



### Objectives:

1. Compare augmented and non-augmented dataset results of training
2. Analyze performance of model from prediction code
3. Proceed with presentation slide
4. Proceed with error analysis of results

After training the model using augmented and non-augmented datasets, the model undergone performance test. After testing using the test dataset, the results are analyzed onto an excel spreadsheet to analyze whether the predictions are correct or not.

With Data Augmentation 309 images total					
Image Name	Actual	Predictions at 50 epochs	Predictions at 100 epochs	Predictions at 150 epochs	Predictions at 200 epochs
70f7981e-77.jpg.rf.181cb12065e32ca315d8a7705774d683.jpg	overripe	1Overripe,1Ripe	2 Overripe, 1Ripe	2 overripes, 1ripe	1Overripe, 1Ripe
6df01caa-61.jpg.rf.80169a8601016c8187e743278da8c52a.jpg	underripe	2 Overripes, 2 Ripes	4 Ripe, 7 Underripe	1overripe, 4 ripes	1Ripe
fa701eaa-80.jpg.rf.4881b094b26b651631bcb59b32e1aa6.jpg	ripe	2 Ripes	1Ripe	2 ripes	1Ripe
55d2a281-66.jpg.rf.614a3e2703a068fa7218ebc40d3064e.jpg	overripe	2 Overripes, 1Underripe	1Overripe, 1Underripe	1overripe, 1underripe	1Overripe, 1Ripe, 1Underripe
18a4c7c0-	overripe	1Overripe	1Overripe	1overripe	1Overripe
6b1cda6f-overripe.jpg.rf.fc226dae9cb6816488ad623413433a3b.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
7146c4c9-84.jpg.rf.513b9611d1b15783eccc2a143b7397.jpg	underripe	1Overripe, 2 Underripes	3 Underripe	1ripe, 2 underripes	1Underripe
d041d596-27.jpg.rf.31234d6c843d06e9f4323a7d8c417d64.jpg	ripe	2 Ripes	1Ripe	1ripe	1Ripe
3c019194-	overripe	1Overripe	1Overripe	1overripe	1Overripe
e3351008-11.jpg.rf.1ad7e313a2d4139c4e75d5a6b87593e0.jpg	ripe	2 Ripes	4 Ripe	1ripe	1Ripe
921efe50-19.jpg.rf.919e21d151ae7eb82e3a6a35ce719b17.jpg	ripe	3 Overripes, 1Underripe	2 Overripe, 1Underripe	2 overripes	1Overripe, 2 Ripe, 1Underripe
d03act9-48.jpg.rf.08c5ee3931547727c4c455398e8dfe6.jpg	underripe	1Underripe	1Underripe	1underripe	1Underripe
4b0e8448-17.jpg.rf.ad793c463ad7a84eccc88e3303b36e2.jpg	ripe	2 Ripes	2 Ripe	2 ripes	1Ripe
65cc82c8-07.jpg.rf.f68c280457e84a3da3606e21f738cac.jpg	ripe	3 Ripes	2 Ripe	1ripe	1Ripe
532d4478-82.jpg.rf.f22edb750f49db7de20c8719a1a03580.jpg	overripe, ripe	2 Overripes, 1Ripe	2 Overripe, 1Ripe	4 overripes	1Overripe, 2 Ripe
b375363e-81.jpg.rf.4a7c71280a3ae4b96e1278bc210dc7c8.jpg	overripe, ripe	1Overripe	1Overripe, 1Ripe	1overripe	1Overripe, 1Underripe
913c8adb-56.jpg.rf.66abbef198305cdcf6012830d01e631.jpg	ripe, underripe	1Ripe, 1Underripe	2 Underripe	1underripe	1Underripe
50388144-45.jpg.rf.f8bbc0e4a5a52e7146052a4c4403531f.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
331db61f-85.jpg.rf.b7cc7e338bba756b7e52ab2270879c1.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
e8dc0171-71.jpg.rf.a1e7e0fc25bb0b1a05a1bddd41e4963f.jpg	overripe	1Overripe	1Overripe	3 overripes	2 Overripe
d4e16e15-91.jpg.rf.719396e4a97a2c990c5b4a68848913b.jpg	overripe	1Overripe	1Overripe	2 overripes	1Overripe, 1Ripe
7ee50334-overripe_15.jpg.rf.880aaa9a78e9e23c9b09d9b94d8e396f.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
b3a6099-overripe_6.jpg.rf.f67d7b9972a4ec08557a08324bd81e.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
d66ec201-80.jpg.rf.72cb7703cc29b82d4ee9802a01634.jpg	ripe	2 Ripes	3 Ripe, 1Underripe	1overripe, 2 ripes	2 Ripe
b49eeec-36.jpg.rf.07076c208a7a8a1ab3076253a23582.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
7285738-49.jpg.rf.5832cc6971e87cbd078c9512498907c.jpg	ripe, underripe	1Underripe	1Ripe, 2 Underripe	1ripe, 2 underripes	1Ripe, 2 Underripe
ecadc12d-34.jpg.rf.00120943c75237353a8753740bbb7.jpg	ripe, underripe	1Ripe, 1Underripe	3 Ripe	3 ripes, 1underripe	2 Ripe
97697778-60.jpg.rf.f6378b3821073043e499c57af3a32.jpg	ripe, underripe	1Underripe	3 Underripe	1ripe	1Ripe, 1Underripe
418e30a2-49.jpg.rf.ed011ed1b7630a3af76b49e1807ee.jpg	overripe	2 Overripes	1Overripe	1overripe	1Overripe, 1Underripe
90914499-82.jpg.rf.da0677bfc70ce576e85938c3c2cb4ecd8.jpg	overripe, ripe	1Overripe, 1Underripe	1Overripe, 3 Underripe	2 underripes	1Ripe, 2 Underripe
5b8102aa-45.jpg.rf.561649102216d9b7581e10a3f5bb322e.jpg	underripe	1Ripe, 1Underripe	1Overripe, 1Ripe, 2 Underripe	3 ripes, 2 underripes	1Ripe, 1Underripe
4899ee2-overripe_23.jpg.rf.59a2d332b5440623a2ff669305c23a8.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
5abf5c71-35.jpg.rf.d464a5f7b3db881eb9b14f521eeb07.jpg	ripe	2 Ripes	3 Ripe	4 ripes	2 Ripe
8572d4c0-55.jpg.rf.c61491220b8370436b0ba48a19d25d.jpg	ripe, underripe	1Ripe, 1Underripe	1Underripe	3 ripes, 1underripe	1Underripe
8cb8743a-37.jpg.rf.522db6e2e26501921c11ed275017c.jpg	ripe	1Ripe	2 Ripe	1ripe	1Ripe
b69bac6f-overripe_17.jpg.rf.37b800d0756a5cf37364944e345eb.jpg	overripe	1Overripe	1Overripe	1overripe	1Overripe
73981afe-18.jpg.rf.d370d62b1ca80a06e82dc737512ad.jpg	ripe, underripe	No detections	1Ripe, 3 Underripe	1overripe, 3 ripes	1Ripe
b41b6cda-41.jpg.rf.3437ee506d87072017d016425b171846.jpg	ripe, underripe	2 Ripes, 1Underripe	4 Underripe	1ripe, 1underripe	1Ripe, 1Underripe
738cb88b-52.jpg.rf.2126070a5031c81063daf61bbe0c7cfd.jpg	ripe, underripe	1Underripe	2 Underripe	1underripe	1Ripe, 1Underripe

