Programming Assignment II

- **Task:** Implement the perceptron's algorithm to generate a classifier for binary classification.
- **Data set:** We will use the Iris flower data set
  - See the original data set description at https://archive.ics.uci.edu/ml/datasets/iris
  - Also, see the alternative data set description at https://en.wikipedia.org/wiki/Iris_flower_data_set

Iris Flower Data Set (1)

- The Iris flower data set is actually one of many standard data set that came with scikit-learn

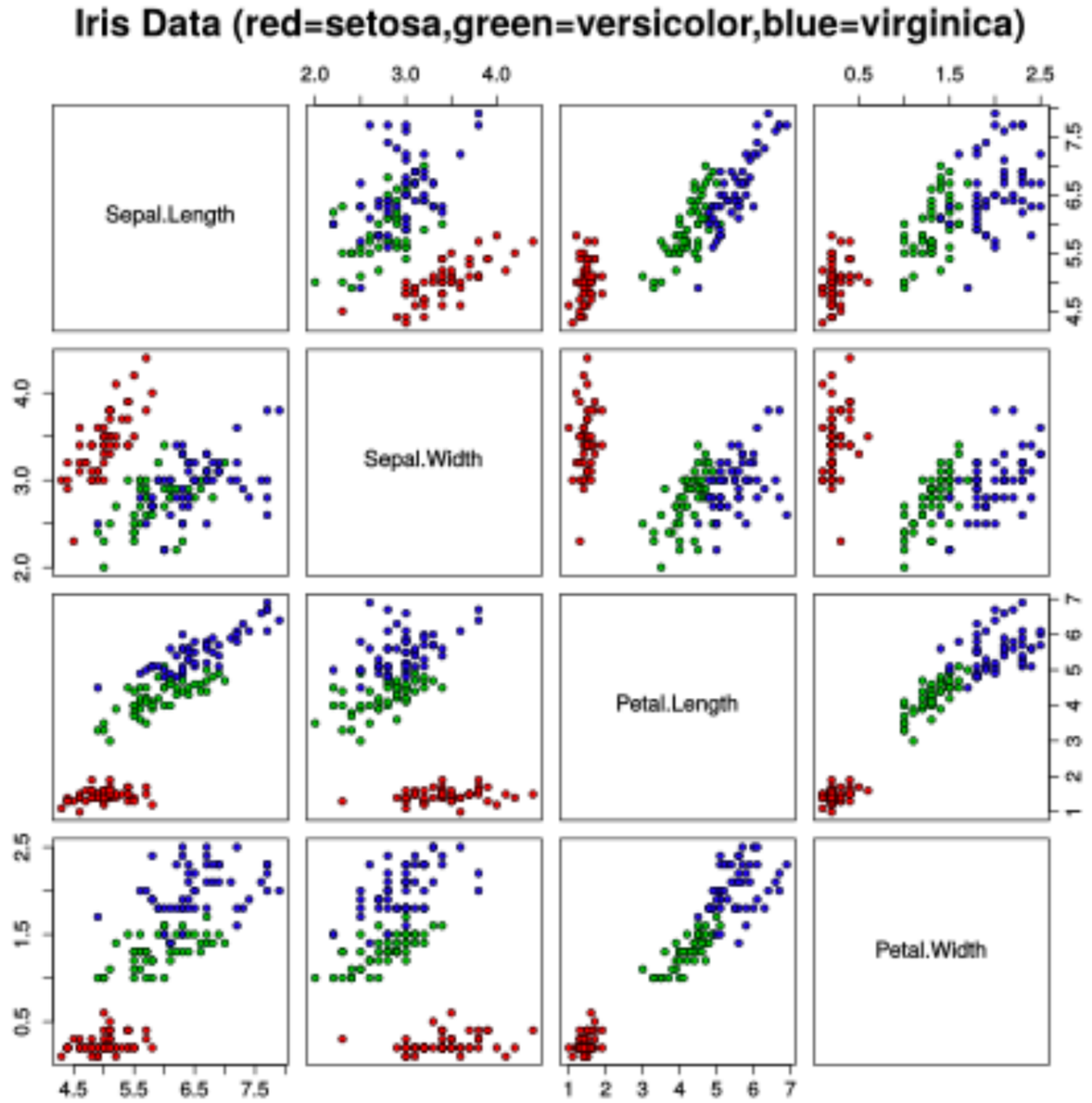
```
from sklearn import datasets
iris = datasets.load_iris()

# access the feature vectors
iris.data

# access the labels
iris.target
```

Iris Flower Data Set (2)

- The data set is featured with four attributes: the length and the width of the *sepals* (กลีบเลี้ยง) and *petals* (กลีบดอก), in centimeters.
- The data set contains 50 samples from one of three iris species: *Iris setosa*, *Iris virginica* and *Iris versicolor.*

Scatter Plots of the Iris Flower Data Set

- **Observation:** The Iris Setosa (red) data points is linearly separable from the other two species.
- Most likely, there will be a separating hyperplane for Iris Setosa
- **Your task:** Let's implement your own Perceptron's algorithm to find such a hyperplane.



Submissions of Programming Assignment II

- There are two submissions:
  - The first submission (20%) is due within Monday 10th. You will need to submit your Python codes that contain the entire experiment for applying the Perceptron to generate a linear classifier on the Iris Flower Data Set. We will discuss your submission in the physical class.
  - The second submission (80%) is due within Tuesday 11th. Wait for further submission instruction until our next physical class.