importing libraries

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

Loading and viewing data

```
df = pd.read_csv(r"C:\Mypythonfiles\Salary_EDA.csv")
df.head()
```

```
    Age  Gender Education Level          Job Title  Years of 
Experience  \
0  32.0    Male      Bachelor's  Software Engineer                 
5.0   
1  28.0  Female        Master's       Data Analyst                 
3.0   
2  45.0    Male             PhD     Senior Manager                
15.0   
3  36.0  Female      Bachelor's    Sales Associate                 
7.0   
4  36.0  Female      Bachelor's    Sales Associate                 
7.0   

     Salary  
0   90000.0  
1   65000.0  
2  150000.0  
3   60000.0  
4   60000.0  
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 375 entries, 0 to 374
Data columns (total 6 columns):
 #   Column               Non-Null Count  Dtype  
---  ------               --------------  -----  
 0   Age                  373 non-null    float64
 1   Gender               371 non-null    object 
 2   Education Level      372 non-null    object 
 3   Job Title            370 non-null    object 
 4   Years of Experience  373 non-null    float64
 5   Salary               372 non-null    float64
dtypes: float64(3), object(3)
memory usage: 17.7+ KB
```

1.age,year of experience and salary are in float data type 2.Gender,Educational level,job titles have object data type 3.null values exist 4.6 features and 375 entiers

Handling Null values

```
df.isnull().sum()
```

```
Age                    2
Gender                 4
Education Level        3
Job Title              5
Years of Experience    2
Salary                 3
dtype: int64
```

```
df.dropna(inplace = True)
df.isnull().sum()
```

```
Age                    0
Gender                 0
Education Level        0
Job Title              0
Years of Experience    0
Salary                 0
dtype: int64
```

Conclusion : All the null values are droped.Now the features have non null values

Summery statistics

```
df.describe(include = 'all')
```

```
               Age Gender Education Level              Job Title  \
count   366.000000    366             366                    366
unique         NaN      2               3                    169
top            NaN   Male      Bachelor's  Director of Marketing
freq           NaN    189             220                     12
mean     37.459016    NaN             NaN                    NaN
std       6.962303    NaN             NaN                    NaN
min      23.000000    NaN             NaN                    NaN
25%      32.000000    NaN             NaN                    NaN
50%      36.000000    NaN             NaN                    NaN
75%      44.000000    NaN             NaN                    NaN
max      53.000000    NaN             NaN                    NaN

        Years of Experience         Salary
count            366.000000     366.000000
unique                  NaN            NaN
top                     NaN            NaN
freq                    NaN            NaN
mean              10.045082  100492.759563
```

```
std             6.517102   48013.732434
min             0.000000     350.000000
25%             4.000000   56250.000000
50%             9.000000   95000.000000
75%            15.000000  140000.000000
max            25.000000  250000.000000
```

1.Age:

