**Chicago Employee Dataset Analysis**

**Insights:**

1. Time distribution (F v P)
2. Salary/Hourly distribution
3. Hours Distribution (40 v 20 v 10)
4. Average Pay/Rate across Salary/Hourly\*[1]
5. Highest salaries in all job titles
6. Departments with the highest average salaries
7. Average Hourly-Contracts Yearly Pay / Average Salary-Contracts Yearly Pay

**Cleaning:**

\*Initial formatting and splitting of combined/joined data into separate columns were done in Excel, rest of the cleaning process done through SQL is documented as follows:

1. **NULL Handling**

Checking for Nulls.

Select count(Column\_name) from data-project-371810.Chicago\_employees\_dataset.Employees where Column\_name is Null

Creating a new table without Null value containing rows as BigQuery Sandbox doesn’t allow DML statements.

Create table data-project-371810.Chicago\_employees\_dataset.Employees\_v1 as

(Select \* from data-project-371810.Chicago\_employees\_dataset.Employees where Full\_or\_Part\_time is not Null)

1. **Checking for duplicates**

Select Distinct count(\*) from data-project-371810.Chicago\_employees\_dataset.Employees\_v1

1. **‘Name’ Column Peculiarity**

The ‘Name’ column has first, middle, and last name joined but there’s no need for splitting them into separate columns as they aren’t useful for the analyzation process.

1. **Casting Datatypes**

Casting ‘Annual Salary’ column as int from double for easier handling. Again, creating a new table as DML statements aren’t supported by BigQuery in Sandbox mode.

Create table data-project-371810.Chicago\_employees\_dataset.Employees\_v2 as

(Select Name, Job\_Titles, Department, Full\_or\_Part\_Time, Salary\_or\_Hourly, Typical\_Hours, cast(Annual\_Salary as int64) as Annual\_Salary, Hourly\_Rate from data-project-371810.Chicago\_employees\_dataset.Employees\_v1)

**Analyzation:**

1. **Time distribution (F v P)**

96.87% | 3.13%

Select (count(\*)/(Select count(\*) from data-project-371810.Chicago\_employees\_dataset.Employees\_v2))\*100 from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 where Full\_or\_Part\_Time = "P"

\*None of the Part time workers are on a Salary-based contract, they are all based on Hourly contracts.

1. **Salary/Hourly distribution (S v H)**

77.70% | 22.30%

Select (count(\*)/(Select count(\*) from data-project-371810.Chicago\_employees\_dataset.Employees\_v2))\*100 from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 where Salary\_or\_Hourly = "SALARY"

1. **Hours Distribution (40 v 35 v 20 v 10)**

85.70% | 0.38% | 11.71% | 2.21%

Select (count(\*)/6951)\*100 from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 where Typical\_Hours = 40

\*The percentages are derived based on total number of hourly workers which is 6951.

1. **Average Pay/Rate across Salaried / Hourly\*[1]**

$99,626/Year | $38.74/Hour

Select avg(Annual\_Salary) from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 where Salary\_or\_Hourly = "SALARY"

