

Week 4 Learning Activities




Lab/Tutorial

1. Learn by Example

1) Basic SVM Classification

[simple SVM.ipynb](https://swinburne.instructure.com/courses/66748/files/35878524?wrap=1) (<https://swinburne.instructure.com/courses/66748/files/35878524?wrap=1>)_
[heights_weights.csv](https://swinburne.instructure.com/courses/66748/files/35878506?wrap=1) (<https://swinburne.instructure.com/courses/66748/files/35878506?wrap=1>)

2) SVM with Kernels

Learn and follow the tutorial "[SVM Kernels Explained: How to Tackle Nonlinear Data in Machine Learning](https://www.freecodecamp.org/news/svm-kernels-how-to-tackle-nonlinear-data-in-machine-learning/)  (<https://www.freecodecamp.org/news/svm-kernels-how-to-tackle-nonlinear-data-in-machine-learning/>)" to understand kernel tricks and how they help Support Vector Machines handle nonlinear data. You need to add 'from sklearn.svm import LinearSVC' to the import section.

2. Solve on Your Own

Build your own SVM classifier to predict Titanic survival.


[Titanic-Dataset.csv](https://swinburne.instructure.com/courses/66748/files/35878348?wrap=1) (<https://swinburne.instructure.com/courses/66748/files/35878348?wrap=1>) 
(https://swinburne.instructure.com/courses/66748/files/35878348/download?download_frd=1)

Submission:

- The source code, for example, a Jupyter notebook, and
- A Word/PDF file containing screenshots of the following items.
 - The columns selected for prediction,
 - The training and testing split,
 - The SVM model building, and
 - The accuracy.



Additional Exercise

Follow and learn based on Google Colab tutorial '[In Depth: Support Vector Machines](https://colab.research.google.com/github/jakevdp/PythonDataScienceHandbook/blob/master/notebooks/05.07-Support-Vector-Machines.ipynb)  (<https://colab.research.google.com/github/jakevdp/PythonDataScienceHandbook/blob/master/notebooks/05.07-Support-Vector-Machines.ipynb>)'.

