

Soong Cun Yuan
None code submission for parts that is not in code

1e

Lambda is 0.34119

Homework 2c [Prove centroid]

Handwritten proof for finding the centroid of a set of points $x^{(i)} \in \mathbb{R}^2$. The function to minimize is $f(z) = \sum_{i=1}^m \|x^{(i)} - z\|^2$. The gradient is calculated as $\nabla f = \sum_{i=1}^m 2(x^{(i)} - z)$. Setting the gradient to zero gives $0 = \sum_{i=1}^m (x^{(i)} - z) = \sum_{i=1}^m x^{(i)} - mz$, which leads to $z = \frac{1}{m} \sum_{i=1}^m x^{(i)}$. The text concludes that this is also a centroid.

(3b) Using LogisticRegression from the sklearn.linear_model module, fit a classifier to the training set X_{train} and Y_{train} . Evaluate the accuracy of the classifier via the validation set X_{valid} and Y_{valid} . What is the score?

Accuracy is 0.7865168539325843

(3c) Coefficients

```
Coefficient = [[-0.02154119 -0.59903285 -0.31918963 0.00320263
0.27199 0.37586675
-0.01290163 1.61650562 -0.9815505 1.08778194 0.31062274
-0.76344957
0.69802998 1.2110554 ]]
```

Kaggle submission and score,
User Id: Zenger
Score 0.77990

4716	new	Zenger		0.77990	1	3m
Your Best Entry						
Your submission scored 0.77990		Tweet this!				
	My First Random Forest				0.77511	