Name:Syeda Bareeha Ali

Depart. : Computer Info & Systems Engineering

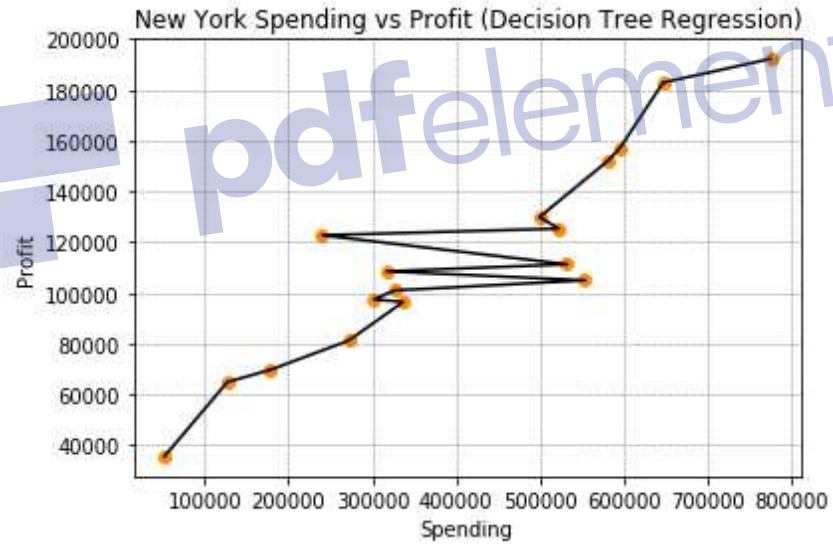
Class: First Year

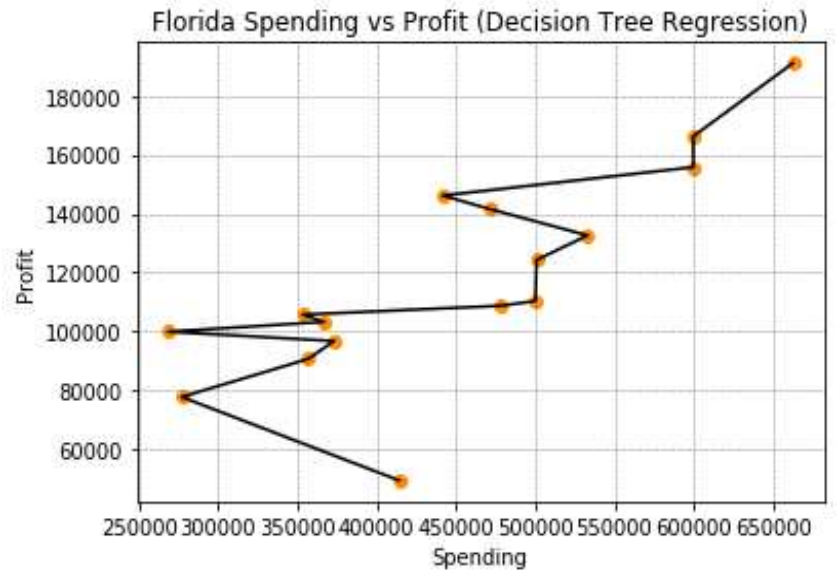
Course: Machine Learning Course

ASSIGNMENT 3

1. Take 50 startups of any two countries and find out which country is going to provide best profit in future.

A. Decision Tree Regression is performed to predict the profits of the startups of New York and California. The outputs are as follows:



