## Artificial Intelligence and Machine Learning

Project Report

Semester-IV (Batch-2022)

**Case Study**: - Addition using Linear Regression

[Url:-](about:blank) <https://drive.google.com/file/d/1LDGEGW-1x3FI1NLX1jqA3-Uu5wpiHF5U/view?usp=sharing>

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**Description about Case Study: -**

* Read add.csv
* Draw Scatter Plot
* Store Feature Matrix in X and Response(Target) in Vector Y
* Use Train Test Split Method
* Apply Linear Regression
* Check Model’s Prediction Performance
* Compare the Results
* Predict the Results

**Library: -**

* Pandas
* matplotlib.pyplot
* train\_test\_split
* LinearRegression

**Supervised Learning:** A type of machine learning algorithm where the model learns from labelled data. In supervised learning, the training data you feed to the algorithm includes both input data and the corresponding correct output. The goal is to learn the mapping from input to output so that the model can make predictions on new unseen data.

Linear Regression: It is a statistical method used to model the relationship between a dependent variable and one or more independent variables by fitting the linear equation to observed data.

**Methods: -**

1. pd.read\_csv():

Description: Reads a CSV file and converts it into a data frame.

2. plt.scatter():

Description: Function provided by the Matplotlib library in Python for creating scatter plots.

3. data[]:

Description : data[] typically refers to accessing elements within a data structure such as a list, tuple, dictionary, or any other collection type.

4. train\_test\_split():

Description: Function commonly used in machine learning to split a dataset into two separate sets; one for training the model and one for testing its performance

5. LinearRegression():

Description: A class provided by scikit-learn library for performing Linear Regression.

6. .score():

Description: Method is often used in machine learning models from scikit-learn to evaluate the performance of the model on the test data.

7. .predict():

Description: Method is often used in machine learning models to generate a prediction on new data.

8. pd.DataFrame():

Description: Constructor function used to create Pandas DataFrame object.