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R. No. :- 43348

Assignment No :- 2

* **Aim :-**

Supervised Learning - Regression (using R)

* **Theory :-**

- **Simple Linear Regression :-**

- When we have a single input attribute (x) and we want to use linear regression. This is called simple Linear Regression.

- If we had multiple input attributes (e.g. x_1, x_2, x_3, etc.). This would be called multiple linear regression. The procedure for linear regression is different from multiple linear regression.

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Mean Squared Error:-

General steps to calculate MSE from a set of X & Y values:

1.) Find regression line

2.) Insert your X values into the linear regression equation to find the new Y values (Y')

3.) Subtract the new Y value from the original to get the error.

4.) Square the errors.

5.) Add up the errors.

6.) Find the mean

$$MSE = \frac{1}{n} \sum_{i=1}^{n} (Y_i - Y_i')^2$$

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n} (Predicted_i - Actual_i)^2}{n}}$$

Conclusion:- In this assignment, learned about linear regression analysis along with calculation of least square method.