Final Capstone Proposal

What is the problem you are attempting to solve?

The problem I intend to address is image recognition using machine learning techniques. For this purpose I want to test different supervised and unsupervised methods and see how they would compare in building a good image classification model.

How is your solution valuable?

My solution woud provide a valuable insight in to what works best for addressing such a problem, which tecniques are more useful than others, what are model limitations and how we can make improvements.

What is your data source and how will you access it?

For this purpose I plan to use CIFAR-10 dataset made available by the [Canadian Institute For Advanced Research](#) The CIFAR-10 dataset can be accessed through Keras built in library. It consists of 60,000 colour images in 10 classes, with 6000 images per class. There dataset includes 50000 training images and 10000 test images.

What techniques from the course do you anticipate using?

I intend to use the following techniques.

1. Random Forest, Gradient Boosting, Support Vector Machines and compare output with Convolutional Neural Networks.
2. Apply Standard Scaling and Principle Component Analysis for reducing dimensionality if needed. Also if needed I will use the Pillow library to
3. Present results using confusion matrix and creating graphs using Seaborn and Matplotlib libraries.

What do you anticipate to be the biggest challenge you'll face?

1. Preprocessing input data for each of the models.
2. Tunning model to give best possible results.
3. Creating visuals for reflecting accuracy for each of the models