IE 345 - K “Introduction to Deep Learning: Fundamentals Concepts”

Prof. Yuzo

Supervised & Unsupervised Learning

pg. 56 - 58

In [6]:

```
# Code source: Jaques Grobler
# License BSD 3 clause

import matplotlib.pyplot as plt
import numpy as np
from sklearn import datasets, linear_model
from sklearn.metrics import mean_squared_error, r2_score
```

In [7]:

```
# Load the diabetes dataset
diabetes = datasets.load_diabetes()

# Use only one feature
diabetes_x = diabetes.data[:, np.newaxis, 2]

# Split the data into training/testing sets
diabetes_x_train = diabetes_x[:-20]
diabetes_x_test = diabetes_x[-20:]

# Split the targets into training/testing sets
diabetes_y_train = diabetes.target[:-20]
diabetes_y_test = diabetes.target[-20:]

# Create linear regression object
regr = linear_model.LinearRegression()
```

In [8]:

```
# Train the model using the training sets
regr.fit(diabetes_x_train, diabetes_y_train)

# Make predictions using the testing set
diabetes_y_pred = regr.predict(diabetes_x_test)
```

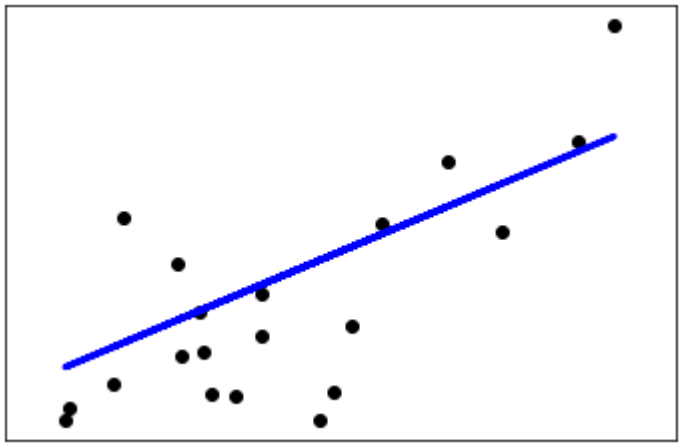
In [9]:

```
# The coefficients
print('Coefficients: \n', regr.coef_)

# The mean squared error
print('Mean squared error: %.2f' % mean_squared_error(diabetes_y_test, diabetes_y_pred
))

# Explained variance score: 1 is perfect prediction
print('Variance score: : %.2f' % r2_score(diabetes_y_test, diabetes_y_pred))
```

```
Coefficients:
 [938.23786125]
Mean squared error: 2548.07
Variance score: : 0.47
```

In [10]:

```
# Plot Outputs
plt.scatter(diabetes_x_test, diabetes_y_test, color='black')
plt.plot(diabetes_x_test, diabetes_y_pred, color='blue', linewidth=3)
plt.xticks(())
plt.yticks(())
plt.show()
```



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