Capstone Project Proposal

Introduction:

The problem is about image classification of potholes on the road. We all know how dangerous a pothole can be. The effects of driving through pothole could be bad suspension and could lose one's life. According to pothole facts , the average annual cost for vehicle repairs due to rough pavement for individual motorists is $377. There are many more shocking facts which will amaze how bad the potholes are.

Datasets and inputs:

- For this, I am using a kaggle dataset.
  (https://www.kaggle.com/atulyakumar98/pothole-detection-dataset). All the images are gathered from google. This dataset is divided into two folders. Non-potholes and pothole images. The images of various sizes and colours. So as the step of data pre-processing, I have to convert all the images to the same size and standardize the colour.

Solution statement :

- The solution statement is to successfully detect a pothole on the road;

Benchmark model :

- The following model is the benchmark model
  (https://www.kaggle.com/pradneshmhatre/pothole-detector-with-keras)

Evaluation metrics : A solution can be measured on the performance metrics of the model. Accuracy of the model is the primary metrics to be used.

Project design:

- Upload data to AWS notebook instance.
- Load data to variables.
- Use pyplot to visualize the data.
- Define test and train data using train_test_split function.
- Define the model, activation function and optimizer. (trying to use any built in AWS Sagemaker models and train using deploying to Sagemaker)
- Train the model.
- Test the model with test data.
- Predict the model and calculate accuracy of image prediction.