ANALYSIS AND INSIGHTS

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Summary of Insights

Overview:

The analysis focused on the total pay over years and most overtime paid workers, The relation between different factors on Total Pay.

Data Clean:

1. **Mismatches:**

   Naming mismatch and upper_lower case duplicates and non-lean Jop title.

   ```
   'POLICE OFFICER III', 'POLICE OFFICER 3')
   'Police Officer 3', 'POLICE OFFICER 3')
   'X-Ray Laboratory Aide', 'X-RAY LABORATORY AIDE')
   'BOARD COMMISSION MEMBER, $200 PER MEETING', 'BOARD COMMISSION MEMBER')
   'Battlion Chief, Fire Suppressi', 'Battalion Chief, Fire Suppress')
   'BdComm Mbr, Grp2,M=$25/Mtg', 'BdComm Mbr')
   'BdComm Mbr, Grp3,M=$50/Mtg', 'BdComm Mbr')
   'BdComm Mbr, Grp5,M$100/Mo', 'BdComm Mbr')
   'Brd Comm Mbr, M=$200/Mtg', 'Brd Comm Mbr')
   'Biologist', 'Biologist I/II')
   'Chef', 'CHEF')
   ```

2. **Salary values:**

   Negative and zero values of total pay so deleted.

   ```
   TotalPay
   -618.13        1
    0.00        368
   ```

Data Exploration:

- **Data Size and Structure:**

  - The dataset consists of 148654 rows and 13 columns.

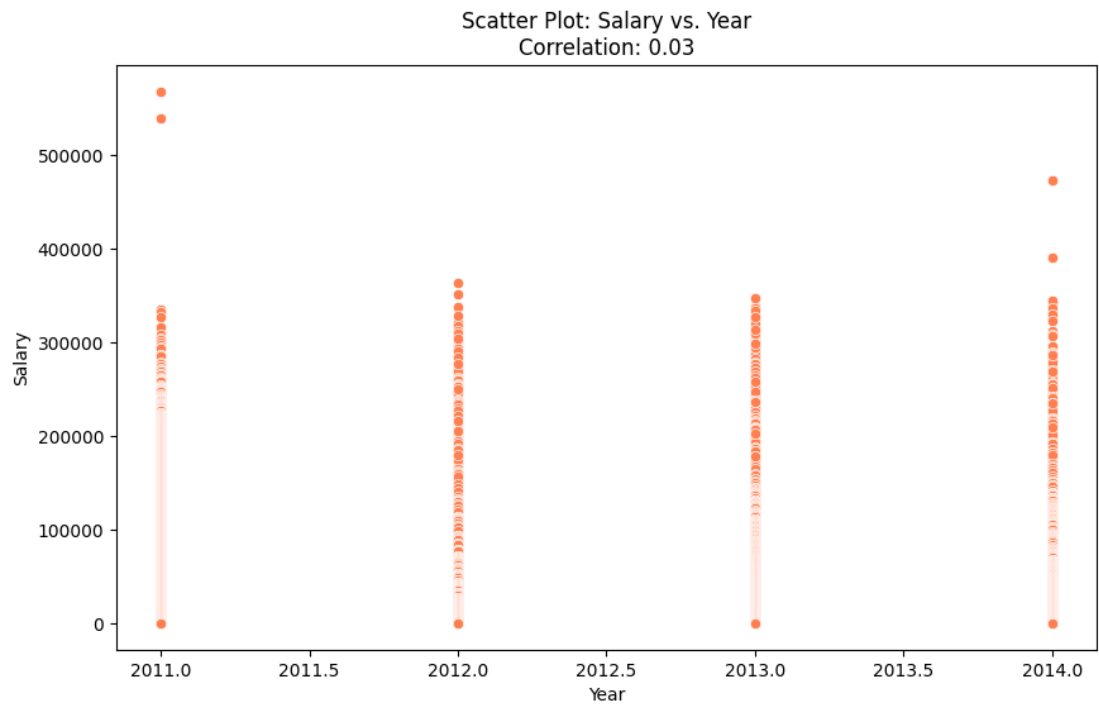 - Data type are floats, integers and objects.

