Library import

```
import os
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
sns.set()

import warnings
warnings.filterwarnings("ignore")
```

import dataset

```
salary = pd.read_csv("Salary_dataset.csv")
salary.head()
```

```
   Unnamed: 0  YearsExperience   Salary
0           0              1.2  39344.0
1           1              1.4  46206.0
2           2              1.6  37732.0
3           3              2.1  43526.0
4           4              2.3  39892.0
```

```
salary.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 30 entries, 0 to 29
Data columns (total 3 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   Unnamed: 0       30 non-null     int64  
 1   YearsExperience  30 non-null     float64
 2   Salary           30 non-null     float64
dtypes: float64(2), int64(1)
memory usage: 852.0 bytes
```

```
# drop first column

salary = salary.drop(['Unnamed: 0'], axis =1)

salary.describe()
```

```
       YearsExperience         Salary
count        30.000000      30.000000
mean          5.413333   76004.000000
std           2.837888   27414.429785
min           1.200000   37732.000000
25%           3.300000   56721.750000
50%           4.800000   65238.000000
```

```
75%            7.800000  100545.750000
max           10.600000  122392.000000
```

```
# scatter plot

plt.scatter(salary['YearsExperience'], salary['Salary'])
plt.xlabel("YearsExperience")
plt.ylabel("Salary(in $)")
plt.show()
```


```
# missing value checks

salary.isnull().sum()
```

```
YearsExperience    0
Salary             0
dtype: int64
```

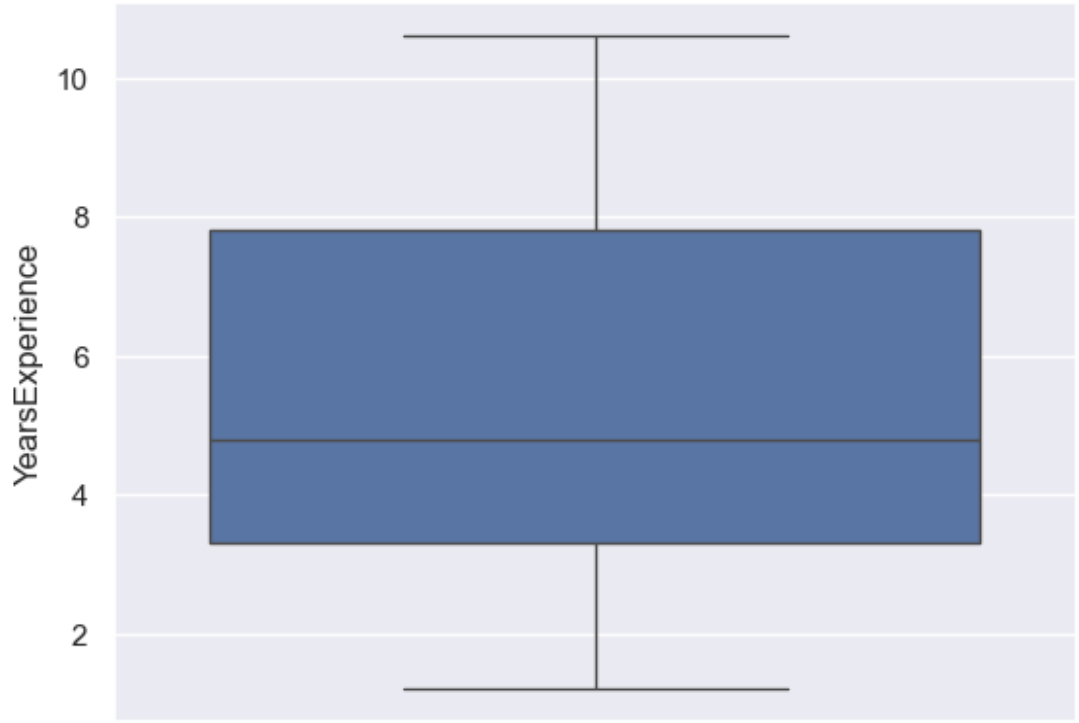
```
salary.head()
```

```
   YearsExperience   Salary
0              1.2  39344.0
1              1.4  46206.0
2              1.6  37732.0
```

