Final Training Results

Since the last deliverable, I haven't made significant changes to my model, though I made many changes to the way I pre-processed my data. I noticed that the dataset I was working with was not balanced: for instance, the "disgust" class had only 436 samples, while the "happy" class had 7215 samples. To account for this, I used oversampling and duplicated minority classes so that every category had 7215 samples.

In addition, I adjusted the number of epochs and found that 15 epochs resulted in the highest accuracy for both the validation and test set. Therefore, for my model, I adjusted the 10 epochs (randomly chosen for the last deliverable) to 15 epochs.

These changes have presented a significant increase in the accuracy of my model and decrease in the loss of my model when predicting the values of the validation set (see metrics presented below).

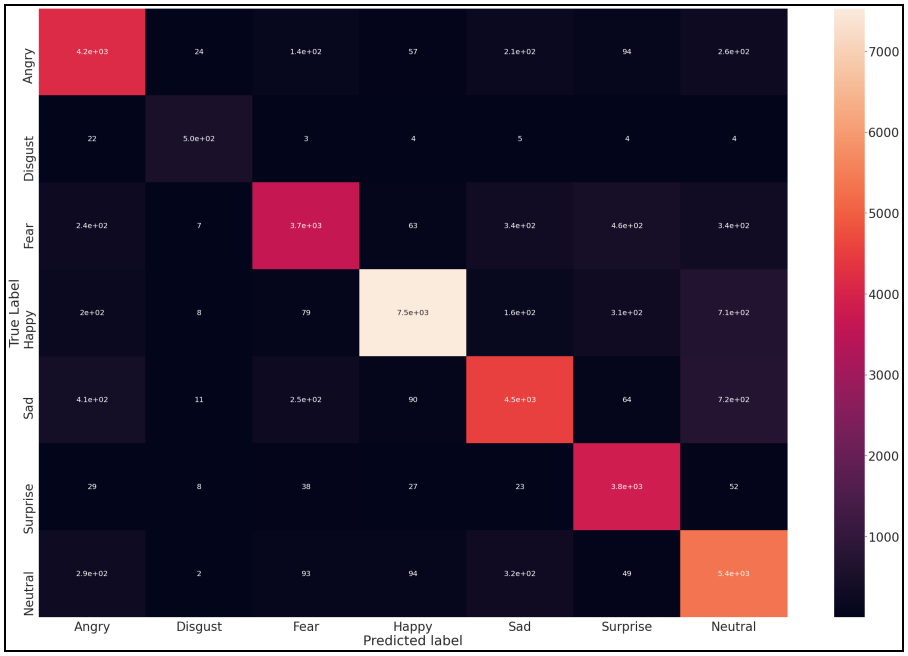

Figure 1: Confusion matrix for test set.

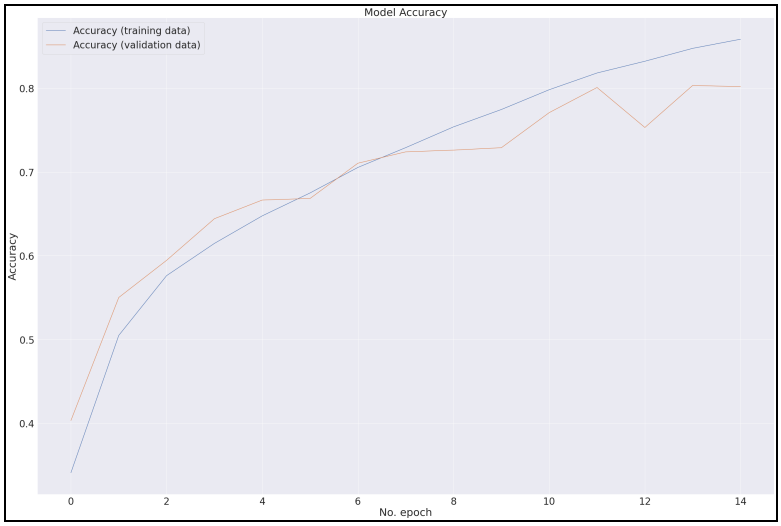

Figure 2: Accuracy of training set and validation set through 15 epochs

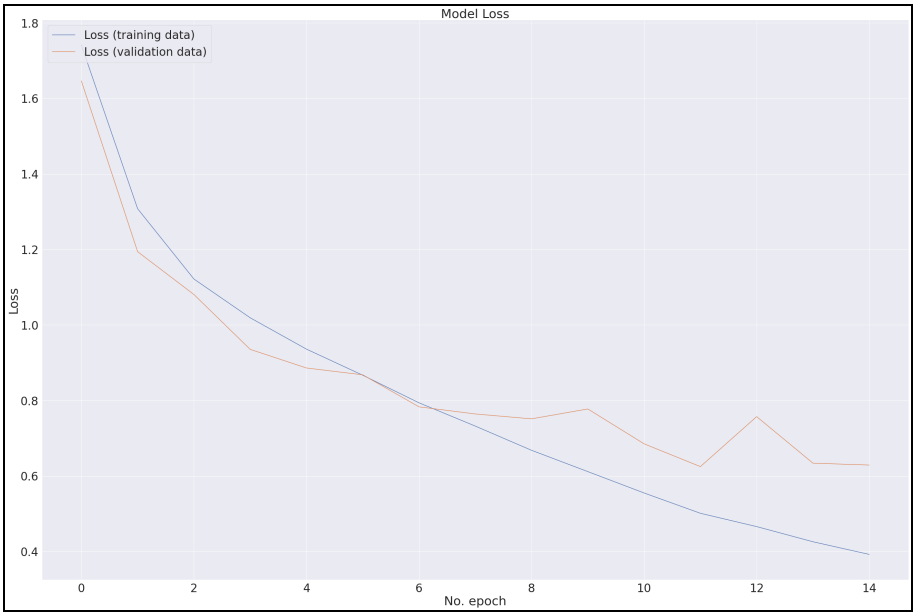

Figure 3: Loss of training set and validation set through 15 epochs

```
#Calculate precision and recall for model:
from sklearn.metrics import precision_score, recall_score

precision = precision_score(y_test_true, y_test_pred, average="micro")
print("The weighted precision is", precision)

recall = recall_score(y_test_true, y_test_pred, average="micro")
print("The weighted recall is", recall)
```

```
The weighted precision is 0.8245325605372419
The weighted recall is 0.8245325605372419
```

Figure 4: Weighted precision and recall of my model

Currently, my model has an accuracy of around 80% for both validation and test data, which is acceptable.

Final Project Delivery

For my final project, I want to integrate my model into a webapp where users can upload a photo and the app overlays an emoji corresponding to their emotion over their face.

I attended the Flask workshop, so I will be using the template from the workshop to put together my webapp. I will also look for reasons online and reach out to my execs should I encounter any difficulties, so I aim to begin my project early to give myself enough time to complete the project.