Classifying Handwritten Digit Images using k Nearest Neighbors algorithm

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Project Goals

- Implement KNN algorithm to find nearest neighbours (pre-labeled images in the MNIST training set) of an input image from the MNIST testing set.

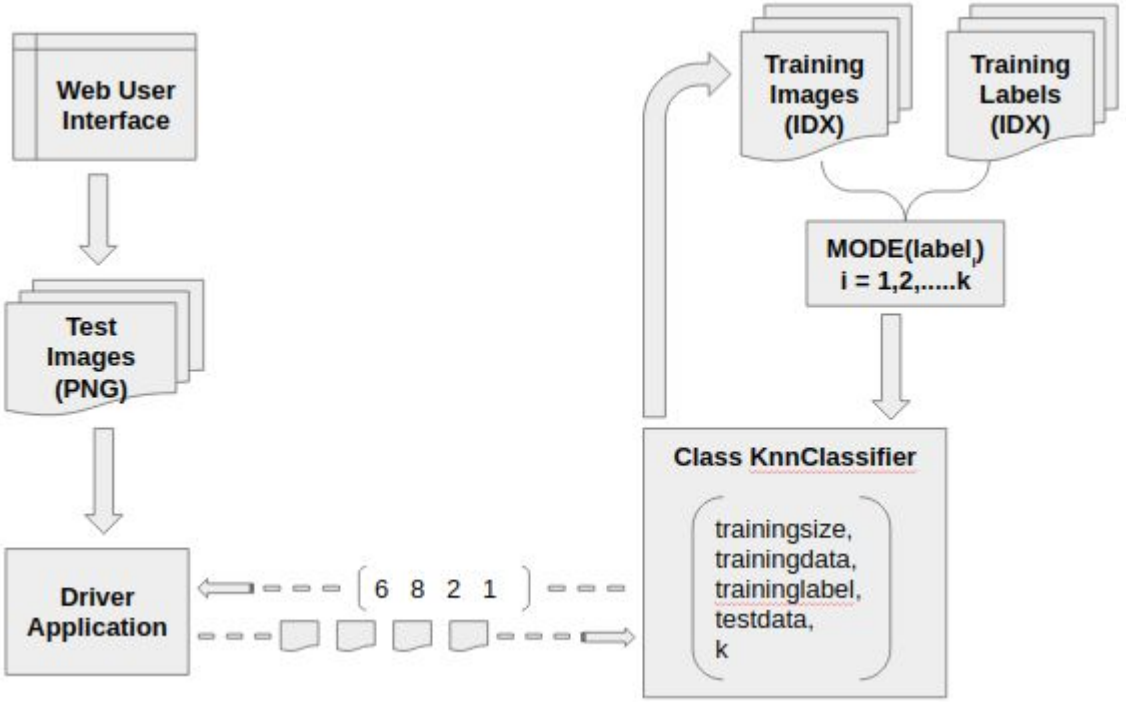
- Write an application on top of the KNN implementation that takes an image as input,and returns the digit it contains as an output.

Dataset

- MNIST database of handwritten digits
- Training set : 60,000 examples (IDX file format for implementation)
- Test set : 10,000 examples (PNG file format for implementation)
- Each image is 28x28 pixels in the raw dataset
- Data is at rest and can fit in a typical desktop

