Week2 homework

1. Code

import tensorflow as tf

import numpy as np

y = tf.Variable([[0.5, 0.3, 0.2],

                 [0.3, 0.2, 0.5]], dtype=tf.float32)

t = tf.**constant**([[1.0, 0.0, 0.0],

                 [0.0, 0.0, 1.0]], dtype=tf.float32)

def **compGradient**(y, t, LossFun):

    with tf.GradientTape() as tape:

        if LossFun == 'MSE':

            loss = tf.**reduce\_mean**((t - y)\*\*2)

        elif LossFun == 'BCE':

            loss = -tf.**reduce\_mean**(t \* tf.math.**log**(y) + (1.0 - t) \* tf.math.**log**(1.0 - y))

        elif LossFun == 'CCE':

            loss = -tf.**reduce\_mean**(tf.**reduce\_sum**(t \* tf.math.**log**(y), axis=1))

    grads = tape.**gradient**(loss, y)

    return grads, loss

grads, loss = **compGradient**(y, t, 'MSE')

**print**("MSE grads:", grads)

**print**("MSE loss:", loss)

grads, loss = **compGradient**(y, t, 'BCE')

**print**("BCE grads:", grads)

**print**("BCE loss:",loss)

grads, loss = **compGradient**(y, t, 'CCE')

**print**("CCE grads:", grads)

**print**("CCE loss:", loss)

1. 執行畫面&結果一張含有 文字, 螢幕擷取畫面, 字型, 功能表 的圖片

   AI 產生的內容可能不正確。
2. 心得

這次的作業實作了Mean Squared Error, Binary Cross-Entropy 跟Categorical Cross-Entropy，來計算梯度跟loss 很簡單的程式碼就可以實作，都沒有遇到任何問題。

1. 組員名單:

11160801陳禹豪 5分，原因：報告跟程式碼撰寫

11360821陳鈺安 4分