Dataset:

* Should include Labels needed for the classification Query

1st Question:

Intended classification question you hope to answer

2nd Question:

What feature vectors to use (histogram of oriented gradients, HSV color histogram, local binary pattern)

Use one complex feature from a library or pre-trained neural network

3rd Question:

Build and Train at least 2 classifiers and why

4th Question:

Implement a hyperparameter search using a subsets of the validation data.

1. Image Preprocessing (Follow 1 of the recommendations)
   1. Image enhancement
      1. Image smooth: a- Anisotropic diffusion filter, b- 2D Median filter
      2. Adaptive histogram equalization method
   2. Color normalization
      1. Histogram
      2. NMF
      3. SVD
      4. KM SCD
      5. SPCN
2. Image Segmentation (Follow 1 of the recommendations)
   1. Threshold Segmentation
   2. Active Contour Model (ACM) Segmentation
   3. Clustering Segmentation
   4. Watershed Segmentation
   5. Neural Network
3. Feature Extraction (Choose at least 2)
   1. Traditional Feature Extraction
      1. Shape Features
      2. Color Features
      3. Texture Features
   2. Deep Learning (Choose 1)
      1. VGG16
      2. VGG19
      3. ResNet-50
      4. Inception-Resnet
4. Classifier (Choose at least 2)
   1. Traditional
      1. Decision Tree
      2. Support vector Machine
      3. KNN
      4. Sparse Representation
   2. Deep Learning
      1. CNN
      2. GAN
      3. Domain Adaptation
      4. PCANet