- **Missing Values:**
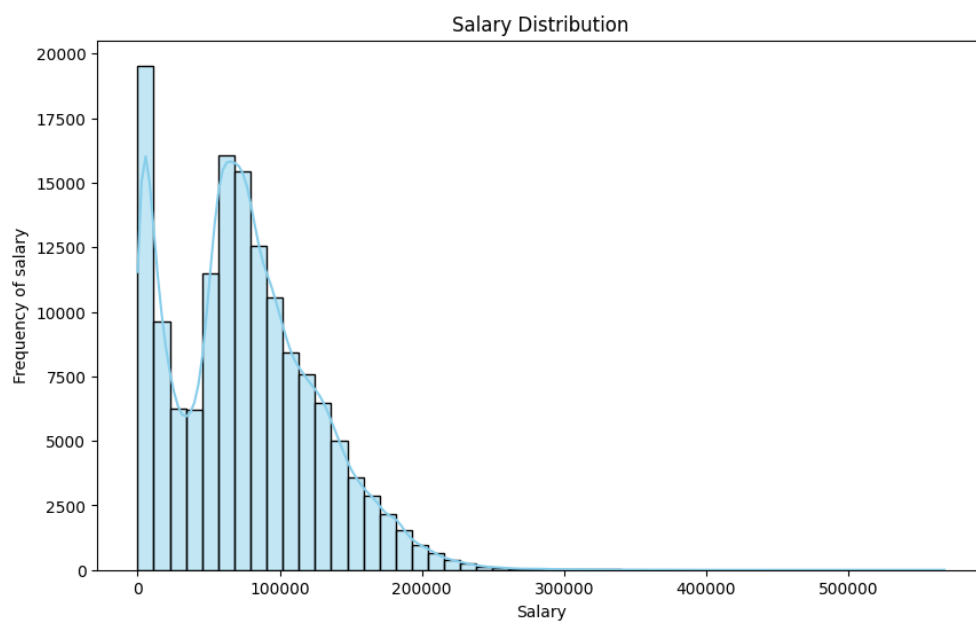
  - Status and Notes are missing values.

Descriptive Statistics:

- **Correlation Statistics:**

  Salary is barely changing over years so no strong inflation within company of increase in expenses.
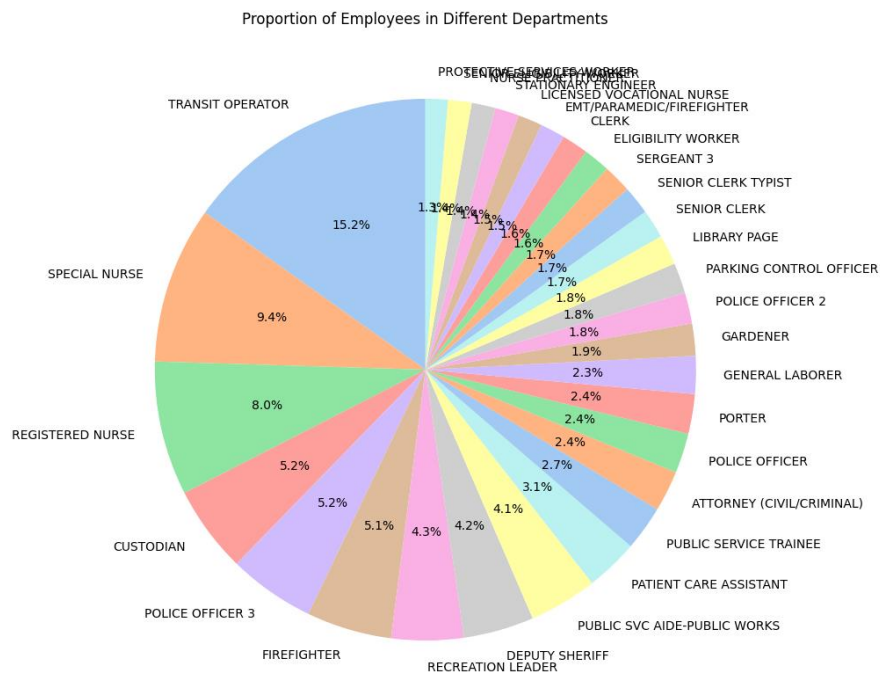