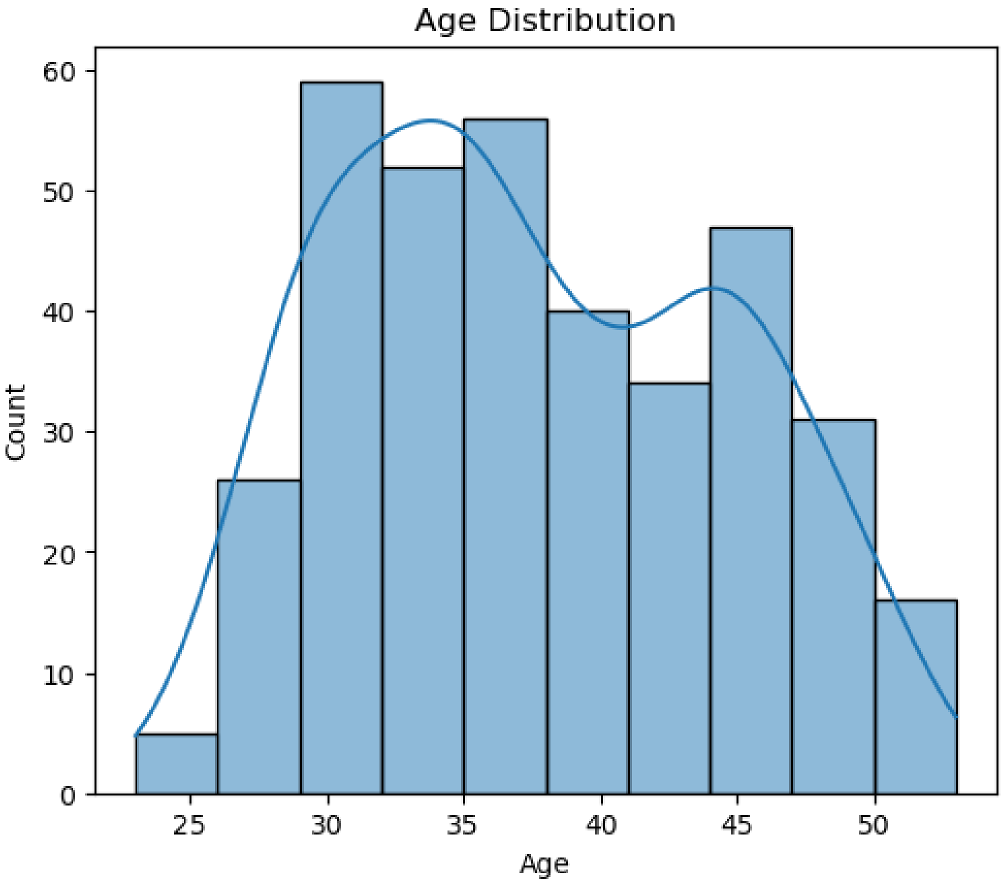
- Minimum age is 23,Maximum age is 53,average age is 37
- majority age limit between 32 and 44
- Few entries from 50s. 2.Gender:
- There are 2 unique values male and female
- Among 366, 189 entries are male, 177 entries are female ,so male is slightly dominate. 3.Educational level:
- Most of the Employes have Bachelor degree(dominating) 4.Job Titles:
- Among 366, 12 times director of marketing is repeated. Others are repeated less than 12 times.Which means no job titles is dominating in the dataset. 5.Years of Experience:
- Minimun experience is 0, Maximum experience is 25, Average experience is 10 years
- Majority of people have experience between 4 and 15. 6.Salary:
- Minimun salary is 350, Maximum salary is 250000, Average salary is 1Lakh
- Majority of salary falls between 56000 and 1Lakh
- there might be outliers, Min=350,avg=1Lakh,there is a lot of difference(error,part-time job may be)

Visualizations

1.Analyse age distribution(Histogram)

```
plt.figure(figsize=(6,5))
sns.histplot(df['Age'], kde = True,bins=10)
plt.title("Age Distribution")
plt.show()

C:\ProgramData\anaconda3\Lib\site-packages\seaborn\_oldcore.py:1119:
FutureWarning: use_inf_as_na option is deprecated and will be removed
in a future version. Convert inf values to NaN before operating
instead.
  with pd.option_context('mode.use_inf_as_na', True):
```

