PASS TASK (Task 8.1)

About this task

Step-1

At the completion of week 8 modules, you are required to compete a lesson review to indicate what you have learnt and how you learnt it by submitting evidence requested at the end of this file.

Step-2

Your tutor will then review your submission and will give you feedback. If your submission is incomplete the tutor will ask you to include missing parts. Tutor can also ask follow-up questions, either to clarify something that you have submitted or to assess your understanding of certain topics.

Feedback and submission deadlines

Feedback deadline: Friday 12 Sep (No submission before this date means no feedback!)
Submission deadline: Before creating and submitting portfolio.

Evidence of Learning

1. Submit a summary report (pdf format) in Ontrack (https://ontrack.deakin.edu.au)
   1.1. Summarise the main points that is covered in week 7 and 8.
   1.2. Provide summary of your reading list – external resources, websites, book chapters, code libraries, etc.
   1.3. Reflect on the knowledge that you have gained by reading contents of this week with respect to machine learning.
   1.4. Attempt the quiz given in weekly content (7.11 and 8.14) and add screenshot of your score (>85% is considered completion of this task) in this report.
2. Complete the problem solving task given below and submit your code file (.ipynb) separately to OnTrack (https://ontrack.deakin.edu.au).

Problem Solving:

1. Download **Electrical Grid Stability Simulated Data** datasets and print the dimension of the dataset.
2. Classify the "Electrical Grid Stability Simulated Data" (target=stabf) available in the dataset using SVM with three different kernels. Select appropriate data splitting approach and performance metrics. Report the performances and the used model hyper-parameters.
3. Continue from question 2, use the same training and test set, try different C values for each kernel function, report the performance on the test set and the optimal C.
4. Continue from question 2, use the same training and test set, use Decision Tree and tune the depth of the tree on the training set, report the performance on the test set and the optimal depth.
5. Based on the model hyper-parameters used in question 2, 3 and question 4, share your understanding of hyper-parameters tuning in ML model development.