**CPSC 8430 Deep Learning**

**Homework 3**

**Reek Majumder**

GitHub Repo:- <https://github.com/reek129/CPSC8430_HW2_V2/tree/main/hw3>

# Dataset: - CIFAR10

The CIFAR-10 dataset consists of 60000 color images of size 32 x 32. The dataset comprises of 10 classes airplanes, car, birds, cats, deer, dogs, frogs, horses, ships and trucks with 6000 images for each classes.

# Generative Adversarial Networks (GANs) – Introduction

A generative adversarial network also referred as GAN, is a class of machine learning frameworks designed by Ian Goodfellow and his colleagues in 2014. It involves automatically discovering and learning the regularities or patterns in input data in such a way that the model can be used to generate or output new examples that plausibly could have been drawn from the original dataset.

GANs neural networks, contains two networks, generator network which is used to generate new examples and discriminator network which is used classify examples as either real that is from the training dataset or fake that is generated. The two models are trained together in a zero-sum game, adversarial, until the discriminator model is fooled about half the time, that is generator model is generating plausible examples.

The discriminator takes all the real and fake images and returns the odds of 0s and 1s with