TensorBoard Observations

I preprocessed the `reviews` dataset as required, tokenized the text data, padded it to size 55, and generated the mask and segment vectors.

Used the pre-trained BERT model with 12 encoders and get the embedded vectors of our sentences by passing the padded sentence, mask arrays segment arrays into the BERT model.

Created a new NN with 4 Dense layers with 1024, 2048, 512, 1 neuron with the first 3 layers with `relu` activation function and last layer with 1 neuron is the output layer and `sigmoid` activation function. Used **BatchNormalization**, **Dropout** layers after each **Dense** layer to prevent the model from overfitting.

Compiled the model using the `adam` optimizer and `BinaryCrossentropy` loss function.

Used the `*Tensorboard*` callback to get logs and graphs of the model and training performance. Used the `*Checkpoint*` callback to save the best-performing weights. Used `*ReduceLROnPlateau*` to reduce the learning rate when a plateau condition is encountered.

Trained the model for 25 epochs and I got the best model at the 25th epoch and the `val_auc` would have improved if I would have trained for some more epochs.

So, I loaded the best-performed Model weights saved with Checkpoint callback and used them for predictions.

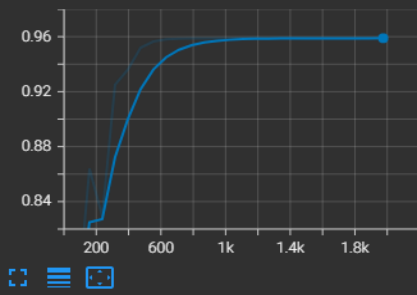I used this model to predict the class labels on the new data.

Note: Red is the train curve and blue is the validation curve.
1. The AUC is increasing over 25 epochs.
2. The loss is decreasing significantly after training for 25 epochs.
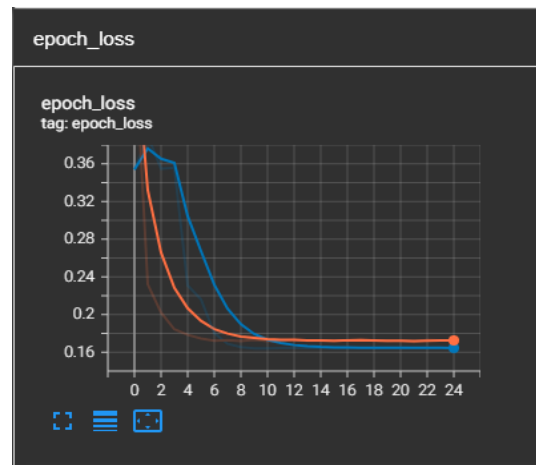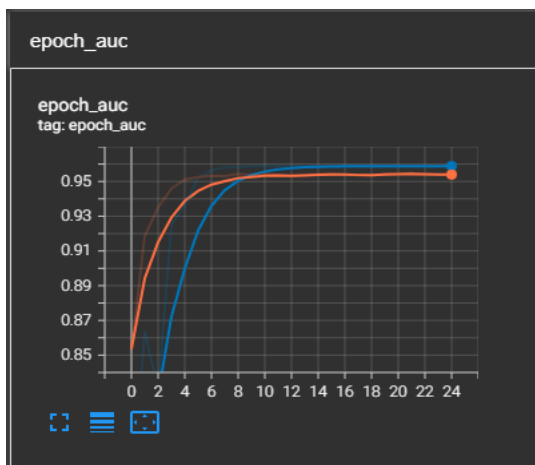
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