

Project Development Phase Performance Testing

Date	18 November 2022
Team ID	PNT2022TMID53060
Project Name	Project - A Gesture-based Tool for Sterile Browsing of Radiology Images
Maximum Marks	4 Marks

Model Performace Testing:

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

S. No.	Parameter	Values	Screenshot																								
1	Model Summary	<div>conv2d (Conv2D) - 320</div> <div>max_pooling2d - 0</div> <div>conv2d_1 (Conv2D) - 9248</div> <div>max_pooling2d_1 - 0</div> <div>flatten (Flatten) - 0</div> <div>dense (Dense) - 802944</div> <div>dense_1 (Dense) - 774</div> <div>=====</div> <div>===</div> <div>Total params: 813,286</div> <div>Trainable params: 813,286</div> <div>Non-trainable params: 0</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>=====</div> <div>Total params: 813,286</div> <div>Trainable params: 813,286</div> <div>Non-trainable params: 0</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	<div>Training accuracy: 98.48%</div> <div>Validation accuracy: 96.67%</div>	<div>Epoch 1/20</div> <div>10/10 [#####] - 5s 42ms/step - loss: 1.4000 - accuracy: 0.4250 - val_loss: 0.6751 - val_accuracy: 0.8000</div> <div>Epoch 2/20</div> <div>10/10 [#####] - 5s 38ms/step - loss: 0.7841 - accuracy: 0.7000 - val_loss: 0.5916 - val_accuracy: 0.8000</div> <div>Epoch 3/20</div> <div>10/10 [#####] - 5s 43ms/step - loss: 0.5008 - accuracy: 0.7900 - val_loss: 0.4768 - val_accuracy: 0.7333</div> <div>Epoch 4/20</div> <div>10/10 [#####] - 5s 42ms/step - loss: 0.3939 - accuracy: 0.8519 - val_loss: 0.4509 - val_accuracy: 0.8667</div> <div>Epoch 5/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.3888 - accuracy: 0.8875 - val_loss: 0.3790 - val_accuracy: 0.8667</div> <div>Epoch 6/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.2842 - accuracy: 0.8875 - val_loss: 0.4688 - val_accuracy: 0.8667</div> <div>Epoch 7/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.1891 - accuracy: 0.9545 - val_loss: 0.3799 - val_accuracy: 0.9333</div> <div>Epoch 8/20</div> <div>10/10 [#####] - 5s 42ms/step - loss: 0.1654 - accuracy: 0.9368 - val_loss: 0.4695 - val_accuracy: 0.8667</div> <div>Epoch 9/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.1182 - accuracy: 0.9579 - val_loss: 0.4362 - val_accuracy: 0.9333</div> <div>Epoch 10/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.1253 - accuracy: 0.9688 - val_loss: 0.4703 - val_accuracy: 0.9000</div> <div>Epoch 11/20</div> <div>10/10 [#####] - 5s 39ms/step - loss: 0.1078 - accuracy: 0.9646 - val_loss: 0.5120 - val_accuracy: 0.9000</div> <div>Epoch 12/20</div> <div>10/10 [#####] - 5s 39ms/step - loss: 0.0657 - accuracy: 0.9764 - val_loss: 0.2290 - val_accuracy: 0.9667</div> <div>Epoch 13/20</div> <div>10/10 [#####] - 5s 42ms/step - loss: 0.1888 - accuracy: 0.9688 - val_loss: 0.2593 - val_accuracy: 0.9667</div> <div>Epoch 14/20</div> <div>10/10 [#####] - 5s 43ms/step - loss: 0.0969 - accuracy: 0.9663 - val_loss: 0.2971 - val_accuracy: 0.9667</div> <div>Epoch 15/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.0698 - accuracy: 0.9731 - val_loss: 0.2917 - val_accuracy: 0.9667</div> <div>Epoch 16/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.0492 - accuracy: 0.9832 - val_loss: 0.2443 - val_accuracy: 0.9333</div> <div>Epoch 17/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.0212 - accuracy: 0.9849 - val_loss: 0.2386 - val_accuracy: 0.9667</div> <div>Epoch 18/20</div> <div>10/10 [#####] - 5s 42ms/step - loss: 0.0190 - accuracy: 0.9933 - val_loss: 0.1894 - val_accuracy: 0.9333</div> <div>Epoch 19/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.0799 - accuracy: 0.9846 - val_loss: 0.2960 - val_accuracy: 0.9667</div> <div>Epoch 20/20</div> <div>10/10 [#####] - 5s 40ms/step - loss: 0.0567 - accuracy: 0.9848 - val_loss: 0.2684 - val_accuracy: 0.9667</div> <div>reset call back history at 0.079220054800</div>																								
3	Confidence Score	<div>Class Detected - N/A</div> <div>Confidence Score - N/A</div>	N/A																								

