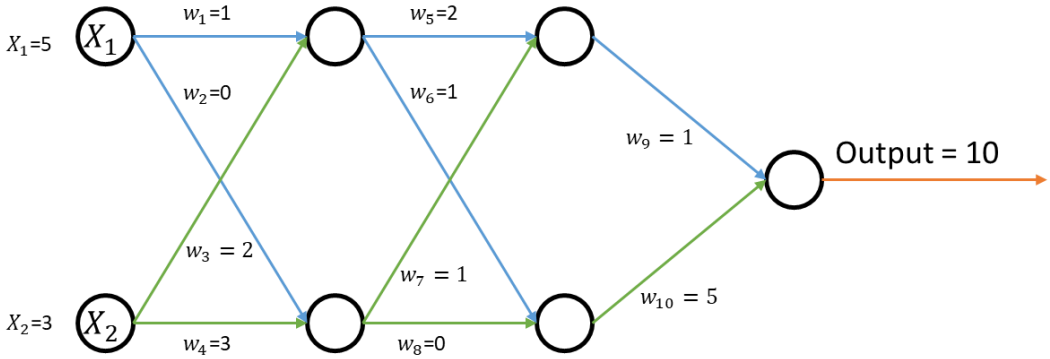
ME 6543: Machine Learning & Data Analytics

Fall 2021

Homework 6

Submission Deadline: Monday, November 22, 2021 (11:59 PM)



Solve by Hand (50%):

1. (40 Points) Solve the above Neural Network for one complete iteration (1 forward pass and 1 backward pass).
2. (10 Points) For $[X_1, X_2] = [2, 3]$ perform a prediction using the updated model.

Programming Assignment (50%):

(Code this without using tensorflow library):

3. (50 points) Write a python code to calculate the forward and backward pass of the neural network given the weights and inputs. Use the initial weights from question 1 to code your model. Run the model for 10 iteration.

Submission Guideline:

Please submit your assignment through Blackboard.

1. For the written portion, scan your work ('CamScanner' is good phone app to scan your documents and create pdf file) and save it as pdf format.
2. For the Programming submit either your "jupyter notebook" file or your core python file (.py). If you have any questions, please let us know through email or Teams discussion board.

Note:

1. Please, show your steps in calculations while solving by hand.
2. Please, don't use any pre-build packages to perform the programming assignments. Build your own functions to complete the homework.
3. If you have any questions, we will open a channel within the Teams discussion board. You can ask your questions to TA through the platform.
4. ***Please, do not share your solutions with one another.***