

Capstone 3: Metrics File

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This file contains the metrics used to determine the efficacy of the different machine learning models used to classify the skin lesion data, both images and metadata. Figure 1 shows the metrics used for grading the chosen random forest model, which included accuracy and loss. Specifically, the validation accuracy and validation loss were used to determine the best model. The best model from my analysis had a validation accuracy of about 73% and a loss of about 0.75. The comparison between the training and validation loss also showed the model was not drastically overfitting the data.

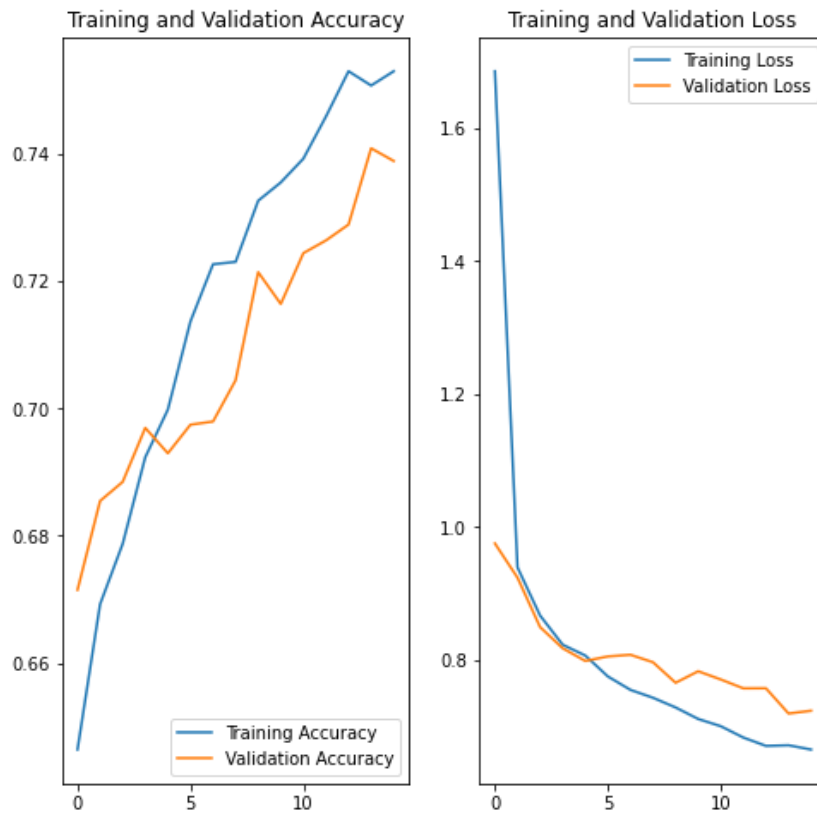


Figure 1: Random Forest Metrics

The metadata classification models were judged based on accuracy as well as the precision, recall, and F1 scores from each class. The best model results are shown below in Table 1. The accuracy of the best model was about 73%, pretty much identical to the image classification model.

Target	Precision	Recall	F1 Score	Support
0	0.21	0.12	0.15	69
1	0.29	0.24	0.26	93
2	0.48	0.43	0.45	228
3	0.73	0.29	0.41	28
4	0.36	0.24	0.29	226
5	0.84	0.95	0.89	1338
6	0.46	0.29	0.35	21

Table 1: Metrics from basic random forest model

From Table 1, I was looking for the model which would one, give the best overall accuracy, and also the best scores for precision, recall, and F1 score for each class. Other models tested had slight variations on these values, but most had a lower overall accuracy compared with this model.