

Pre-class Learning Activities for Session 5

- Complete the following learning activities (listed below) before class.
- References are optional and not meant to be read from first page to last. Refer if necessary.
- You may be asked to volunteer/present your work for class participation points.
- If you presented your work in class, remember to email your work to instructor after class.
- You may be asked to provide comments/add-ons to work presented by students.

Learning Activities:

1. In NTULearn Main Site, watch Lecture Videos S5.1 and S5.2.
2. Activity 1:
 - i. Run the RScript CTT.R
 - ii. The Chocolate Taste Test dataset, randomised start weights and final optimized weights in the neural network above are provided in Excel file CTT.xlsx.
 - iii. For each set of weights (start and final), compute the activation functions and cross entropy error in Excel. Verify that the mean CE error is smaller using the final weights. What is the meaning of error in R output?
 - iv. Verify the R output in `ctt.m1$net.result` against your excel calculations.

R References:

- Chew C.H. (2021). Artificial Intelligence, Analytics and Data Science, Volume 1: Core Concepts and Models, Chapter 9. Cengage.

Python References:

- scikit-learn: https://scikit-learn.org/stable/modules/neural_networks_supervised.html