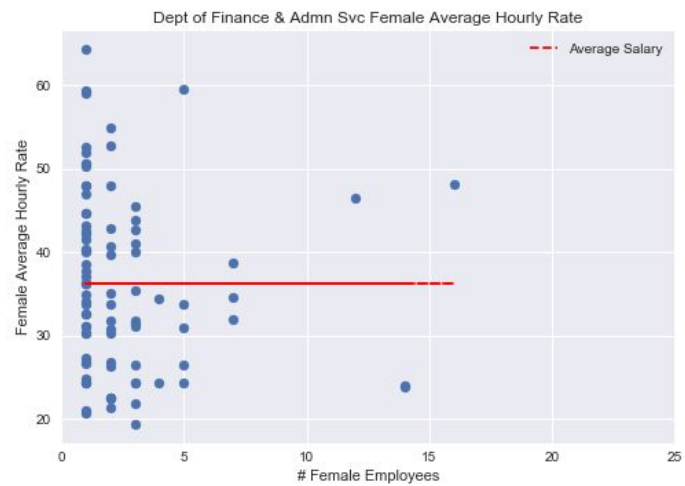


Scatter Plot Overload



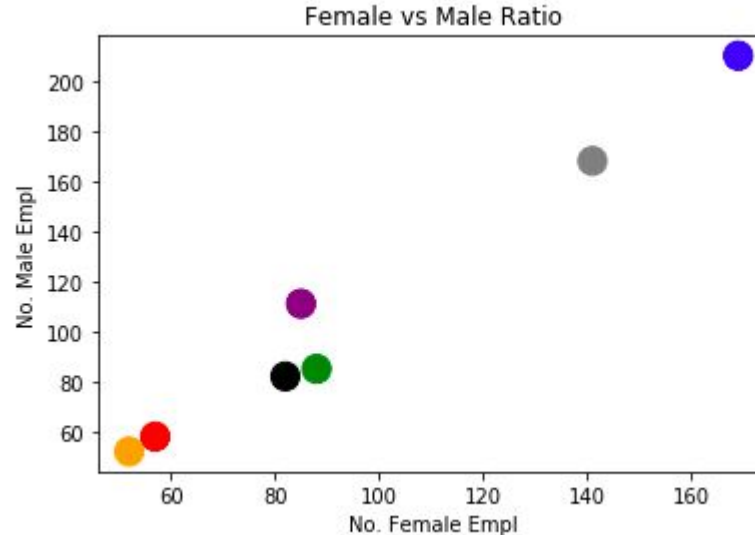






What is the female to male employee count by department?

Blue= City Light **80.47%**
Red = Dept of Planning **98.27%**
Green = Dept of Finance **103.53%**
Black = Police Dept **100%**
Orange= Seattle Center **100%**
Purple = Dept of Transport **76.57%**
Grey = Public Utilities **83.93%**



	Female Avg Hrly Rate	No. Female Empl	Male Avg Hrly Rate	No. Male Empl	Total Avg Hrly Rate	Total No. Empl	Total Average of MONTHS LONGEVITY IN CURRENT CLASSIFICATION	Ratio of women's hourly rate to men's hourly rate - percentage
count	1112.000000	1647.000000	1148.000000	1647.000000	1647.000000	1647.000000	1647.000000	606.000000
mean	37.572914	4.343655	39.020906	7.577413	38.449174	11.921069	76.188039	100.215429
std	11.170982	88.217434	12.283102	154.590727	11.854552	242.560581	56.108034	4.631025
min	5.110000	0.000000	5.110000	0.000000	5.110000	1.000000	0.000000	74.820000
25%	29.215000	0.000000	30.280000	0.000000	29.990000	1.000000	37.960000	99.432500
50%	36.300000	1.000000	37.700000	1.000000	36.680000	2.000000	65.000000	100.000000
75%	44.740000	2.000000	45.965000	3.000000	45.300000	5.000000	102.935000	101.250000
max	86.340000	3577.000000	117.320000	6240.000000	117.320000	9817.000000	382.000000	129.890000

Conclusions

- Limitations on Data
 - More comprehensive data set breaking departments down into not only job titles but titles based on seniority
- Wage gap was not as large as we had previously inferred-
 - Ratio of womens hourly rate compared to men's hourly rate is 99.76%
- Gender gap in and between several departments was not as large as we had inferred between several of the larger departments of Seattle.



FIN