Neural Networks Project Proposal 1

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Topic: Intel Image Classification: Image Scene Classification of Multiclass

Course Code: Neural Network (MTH 5320)

Goal:

- The main goal of this project is to acquire good accuracy from the dataset by preprocessing the data, tuning hyperparameters, using activation functions, etc.

Network Algorithm:
In this project, I will be using the feed-forward network to predict good accuracy from the dataset. Accuracy can be improved by applying the right normalization method, and mainly by preprocessing the data set. I plan to use the momentum method to see the difference in my accuracy, and I will primarily focus on tuning the hyperparameters by using L1 and L2 regularization.

Overview:
I will be preprocessing the data from RBG to greyscale. Image classification is considered state-of-the-art in computer vision researches. Engineering object extraction is a complicated process and time-consuming. The operations of the feature extraction process require a domain expert operator for design and testing. The main aim of this project is to process the large clusters of images quickly.

Data set:
The data set is used from the site https://www.kaggle.com/puneet6060/intel-image-classification
There are 25K images of size 150x150 distributed under the following categories:

- Buildings – 0
- Forest – 1
- Glacier – 2
- Mountain – 3
- Sea – 4
- Street – 5

There are 14K images in Train, 3K in test, and 7K in predictions/validation.

Approach:
I am planning to approach in the following manner. This may vary depending on the code.