Name: Mohmmad Alwakeel

GitHub Name: malwake-git

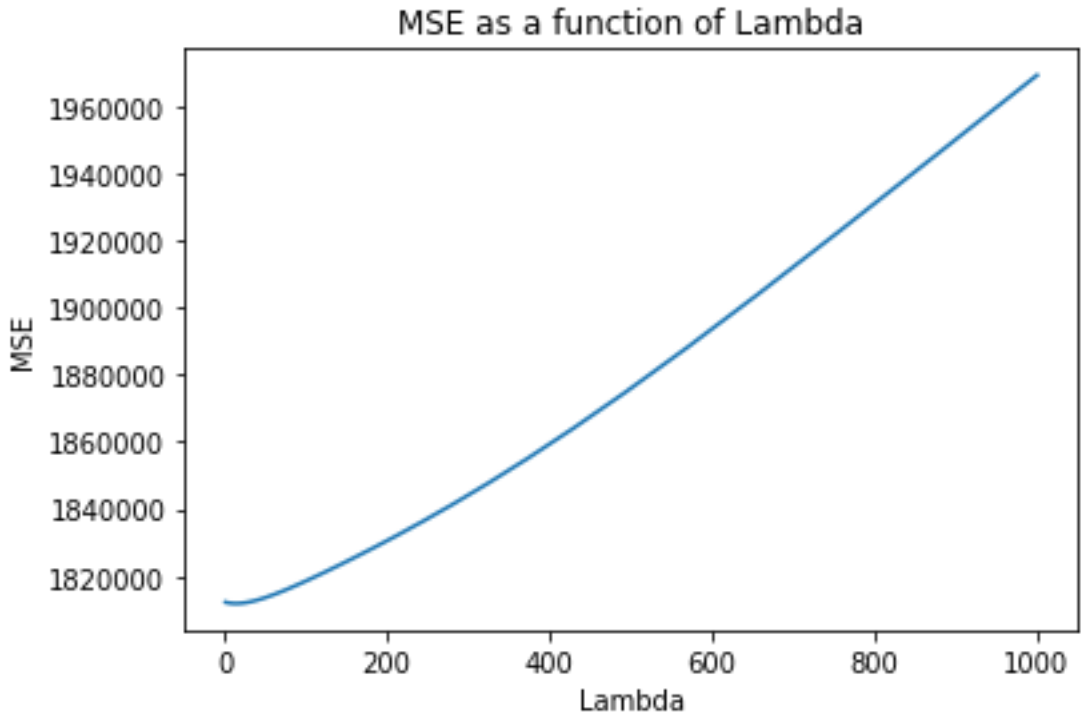
Purdue Username: malwake

Instructor: Prof. Inouye

Problem2 Writeup

Finding best Lambda:

Based on the Following Output ->



Best lambda tested is **14.563484775012437,** which yields an MSE of **1811977.1732371899**

Equation of best fitted model:

```
Y:
 a9 = 5112.15519761
 , a8 = -200.98248228
, a7 = -207.14794325
 , a6 = -1330.75810931
 , a5 = 217.69361706
, a4 = -69.0190039
, a3 = 500.94160313
, a2 = 74.33788618
,a1 = -458.97374368
, b = 3928.07687554
```

The predicted price y for a 0.25 carat, 3 cut, 3 color, 5 clarity, 60 depth, 55 table, 4 x, 3 y, 2 z diamond is **9721.455713041743**
, which was determined by the equation of the best fitted model. There, we plugged the given value based on their X orders (i.e., x1, x2, x3, etc.), multiplied it with the founded coefficients, and finally sum the result with the intercept. The result is the estimated price based on the best fitted equation line.