```
import pandas as pd

ds1=pd.read_excel('general_data.xlsx',sheet_name=0)

import numpy as np

import matplotlib.pyplot as plt

ds1.head()
Out[5]:
   Age Attrition  ... YearsSinceLastPromotion YearsWithCurrManager
0   51        No  ...                       0                    0
1   31       Yes  ...                       1                    4
2   32        No  ...                       0                    3
3   38        No  ...                       7                    5
4   32        No  ...                       0                    4

[5 rows x 24 columns]

ds1.columns
Out[6]:
Index(['Age', 'Attrition', 'BusinessTravel', 'Department', 'DistanceFromHome',
       'Education', 'EducationField', 'EmployeeCount', 'EmployeeID', 'Gender',
       'JobLevel', 'JobRole', 'MaritalStatus', 'MonthlyIncome',
       'NumCompaniesWorked', 'Over18', 'PercentSalaryHike', 'StandardHours',
       'StockOptionLevel', 'TotalWorkingYears', 'TrainingTimesLastYear',
       'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager'],
      dtype='object')

ds1.isnull()
Out[7]:
        Age  Attrition  ...  YearsSinceLastPromotion  YearsWithCurrManager
0     False      False  ...                    False                 False
1     False      False  ...                    False                 False
```

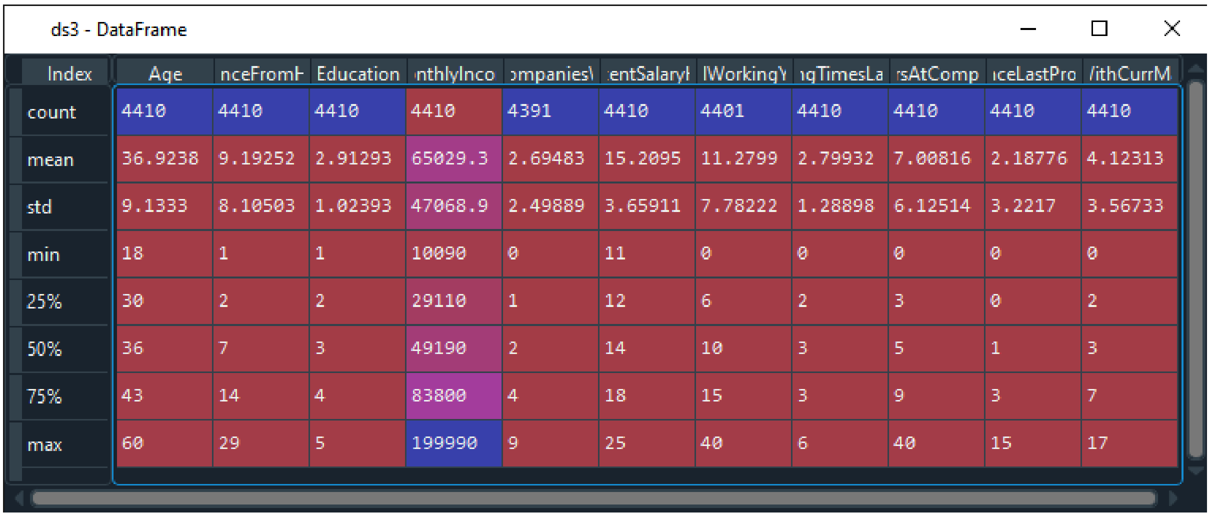
```
2    False     False  ...                False              False
3    False     False  ...                False              False
4    False     False  ...                False              False
   ...       ...  ...                  ...                ...
4405  False     False  ...                False              False
4406  False     False  ...                False              False
4407  False     False  ...                False              False
4408  False     False  ...                False              False
4409  False     False  ...                False              False

[4410 rows x 24 columns]
```

```
ds1.duplicated()
Out[8]:
0       False
1       False
2       False
3       False
4       False

4405    False
4406    False
4407    False
4408    False
4409    False
Length: 4410, dtype: bool
```

```
ds1.drop_duplicates()
Out[10]:
      Age Attrition  ... YearsSinceLastPromotion YearsWithCurrManager
0      51        No  ...                       0                    0
1      31       Yes  ...                       1                    4
2      32        No  ...                       0                    3
3      38        No  ...                       7                    5
4      32        No  ...                       0                    4
```

```
 ...     ... ...              ...          ...
4405  42     No  ...             0            2
4406  29     No  ...             0            2
4407  25     No  ...             1            2
4408  42     No  ...             7            8
4409  40     No  ...             3            9

[4410 rows x 24 columns]
```

