Logistic Regression with a dataset of cat images

I performed binary classification to distinguish between cat and non cat images on a dataset of 64X64 images. I first flattened the image into a (64X64X3) vector, and then applied a linear transformation and a sigmoid unit to get my required probability. The cost function that I used is the sigmoid function (also known as the logistic function). I optimised the cost function using gradient descent.

There are 209 images in the training set and 50 images in the test set. These can be viewed using the code. On training my model on the dataset, I got the following results:

- Test set accuracy = 70%
- Train set accuracy = 99.034%

This is the highest test accuracy I could get using such a simple model. The hyperparameters are:

- Learning rate = 0.004
- Number of iterations = 2500

I also tried it my custom input cat/non cat images and these are the results that I got:

These were correctly labelled as cat images.

These were correctly labelled as non cat images.

We can edit the code (last line) to check any custom image that we wish to check for.