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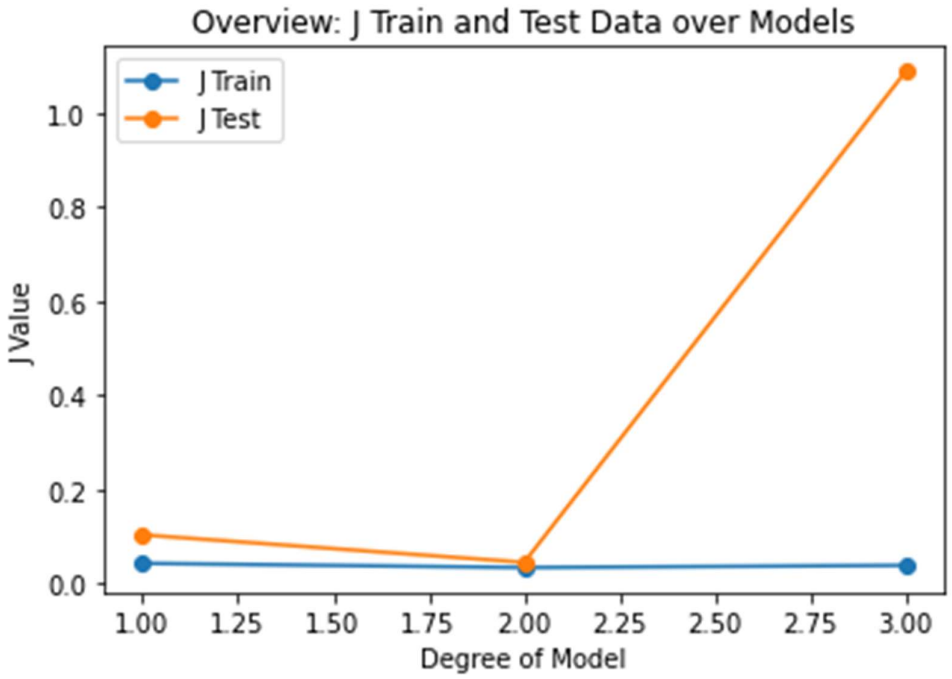
Homework Assignment 1

Important Note: In order to preserve consistency, I have added the 2012 data, the dataset now has 20 rows, and the K-fold value is 5.

Table of the Training mean and Testing mean

	Linear	Quadratic	Cubic
2345	0.030823143	0.02540136	0.049537526
1	0.203618441	0.078247422	5.299957065
1345	0.047943481	0.033757533	0.033709824
2	0.042597041	0.035016675	0.034391854
1245	0.050976585	0.040489881	0.040150937
3	0.033615995	0.008092963	0.008834673
1235	0.043374255	0.031924607	0.031229424
4	0.067844731	0.047504867	0.062431823
1234	0.038363881	0.035470849	0.034935869
5	0.166273168	0.053062068	0.035944257
Train Mean	0.042296	0.033409	0.037913
Train Test	0.10279	0.044385	1.088312



Looking at the above graph and table it is evident that the Quadratic model outperforms both the Linear and Cubic Data with a lower value of J for the test data on an
average.

The weights for the quadratic data are as follows:

```
Weights = [[ 1.30696152e+01] [-4.09219729e-02] [ 1.87027905e-04]]
```

Final Hypothesis Function

```
h_w(x) = 1.30696152e+01 + -4.09219729e-02 * x + 1.87027905e-04 * x^2
```