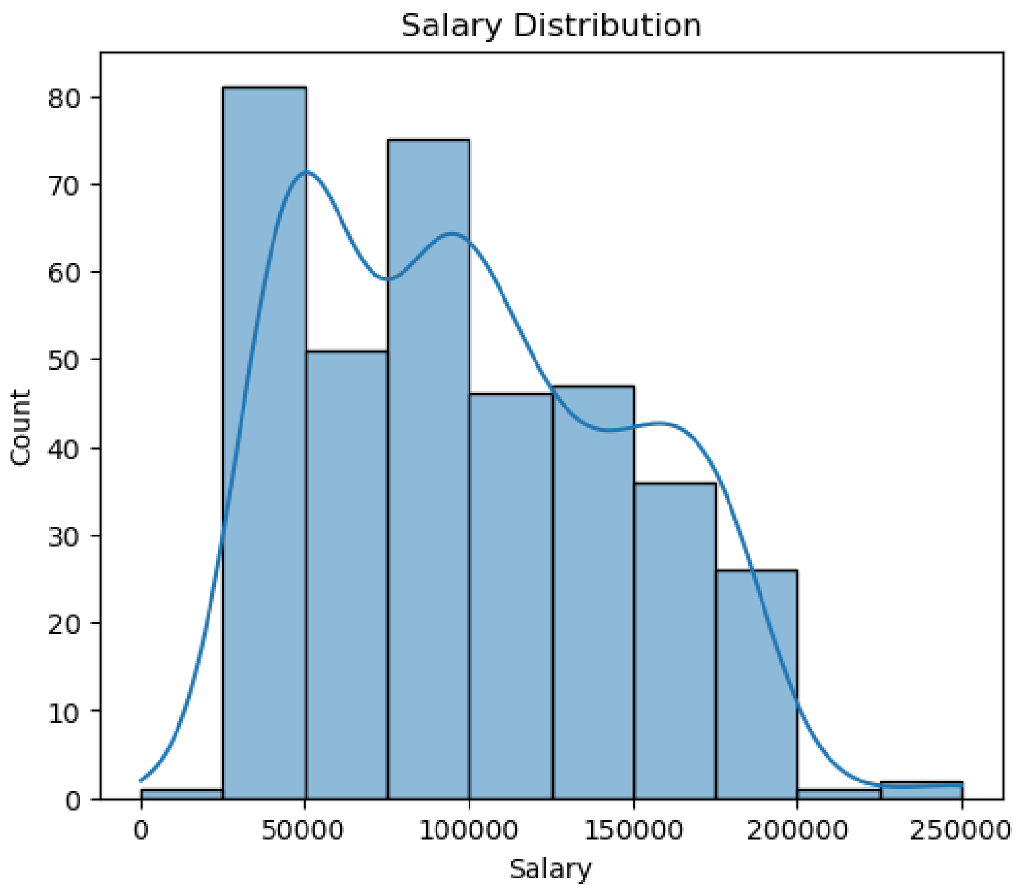


1.The average age is 32 2.there is no outliers

analyse the distribution of salary

```
plt.figure(figsize=(6,5))
sns.histplot(df['Salary'], kde = True,bins=10)
plt.title("Salary Distribution")
plt.show()
```

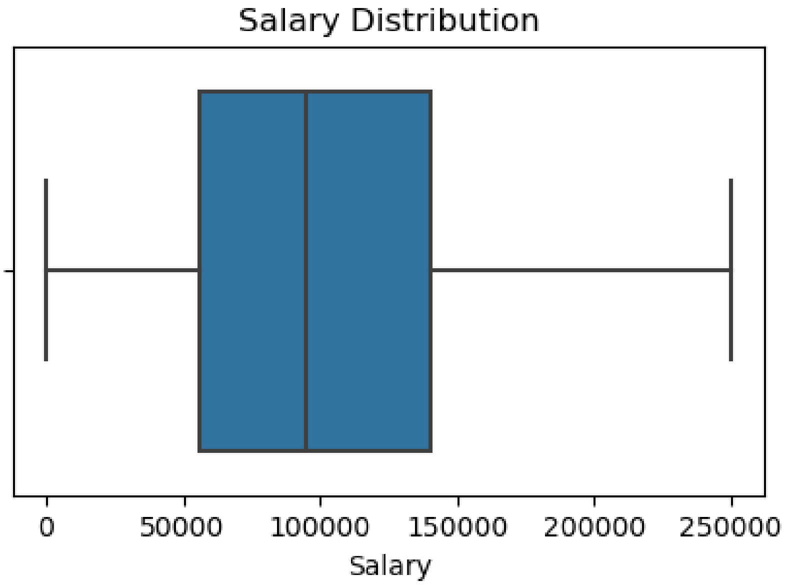
```
C:\ProgramData\anaconda3\Lib\site-packages\seaborn\_oldcore.py:1119:
FutureWarning: use_inf_as_na option is deprecated and will be removed
in a future version. Convert inf values to NaN before operating
instead.
  with pd.option_context('mode.use_inf_as_na', True):
```



1.the avg salary is 50000 2.there is slightly outlier 3.the range is between 0 to 250000 4.there is a positive skew 5.Majority salary is 50000

```
analyse salary

plt.figure(figsize = (5,3))
sns.boxplot(x = df['Salary'])
plt.title("Salary Distribution")
plt.show()
```

