CSC411 - Project #2

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Part 1

Question   Describe the dataset of digits. In your report, include 10 images of each of the digits. You may find matplotlibs subplot useful.

Answer   Please see the images of each digits below. The images of digits are all clearly readable and could be manually identified, although they are not perfectly aligned with each other for a specific digit.
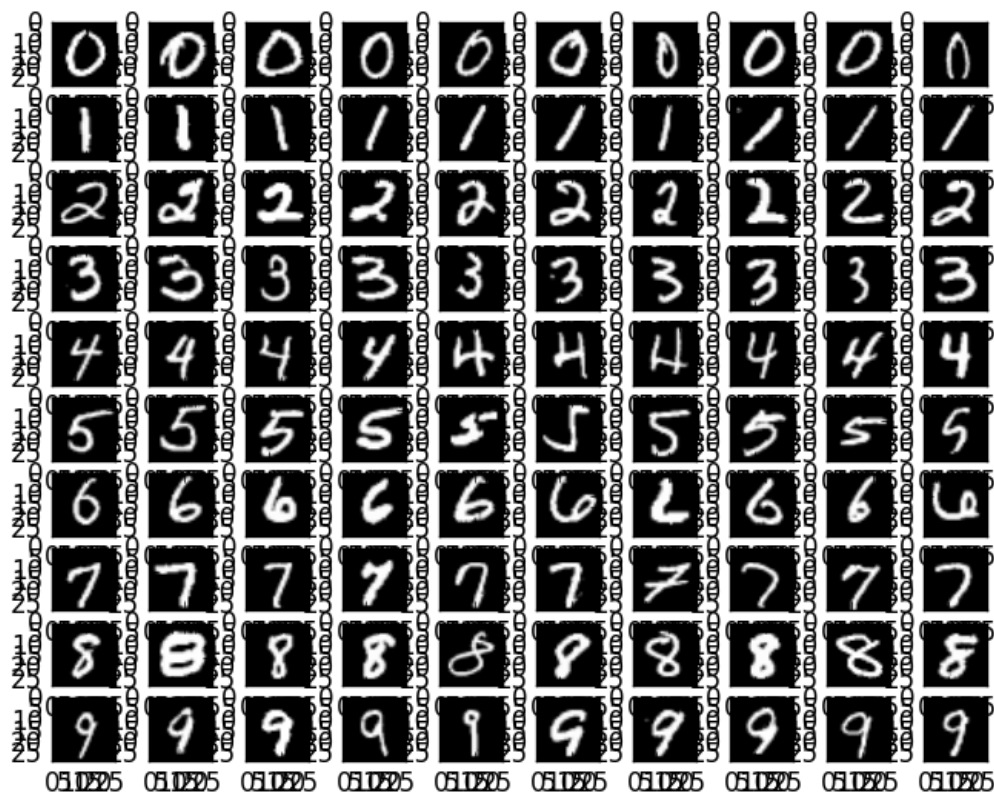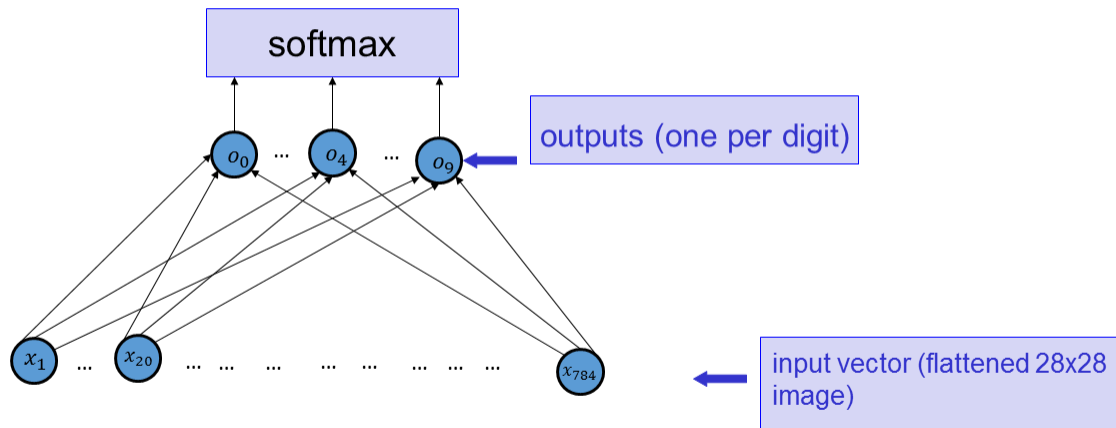

10 images of digits from 0 to 9

Part 2

Part 1

Question Implement a function that computes the network below. The o's here should simply be

linear combinations of the x's (that is, the activation function in the output layer is the identity). Supecifically, use $o_i = \sum_j w_{ji} x_j + b_i$. Include the listing of your implementation in your report for this Part.

Answer Please see the source code of the function below:

```
def lin_combin_double_layer(W0, W1, b0, b1, x):
    h = lin_combin_single_layer(W0, b0, x)
    return (lin_combin_single_layer(W1, b1, h))


def lin_combin_single_layer(W0, b0, x):
    return (dot(W0.T, x) + b0)
```