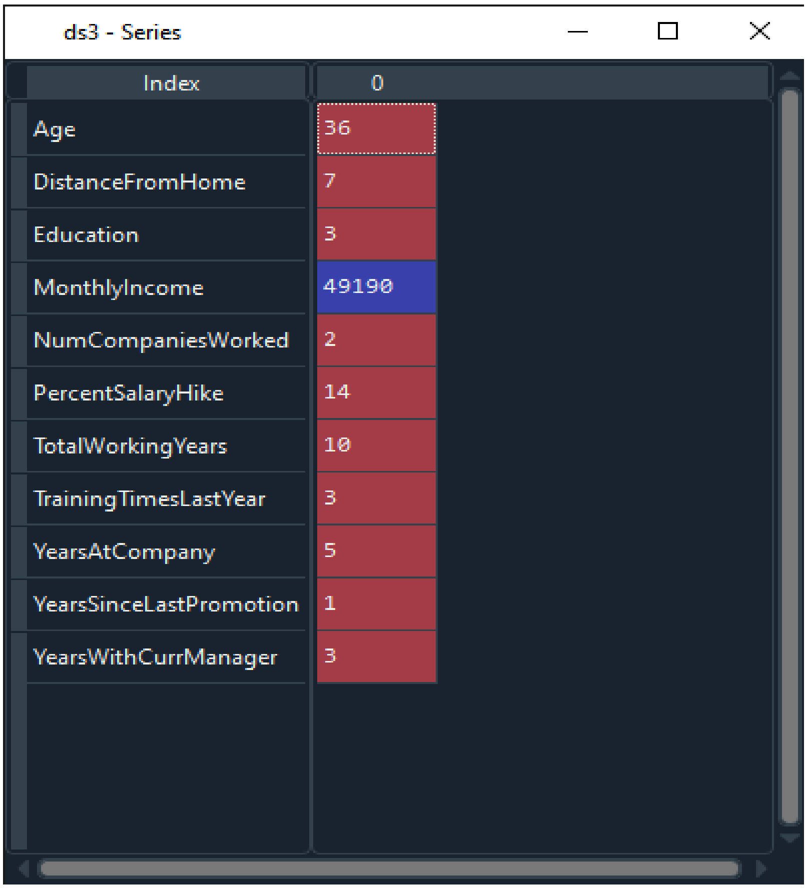
```
ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked', 'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager']].describe()
```