1. **Highest salaries in all job titles**

|  |  |
| --- | --- |
| **Job Title** | **Salary** |
| COMMISSIONER OF AVIATION | 275004 |
| SUPERINTENDENT OF POLICE | 260004 |
| FIRE COMMISSIONER | 228612 |
| MAYOR | 216210 |
| FIRST DEPUTY FIRE COMMISSIONER | 207624 |
| FIRST DEPUTY SUPERINTENDENT | 207612 |
| EXEC DIR - OFFICE OF PUBLIC SAFETY ADM | 204756 |
| COMMISSIONER OF TRANSPORTATION | 204756 |
| COMMISSIONER OF CHICAGO PUBLIC LIBRARY | 204756 |
| CHIEF OF STAFF | 204756 |
| DEPUTY FIRE COMMISSIONER | 202980 |
| DEPUTY SUPERINTENDENT | 201600 |
| CHIEF | 200472 |
| ASST DEPUTY FIRE COMMISSIONER | 200460 |
| COMMISSIONER OF HEALTH | 197184 |
| CORPORATION COUNSEL | 195708 |
| COMMISSIONER OF PLANNING & DEVELOPMENT | 194964 |
| COMMISSIONER OF FAMILY AND SUPPORT SERVICES | 194964 |
| SUPERINTENDENT'S CHIEF OF STAFF | 194928 |
| CHIEF PROCUREMENT OFFICER | 194676 |
| FIRST DEPUTY CHIEF OF STAFF | 194676 |
| COMMISSIONER OF HOUSING | 189996 |
| COMMISSIONER OF STREETS AND SANITATION | 189372 |
| COMMISSIONER OF ASSETS INFO & SERVICES | 189372 |
| COMMISSIONER OF WATER MGMT | 189372 |
| BUDGET DIR | 189372 |
| EXEC DIR EMERG MGMT & COMM | 186912 |
| CHIEF ADMINISTRATOR | 185724 |
| DEPUTY CHIEF | 183984 |
| INSPECTOR GENERAL | 183840 |
| CHIEF FINANCIAL OFFICER | 183840 |
| CITY COMPTROLLER | 183804 |
| COMMISSIONER OF BUS AFAIRS AND CONSUMER PROT | 180768 |
| COMMISSIONER OF BUILDINGS | 180768 |
| CHIEF MEDICAL DIR - PUBLIC SAFETY | 178992 |
| COMMUNICATIONS DIRECTOR | 178452 |
| DEPUTY CHIEF OF STAFF | 178452 |
| DEPUTY MAYOR | 178452 |
| COORD OF FIRE AWARENESS | 177228 |
| COORD OF SPECIAL EVENTS LIAISON | 177228 |
| COMMANDING FIRE MARSHAL | 175464 |
| ASST DEPUTY CHIEF PARAMEDIC | 175464 |
| CHIEF LABOR NEGOTIATOR | 175464 |
| MANAGING DEPUTY CORPORATION COUNSEL | 175464 |
| DEPUTY DISTRICT CHIEF | 175464 |
| COMMANDER | 174928 |
| DIR OF ADMINISTRATIVE HEARINGS | 174240 |
| COMMISSIONER OF CULTURAL AFFAIRS/SPEC EVENTS | 172704 |
| FIRST DEPUTY DIR | 172096 |
| MEDICAL DIR | 171996 |

Select Job\_Titles, avg(Annual\_Salary) as Avg\_Salary from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 group by Job\_Titles order by Avg\_Salary DESC limit 50

1. **Average Salary in each department**

|  |  |
| --- | --- |
| **Department** | **Average Salary** |
| CCPSA | 124065 |
| BOARD OF ETHICS | 114428 |
| DEPT OF BUILDINGS | 113479 |
| OFFICE OF THE MAYOR | 109960 |
| DEPARTMENT OF LAW | 109320 |
| FIRE DEPARTMENT | 106777 |
| COMMISSION ON HUMAN RELATIONS | 105096 |
| OFFICE OF CLIMATE & ENVIRONMENTAL EQUITY | 104577 |
| LICENSE APPEAL COMMISSION | 102732 |
| DEPARTMENT OF POLICE | 102429 |
| DAIS | 101518 |
| CHICAGO DEPT OF TRANSPORTATION | 101098 |
| OFFICE OF BUDGET & MANAGEMENT | 100836 |
| CITY TREASURER | 98933 |
| DEPT OF WATER MANAGEMENT | 98772 |
| DEPARTMENT OF PROCUREMENT SERV | 98426 |
| DEPARTMENT OF PLANNING AND DEVELOPMENT | 96786 |
| DEPT STREETS AND SANITATION | 95825 |
| DEPT OF CULTURAL AFFAIRS | 95121 |
| DEPARTMENT OF HUMAN RESOURCES | 95105 |
| PUBLIC SAFETY ADMINISTRATION | 93704 |
| IG | 93562 |
| COPA | 92396 |
| DEPARTMENT OF PUBLIC HEALTH | 92371 |
| POLICE BOARD | 92322 |
| DEPT OF HOUSING | 92137 |
| FAMILY AND SUPPORT SERVICES | 89368 |
| BUS AFFAIRS AND CONSUMER PROT | 88903 |
| MAYORS OFFICE-DISABILITIES | 87750 |
| DEPARTMENT OF AVIATION | 84273 |
| DEPT OF ADMINISTRATIVE HEARING | 83877 |
| DEPARTMENT OF FINANCE | 81061 |
| CITY COUNCIL | 80802 |
| CITY CLERK | 80137 |
| OFFICE OF EMERGENCY MANAGEMENT | 78813 |
| CHICAGO PUBLIC LIBRARY | 78206 |
| COMM ANIMAL CARE AND CONTROL | 73263 |
| BOARD OF ELECTION COMMISSIONER | 60881 |

Select Department, avg(Annual\_Salary) as Avg\_Salary from data-project-371810.Chicago\_employees\_dataset.Employees\_v2 group by Department order by Avg\_Salary DESC

1. **Average** **Hourly-Contracts Yearly Pay / Average Salary-Contracts Yearly Pay**

$73169/Year | $99626/Year

Select avg(Typical\_Hours \* Hourly\_Rate \* 49), avg(Annual\_Salary) from data-project-371810.Chicago\_employees\_dataset.Employees\_v2

[1] Not Visualized due to similarity with the 7th insight.

**END**