PASS TASK (Ensemble learning and MLP)

About this task

Step-1

At the completion of week 9 and 10 modules, you are required to complete a lesson review to tell us what you 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 30th May (No submission before this date means no feedback!)

Submission deadline: Before creating and submitting portfolio.

Evidence of Learning

1. **Submit a report (pdf format) in Ontrack (https://ontrack.deakin.edu.au)**
    1. Summarise the main points that is covered in weeks 9 and 10.
    2. Provide summary of your reading list – external resources, websites, book chapters, code libraries, etc.
    3. Reflect on the knowledge that you have gained by reading contents of this week with respect to machine learning.
    4. Attempt the quiz given in weekly content (9.12 and 10.15) and add screenshot of your score (>85% is considered completion of the task) in this report.
2. **Complete the problem solving task and submit your code file (.ipynb) separately in the OnTrack (https://ontrack.deakin.edu.au).**

Evidence of Learning

1. Load “Dataset3.csv” dataset and create an ensemble ML model for predicting target variable (Target). Report the performance of the model using appropriate metrics.
2. Have you used any hyperparameter tuning while building the model in Q1? Reflect on the importance of hyperparameter tuning of ensemble models based on your model development exercise.
3. Create a AdaBoost model for the predicting Result using the same dataset that you have used Q1 and report the performance.
4. Create a MLP model with 20 hidden layers using “Dataset3.csv” dataset and report performances using appropriate metrics.
5. Compare the performance of two models (Q1 and Q3). Explain which model is good and why.
6. Analyse impact of different activation function with “adam” solver on the model. Explain your findings and report the best performance.