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

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

Choose Files dataset_lab_3_2.csv
- **dataset_lab_3_2.csv**(text/csv) - 260 bytes, last modified: 2/8/2023 - 100% done
  Saving dataset_lab_3_2.csv to dataset_lab_3_2 (1).csv

```
dataset = pd.read_csv('dataset_lab_3_2.csv')
dataset
```

	Position	Level(X-variable)	Salary(Y-variable)
0	Business Analyst	1	45000
1	Junior Consultant	2	50000
2	Senior Consultant	3	60000
3	Manager	4	80000
4	Country Manager	5	110000
5	Region Manager	6	150000
6	Partner	7	200000
7	Senior Partner	8	300000
8	C-level	9	500000
9	CEO	10	100000

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

```
from sklearn.linear_model import LinearRegression
lin_reg = LinearRegression()
lin_reg.fit(X, y)
LinearRegression(copy_X=True, fit_intercept=True, n_jobs=None)
```

▾ LinearRegression
LinearRegression()

```
from sklearn.preprocessing import PolynomialFeatures
poly_regr = PolynomialFeatures(degree = 4)
X_poly = poly_regr.fit_transform(X)
lin_reg_2 = LinearRegression()
lin_reg_2.fit(X_poly, y)
```
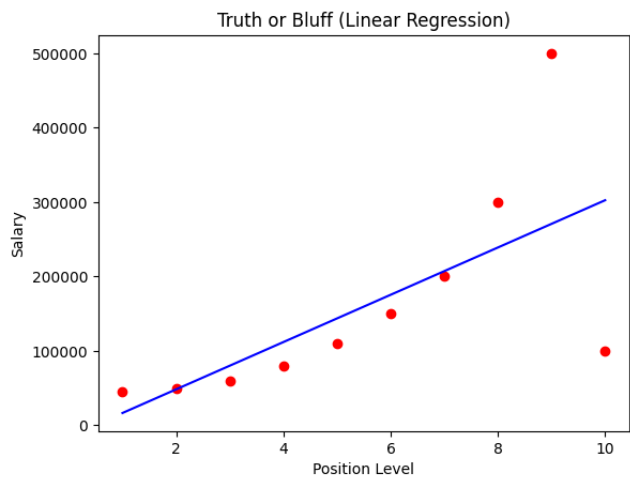
▾ LinearRegression
LinearRegression()

```
LinearRegression(copy_X=True, fit_intercept=True, n_jobs=None)
```
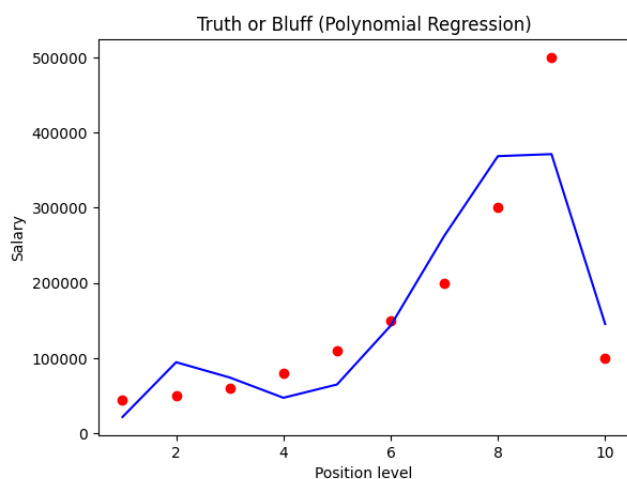
▾ LinearRegression
LinearRegression()

```
plt.scatter(X, y, color = 'red')
plt.plot(X, lin_reg.predict(X), color = 'blue')
plt.title('Truth or Bluff (Linear Regression)')
plt.xlabel('Position Level')
plt.ylabel('Salary')
plt.show()
```



```
plt.scatter(X, y, color = 'red')
plt.plot(X, lin_reg_2.predict(poly_regr.fit_transform(X)), color = 'blue')
plt.title('Truth or Bluff (Polynomial Regression)')
```

```
plt.xlabel('Position level')
plt.ylabel('Salary')
plt.show()
```


Truth or Bluff (Polynomial Regression)

```
X_grid = np.arange(min(X), max(X), 0.1)
X_grid = X_grid.reshape((len(X_grid), 1))
plt.scatter(X, y, color = 'red')
plt.plot(X_grid, lin_reg_2.predict(poly_regr.fit_transform(X_grid)), color = 'blue')
plt.title('Truth or Bluff (Polynomial Regression)')
plt.xlabel('Position level')
plt.ylabel('Salary')
plt.show()
```


Truth or Bluff (Polynomial Regression)
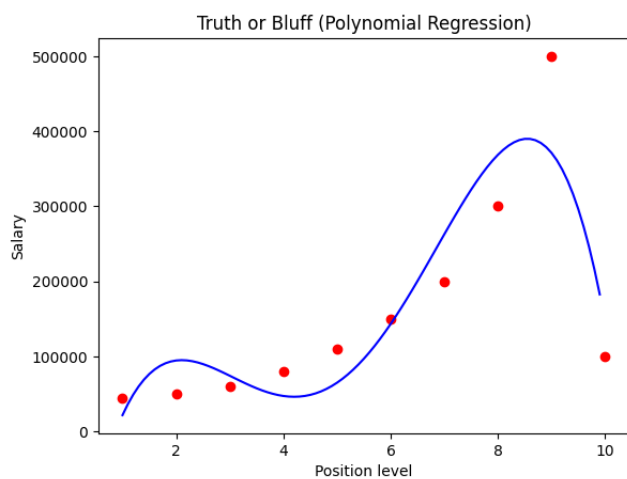
```
lin_reg.predict([[6.5]])
```

```
array([191287.87878788])
```

```
lin_reg_2.predict(poly_regr.fit_transform([[6.5]]))
```

```
array([200410.74810596])
```