

## Project Development Phase Model Performance Test

Date	20 November 2022
Team ID	PNT2022TMID15152
Project Name	A Gesture-based Tool for Sterile Browsing of Radiology Images
Maximum Marks	10 Marks

### Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot																																																
1.	Model Summary	<div><div>Model: "sequential"</div><table><thead><tr><th>Layer (type)</th><th>Output Shape</th><th>Param #</th></tr></thead><tbody><tr><td>conv2d (Conv2D)</td><td>(None, 62, 62, 32)</td><td>320</td></tr><tr><td>max_pooling2d (MaxPooling2D)</td><td>(None, 31, 31, 32)</td><td>0</td></tr><tr><td>conv2d_1 (Conv2D)</td><td>(None, 29, 29, 32)</td><td>9248</td></tr><tr><td>max_pooling2d_1 (MaxPooling2D)</td><td>(None, 14, 14, 32)</td><td>0</td></tr><tr><td>flatten (Flatten)</td><td>(None, 6272)</td><td>0</td></tr><tr><td>dense (Dense)</td><td>(None, 128)</td><td>802944</td></tr><tr><td>dense_1 (Dense)</td><td>(None, 6)</td><td>774</td></tr></tbody></table><div>Total params: 813,286</div></div>	Layer (type)	Output Shape	Param #	conv2d (Conv2D)	(None, 62, 62, 32)	320	max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0	conv2d_1 (Conv2D)	(None, 29, 29, 32)	9248	max_pooling2d_1 (MaxPooling2D)	(None, 14, 14, 32)	0	flatten (Flatten)	(None, 6272)	0	dense (Dense)	(None, 128)	802944	dense_1 (Dense)	(None, 6)	774	<div><div>In [26]: model.summary()</div><div>Model: "sequential"</div><table><thead><tr><th>Layer (type)</th><th>Output Shape</th><th>Param #</th></tr></thead><tbody><tr><td>conv2d (Conv2D)</td><td>(None, 62, 62, 32)</td><td>320</td></tr><tr><td>max_pooling2d (MaxPooling2D)</td><td>(None, 31, 31, 32)</td><td>0</td></tr><tr><td>conv2d_1 (Conv2D)</td><td>(None, 29, 29, 32)</td><td>9248</td></tr><tr><td>max_pooling2d_1 (MaxPooling2D)</td><td>(None, 14, 14, 32)</td><td>0</td></tr><tr><td>flatten (Flatten)</td><td>(None, 6272)</td><td>0</td></tr><tr><td>dense (Dense)</td><td>(None, 128)</td><td>802944</td></tr><tr><td>dense_1 (Dense)</td><td>(None, 6)</td><td>774</td></tr></tbody></table><div>Total params: 813,286</div><div>Trainable params: 813,286</div><div>Non-trainable params: 0</div></div>	Layer (type)	Output Shape	Param #	conv2d (Conv2D)	(None, 62, 62, 32)	320	max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0	conv2d_1 (Conv2D)	(None, 29, 29, 32)	9248	max_pooling2d_1 (MaxPooling2D)	(None, 14, 14, 32)	0	flatten (Flatten)	(None, 6272)	0	dense (Dense)	(None, 128)	802944	dense_1 (Dense)	(None, 6)	774
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2.	Accuracy	Training Accuracy - 97.14%  Validation Accuracy - 96.67%	100/119 [=====] - 7s 55ms/step - loss: 0.8878 - accuracy: 0.7424 - val_loss: 0.6972 - val_accuracy: 0.7088 Epoch 1/20 100/119 [=====] - 6s 51ms/step - loss: 0.4648 - accuracy: 0.8165 - val_loss: 0.5137 - val_accuracy: 0.7667 Epoch 2/20 100/119 [=====] - 5s 44ms/step - loss: 0.3635 - accuracy: 0.8506 - val_loss: 0.4567 - val_accuracy: 0.8333 Epoch 3/20 100/119 [=====] - 5s 44ms/step - loss: 0.2614 - accuracy: 0.9024 - val_loss: 0.3475 - val_accuracy: 0.9088 Epoch 4/20 100/119 [=====] - 5s 42ms/step - loss: 0.2565 - accuracy: 0.9024 - val_loss: 0.4776 - val_accuracy: 0.8333 Epoch 5/20 100/119 [=====] - 5s 42ms/step - loss: 0.1618 - accuracy: 0.9478 - val_loss: 0.5418 - val_accuracy: 0.8333 Epoch 6/20 100/119 [=====] - 5s 46ms/step - loss: 0.1471 - accuracy: 0.9478 - val_loss: 0.5967 - val_accuracy: 0.7667 Epoch 7/20 100/119 [=====] - 5s 44ms/step - loss: 0.1292 - accuracy: 0.9478 - val_loss: 0.3227 - val_accuracy: 0.9333 Epoch 8/20 100/119 [=====] - 5s 42ms/step - loss: 0.8809 - accuracy: 0.9714 - val_loss: 0.6965 - val_accuracy: 0.9667 Epoch 9/20 100/119 [=====] - 6s 48ms/step - loss: 0.8746 - accuracy: 0.9714 - val_loss: 0.1896 - val_accuracy: 0.9667 Epoch 10/20 100/119 [=====] - 5s 46ms/step - loss: 0.8631 - accuracy: 0.9708 - val_loss: 0.2845 - val_accuracy: 0.9667 Epoch 11/20 100/119 [=====] - 5s 41ms/step - loss: 0.8487 - accuracy: 0.9832 - val_loss: 0.2523 - val_accuracy: 0.9667 Epoch 12/20 100/119 [=====] - 5s 48ms/step - loss: 0.8665 - accuracy: 0.9815 - val_loss: 0.1638 - val_accuracy: 0.9667 Epoch 13/20 100/119 [=====] - 5s 42ms/step - loss: 0.8663 - accuracy: 0.9747 - val_loss: 0.2849 - val_accuracy: 0.9333 Epoch 14/20 100/119 [=====] - 5s 42ms/step - loss: 0.8519 - accuracy: 0.9882 - val_loss: 0.2329 - val_accuracy: 0.9667 Epoch 15/20 100/119 [=====] - 5s 42ms/step - loss: 0.8364 - accuracy: 0.9805 - val_loss: 0.2393 - val_accuracy: 0.9667 Epoch 16/20 100/119 [=====] - 5s 41ms/step - loss: 0.8645 - accuracy: 0.9714 - val_loss: 0.2562 - val_accuracy: 0.8333 Epoch 17/20 100/119 [=====] - 5s 43ms/step - loss: 0.8412 - accuracy: 0.9805 - val_loss: 0.4477 - val_accuracy: 0.8667 Epoch 18/20 100/119 [=====] - 5s 48ms/step - loss: 0.8682 - accuracy: 0.9714 - val_loss: 0.1688 - val_accuracy: 0.9667
3.	Confidence Score (Only Yolo Projects)	Class Detected -  Confidence Score -	Not Applicable