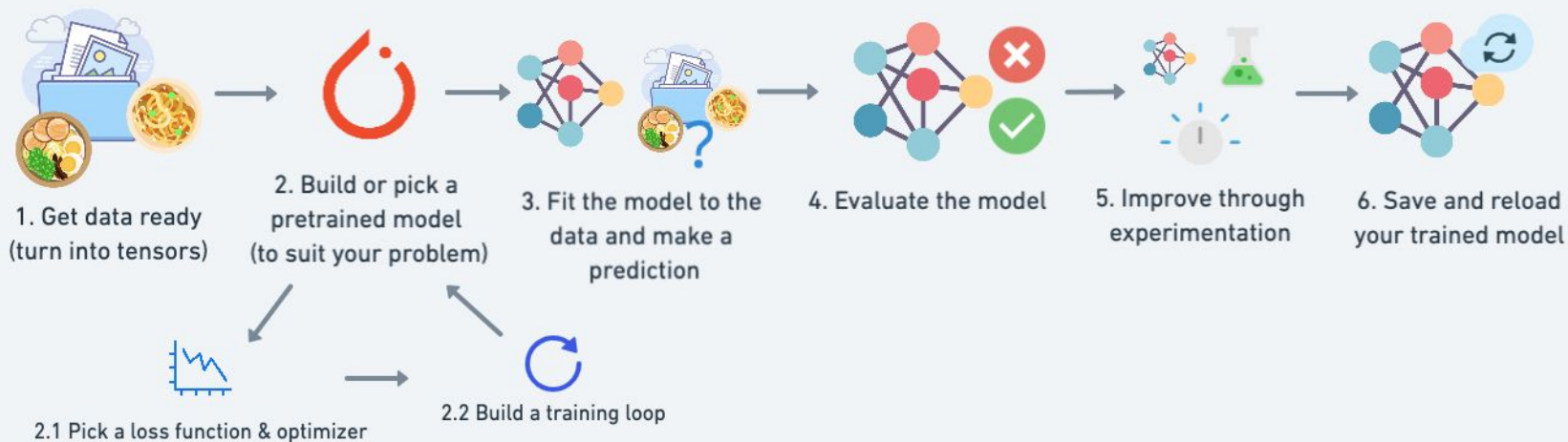

MHIST Image Classification

— -Krish Shah —

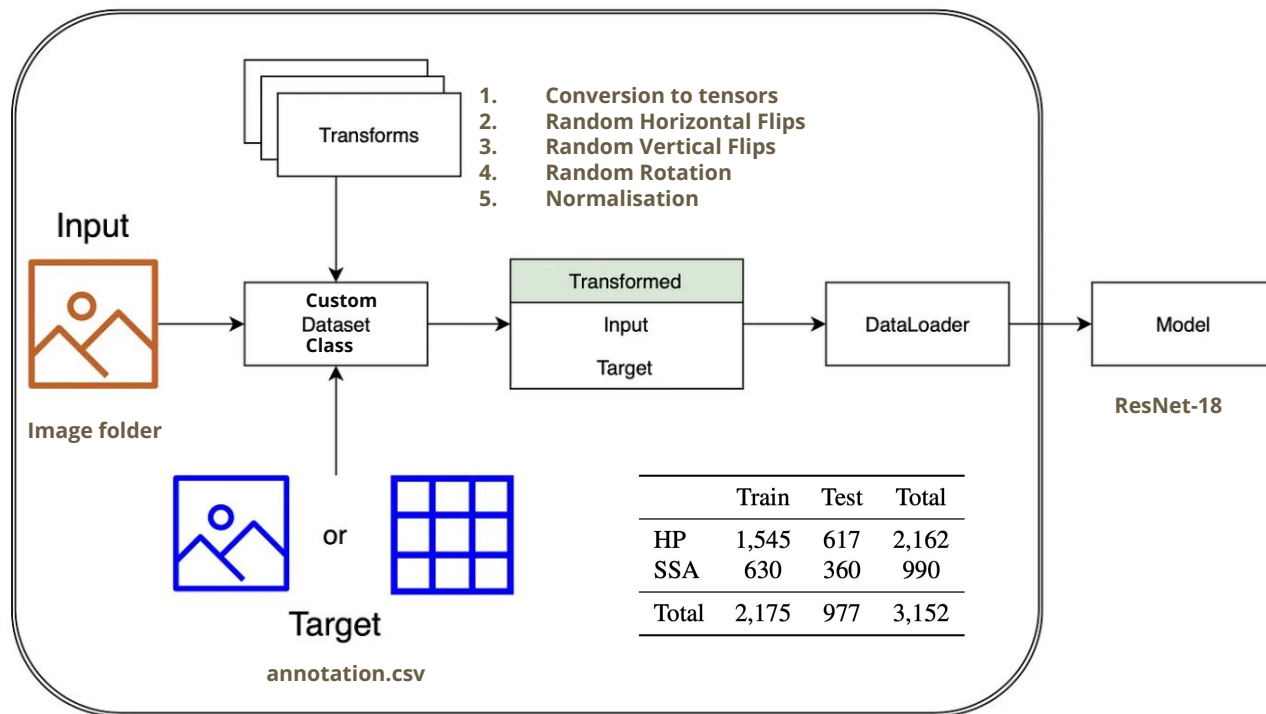
Pipeline:

A PyTorch Workflow

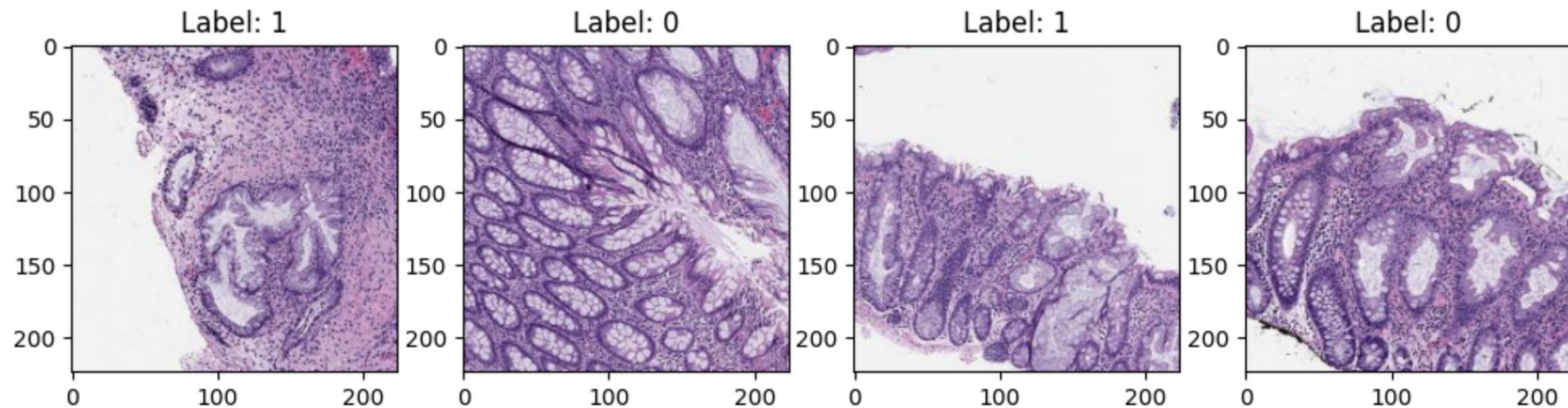


Data-Preparation:

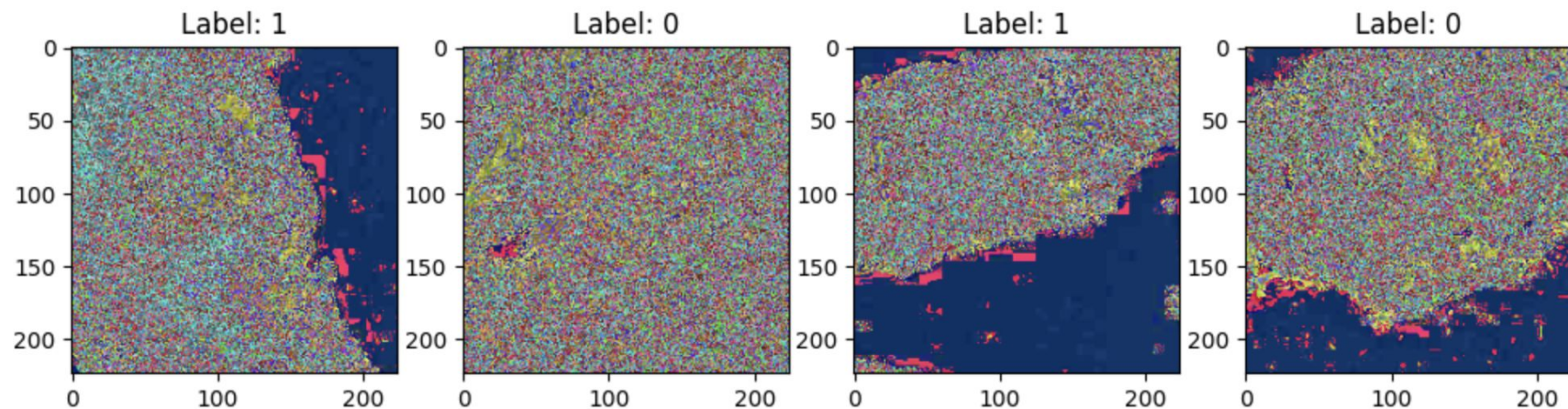
Data Pipeline



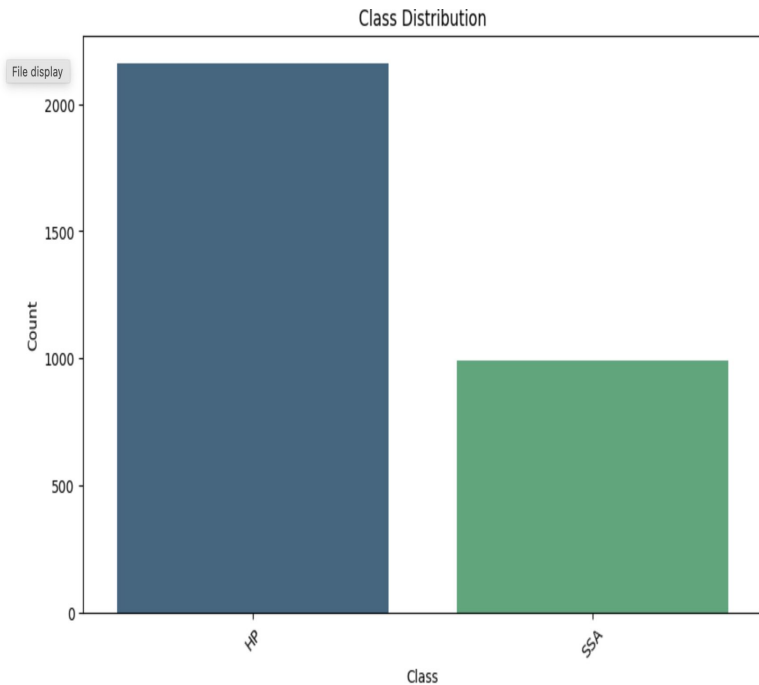
Data before Transformations



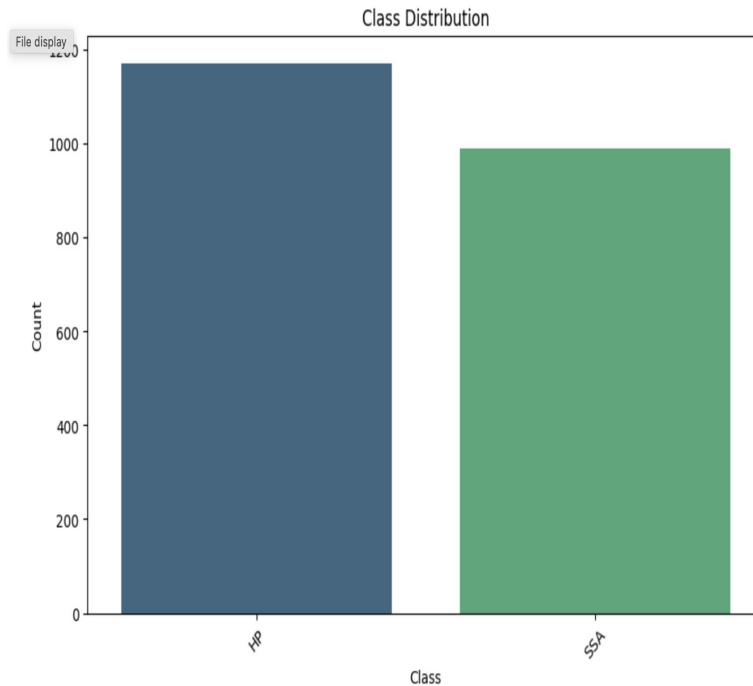
