

Report for the train dataset:

Class 0: 195 images

Class 1: 115 images

Class 2: 148 images

Class 3: 155 images

In the validating dataset, there is 72 images.

Baseline model for CNN:

Pre-process stage:

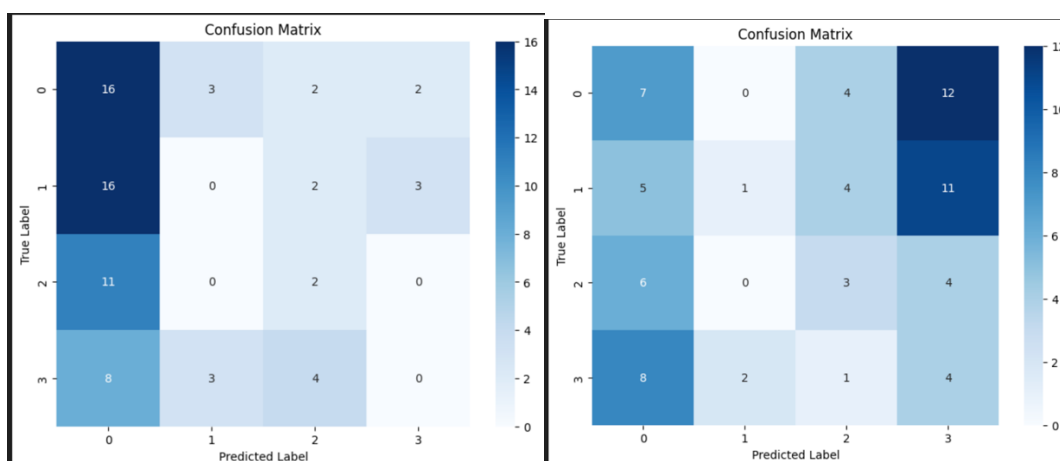
- Normalisation image: rescale pixel value from [0,255] to [0,1]
- Data augmentation: adjust the contrast by 10%, shift the image along the height and the width, rotate the image by 5%

CNN model included 3 convolution layers, 3 pooling layers, 1 flatten and 1 fully connected layer.

Model performance and findings

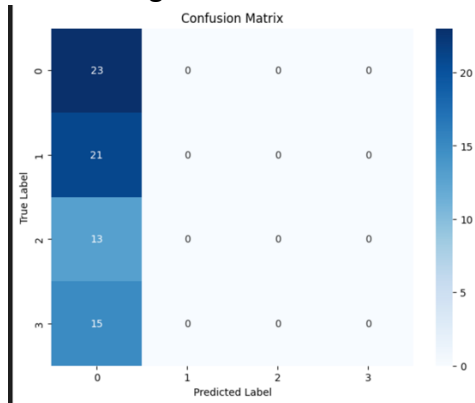
I've run the model on the validation dataset multiple times, and each time, the model predominantly predicts one specific label over the other three labels. However, this "dominant" label changes with each run on the validation dataset, indicating inconsistent predictions.

This suggests that the model is not consistently learning the patterns from the data and is struggling with generalization. Generally, the accuracy will be approximately 25%.



Accuracy	Precision	Recall	F1-Score
0.25	0.1284	0.2124	0.1516

- Rotate image make the model worse, it can't predict class 1,2, 3



- Flipping image improves the model performance (average accuracy now is approximately 32%). However, the main problem now is that the model over-predicts for class 0, which is normal. (I've run the model a few times and it's always over predict 0, unlike the base model, where the dominant class is random).