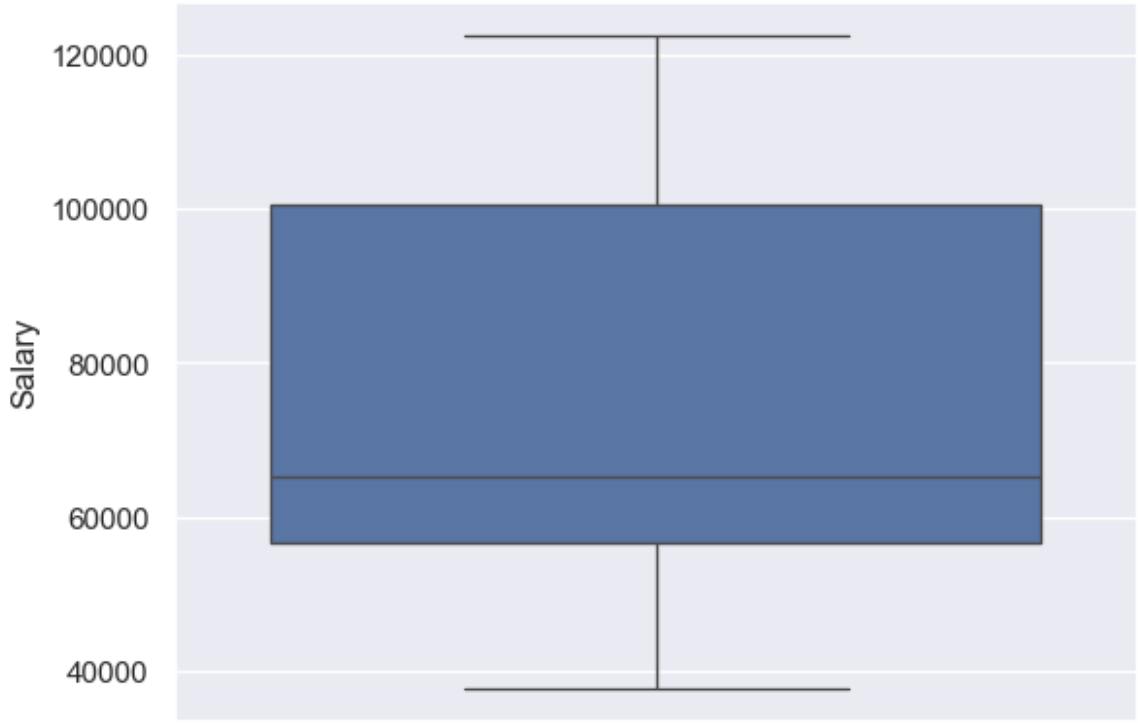
```
3                2.1  43526.0
4                2.3  39892.0
```

Cheking for outlier

```
sns.boxplot(y= 'YearsExperience', data=salary)
plt.show()
```




```
sns.boxplot(y= 'Salary', data=salary)
plt.show()
```




```
# split the data into dependent and independent variables

x = salary.iloc[:,0:1]
y = salary.iloc[:,-1]

# Independent variable

x
```

	YearsExperience
0	1.2
1	1.4
2	1.6
3	2.1
4	2.3
5	3.0
6	3.1
7	3.3
8	3.3
9	3.8
10	4.0
11	4.1
12	4.1
13	4.2
14	4.6
15	5.0
16	5.2

```
17               5.4
18               6.0
19               6.1
20               6.9
21               7.2
22               8.0
23               8.3
24               8.8
25               9.1
26               9.6
27               9.7
28              10.4
29              10.6
```

```
#Dependent variable
```

```
y
```

```
0      39344.0
1      46206.0
2      37732.0
3      43526.0
4      39892.0
5      56643.0
6      60151.0
7      54446.0
8      64446.0
9      57190.0
10     63219.0
11     55795.0
12     56958.0
13     57082.0
14     61112.0
15     67939.0
16     66030.0
17     83089.0
18     81364.0
19     93941.0
20     91739.0
21     98274.0
22    101303.0
23    113813.0
24    109432.0
25    105583.0
26    116970.0
27    112636.0
28    122392.0
29    121873.0
Name: Salary, dtype: float64
```

```
# split the data into train and test

from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y,
test_size=0.25, random_state=101)

print(x_train.shape, x_test.shape, y_train.shape, y_test.shape)
```

```
(22, 1) (8, 1) (22,) (8,)
```

Building simple Linear Regression Model

```
from sklearn.linear_model import LinearRegression
linear = LinearRegression()
linear.fit(x_train, y_train)
```

```
LinearRegression()
```

```
x_test
```

```
    YearsExperience
20              6.9
24              8.8
7               3.3
18              6.0
2               1.6
27              9.7
26              9.6
16              5.2
```

Prediction

```
salary_pred = linear.predict(x_test)
print(salary_pred)
```

```
[ 90499.22864751 108383.24981952  56613.71484793  82027.85019762
  40612.22222035 116854.62826941 115913.3639972   74497.73601993]
```

```
plt.scatter(salary['YearsExperience'], salary['Salary'])
plt.plot(x_test, salary_pred, color='red')
plt.xlabel("YearsExperience")
plt.ylabel("Salary(in $)")
plt.show()
```


```
from sklearn.metrics import r2_score, mean_absolute_error,
mean_absolute_percentage_error

print("Accuracy: ", r2_score(y_test, salary_pred))
```

```
Accuracy:  0.9820915410004406
```

```
mae= mean_absolute_error(y_test, salary_pred)
print(mae)
```

```
2717.9136363764055
```

```
mape= mean_absolute_percentage_error(y_test, salary_pred)
print(mape)
```

```
0.04026652383283284
```