Software project 1 (Part 2)

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Problem definition

We want to build a system that can classify the digit from a given image.

Problem specification

We have 10 classes in the [MNIST handwritten digits](http://yann.lecun.com/exdb/mnist/) dataset. Each class represents a digit that we want to classify.

We are going to approach the task of classification by using the following two models:

1. [Stochastic Gradient Descent Classifier](https://scikit-learn.org/stable/modules/generated/sklearn.linear_model.SGDClassifier.html)

We are going to use a logistic regression.

1. [Convolutional Neural Network Model](https://keras.io/guides/sequential_model/)

In the case of the CNN, we are going to try various models.

Specification of the learning task

* Task: Multi-class Classification
* Performance: Percent of correct digits classified
* Training experience: A dataset of handwritten digits with given classifications

Target function to be learned

In the case of multi-class classifications, the function that is going to be learned is log loss (logistic loss or cross-entropy loss).