Assignment 3– CMPUT 328
Adam Optimization Algorithm

Adam Optimization [7 Marks]:

Implement Adaptive Moment Estimation (Adam Optimization, paper) in Tensorflow.

1. Implement Adam Optimization on the **CIFAR10** dataset

You should do hyperparameters search using the accuracy on the validation set and select the the best configuration. You should not touch the test set during this process.
The CIFAR10 images are RGB (color).
NOTE: A correct implementation and somewhat well-tuned version of this algorithm will have an accuracy of 34-40% on CIFAR10 for both test and validation sets. Using normal Stochastic Gradient Descent, you will see the accuracy stuck at 12-13%.

DUE DATE: The due date is Friday, October 5 by 11:59 pm. The assignment is to be submitted online on eclass. For late submissions' rules please, check the course information on eclass

COLLABORATION POLICY: This must be your own work. Do not share or look at the code of other people (whether they are inside or outside the class). Do not search for or copy the code from the Internet. You can talk to others that are in the class about solution ideas (but not so detailed that you are verbally sharing or hearing about or seeing the code). You must cite whom you talked to in the comments of your programs.

SUBMISSION: You need to submit one file: adam_train.py. Also, import any additional libraries you need in the file as well.

MARKING:
2 Marks Describe your program for TAs (Monday, Oct 1 – Tuesday, Oct 2 – Thursday, Oct 4)
TAs can select five random questions based on your code, results, and algorithms. The time to present will be in your lab section in the week when this lab is due. Note that you must present this part to your TA in your designated lab section. *You will not get any mark for this part if you don't present in your own lab section.*

5 Marks Your final score depends on the correct implementation of algorithms and it must work on CIFAR10 datasets.
There is no time constraint for this assignment. However, your code should run in a reasonable amount of time.

CIFAR10: score scales linearly from 24-34% on the test set