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```
clc; clear all; close all;
```

Load and process data

```
load('fashion_mnist');

X_valid = im2double(X_train(1:5000, :, :));
X_train = im2double(X_train(5001:end, :, :));
X_test = im2double(X_test);

X_valid = reshape(X_valid, [5000 28 28 1]);
X_train = reshape(X_train, [55000 28 28 1]);
X_test = reshape(X_test, [10000 28 28 1]);

X_valid = permute(X_valid, [2 3 4 1]);
X_train = permute(X_train, [2 3 4 1]);
X_test = permute(X_test, [2 3 4 1]);

y_valid = categorical(y_train(:, 1:5000))';
y_train = categorical(y_train(:, 5001:end))';
y_test = categorical(y_test)';
```

Fully-connected neural network

```
layers = [imageInputLayer([28, 28, 1])
    fullyConnectedLayer(500)
    reluLayer
    fullyConnectedLayer(250)
    reluLayer
    fullyConnectedLayer(10)
    softmaxLayer
    classificationLayer];

options = trainingOptions('adam',...
    'MaxEpochs', 5,...
    'InitialLearnRate', 7e-4,...
```