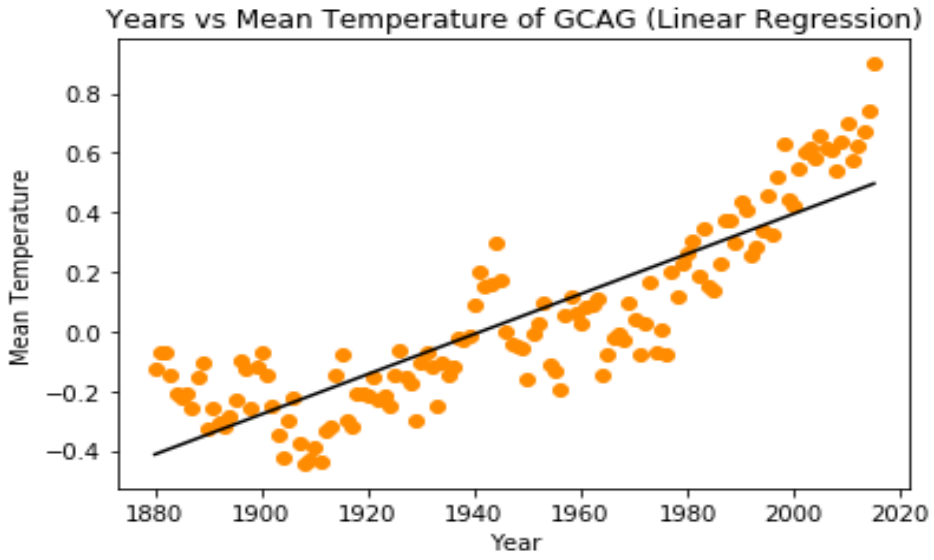


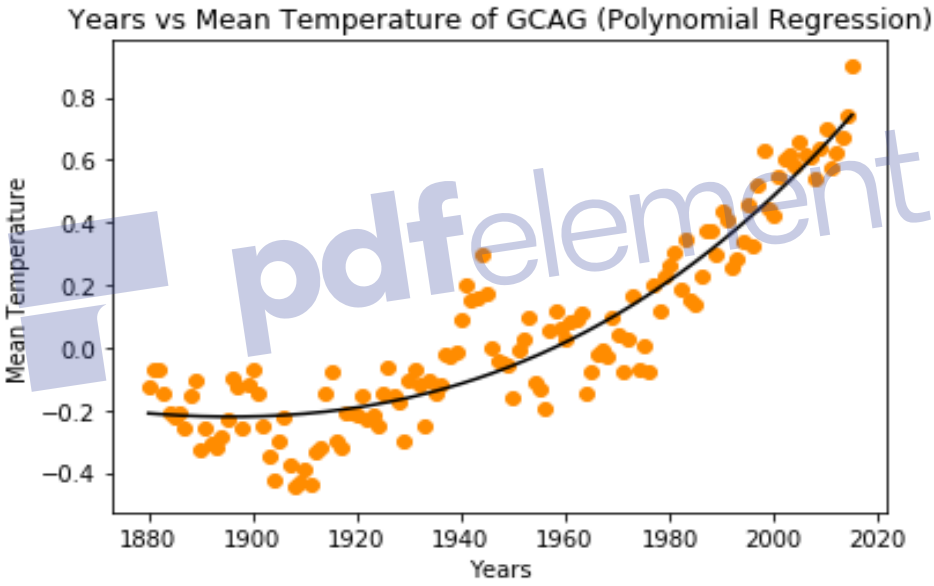
From outputs it is shown that the profit New York is greater than Florida:

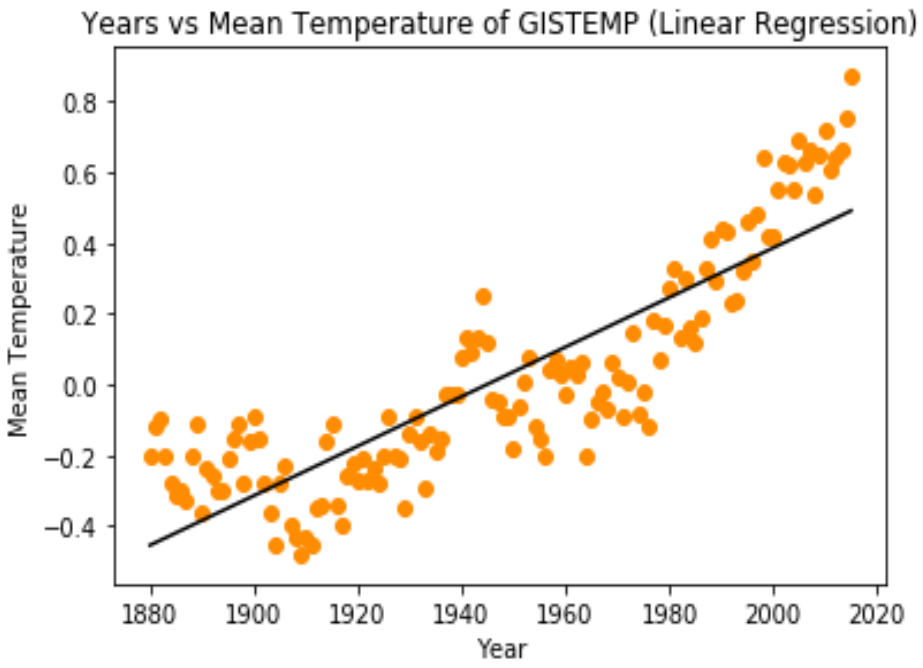
```
In [156]: runfile('C:/Users/DELL/Downloads/Machine Learning
Course/3 - Decision Tree Regression-20200330T050920Z-001/3 -
Decision Tree Regression/50_Startups ✓(ny-f).py', wdir='C:/
Users/DELL/Downloads/Machine Learning Course/3 - Decision Tree
Regression-20200330T050920Z-001/3 - Decision Tree Regression')
New York's Profit for 900000 spending is: [192261.83]
Florida's Profit for 900000 spending is: [191050.39]
```

