EAS503 : FINAL PROJECT REPORT

EMPLOYEE COMPENSATION ANALYSIS FOR THE CITY

OF SAN FRANCISCO

SUBMITTED BY :

DITHYA SRIDHARAN

FREYA GENESIS DMELLO

KRINA JOSHI

INTRODUCTION

DATA SUMMARY

The data set that is worked upon in this project is the data set of the compensation of the employees in the fiscal years 2013 – 2017. The San Francisco Controller's Office maintains a database of the salary and benefits provided to the employees of San Francisco. This data is also hosted on (www.data.sfgov.com). This data has been obtained from the above mentioned site.

The data set contains 83946 rows and 18 columns. The flow of the columns is hierarchical from Organization to Job and also compensation is granulated into Salaries and different kinds of Benefits.

1. PROBLEM STATEMENT:

Major part of the project is probing into the data set and extract information from it. We have studied how compensation is distributed along different hierarchies. Among the six organisations identified, it was observed that the number of employees, despite being high, have a comparatively lower compensation than the other organisations. So we are analysing the employee compensation distribution along the hierarchy - organisations, departments, and jobs.
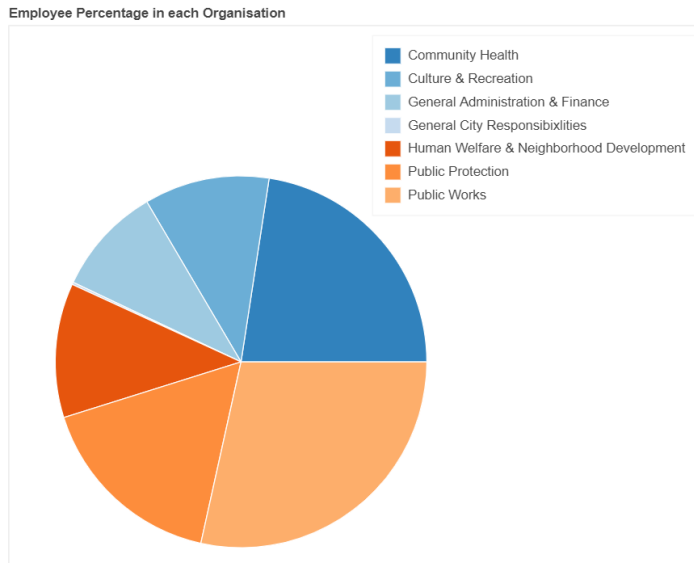
2.EXPLORATORY DATA ANALYSIS :

2.1.CORRELATION MATRIX FOR IDENTIFYING COMPENSATION:
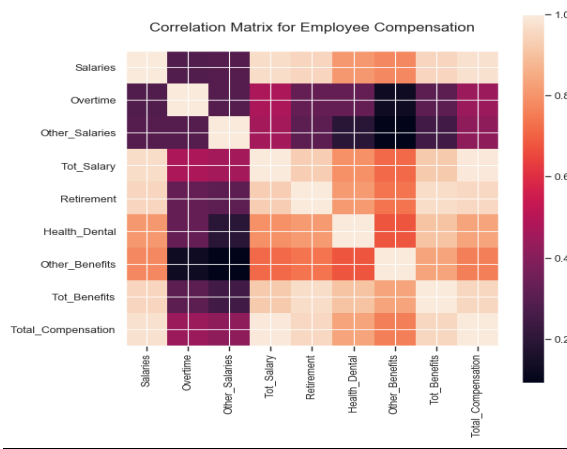
Here, Total Compensation = Total Salary + Total Benefits

2.2 PIE CHART FOR EMPLOYEES PER ORGANISATION

Employee Percentage in each Organisation

Breakdown along the hierarchy:
Organisations = > Departments => Jobs

The percentage of Employees per Organisation:
Public Works: 28.5
Community Health : 22
Public Protection : 16.7
Human Welfare & Neighborhood Development: 11.7
Culture & Recreation : 10.9
General Administration & Finance: 9.5
General City Responsibixlities : 0.2

