Id: 301323594

CSC 180-01
Quiz 1
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1. Supervised learning is where the data has labels Continous output is for Regression (Linear, & Naral Neturarks) & Categorical for Classification

2. Label encoding maps data to a certain index in the same column. OHE creates a new ~~distin~~ a new binary feature for each label

3. Overfitting is what a model fails to generalize learning the training set & failing on the test set. A common way to prevent this in Tensorflow is by using Early Stopping.

4. The output will be a 4x4 image

0	30	30	0
0	30	30	0
0	30	30	0
0	30	30	0

5a $(4 \cdot 4 \cdot \frac{1}{\cancel{X}} \cdot 3) + 3 =$ ~~99 weight/parameters~~ 51 weights/parameters

5b. ~~$(4 \cdot 75) + 1 \cdot 4 = 304$ weights/parameters~~
$(4) \cdot (3+1) = 16$ weight/parameters

5c.

```
model = Sequential()
~~model.add(Conv2D(3, kernel_size=(4,4), strides=(1,1), activation=~~
model.add(Conv2D(3, kernel_size=(4,4), strides=(1,1), input_shape=(13,13,1),
          activation='relu'))
model.add(MaxPooling2D(pool_size=(2,2), strides=(2,2)))
model.add(Dense(4, activation='softmax'))
```

5d.

```
model.compile(loss=categorical_crossentropy, optimizer='adam')
```