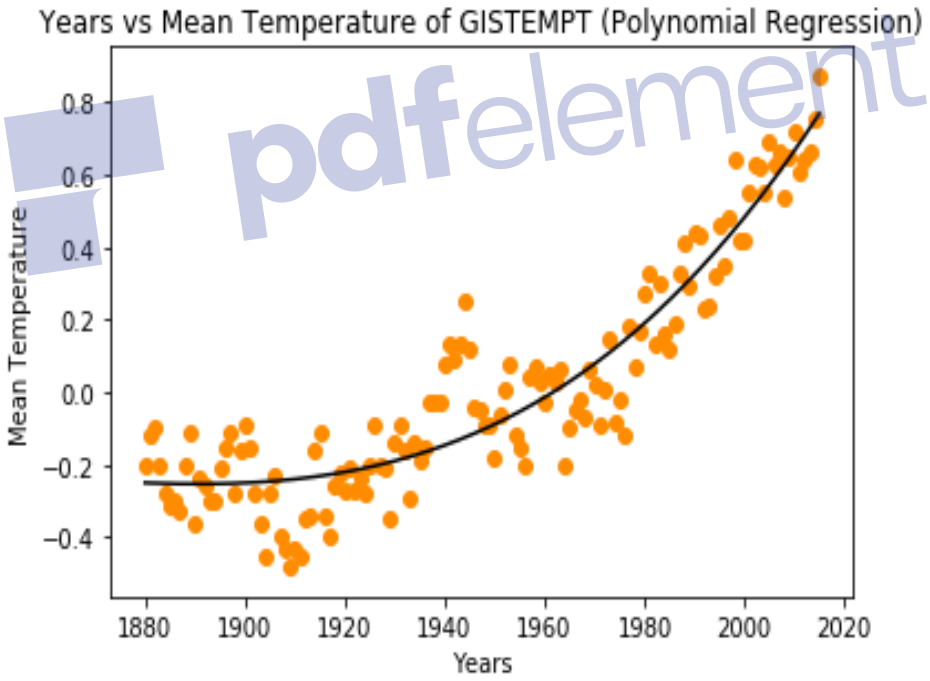
2. Annual temperature between two industries is given. Predict the temperature in 2016 and 2017 using the past data of both country.

