CSE 5523 Homework 4: Linear Models on Brain Image Data

How to run the program:

Use **python 3**. In the terminal type in:

> python linear_brain.py.

By default it runs SGDLogistic on test data with best parameters.

To run SGDHinge on test data comment `print("Accuracy (Logistic Loss):\t%s" % crossValidation(X, Y, SgdLogistic, maxIter=100, lmda=0.3, learningRate=0.001, sample=range(20,X.shape[0])))` this line and uncomment `#print("Accuracy (Hinge Loss):\t%s" % crossValidation(X, Y, SgdHinge, maxIter=100, lmda=0.1, learningRate=0.0001, sample=range(20, X.shape[0])))`

To run the program on training data with parameter tuning comment above two lines and uncomment the following lines:

```
# for learnrate in eta:
    #     for lmda in lbda:
    #         print("eta =  ", learnrate, " lambda =  ", l
mda)
    # # Cross validation
    # # Development
    #         #print("Accuracy (Logistic Loss):\t%s" % cro
ssValidation(X, Y, SgdLogistic, maxIter=100, lmda=lmda, le
arningRate=learnrate, sample=range(20)))
```

```
    #         print("Accuracy (Hinge Loss):\t%s" % crossVa
lidation(X, Y, SgdHinge, maxIter=100, lmda=lmda, learningR
ate= learnrate, sample=range(20)))
```

Output files:

Output files can be found in two versions. One in .pdf and one in .txt. To open .txt file use notepad ++ . Using notepad of Windows omits the newline and output looks messy.