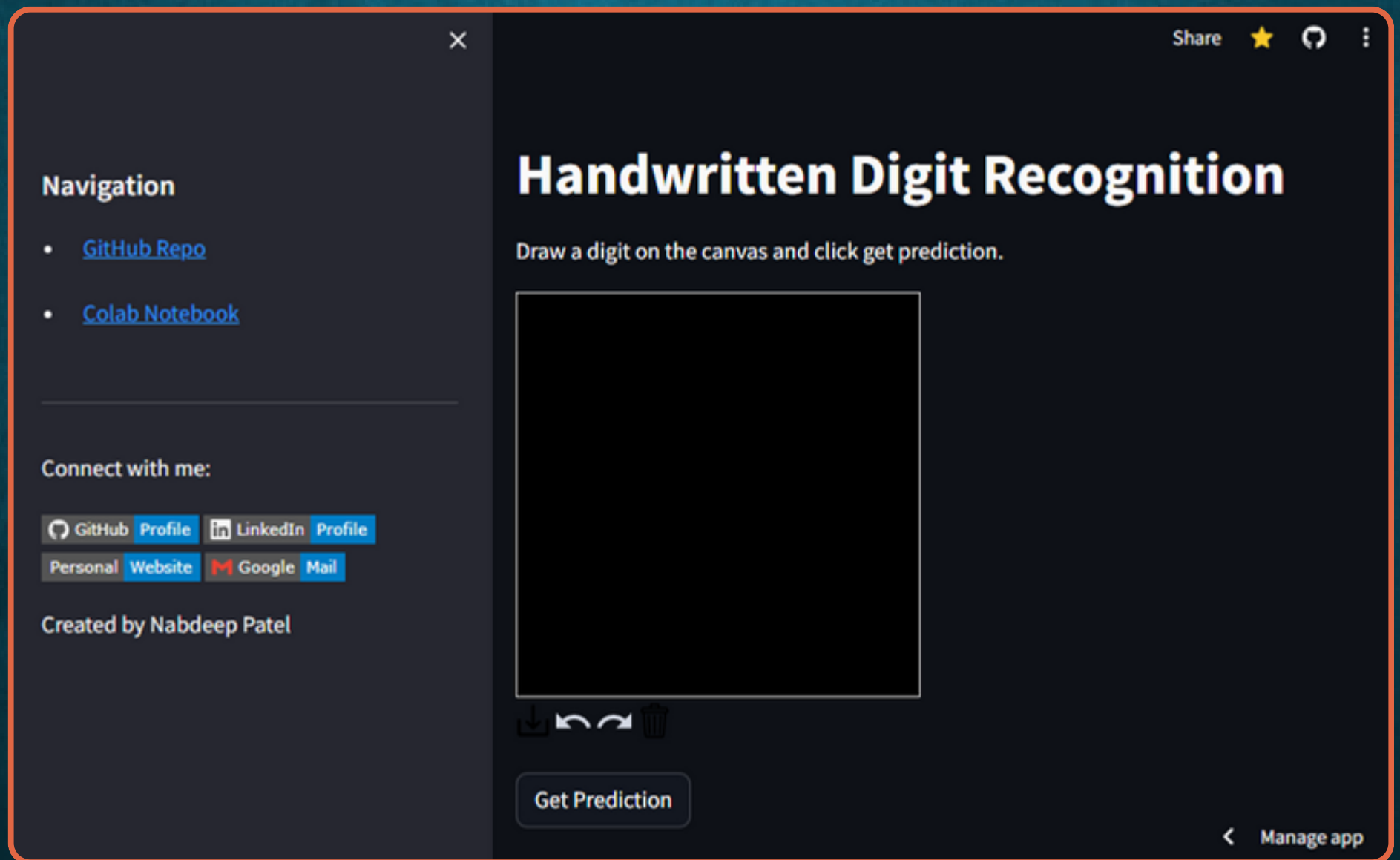


# Nabdeep Patel

Data Science and Analytics



## Handwritten Digit Recognition App



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## Handwritten Digit Recognition App

### About the project

- A simple model able to predict the handwritten, drawn digits.
- It takes input as the image of the drawn digit on canvas.
- Process it to the desired format by grayscaling, resizing and reshaping it.
- Finally it is provided to the model to get the prediction.



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## Handwritten Digit Recognition App

### Model Architecture

- **Input Layer:** Accepts the flattened pixel values of the input image.
- **Dense Layer:** Comprising multiple neurons to extract features from the data.
- **Activation Function:** Injects non-linearity into the model. (Relu is used)
- **Output Layer:** Yields the final prediction for the digit class.



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## Handwritten Digit Recognition App

### Model Evaluation

- ReLU stands for **Rectified Linear Unit**.
- It is an activation function that introduces non-linearity to the neural network by outputting the input directly if it is positive, and zero otherwise.
- Computationally efficient and easy to implement.
- This non-linearity allow it to learn complex relationships between features in the data.
- Defined as  $f(x)=\max(0,x)$ .  $x$  is input function.



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### Model Evaluation

- **Test Score: 0.07353971153497696**  
It refers to a loss function used to evaluate the performance of a model on a test dataset. Lower values for the test score generally indicate better performance.
- **Test Accuracy: 0.9783999919891357**  
It measures the proportion of correctly classified samples out of the total number of samples in the test dataset.





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### Output/ Prediction

Navigation

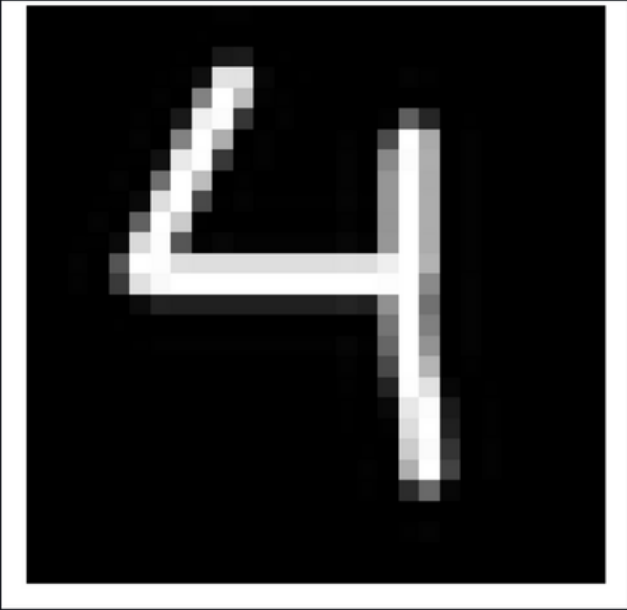
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Predicted Digit: 4

Predictions:

0	1	2	3	4	5	6	7	8	9
0	0.0031	0	0.0001	0.993	0	0.0001	0.0021	0.0011	0.0004

< Manage app



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## Handwritten Digit Recognition App

### Thank you for watching

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