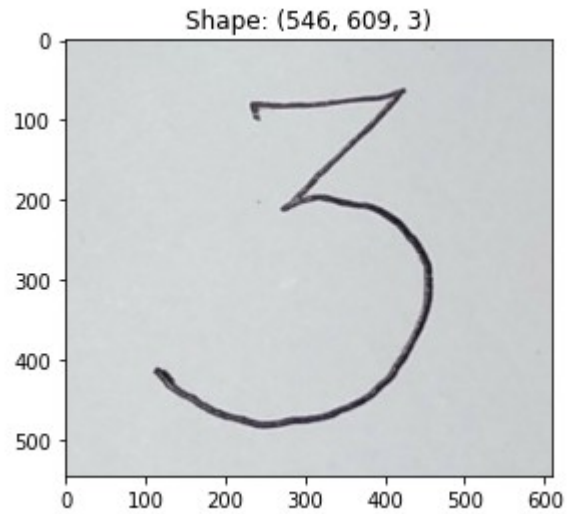
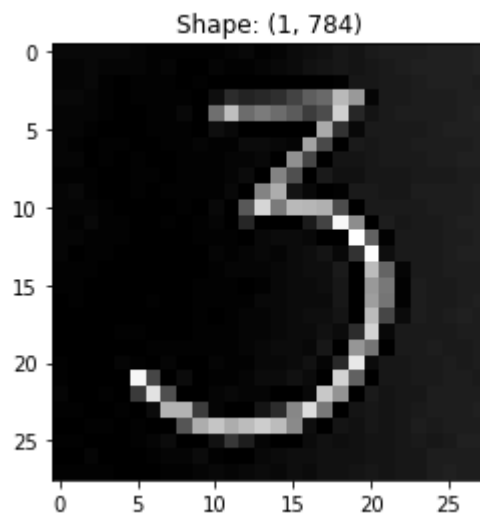


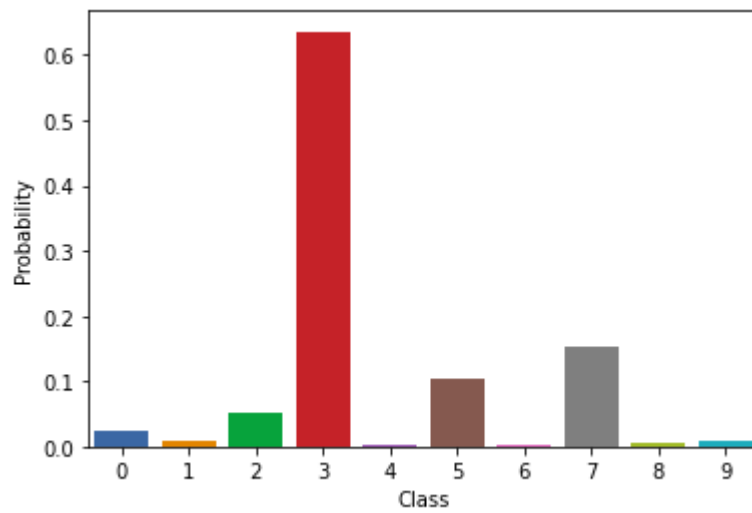
- The visualization of your test image (before pre-processing)



- The visualization of your test image (after pre-processing. Don't show the images from intermediate pre-processing stages.)



- The bar plot showing the conditional probabilities per class for your test image

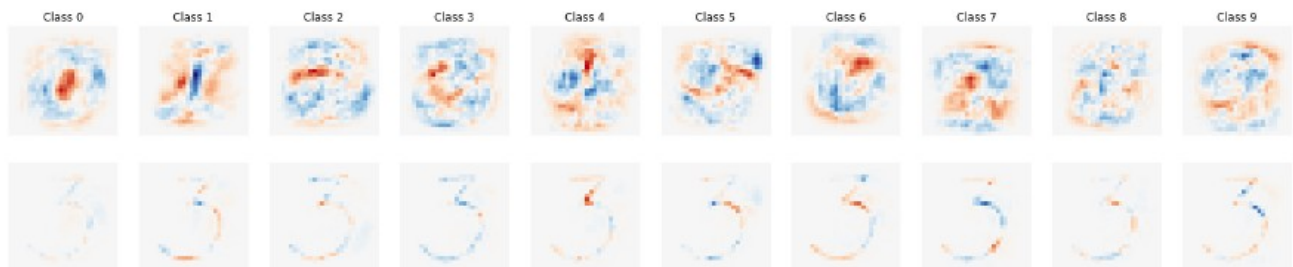


- The predicted class label for your test image

```
[ ] test_pred = clf.predict(test_sample)
    print("Predicted class is: ", test_pred)
```

```
➡ Predicted class is: ['3']
```

- The figure from the "Explain the model prediction" section



In your own words, list the classes for which the logistic regression predicted a high or moderately high probability. Using the figure from the "explain the model prediction" section, explain *why* the logistic regression estimates that these classes are very likely or moderately likely.

Solution:

In my case of hand written image which is '3', from the above figure we can make out that it gives high probabilities for 2, 5, 7 and gives moderate probabilities for 0 and low for the rest of the digits. The blue color appears if there is a positive multiplication of test image writing in the part of the image and it is positively associated with belonging to the class. So as we know that many of the edge features and curves of 2, 5 and 7 resemble the features of '3' so we get blue or similarity between the classes whereas red occurs when there is negative association and the written part of test image does not match with the corresponding classes. If we take the case of '4', we know it has sharp features where as we expect '3' to have smooth curves so it shows red color.