### Results of prediction on the spreadsheet

Predictions from different epochs are compared and analyzed. A conclusion is realized after calculating the accuracy, precision and f1 score from the predictions. The model seems to benefit from data augmentation for increasing the dataset.

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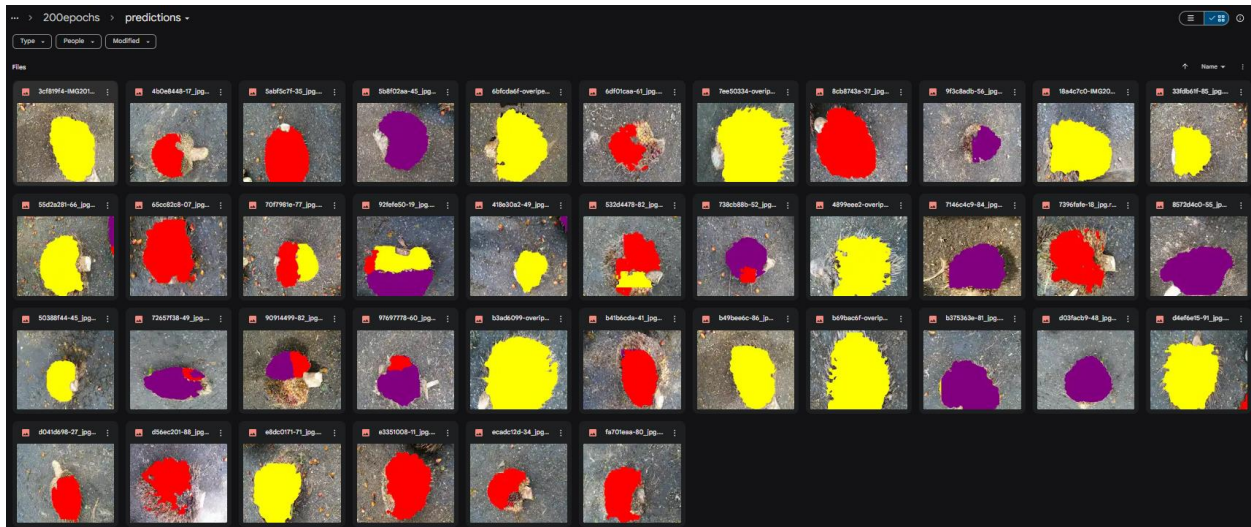
**Date:** 20/6/2024

**Supervisor's Name/Signature:**

**Date:**

WEEK 10 - WEEK 12

$$\begin{aligned}
 \text{precision} &= \frac{TP}{TP + FP} \\
 \text{recall} &= \frac{TP}{TP + FN} \\
 F1 &= \frac{2 \times \text{precision} \times \text{recall}}{\text{precision} + \text{recall}} \\
 \text{accuracy} &= \frac{TP + TN}{TP + FN + TN + FP}
 \end{aligned}$$



200 epochs augmentation prediction results

After analyzing the performance results of the model, error analysis was proceeded to find out what went wrong with the model. From the error analysis, it was concluded that labeling challenges, variability in fruit appearance, and lack of high-quality datasets may impact the performance of the model.

During the final week, the presentation slide was edited from FYP1 for the presentation. The methodology was edited, and the data analysis and error analysis part were added.

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