ds3 - DataFrame

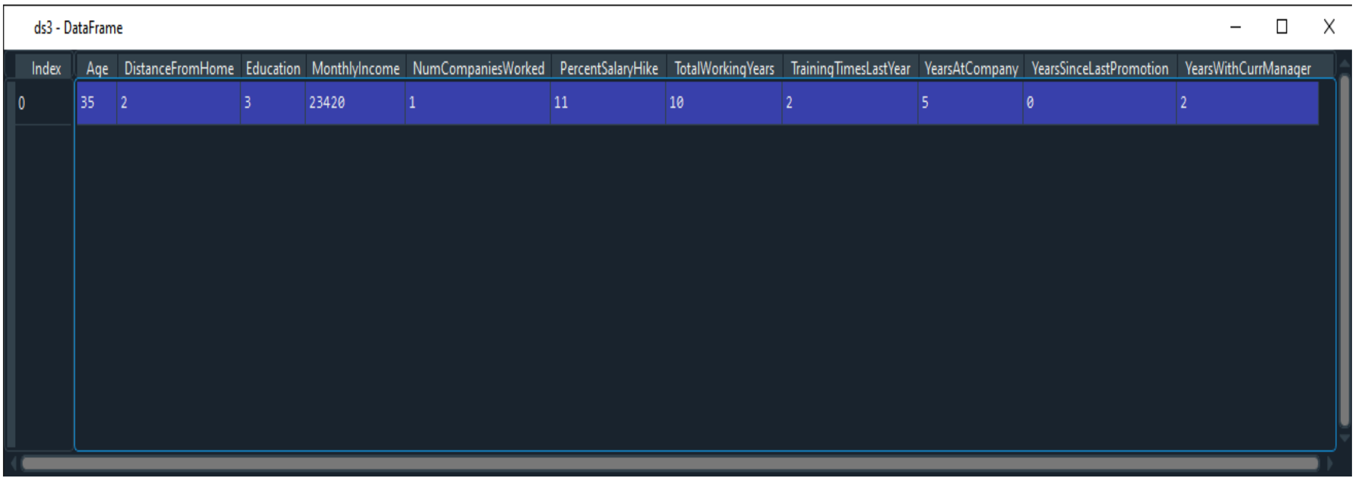
Index	Age	nceFromH	Education	nthlyInco	ompanies\	entSalaryH	lWorkingY	ngTimesLa	rsAtComp	iceLastPro	/ithCurrM
count	4410	4410	4410	4410	4391	4410	4401	4410	4410	4410	4410
mean	36.9238	9.19252	2.91293	65029.3	2.69483	15.2095	11.2799	2.79932	7.00816	2.18776	4.12313
std	9.1333	8.10503	1.02393	47068.9	2.49889	3.65911	7.78222	1.28898	6.12514	3.2217	3.56733
min	18	1	1	10090	0	11	0	0	0	0	0
25%	30	2	2	29110	1	12	6	2	3	0	2
50%	36	7	3	49190	2	14	10	3	5	1	3
75%	43	14	4	83800	4	18	15	3	9	3	7
max	60	29	5	199990	9	25	40	6	40	15	17

```
ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked', 'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager']].median()
```



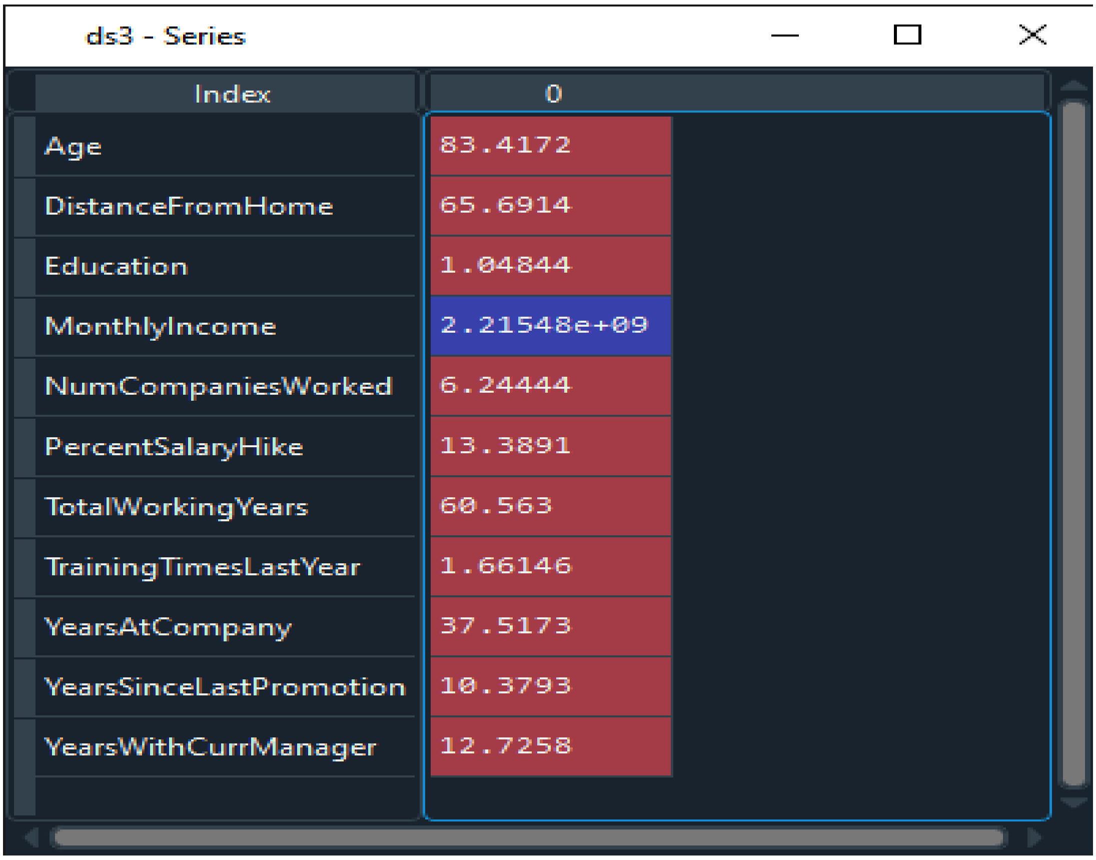
Index	0
Age	36
DistanceFromHome	7
Education	3
MonthlyIncome	49190
NumCompaniesWorked	2
PercentSalaryHike	14
TotalWorkingYears	10
TrainingTimesLastYear	3
YearsAtCompany	5
YearsSinceLastPromotion	1
YearsWithCurrManager	3

ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked', 'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager']].mode()



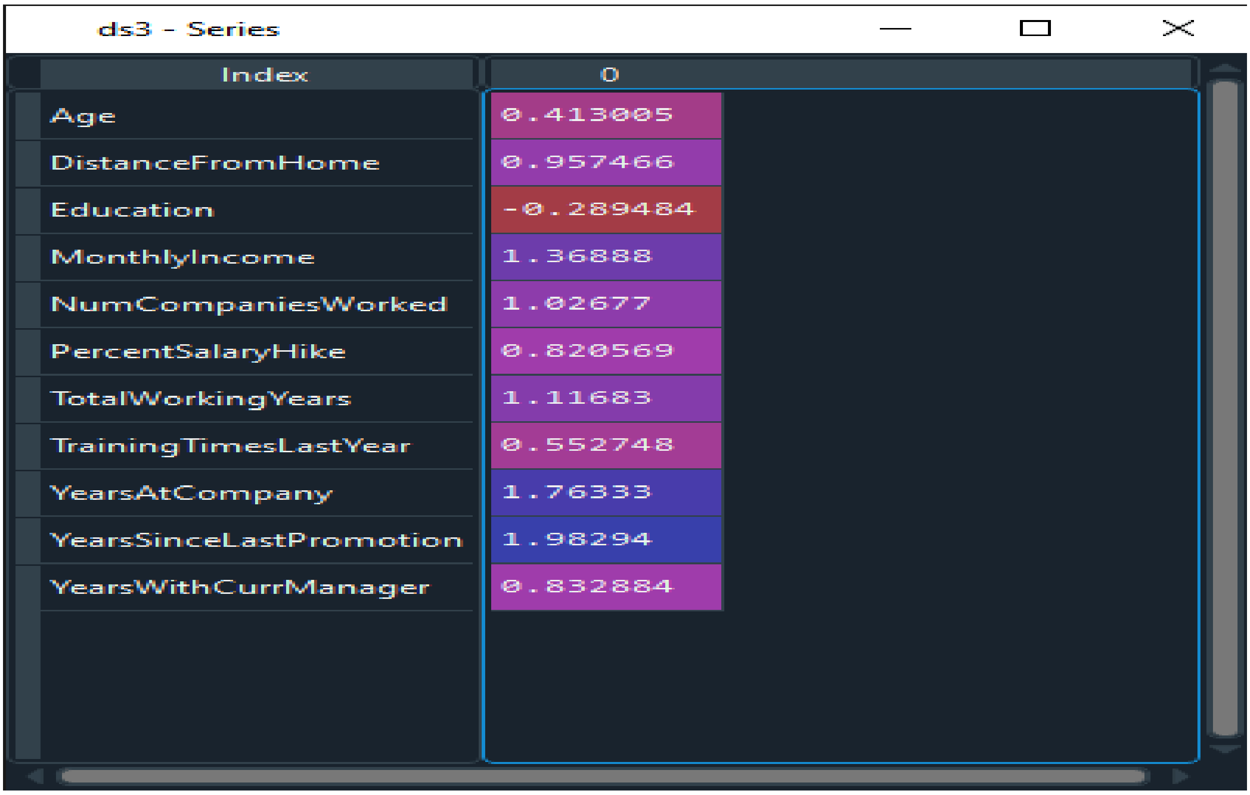
Index	Age	DistanceFromHome	Education	MonthlyIncome	NumCompaniesWorked	PercentSalaryHike	TotalWorkingYears	TrainingTimesLastYear	YearsAtCompany	YearsSinceLastPromotion	YearsWithCurrManager
0	35	2	3	23420	1	11	10	2	5	0	2

ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked', 'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager']].var()



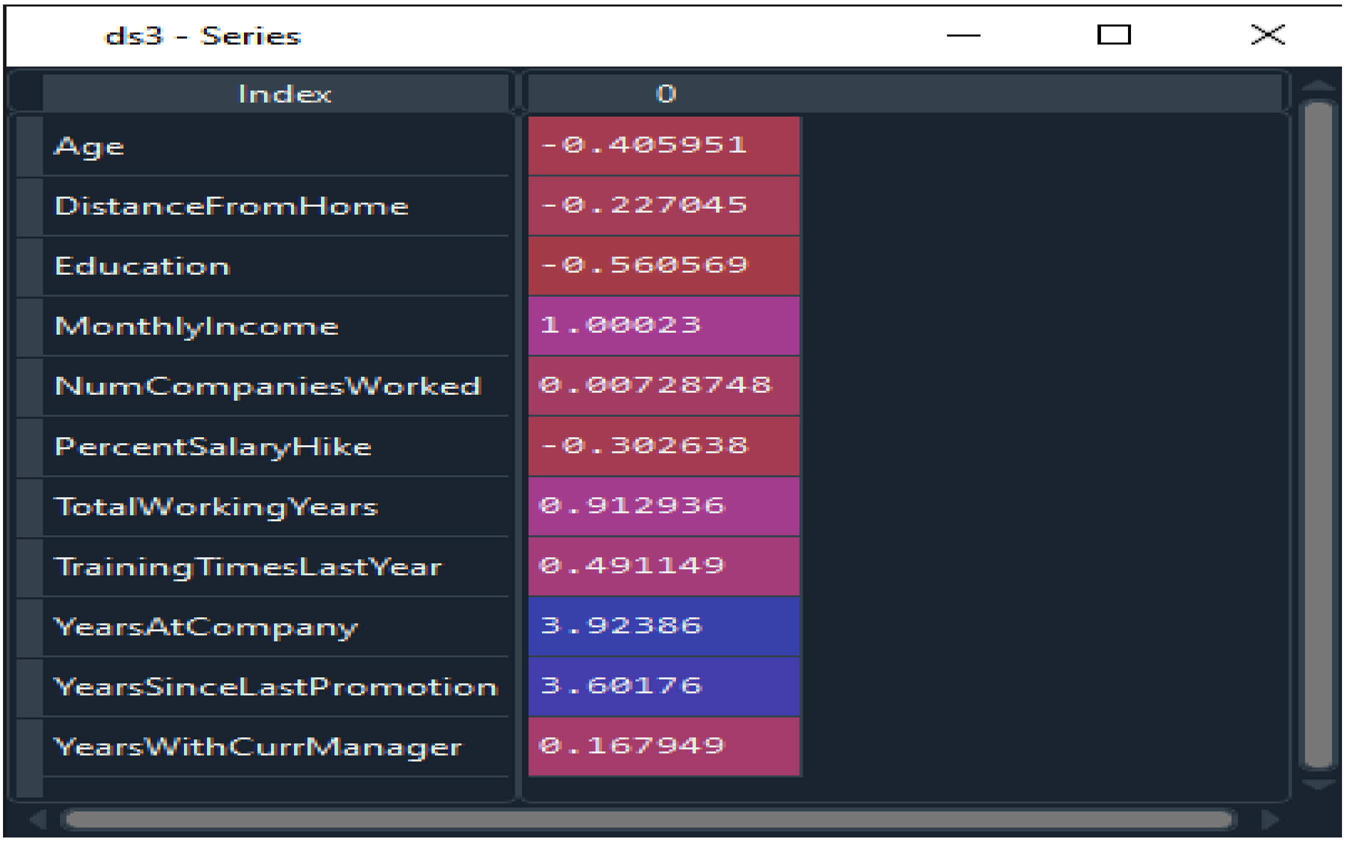
Index	0
Age	83.4172
DistanceFromHome	65.6914
Education	1.04844
MonthlyIncome	2.21548e+09
NumCompaniesWorked	6.24444
PercentSalaryHike	13.3891
TotalWorkingYears	60.563
TrainingTimesLastYear	1.66146
YearsAtCompany	37.5173
YearsSinceLastPromotion	10.3793
YearsWithCurrManager	12.7258

ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked', 'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion', 'YearsWithCurrManager']].skew()



Index	0
Age	0.413005
DistanceFromHome	0.957466
Education	-0.289484
MonthlyIncome	1.36888
NumCompaniesWorked	1.02677
PercentSalaryHike	0.820569
TotalWorkingYears	1.11683
TrainingTimesLastYear	0.552748
YearsAtCompany	1.76333
YearsSinceLastPromotion	1.98294
YearsWithCurrManager	0.832884

```
ds3 = ds1[['Age','DistanceFromHome','Education','MonthlyIncome', 'NumCompaniesWorked',
'PercentSalaryHike','TotalWorkingYears', 'TrainingTimesLastYear', 'YearsAtCompany', 'YearsSinceLastPromotion',
'YearsWithCurrManager']].kurt()
```



ds3 - Series

Index	0
Age	-0.405951
DistanceFromHome	-0.227045
Education	-0.560569
MonthlyIncome	1.00023
NumCompaniesWorked	0.00728748
PercentSalaryHike	-0.302638
TotalWorkingYears	0.912936
TrainingTimesLastYear	0.491149
YearsAtCompany	3.92386
YearsSinceLastPromotion	3.60176
YearsWithCurrManager	0.167949

Inference from analysis :

- All the above variables show positive skewness; while Age & Mean distance from home are leptokurtic and all other variables are platykurtic.

- The Mean Monthly Income IQR is at 54K suggesting company wide attrition income bands

- Mean age forms a near normal distribution with 13 years of IQR

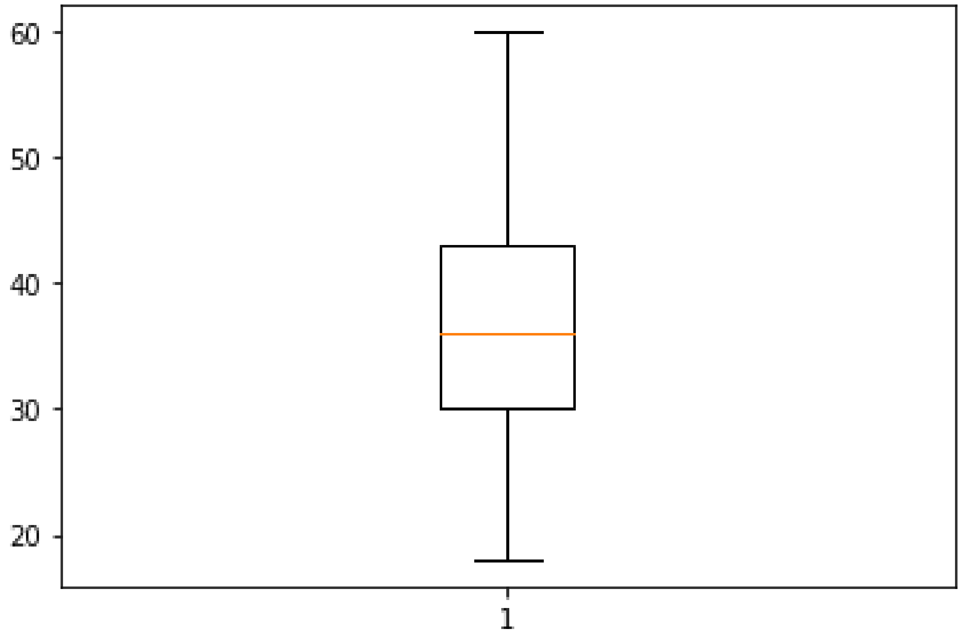
Outliers:

There's no regression found while plotting Age, Monthly Income, Total Working Years, Years At Company, etc., on a scatter plot

```
box_plot = ds1.Age
```

```
plt.boxplot(box_plot)
```