2.2 CATEGORISING JOBS PER ORGANISATION AS HIGH AND LOW

Public Works => Community Health => Public Protection

Public Works has highest number of Jobs - LOW and HIGH
Number of LOW Compensation Jobs: Community Health >> Public Protection
Hence Community Health has lesser Compensation than Public Protection
Other Orgs - Culture & Recreation, Human Welfare, General Administration have more
number of LOW Compensation Jobs than HIGH Compensation
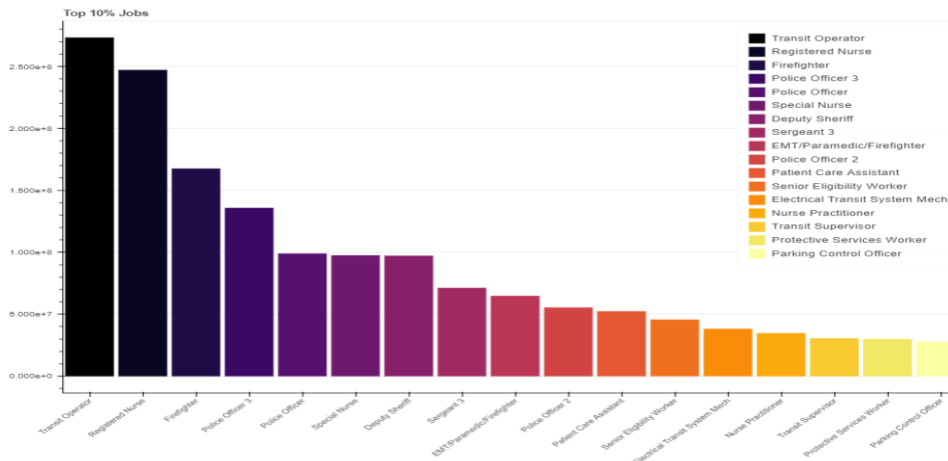General City Responsibilities has no HIGH Compensation Jobs

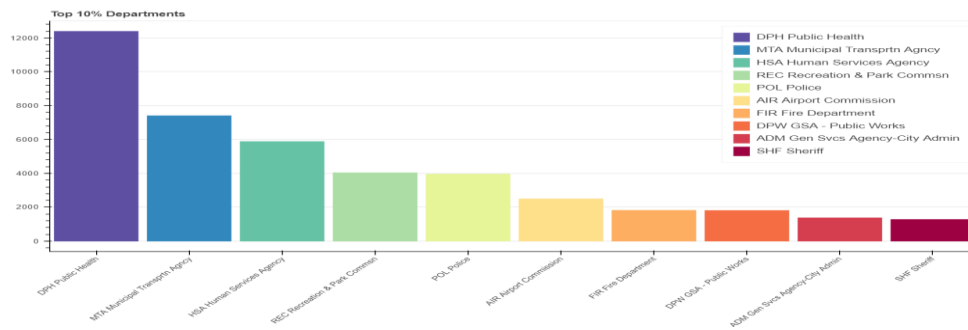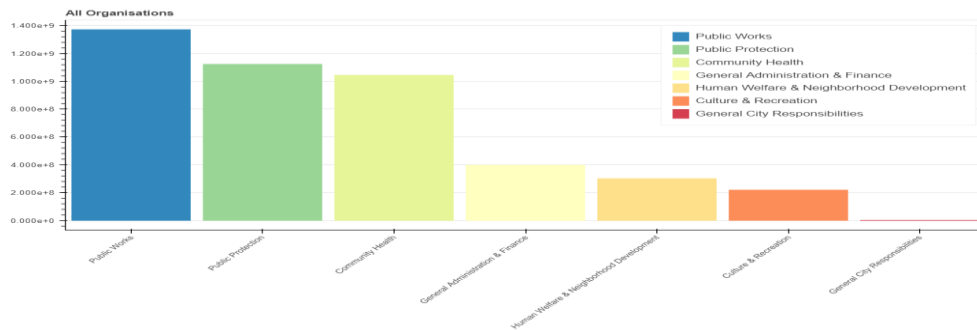## 2.4 COMPARISON FOR TOTAL COMPENSATION FOR EVERY FISCAL YEAR
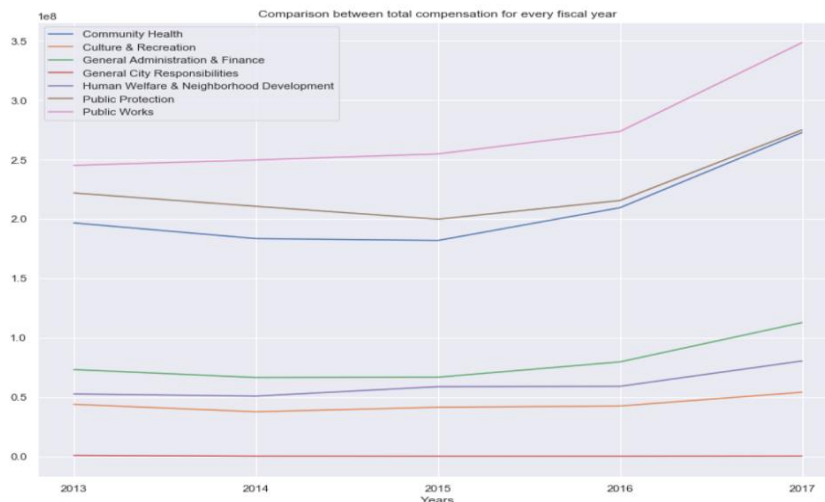
- Steep increase in Total compensation from 2016 - 2017 compared to other fiscal years 2013, 2014, 2015.
- Highest Compensation observed in Public Works
- Public Works > Public Protection > Community Health