- **Statistical Analysis:** Salaries are between 0:150000$ mostly.
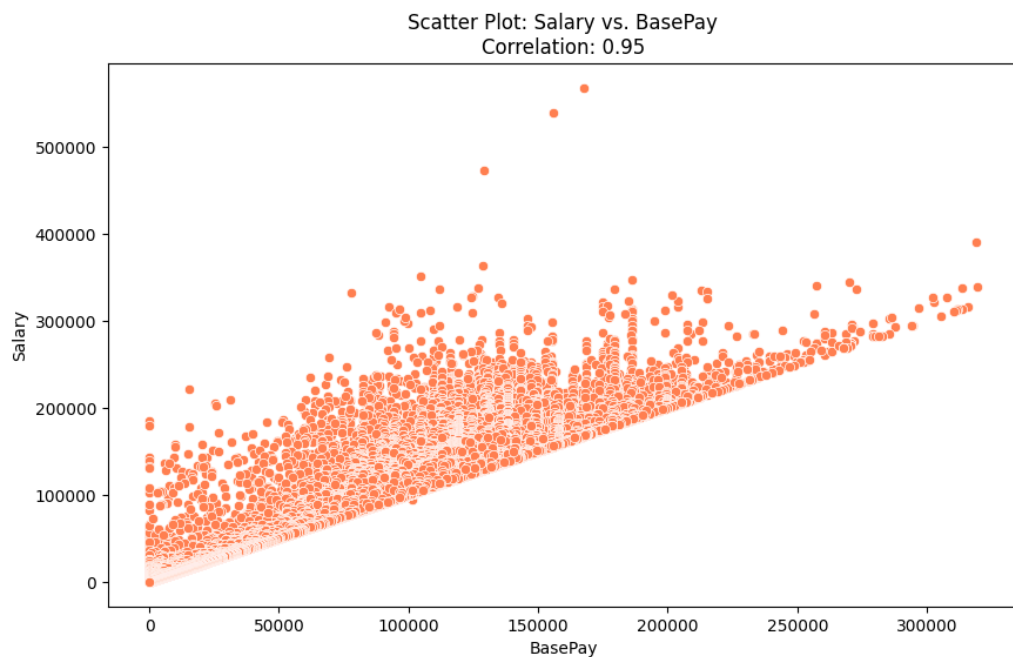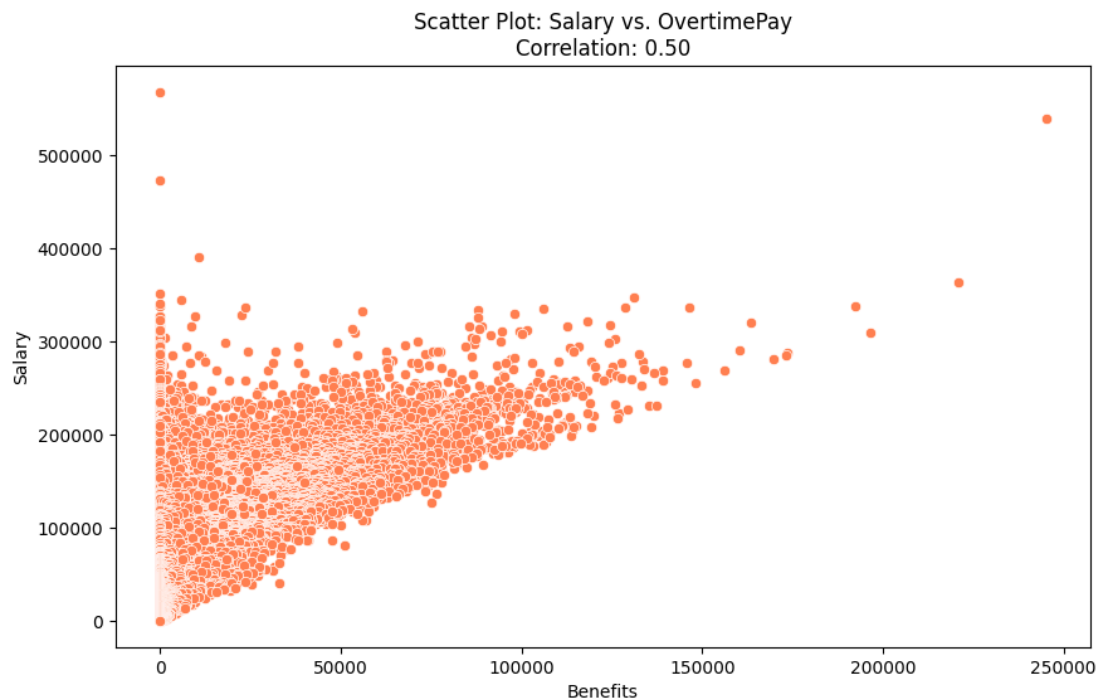

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- **Statistical Analysis:**
  Top paid departments are Top paid Titles are Transit operator
  `Transportation`, nurses `Medical Department` and police officers `Police
  department`.

Proportion of Employees in Different Departments

- **Correlation Statistics:** Base pay has high correlation with Total pay.

Scatter Plot: Salary vs. BasePay
Correlation: 0.95

- **Correlation Statistics:** Overtime pay has relatively unexpected high correlation with Total pay.

Scatter Plot: Salary vs. OvertimePay
Correlation: 0.50

Recommendations:

- Lowerize police depatments expenses by increasing digital monitoring systems.

- Digitalize transit operations.

- Digitalize parking systems with IoT auto parking lots.