**Softwares and Libraries required**

* Python 2.7 with Numpy, Scipy and Sklearn installed
* Tensorflow (version >=0.9) See installation instructions at <https://github.com/tensorflow/tensorflow/blob/master/tensorflow/g3doc/get_started/os_setup.md>
* TFLearn Installation: The easiest way is to run:

pip install tflearn

Or review installation instructions at <http://tflearn.org/installation/>

**Input Dataset**

The dataset for this project is too big to be zipped. Please download train.zip from Kaggle. See link below:

<https://www.kaggle.com/c/dogs-vs-cats-redux-kernels-edition/data>

This dataset has 25000 images – 12,500 for cat and 12,500 for dogs. Please store in a directory and reference that directory in the final code attached with this project

**Pickled Trained Model**

The model for this project was trained on Amazon EC2 GPU 2.2x Large. It took about 8-10 minutes to train the model on GPU. Processing on CPU would be much slower. If you don’t have access to GPU to train the model, I have included the pickled train model in the zip file and alternate instructions in the code to simply load the pickled model and evaluate prediction accuracy on the test dataset.

**References**

To succeed in this project I have leveraged several sources to build my understanding of Deep learning and also learn about implementation using TensorFlow. These sources include:

* Udacity Course: [Deep Learning](https://www.google.com/url?q=https://www.udacity.com/course/deep-learning--ud730&sa=D&ust=1473187237687000&usg=AFQjCNEh1l5QuBAKB9jBxl7CM_kpkv_tpw) by Vincent Vanhoucke (Google and Udacity).
* TensorFlow and TFLearn

<http://tflearn.org/getting_started>

<https://www.tensorflow.org/versions/r0.10/tutorials/index.html>

* Books on Deep Learning
  + Artificial Intelligence for Humans, Volume 3: Deep Learning and Neural Networks by Jeff Heaton
  + Getting started with TensorFlow by Giancarlo Zaccone
* [CS231n: Convolutional Neural Networks for Visual Recognition](https://cs231n.github.io/) — Andrej Karpathy's Stanford CS class

<http://cs231n.github.io/>

* Research papers on latest techniques in convolution neural networks

<http://arxiv.org/pdf/1412.6806.pdf>