MAIS202 Project Deliverable 1

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Overview
The goal is to create a program that can classify fashion items on simple greyscale images.

Dataset Choice
Fashion-MNIST (https://www.kaggle.com/zalando-research/fashionmnist/home)
Fashion-MNIST is a dataset of Zalando's article images which is intended to serve as a direct drop-in replacement for the original MNIST dataset for benchmarking machine learning algorithms. I chose this dataset for its size, reliability and relative simplicity.

Data Processing
The Fashion-MNIST dataset is structured in the same way as the original MNIST. It consists of a training set of 60,000 examples and a test set of 10,000 examples. Each example is a 28x28 grayscale image, associated with a label from 10 classes. This dataset is straightforward and should require little to no preprocessing.

Machine Learning Model
The project aims to classify the images into 10 classes. Since it is an image classification problem, convolutional neuron network is usually the way to go. I will try different forms of gradient descent to improve performance. If feasible, I shall use techniques including regularization, batch normalization and gradient checking.

Final Conceptualization
Since I do not have much experience with software development, I would like to create a single landing-page web-app where users can either play with the program using existing test data or upload their own simple images to be classified. A preprocessing algorithm needs to be developed for the latter to be implemented.