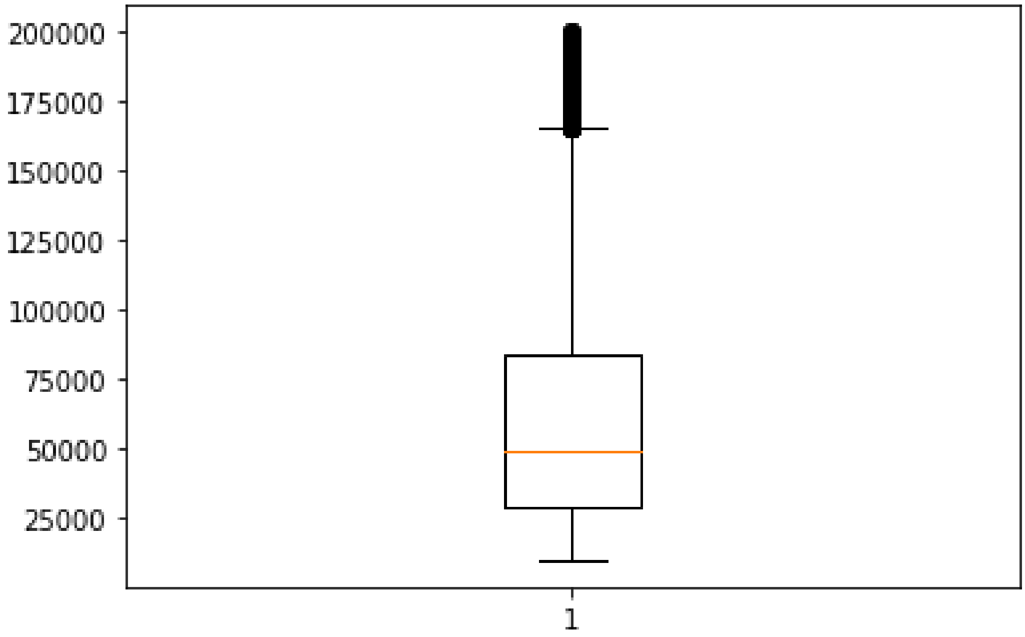
Out[20]:



There are no outliers the age is normally distributed

```
box_plot = ds1.MonthlyIncome
plt.boxplot(box_plot)
```

Out[22]:

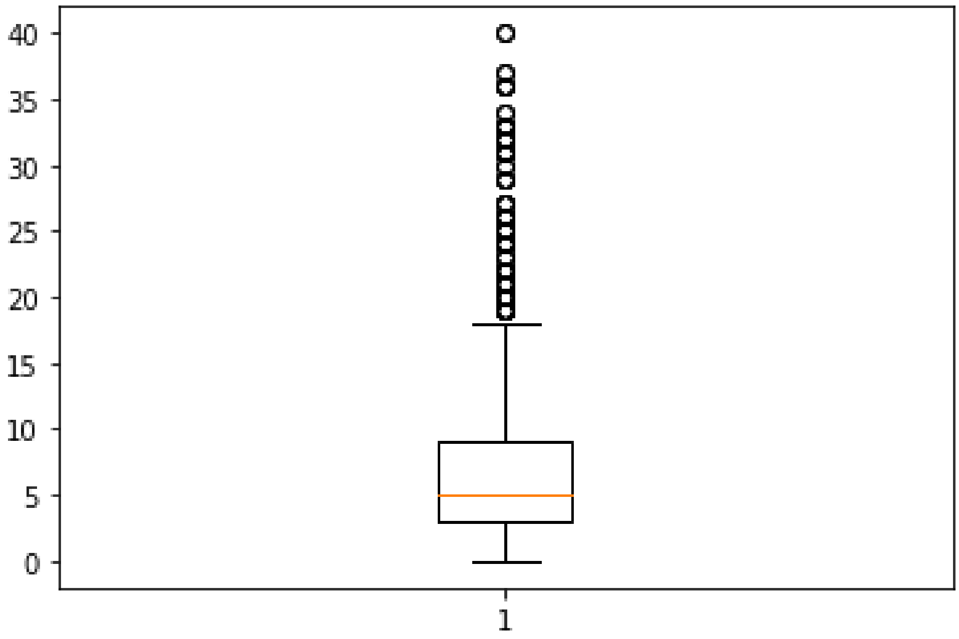


Monthly Income is right skewed with several outliers

```
box_plot = ds1.YearsAtCompany
```

```
plt.boxplot(box_plot)
```

Out[25]:


40
35
30
25
20
15
10
5
0
1