A. Polynomial regression is applied as follows:







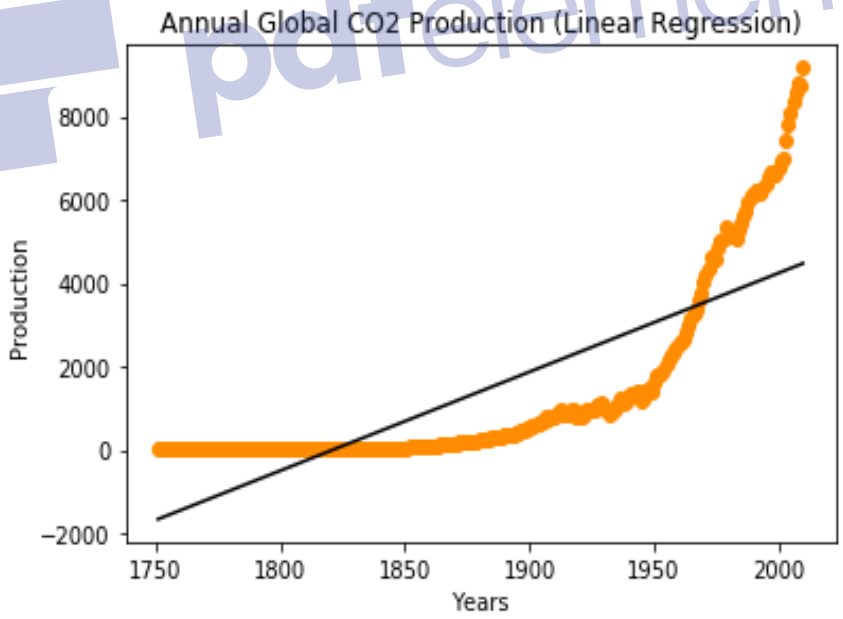


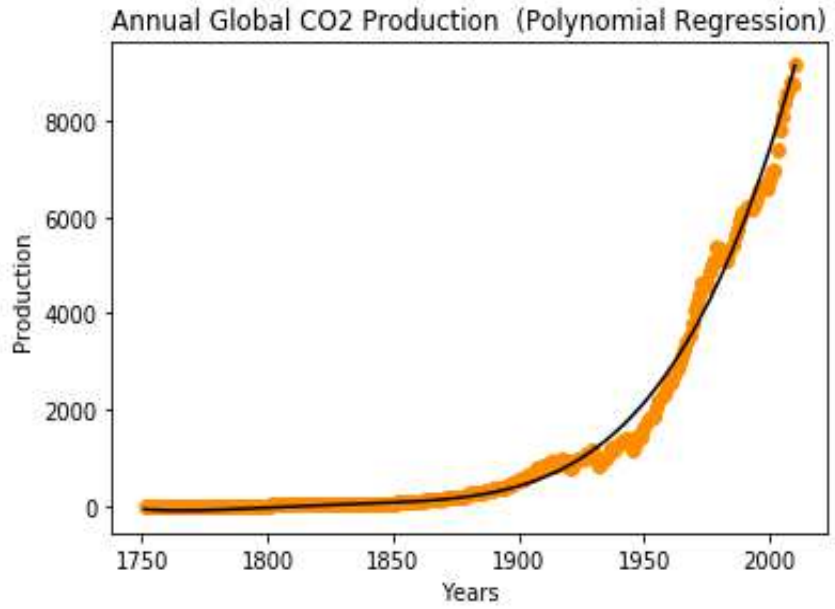
The predictions for the years 2016 and 2017 are as follows :

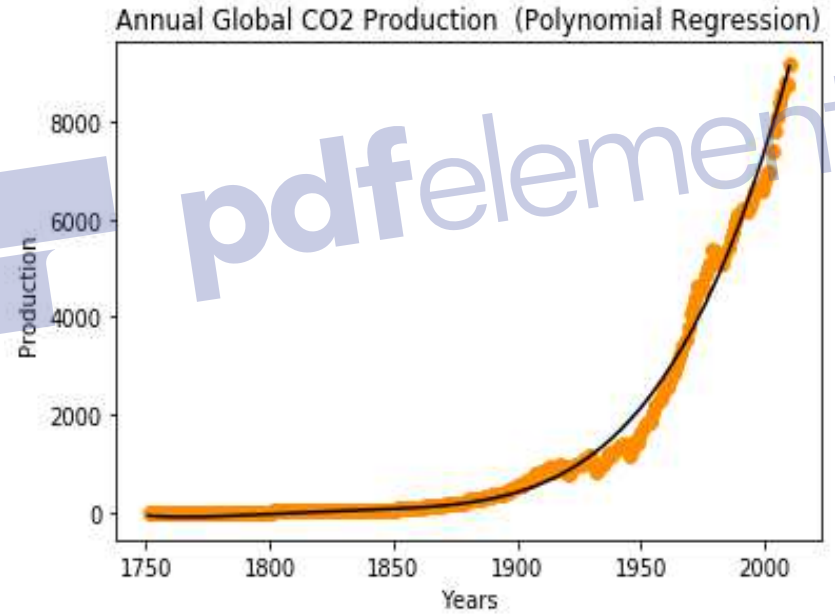
```
In [2]: runfile('C:/Users/DELL/Downloads/Machine Learning
Course/2 - Polynomial Regression/annual_temp ✓.py', wdir='C:/
Users/DELL/Downloads/Machine Learning Course/2 - Polynomial
Regression')
Using PR Mean Temp of GCAG in 2016:  [[0.76231028]]
Using PR Mean Temp of GCAG in 2017:  [[0.78149969]]
Using PR Mean Temp of GISTEMP in 2016:  [[0.78885745]]
Using PR Mean Temp of GISTEMP in 2017:  [[0.81039365]]
```

3. Data of global production of CO2 of a place is given between 1970s to 2010. Predict the CO2 production for the years 2011, 2012 and 2013 using the old data set.