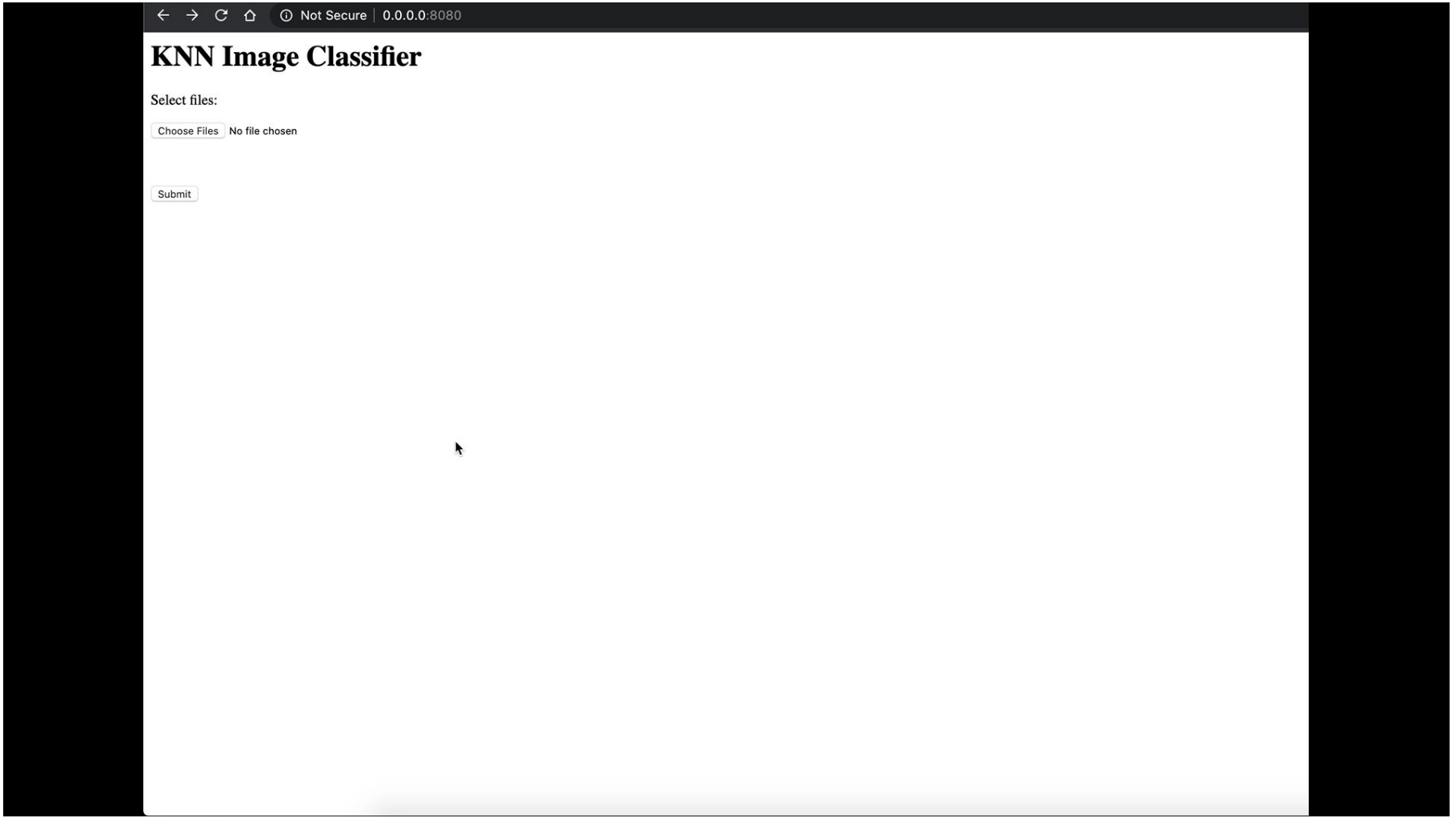
Project Modules

- Algorithm implementation : Python class KnnClassifier
- Image classifier web application : knn_image_classifier



