Import library

```
import pandas as pd
```

Load Dataset from local directory

```
from google.colab import files
uploaded = files.upload()
```

Choose Files data.csv

- data.csv(text/csv) - 112 bytes, last modified: 4/7/2023 - 100% done

```
Saving data.csv to data.csv
```

Load Dataset

```
dataset = pd.read_csv('data.csv')
```

Summarize Dataset

```
print(dataset.shape)
print(dataset.head(5))
```

```
(10, 2)
   Level  Salary
0      1   45000
1      2   50000
2      3   60000
3      4   80000
4      5  110000
```

Segregate Dataset into X & Y

```
X = dataset.iloc[:, :-1].values
X
```

```
array([[ 1],
       [ 2],
       [ 3],
       [ 4],
       [ 5],
       [ 6],
       [ 7],
       [ 8],
       [ 9],
       [10]])
```

```
Y = dataset.iloc[:, -1].values
Y
```

```
array([  45000,   50000,   60000,   80000,  110000,  150000,  200000,
        300000,  500000, 1000000])
```

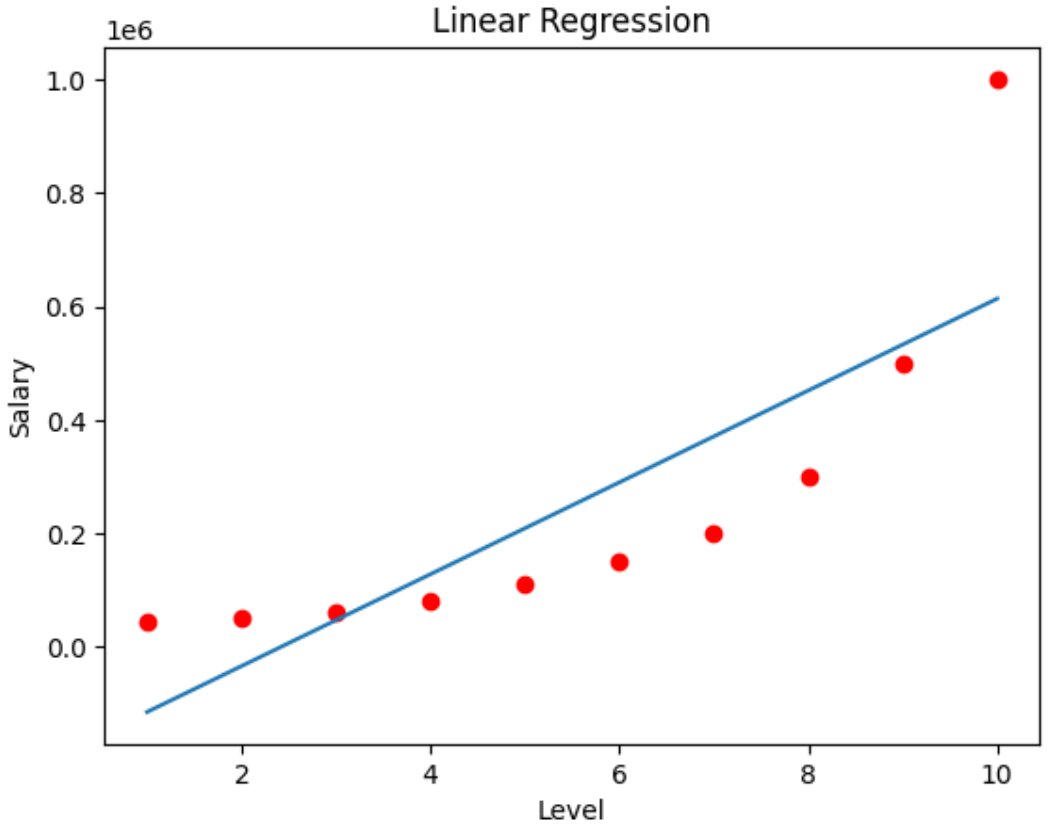
Training Dataset using Linear Regression

```
from sklearn.linear_model import LinearRegression
modelLR = LinearRegression()
modelLR.fit(X, Y)
```

```
LinearRegression()
```

