

Topic Covered: Gradient descent

Instructions to the students:

- The homework exercises are meant to only to improve your understanding.
- Make your own study group and try to do it.

Questions:

1) Create an custom function which can give all the evaluation metrics of the regression model.

- The input to be function shall be the matrices of y_{pred} and y_{actual}
- The expected return values of this function are
 1. Absolute mean error
 2. Absolute mean square error
 3. Root mean square error
 4. Root mean log square error
 5. R^2 value
 6. Adjusted R^2 value
- The function should work irrespective of the order of the matrices (mx1 or 1xm). It should work as long as the size of both matrices are same.

This custom function will be extensively used in evaluating any model which gives continuous values as the output.

2) For the Sales vs Revenue dataset given in *hw1_data1.txt*, the best values are assumed to be Slope = 0.0528 and intercept = 3.35. Use this values to calculate the y_{pred}

- Calculate the residual sum of squares error (RSS), not to be confused with cost function value. **Expected solution:** 28.77
- Calculate the Total sum of squares. **Expected solution:** 297.52
- Calculate the R^2 value **Expected solution:** 0.9

For any clarifications: Reach me at harimurugan@nitj.ac.in

All the best