Application Demo

To deploy the web application, we need to run applicationknnimageclassifier.py with Python. The UI is then accessible at port 8080 on the localhost URL.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KNN Image Classifier
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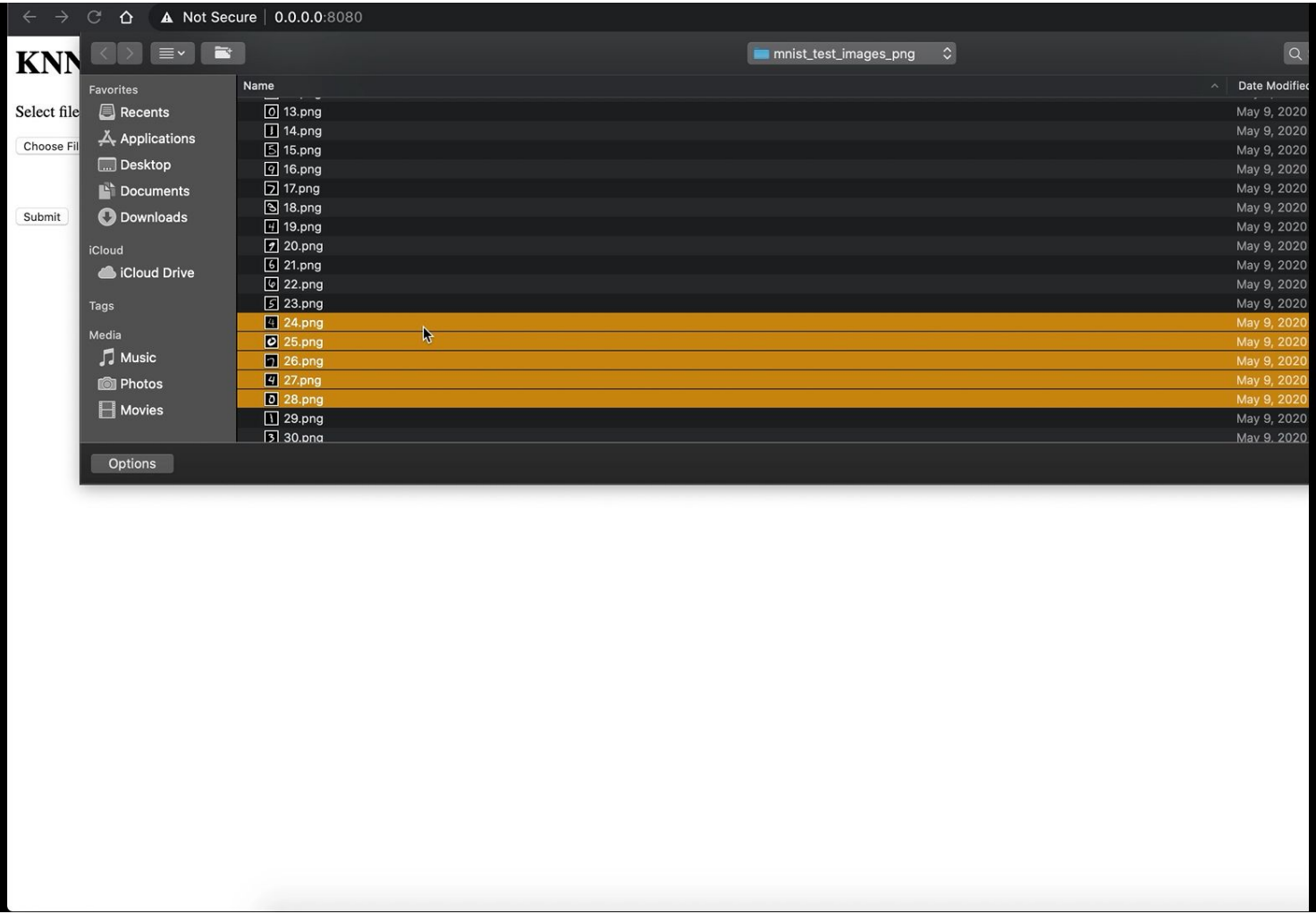
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KNN
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May 9, 2020
Options

