Summary

1. There were two concealed layers employed. Examine the effects of implementing one or three hidden layers on test accuracy and validation.

   Validation accuracy starts to decrease after the fourth epoch when using a single hidden layer, whereas training accuracy keeps increasing. The graph clearly demonstrates a declining trend for the training loss, but overfitting is indicated by the validation loss's initial decline that rose after the fifth epoch. Accuracy rose for two epochs when employing three hidden layers before starting to fluctuate. Accuracy decreased with the number of layers included.
2. Consider utilizing layers with 32, 64, and so on hidden units, or layers with fewer or more hidden units.
   While validation loss is investigated more from the third epoch onward, training loss is studied less throughout the training phase. Following the third epoch, validation accuracy gradually rose before declining. The accuracy of the network decreased as the number of nodes increased.
3. Attempt to substitute the mse loss function for binary_crossentropy.
   Accuracy is more stable when MSE is utilized as opposed to binary_crossentropy. Up until two epochs, training and validation loss had a similar trend before showing a considerable difference.
   Reliability started to deteriorate after the fourth epoch when the loss function was MSE.
4. Instead of relu, consider utilizing the tanh activation, which was well-liked in the early stages of neural networks.
   Validation accuracy rose until the second epoch before declining, while training accuracy climbed. When ReLu was utilized instead of Tanh, validation loss rose more, and validation accuracy varied more in ReLu.
5. Make use of any technique we covered in class to improve your model's validation performance, such as dropout and regularization.
   While validation accuracy improved until eight epochs and then almost halved, training accuracy increased consistently. Accuracy increased throughout several epochs when the dropout technique was used, and the graph revealed no discernible shift in validation accuracy.h.