2.4 BREAKDOWN ALONG THE HEIRARCHY

It was plotted to analyse the employee count against 2 categories - High and Low Compensation based on the mean factor across each organisation.

We finally inferred that after Public Works organisation had the highest compensation, Community Health Org had more number of LOW compensation jobs than High and Pubic Protection had more High compensation jobs.

Hence we concluded by why Community Health Org despite having more number of employees had a lesser compensation than Public Protection.

To concretise the data readings of the top compensations vs its corresponding top Jobs in fiscal year 2016 along the hierarchy we did a breakdown. Top Organisations were realised and broken down into its corresponding Departments and its Job families. For every job family, the jobs were extracted to give the list of jobs with compensation values in the upper 10%.

The analysis indeed gave us info in congruence to where we started by having top compensation value in Public Works followed by Public Protection, Community Health and the rest.

2.5 LIST OF TOP JOBS

	TotalSals	TotalBens	TotalComp	Job	Job_Fam	Dept	Org_Group
10	186892485.0	86262743.0	273155207.0	Transit Operator	Street Transit	MTA Municipal Transprtn Agncy	Public Works
23	185883623.0	61164796.0	247048410.0	Registered Nurse	Nursing	DPH Public Health	Community Health
3	131355131.0	36107198.0	167462314.0	Firefighter	Fire Services	FIR Fire Department	Public Protection
31	109197586.0	26518652.0	135716234.0	Police Officer 3	Police Services	POL Police	Public Protection
19	74769671.0	23996263.0	98765905.0	Police Officer	Police Services	POL Police	Public Protection
7	83403941.0	14003882.0	97407788.0	Special Nurse	Nursing	DPH Public Health	Community Health
15	74209374.0	22873045.0	97082404.0	Deputy Sheriff	Correction & Detention	SHF Sheriff	Public Protection
34	57556379.0	13499833.0	71056218.0	Sergeant 3	Police Services	POL Police	Public Protection
45	50712868.0	13947174.0	64660055.0	EMT/Paramedic/Firefighter	Fire Services	FIR Fire Department	Public Protection
41	44057658.0	11221647.0	55279290.0	Police Officer 2	Police Services	POL Police	Public Protection
13	36375710.0	15830447.0	52206178.0	Patient Care Assistant	Nursing	DPH Public Health	Community Health
33	31501937.0	13989026.0	45490957.0	Senior Eligibility Worker	Human Services	HSA Human Services Agency	Human Welfare & Neighborhood Development
20	28402282.0	9687709.0	38089992.0	Electrical Transit System Mech	Journeyman Trade	MTA Municipal Transprtn Agncy	Public Works
49	26214612.0	8359920.0	34574525.0	Nurse Practitioner	Nursing	DPH Public Health	Community Health
87	22632885.0	7702973.0	30335858.0	Transit Supervisor	Street Transit	MTA Municipal Transprtn Agncy	Public Works
21	21189148.0	8587067.0	29776213.0	Protective Services Worker	Human Services	HSA Human Services Agency	Human Welfare & Neighborhood Development
9	19236298.0	8417385.0	27653688.0	Parking Control Officer	Protection & Apprehension	MTA Municipal Transprtn Agncy	Public Works

3. FUTURE SCOPE

- It helps get a better idea on how the compensation may vary according to the trend observed from previous fiscal years.

- Depending on the observations and inferences from the employee counts and per organisation compensation amounts, it helps the younger generation choose their org of interest depending on various factors like health and dental benefits,retirement plans etc.

4. CONCLUSION

We have carefully analysed the trends of compensation distribution during the fiscal years 2013-17. Since the steepness of the compensation increased over the fiscal years, the prediction could be performed to compute the increase in compensation for the future years.