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KNN Image Classifier

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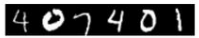
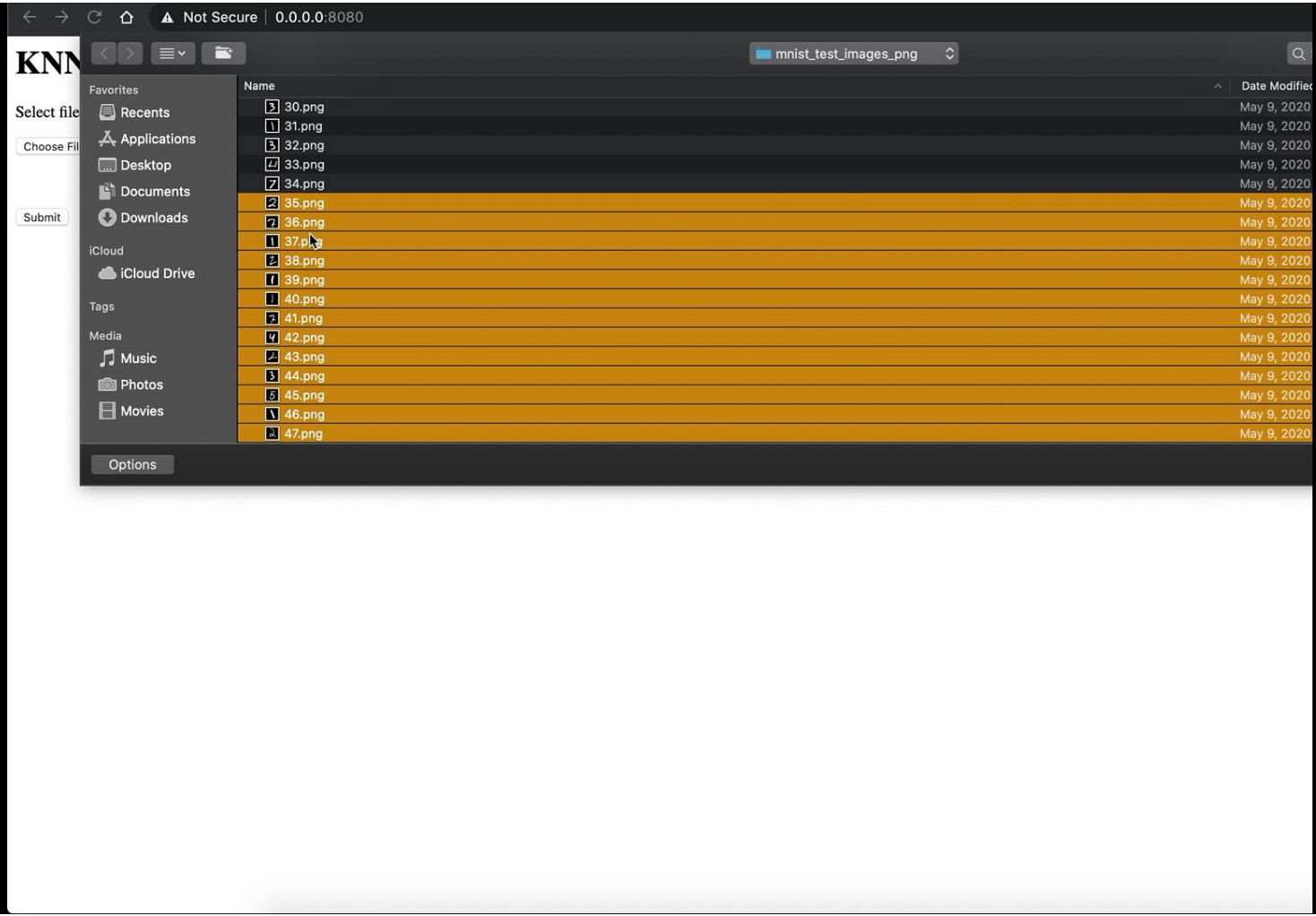


Submit

"407401"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May 9, 2020
Options

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KNN Image Classifier

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Choose Files 13 files

Submit

"2712117423512"

Conclusion

Through this project we have demonstrated the application of the K-Nearest Neighbours algorithm for multinomial classification of handwritten digit images.

Thank you