Lesson 12 (L^2 Regularization) Use `Keras` to train an L^2 regularized, logistic regression classifier for predicting the letter corresponding to the image of a character. Use the dataset `notMNIST_train_100.npz`. Explore how training and validation accuracy varies with the L^2 regularization parameter in the following way:

> Split the training set into 80% training 20% validation datasets and plot training and validation accuracy on the same axes as a function of the number of iterations (epochs) of the optimizer. Also include a line identifying a baseline level of performance. Describe what happens to training and testing accuracy when the L^2 regularization parameter is $\alpha = 0, 1, 10, 100, 1000$. Useful commands are listed below.

```
from keras import regularizers

model.add(Dense(...,kernel_regularizer=regularizers.l2(10)))

hist = model.fit(...,validation_split=0.2)

accuracy = pd.DataFrame()
accuracy['epoch']    = hist.epoch
accuracy['epoch']    = accuracy['epoch'] + 1
accuracy['training'] = hist.history['acc']
accuracy['testing']  = hist.history['val_acc']
accuracy['baseline'] = baseline
accuracy.head()

ax = accuracy.plot.line(x='epoch',y='training')
ax = accuracy.plot.line(x='epoch',y='testing',ax=ax)
accuracy.plot.line(x='epoch',y='baseline',ax=ax)
```