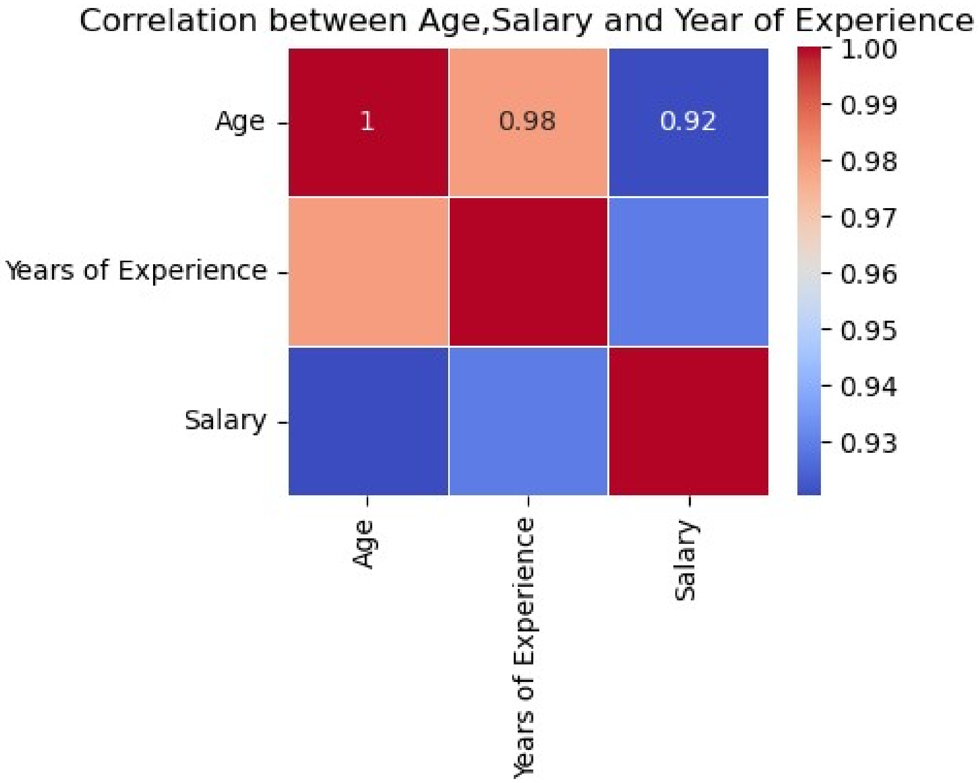


1.there is non outliers 2.average value around 90000 3.upper bound and lower bound is present 4.upper bound 250000 and lower bound 0

```
df = df.select_dtypes(include = ['number'])
df.head()
```

```
    Age  Years of Experience    Salary
0  32.0                  5.0   90000.0
1  28.0                  3.0   65000.0
2  45.0                 15.0  150000.0
3  36.0                  7.0   60000.0
4  36.0                  7.0   60000.0
```

```
plt.figure(figsize = (4,3))
sns.heatmap(df.corr(),cmap = "coolwarm",annot = True, linewidths= 0.5)
plt.title("Correlation between Age,Salary and Year of Experience")
plt.show()
```



1.Age and Experience are more corelated related to each other 2.Age and Salary is also correlated to each other

group the educational level and find average salary in every catrgory

filter dataset in which weperience is more than 20 yrs and find the avg salary on that dataset

```
Fem_Master = df[(df['Gender']=='Female')&(df['Educational
Level']=="Master's")]
Fem_Master['Salary'].mean()

----------------------------------------------------------------------
-----
KeyError                                  Traceback (most recent call
last)
File C:\ProgramData\anaconda3\Lib\site-packages\pandas\core\indexes\
base.py:3791, in Index.get_loc(self, key)
   3790 try:
-> 3791     return self._engine.get_loc(casted_key)
   3792 except KeyError as err:

File index.pyx:152, in pandas._libs.index.IndexEngine.get_loc()

File index.pyx:181, in pandas._libs.index.IndexEngine.get_loc()

File pandas\_libs\hashtable_class_helper.pxi:7080, in
```

```
pandas._libs.hashtable.PyObjectHashTable.get_item()

File pandas\_libs\hashtable_class_helper.pxi:7088, in
pandas._libs.hashtable.PyObjectHashTable.get_item()

KeyError: 'Gender'

The above exception was the direct cause of the following exception:

KeyError                                  Traceback (most recent call
last)
Cell In[58], line 1
----> 1 Fem_Master = df[(df['Gender']=='Female')&(df['Educational
Level']=="Master's")]
      2 Fem_Master['Salary'].mean()

File C:\ProgramData\anaconda3\Lib\site-packages\pandas\core\
frame.py:3893, in DataFrame.__getitem__(self, key)
   3891 if self.columns.nlevels > 1:
   3892     return self._getitem_multilevel(key)
-> 3893 indexer = self.columns.get_loc(key)
   3894 if is_integer(indexer):
   3895     indexer = [indexer]

File C:\ProgramData\anaconda3\Lib\site-packages\pandas\core\indexes\
base.py:3798, in Index.get_loc(self, key)
   3793     if isinstance(casted_key, slice) or (
   3794         isinstance(casted_key, abc.Iterable)
   3795         and any(isinstance(x, slice) for x in casted_key)
   3796     ):
   3797         raise InvalidIndexError(key)
-> 3798     raise KeyError(key) from err
   3799 except TypeError:
   3800     # If we have a listlike key, _check_indexing_error will
raise
   3801     #  InvalidIndexError. Otherwise we fall through and re-
raise
   3802     #  the TypeError.
   3803     self._check_indexing_error(key)

KeyError: 'Gender'
```