**Project Documentation**

**Project:**Cat and Dog Classification Model using SVM ML algorithm

**Involved Steps:**

* Import Libraries
* Read Images
  + Gray scaling
  + Resizing image
  + Display images
* Read Label of images
  + Label encoding on Images label
* Split Data into training and testing with ratio 20:80
* Histogram Oriented Gradient use for extraction image features
* Model selection(SVM)
  + I researched the best ML Algorithms for Multi Classification and I found Logistic Regression and SVM and used both of them. SVM got High Accuracy then LR so i choose SVM.
* Train Model
* Random Prediction
* Model Tuning by using GridSearchCV
  + Parameter use in Tuning:
    - C: [1, 10, 100,]
    - kernel: ['rbf']
    - gamma: [0.001, 0.01, 0.1]
* Develop Testing Script of the model by Prediction
* Finding Accuracy
* Save Model using joblib