Data after Transformations



Sampling Approach: 1 Down Sampling



Class HP: 68.59%
Class SSA: 31.41%

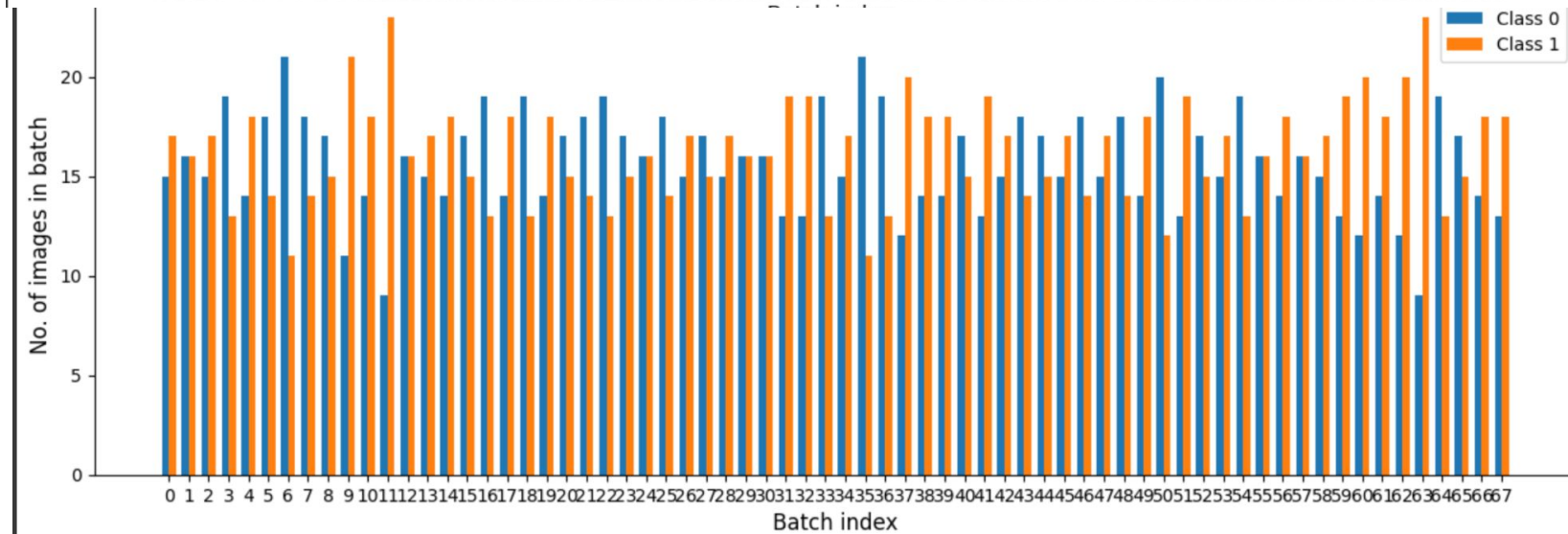
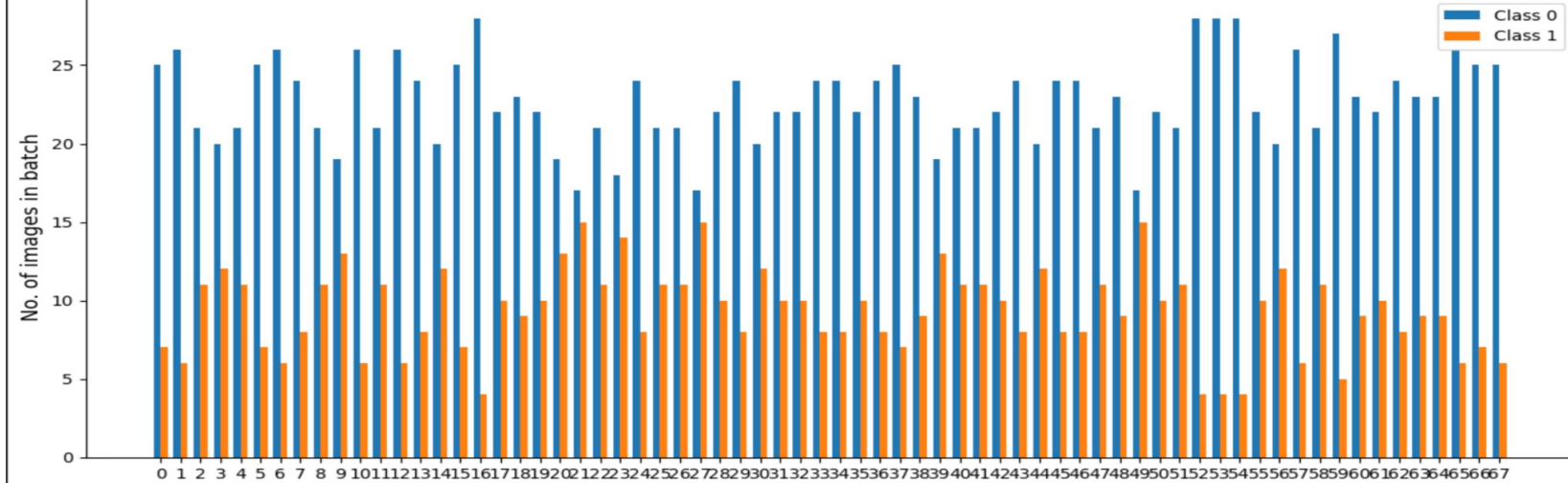


