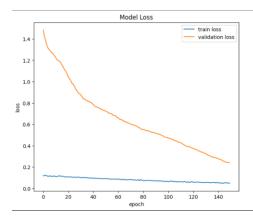
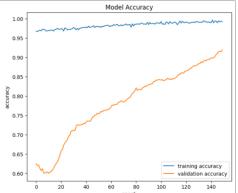
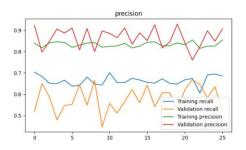
Submitted by: Swetang Krishna (21355087)





Graphs depicting the Model Loss as "never increasing function" and Model Accuracy as "never decreasing function".





The training precision and recall seem to be fluctuating, possibly indicating a volatile training process, while validation precision and recall appear to be more stable but at lower values. The F1 score for both training and validation seems to be increasing over time, which is a positive sign that the model is learning, though the validation score appears to have more variance.

Classification	Segmentation
After testing various models, "MobileNetV2"	Considered architectures like U-Net or DnCNN for
(number of layers = 53, trained only the first 10	segmentation, and the output of the model to be
layers and others were frozen layers) turned out	a 128x128x1 image which represented tumor
to be the most efficient one, because it is best	locations.
suited for a relatively smaller dataset.	
Performed the classification task by initially	Input data was similar to the classification task,
loading the data, augmenting the data and finally	and segmentation maps (128x128x1) were the
dividing the data into training test and testing set.	targets which indicated the tumor presence.
Used MobileNetV2 with the help of transfer	Augmented the data in a way similar to the
learning and modified the previous MobileNet by	classification task, and optimized the training
adding some extra layers.	using an appropriate loss function called binary-
	cross entropy.
Used "softmax" as last layer and divided it into 3	Implemented learning rate scheduling and early
categories: 0 for normal, 1 for malignant and 2 for	stopping for efficient training.
benign.	
Additionally, read some research papers and tried	Used appropriate metrics like Intersection over
several combinations of pre-trained models such	Union (IoU) or Dice coefficient for evaluating
as SVM (classification) and ANN (segmentation),	segmentation performance.
VGG (classification) and ResNet50	
(segmentation), which gave efficient results	
specifically for breast cancer detection.	