CS541-Artificial Intelligence Homework 3

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1 Summary of Linear Regression Part 4

Since the step size for first two plots are very small it will take more than 100 steps to converge to w*. Step sizes 3 and 4 seem to be ideal and they seem to converge at 40,20 step size respectively. Step sizes 5 and 6 being relatively large tend to diverge from the optimal solution

2 Summary of Linear Regression Part 5

Calculating w* in the above case is not possible because the dot product of X transpose and X cannot be inverted since n less than d. But we can still calculate the gradient descent. Since the step size for first two plots are very small it will take more than 100 steps to converge to w*. Step sizes 3 and 4 seem to be ideal and they seem to converge at 40,20 step size respectively. Step sizes 5 and 6 being relatively large tend to diverge from the optimal solution