Q1. Solve the following regression problem.

X: 1,2,3,4,5,6

Y:2,4,6,8,10,12

Assume that their relationship is linear y=a+bx.

Q2. Fit the above linear polynomial using ridge regularization.

Take value of c =10.

Q3. Minimize (x-8)^2+(y-6)^2 using gradient descent method.

Q4. Obtain the performance metrics, MSE, MAE and coefficient of determination for the above regression problem.

Q5. Solve the regression in Q1. Using gradient descent method.

Q6. Plot the error curve for the polynomial y=bx for the given data. Vary b on the range

(0, 2, 0.1)

a) Verify that whether the shape of error curve is convex or not.

b) Plot error surface for y=a +bx.

Q Design a random regression problem with non- convex error curve.