INTRODUCTION

Objectives

The objective of this project is to build powerful Deep Learning Neural network that can classify these images with more accuracy.

About Dataset

This is an image data of Natural Scenes around the world.

This Data contains around 25k images of size 150x150 distributed under 6 categories.

- buildings,
- forest
- glacier
- mountain
- sea
- street

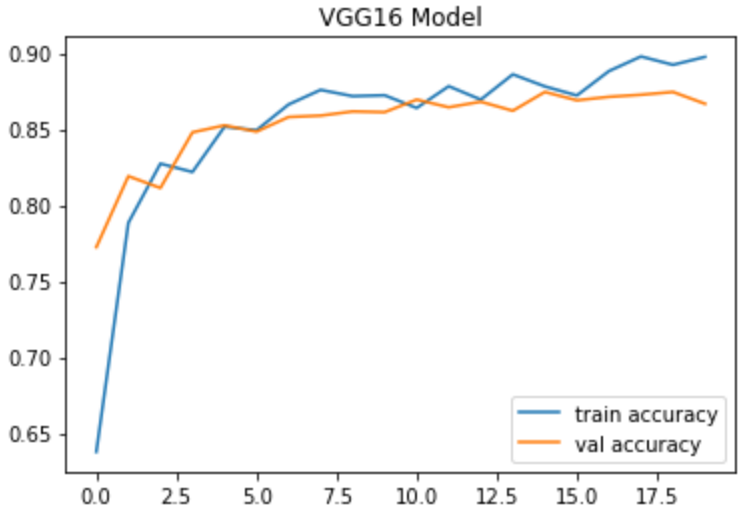
The Train, Test and Prediction data is separated in each zip files. There are around 14k images in Train, 3k in Test and 7k in Prediction. This data was initially published on https://datahack.analyticsvidhya.com by Intel to host a Image classification Challenge.

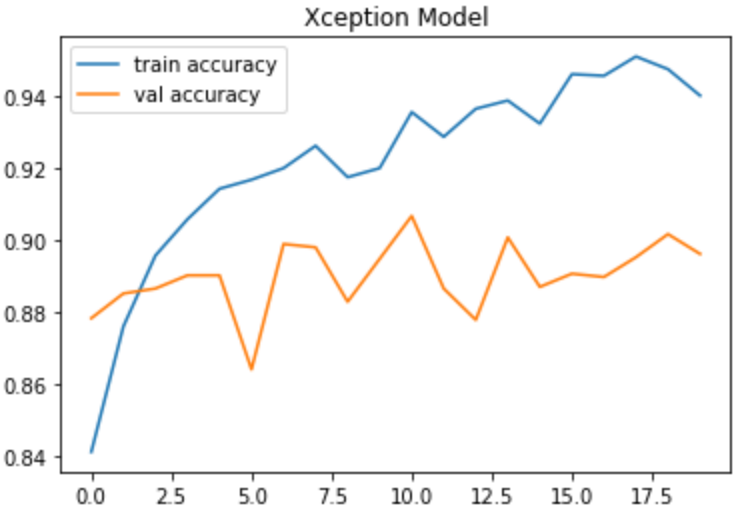
Data Source: https://www.kaggle.com/datasets/puneet6060/intel-image-classification

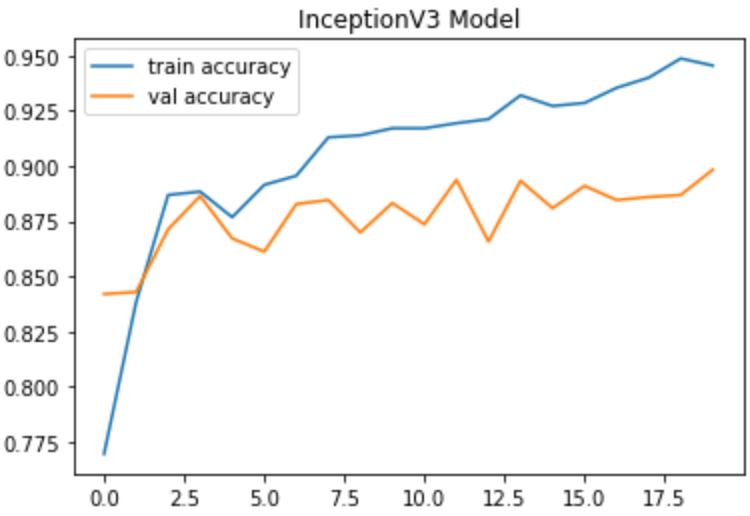
summary of data exploration and actions taken for data cleaning or feature engineering.

- Normalization was done on the image data before fitting to model

Summary of training at least three variations of the Deep Learning mode







Recommended Model

From the above, you can deduce that `Xception model` has a slighly higher validation score than InceptionV3 and VGG16

Key Findings and Insights

- During the test phase ie, the model misclassified a mountain as glacier which makes alot of sense because this particular mountain has glacier on the top.
- The model also misclassified a glacier as sea and again this made sense because this particular image was a glacier in the middle of the sea.

Suggestions

- Getting the best machine learning model is an iterative process and more tuning of hyper parameters can lead to a better results.