

Machine Learning Lab, B.Tech 5th Semester

Instructions

1. This is only for practice. Complete it by 12:00 PM today. Your completion will be reviewed by the Teaching Assistants.

Practice Assignment 3

1. (a) Implement the gradient descent algorithm to find the optimal parameters for a simple linear regression model. Consider the dataset below:

Hours of Study (x)	Exam Score (y)
1	2
2	4
3	6
4	8
5	10

Table 1: Dataset

- i. Load the dataset.
- ii. Implement Gradient Descent Algorithm (GD)
- iii. Implement Stochastic Gradient Descent Algorithm (SGD)
- iv. Evaluate the models: After training, use the optimized parameters to make predictions on the training data. Plot the regression lines obtained from both GD and SGD against the training data.
- v. Plot the cost function value over iterations for GD. Plot the cost function value over epochs for SGD. Compare the regression lines and cost function convergence.

Note: You are not allowed to use inbuilt function of any machine learning model.