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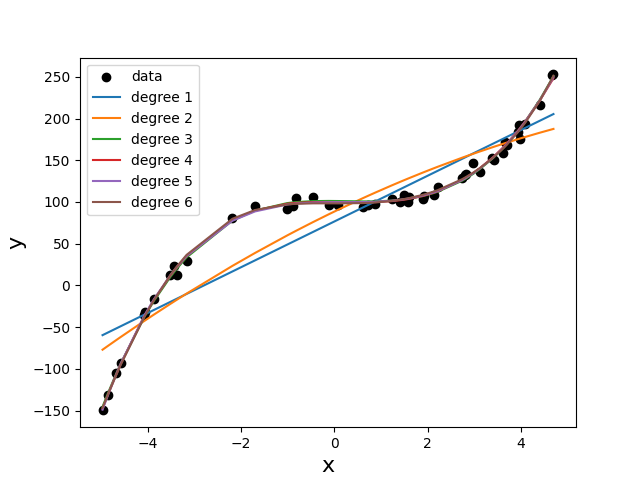
Purdue Username: amosquet

Instructor: Kocaoglu

**Problem 1.**

**(1) Estimated Functions:**

**(2) Data Visualization:**

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

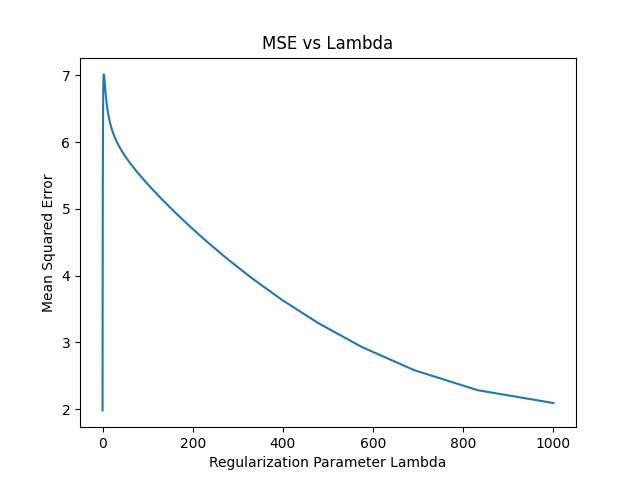
The data seems to best follow a 3rd degree polynomial, which can be seem from the low error between the estimated regression function and the data in the plot above.

**(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)?**

If we measured a new data point, x = 2, the corresponding predicted value would be 108.754

**Problem 2.**

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



**(2) Find best lambda:**

Based on the range of Lambda values tested, the best lambda value is 0.1, 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 )*

**(4) Plot the predicted stock prices and actual stock prices using Google data**

