Estimating the Testing Error

Finally, we want to estimate the average error $\frac{1}{n}E(w)$ of our model on the testing data, where n is the number of data points in the testing data. Note that $E(w)$ is defined as:

$$E(w) = \frac{1}{2}\sum_{i=1}^{n}[y^{(i)} - w^T x^{(i)}]^2$$

You will implement a function that takes our model predictions $\hat{y}$, and the ground truth labels y and computes the error $\frac{1}{n}E(w)$.

Your Function

Save   C Reset   MATLAB Documentation (https://www.mathworks.com/help/)

```
1  function err = Error(y_hat,y)
2      % estimate the error of our model
3      %
4      % Input:
5      % - y_hat: n x 1 dimensional MPG predictions of our model
6      % - y: n x 1 dimensional ground truth MPG values
7      % Output:
8      % - err: average L2 error of our predictions with respect to the ground truth values
9      n = length(y);
10     v = y - y_hat;
11     sum_sqr = v' * v;
12     err=sum_sqr/(2*n);
13  end
14
```

Code to call your function

C Reset

```
1  load('CarData.mat');
2  w=LinearRegression(trainsetX,trainsetY);
3  y_hat = Prediction(testsetX,w);
4  err=Error(y_hat,testsetY);
```

▶ Run Function ?

Previous Assessment: All Tests Passed

Submit ?

✓ **Is the Estimated Error Correct?**