

# Indian Institute of Technology Madras

## Web MTech Industrial AI

ID5002W: Industrial AI Lab

### Assignment III: Lasso and Ridge Regression

## Instructions

1. Assignment shall be submitted before the due date. Late submissions will not be entertained. If you cannot submit the assignment due to some reasons, please contact the instructor by email.
2. All the assignments must be the student's own work. The students are encouraged to discuss or consult friends or classmates. However, they have to submit their own work. Any malpractice will be reported to the authorities and actions will be taken as per the IIT Madras rules.
3. If you find the solution in the book or article or on the website, please indicate the reference in the solution.

## Problem

Please use the dataset provided for the previous assignment. You have to work only with the file with your roll number specified on it. Each dataset has 6 features  $x_1, x_2, \dots, x_6$  and 3 targets  $y_1, y_2, y_3$ .

- Q1 For the given dataset, implement a **Ridge Regression** model [3 marks]
- Q2 Use **Lasso Regression** to fit the given dataset [3 marks]
- Q3 Report on the effect of the regularization term ( $\alpha$ ) on the value of coefficients and performance of the models [2 marks]
- Q4 Compare both models and elaborate on your findings [2 marks]