A. Using Polynomial Regression,the given dataset is presented as follows:





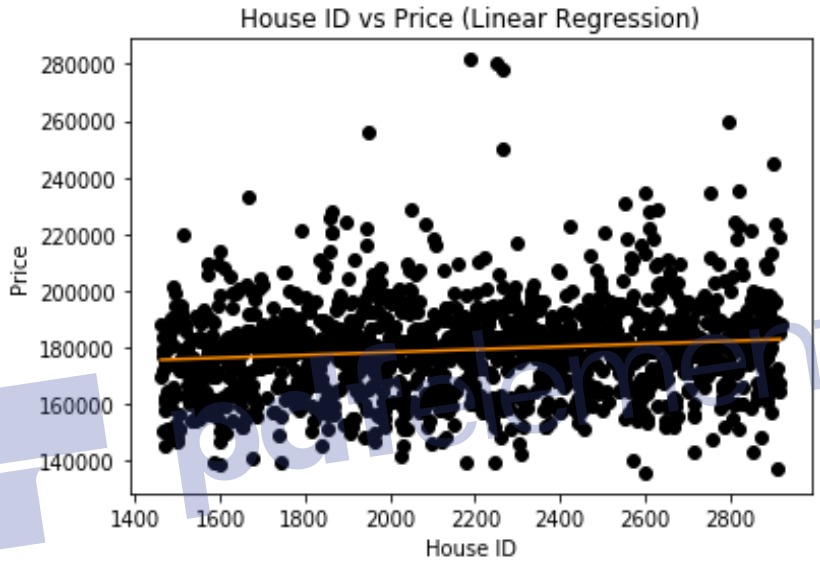


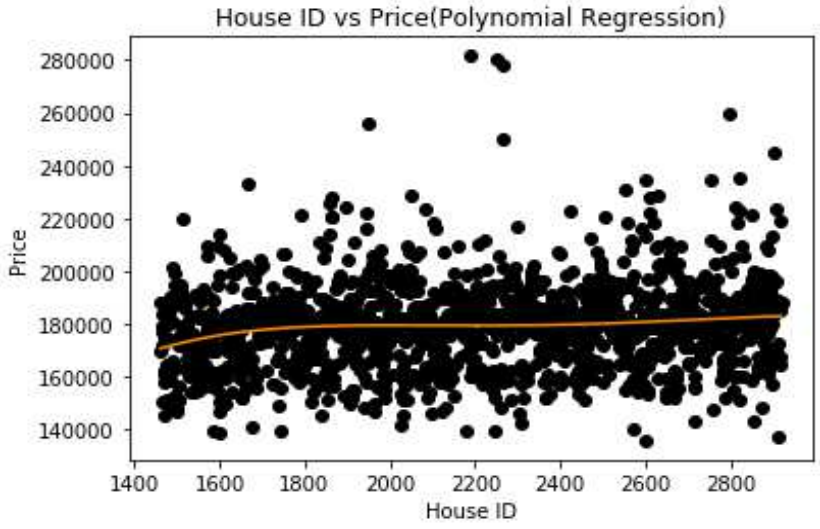
Following are the predictions for the production of CO2 in the years 2011, 2012 and 2013:

```
In [17]: runfile('C:/Users/DELL/Downloads/Machine Learning
Course/2 - Polynomial Regression/polynomial_regression
(globalCO2).py', wdir='C:/Users/DELL/Downloads/Machine
Learning Course/2 - Polynomial Regression')
Prediction for 2011 using PR is [[9340.02203348]]
Prediction for 2012 using PR is [[9532.4129678]]
Prediction for 2013 using PR is [[9727.80122766]]
```

4. Housing price according to the ID is assigned to every-house. Perform future analysis where when ID is inserted the housing price is displayed.

A. By performing Polynomial Regression on the datsaset, the following inputs are obtained from which it is seen that polynomial regression is giving us accurate results than linear regression:





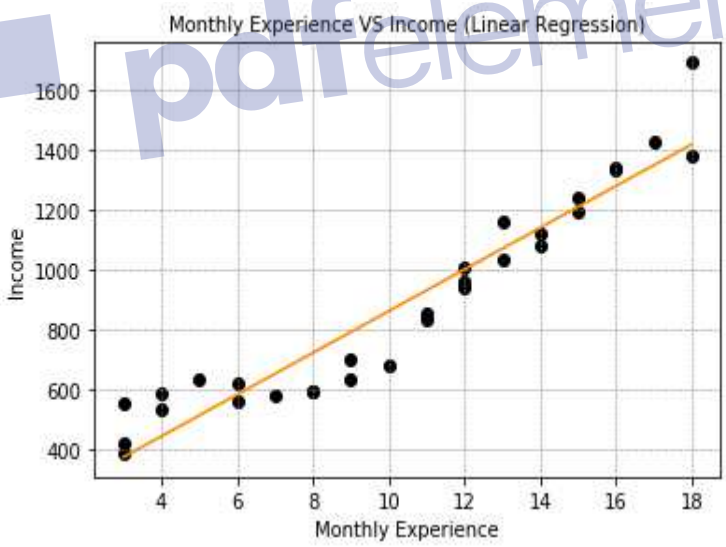
When user enters House ID, the price is printed as shown:

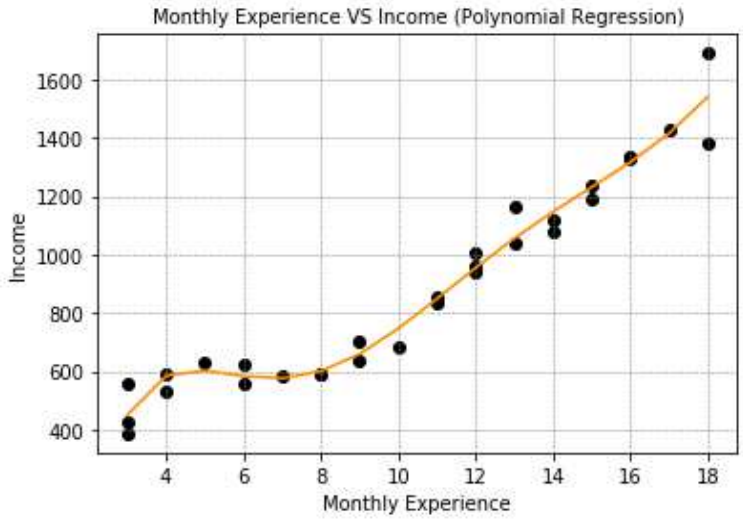
```
In [22]: runfile('C:/Users/DELL/Downloads/Machine Learning
Course/2 - Polynomial Regression/housing price ✓.py',
wdir='C:/Users/DELL/Downloads/Machine Learning Course/2 -
Polynomial Regression')

Enter House ID:2919
House Price using LR is: [[182789.84858851]]
House Price using PR is: [[182888.51663318]]
```

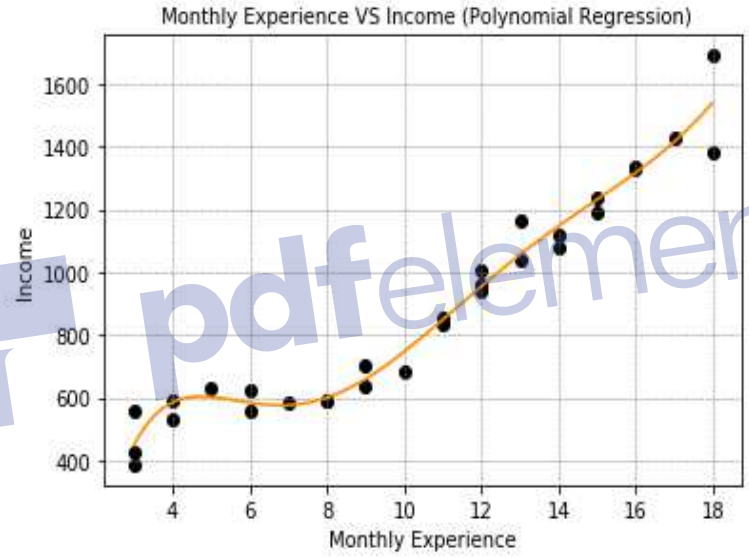
By comparing results of both regressions, it is seen that poly. regression is providing accurate results as compared to linear regression.

5. Data of monthly experience and income distribution of different employs is given. Perform regression.

A. Polynomial Regression is implemented in this case.







Polynomial regression of 6th degree is implemented the following results are obtained:

```
In [39]: runfile('C:/Users/DELL/Downloads/Machine Learning
Course/2 - Polynomial Regression/monthlyexp income  ✓.py',
wdir='C:/Users/DELL/Downloads/Machine Learning Course/2 -
Polynomial Regression')
Prediction for 6-Months-Experience (using LR) is:
[[584.43519086]]
Prediction for 6-Months-Experience (using PR) is:
[[583.88394719]]
```