Visualizing Linear Regression results

```
import matplotlib.pyplot as plt
plt.scatter(X, Y, color='red')
plt.plot(X, modelLR.predict(X))
plt.title('Linear Regression')
plt.xlabel('Level')
plt.ylabel('Salary')
plt.show()
```



Converting X into Polynomial Format (X^n)

```
from sklearn.preprocessing import PolynomialFeatures
modelPR = PolynomialFeatures(degree=5)
xPoly = modelPR.fit_transform(X)
```

Train same Linear Regression with X-Polynomial instead of X

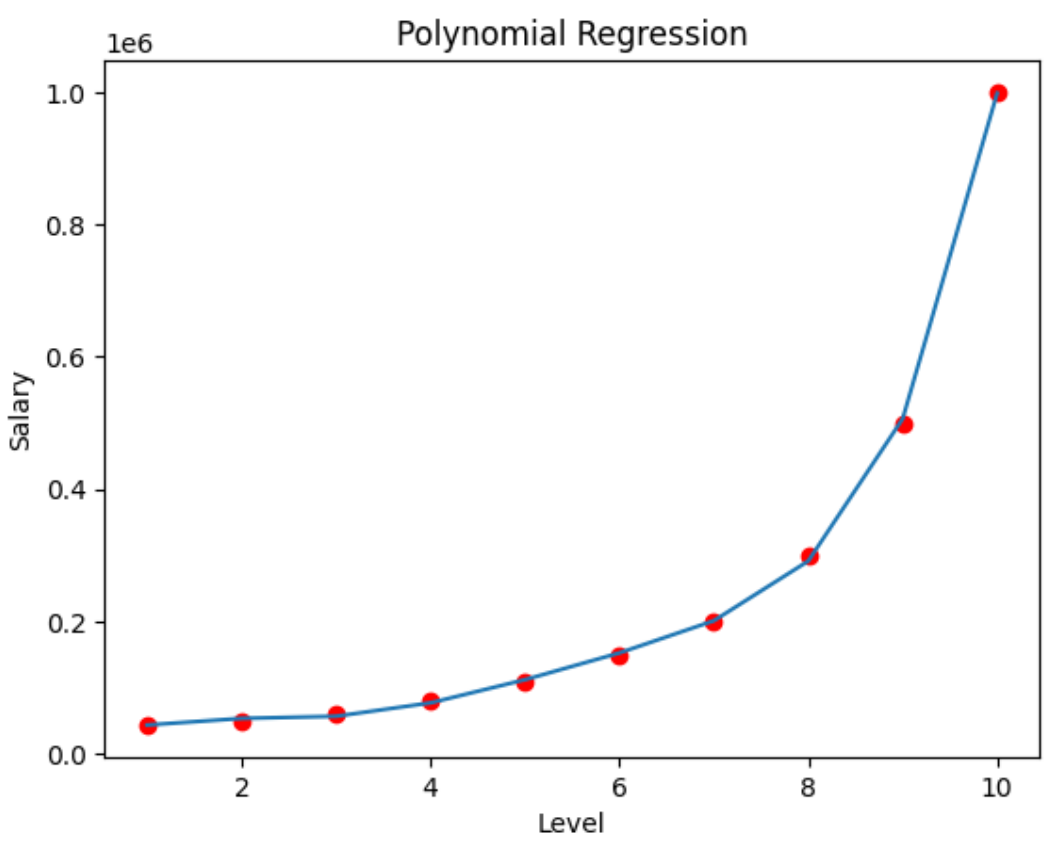
```
modelPLR = LinearRegression()
modelPLR.fit(xPoly, Y)
```

▾ LinearRegression

LinearRegression()

Visualizing Polynomial Regression results

```
plt.scatter(X, Y, color='red')
plt.plot(X, modelPLR.predict(modelPR.fit_transform(X)))
plt.title('Polynomial Regression')
plt.xlabel('Level')
plt.ylabel('Salary')
plt.show()
```



Prediction using Polynomial Regression

```
x = 5
salaryPred = modelPLR.predict(modelPR.fit_transform([[x]]))
print('Salary of a person with Level {0} is {1}'.format(x, salaryPred))
```

```
Salary of a person with Level 5 is [112263.40326412]
```

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