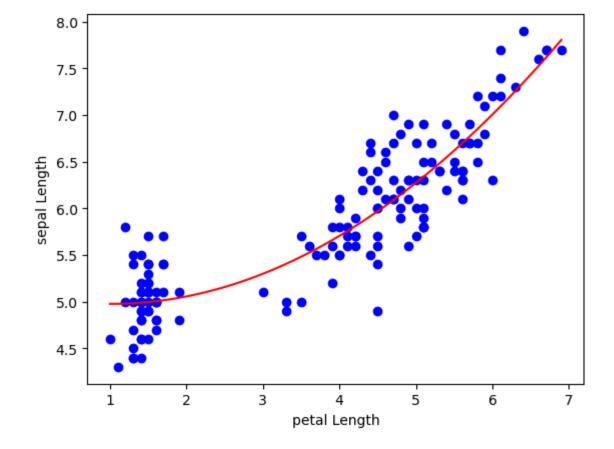
```
In [5]: import numpy as np
         import pandas as pd
         from sklearn import datasets
         import matplotlib.pyplot as plt
         from sklearn.preprocessing import PolynomialFeatures
         from sklearn.linear_model import LinearRegression
         from sklearn.model_selection import train_test_split
In [6]: d=datasets.load_iris()
Out[6]: {'data': array([[5.1, 3.5, 1.4, 0.2],
                 [4.9, 3., 1.4, 0.2],
                 [4.7, 3.2, 1.3, 0.2],
                 [4.6, 3.1, 1.5, 0.2],
                 [5., 3.6, 1.4, 0.2],
                 [5.4, 3.9, 1.7, 0.4],
                 [4.6, 3.4, 1.4, 0.3],
                 [5., 3.4, 1.5, 0.2],
                 [4.4, 2.9, 1.4, 0.2],
                 [4.9, 3.1, 1.5, 0.1],
                 [5.4, 3.7, 1.5, 0.2],
                 [4.8, 3.4, 1.6, 0.2],
                 [4.8, 3., 1.4, 0.1],
                 [4.3, 3., 1.1, 0.1],
                 [5.8, 4., 1.2, 0.2],
                 [5.7, 4.4, 1.5, 0.4],
                 [5.4, 3.9, 1.3, 0.4],
                 [5.1, 3.5, 1.4, 0.3],
                 [5.7, 3.8, 1.7, 0.3],
In [7]: x=d.data[:,2:3] #petal length
         y=d.data[:,0] #sepal Length(target)
In [8]: degree=2
         poly_features = PolynomialFeatures(degree=degree)
         x_poly =poly_features.fit_transform(x)
In [9]:
         poly_reg=LinearRegression()
         poly_reg.fit(x_poly,y)
Out[9]: LinearRegression()
In [10]: x_range = np.linspace(x.min(),x.max(),100).reshape(-1,1)
         x_range_poly=poly_features.transform(x_range)
In [11]: |y_pred=poly_reg.predict(x_range_poly)
```

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```
In [14]: plt.scatter(x,y,label='Data points',color='blue')
    plt.plot(x_range,y_pred,label=f'polynomial Regression (degree={degree})',color
    plt.xlabel('petal Length')
    plt.ylabel('sepal Length')
```

Out[14]: Text(0, 0.5, 'sepal Length')



```
In [ ]:
```

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