Class HP: 54.21%
Class SSA: 45.79%

Down-sampling the majority class

Sampling Approach: 2 Over-Sampling Minority Class

- Used a **Weighted Random Sampler** :
 - helped increase the frequency of the model's exposure to images from minority classes during training
 - Sampling done with replacement



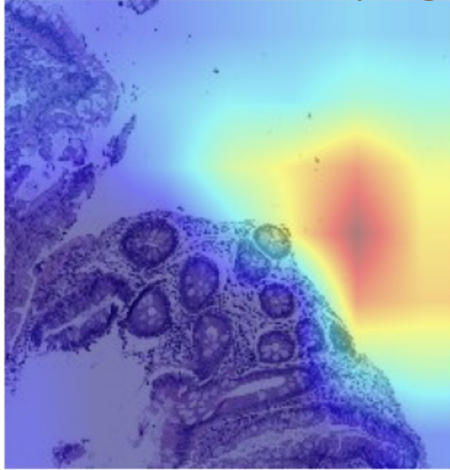
Model Training

- Used Resnet-18 with pre-trained weights (Transfer-Learning)

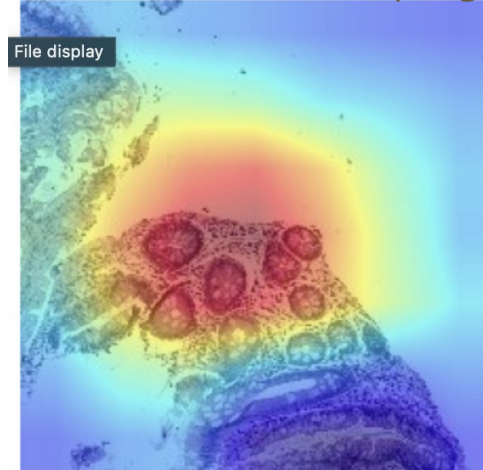
Optimizer: Adam Epochs = 20 Loss Function: Cross Entropy loss

Method	Accuracy on Test Set	Test AUC
No Sampling	69.81%	0.8058
Under-sampling	78.10%	0.8834
Over-sampling without Normalisation	78.61%	0.8609
Over-sampling with Normalisation (Resnet-18)	85.88%	0.9282
Over-sampling with Normalisation (Resnet-50)	85.16%	0.9208

Model without Sampling



Model with Oversampling



GRADCAM

