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**Problem1\_writeup.**

**(1) Estimated Functions:**

y1(x) = 29.0587x+ 92.7676

y2(x) = -2.1111x2 + 28.5066x + 112.3148

y3(x) = 1.7574x3 - 1.4324x2 - 0.3307x + 101.8661

y4(x) = -0.0152x4 + 1.7541x3 - 1.0821x2 - 0.2558x + 100.9145

y5(x) = -0.0004x5 - 0.0154x4 + 1.7668x3 - 1.0743x2 - 0.3227x + 100.8874

**(2) Data Visualization:**

**Chart, line chart

Description automatically generated**

**(3) What degree polynomial does the relationship seem to follow? Please explain your answer.**

Sample answer:

The data seems to match d = 3, 4, 5. In following Occam’s Razor, the simplest model that matches should be chosen. d=3, or y3(x), is the model that matches this criterion.

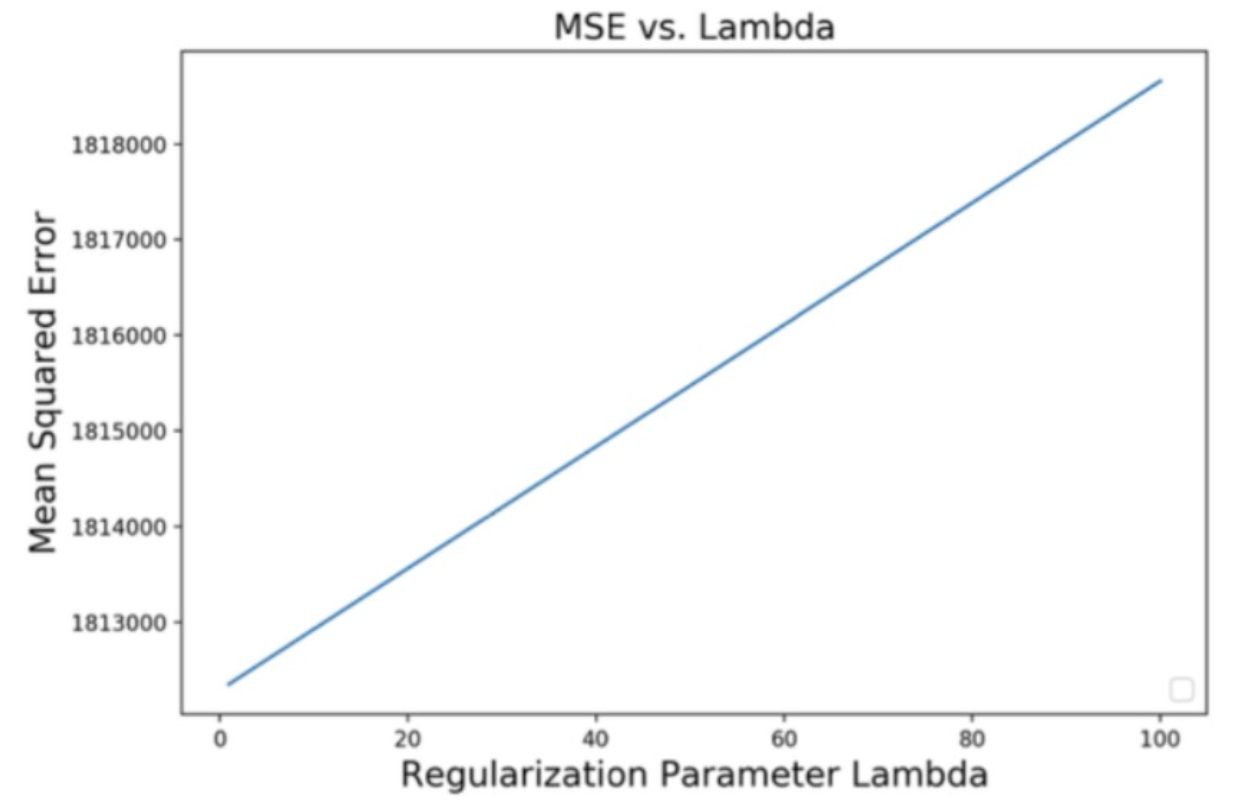
**(4) If we measured a new data point, what would be the predicted value of , based on the polynomial identified as the best fit in Question (3)?**

y3(x) = 135.4328

**Problem2\_writeup.**

**(1) Plot the mean squared error as a function of lambda in Ridge Regression:**

*(Insert plot obtained by completing the* ***main*** *function)*



**(2) Find best lambda:**

Sample answer:

Based on the range of Lambda values tested, the best lambda value is , which yields an MSE of as shown on the plot above.

**(3) Find equation of the best fitted model:**

(*Insert numerical values for ’s and )*

텍스트이(가) 표시된 사진

자동 생성된 설명

**(4) Draw a prediction plot using Google data**

*(Note that the plot below is not the solution)*

