# MACHINE LEARNING – REGRESSION

## HYPER TUNING PARMETERS

## 1.Problem Statement:

Profit Prediction

## 2.Algorithms:

2.1. Multiple Linear Regression.

2.2. Support Vector Machine.

2.3. Decision Tree.

## 2.1 Multiple Linear Regression:

r2_score =

## 2.2 Support Vector Machine (Regressor):

**Kernel:** *('linear', 'poly', 'rbf', 'sigmoid', 'precomputed'} or callable, default='rbf')*

**C:** *(1.0, 10,100,1000,10000 , default=1.0)*

| S.No | Kernel | C | r2_score |
|---|---|---|---|
| 1 | linear | 1.0 | -0.055 |
| 2 | linear | 10 | -0.039 |
| 3 | linear | 100 | 0.106 |
| 4 | linear | 1000 | 0.780 |
| 5 | linear | 10000 | 0.924 |
| 6 | rbf | 1.0 | -0.057 |
| 7 | rbf | 10 | -0.056 |
| 8 | rbf | 100 | -0.050 |
| 9 | rbf | 1000 | 0.006 |
| 10 | rbf | 10000 | 0.371 |
| 11 | sigmoid | 1.0 | -0.057 |
| 12 | sigmoid | 10 | -0.054 |
| 13 | sigmoid | 100 | -0.034 |
| 14 | sigmoid | 1000 | 0.185 |
| 15 | sigmoid | 10000 | 0.853 |
| 16 | precomputed | 1.0 | - |
| 17 | precomputed | 10 | - |
| 18 | precomputed | 100 | - |
| 19 | precomputed | 1000 | - |
| 20 | precomputed | 10000 | - |

## 2.3 Decision Tree:

**Criterion:** *("squared_error", "friedman_mse", "absolute_error", "poisson"}, default="squared_error")*

**Splitter:** *("best", "random"}, default="best")*

| S.No | criterion | splitter | r2_score |
|---|---|---|---|
| 1 | - | - | 0.914 |
| 2 | squared error | best | 0.901 |
| 3 | squared error | random | 0.900 |
| 4 | friedman_mse | best | 0.926 |
| 5 | friedman_mse | random | 0.767 |
| 6 | absolute_error | best | 0.934 |
| 7 | absolute_error | random | 0.865 |
| 8 | poisson | best | 0.930 |
| 9 | poisson | best | 0.285 |