Screenshots:

1. Model Summary

▶ classifier.summary()

Model: "sequential"

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

=====
Total params: 813,286
Trainable params: 813,286
Non-trainable params: 0
=====

2. Accuracy

```
Epoch 1/20
119/119 [=====] - 5s 42ms/step - loss: 1.4090 - accuracy: 0.4259 - val_loss: 0.6351 - val_accuracy: 0.8000
Epoch 2/20
119/119 [=====] - 5s 38ms/step - loss: 0.7041 - accuracy: 0.7003 - val_loss: 0.5916 - val_accuracy: 0.8000
Epoch 3/20
119/119 [=====] - 5s 41ms/step - loss: 0.5020 - accuracy: 0.7963 - val_loss: 0.6768 - val_accuracy: 0.7333
Epoch 4/20
119/119 [=====] - 5s 41ms/step - loss: 0.3939 - accuracy: 0.8519 - val_loss: 0.4509 - val_accuracy: 0.8667
Epoch 5/20
119/119 [=====] - 5s 40ms/step - loss: 0.3088 - accuracy: 0.8889 - val_loss: 0.3790 - val_accuracy: 0.8667
Epoch 6/20
119/119 [=====] - 5s 40ms/step - loss: 0.2642 - accuracy: 0.8973 - val_loss: 0.4686 - val_accuracy: 0.8667
Epoch 7/20
119/119 [=====] - 5s 40ms/step - loss: 0.1891 - accuracy: 0.9343 - val_loss: 0.3799 - val_accuracy: 0.9333
Epoch 8/20
119/119 [=====] - 5s 41ms/step - loss: 0.1654 - accuracy: 0.9360 - val_loss: 0.6095 - val_accuracy: 0.8667
Epoch 9/20
119/119 [=====] - 5s 40ms/step - loss: 0.1182 - accuracy: 0.9579 - val_loss: 0.4162 - val_accuracy: 0.9333
Epoch 10/20
119/119 [=====] - 5s 40ms/step - loss: 0.1253 - accuracy: 0.9680 - val_loss: 0.4763 - val_accuracy: 0.9000
Epoch 11/20
119/119 [=====] - 5s 39ms/step - loss: 0.1078 - accuracy: 0.9646 - val_loss: 0.5120 - val_accuracy: 0.9000
Epoch 12/20
119/119 [=====] - 5s 39ms/step - loss: 0.0657 - accuracy: 0.9764 - val_loss: 0.2290 - val_accuracy: 0.9667
Epoch 13/20
119/119 [=====] - 5s 41ms/step - loss: 0.1008 - accuracy: 0.9680 - val_loss: 0.2593 - val_accuracy: 0.9667
Epoch 14/20
119/119 [=====] - 5s 41ms/step - loss: 0.0969 - accuracy: 0.9663 - val_loss: 0.2971 - val_accuracy: 0.9667
Epoch 15/20
119/119 [=====] - 5s 40ms/step - loss: 0.0698 - accuracy: 0.9731 - val_loss: 0.2917 - val_accuracy: 0.9667
Epoch 16/20
119/119 [=====] - 5s 40ms/step - loss: 0.0492 - accuracy: 0.9832 - val_loss: 0.2443 - val_accuracy: 0.9333
Epoch 17/20
119/119 [=====] - 5s 40ms/step - loss: 0.0212 - accuracy: 0.9949 - val_loss: 0.2986 - val_accuracy: 0.9667
Epoch 18/20
119/119 [=====] - 5s 42ms/step - loss: 0.0190 - accuracy: 0.9933 - val_loss: 0.1804 - val_accuracy: 0.9333
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119/119 [=====] - 5s 40ms/step - loss: 0.0799 - accuracy: 0.9646 - val_loss: 0.2960 - val_accuracy: 0.9667
Epoch 20/20
119/119 [=====] - 5s 40ms/step - loss: 0.0567 - accuracy: 0.9848 - val_loss: 0.2684 - val_accuracy: 0.9667
<keras.callbacks.History at 0x7fb2265a880>
```