

To find the R2 score using below methods

1. Multiple Linear Regression:

R2_score Value=0.935

2. Support Vector Machine:

(class sklearn.svm.SVR(, kernel='rbf', degree=3, gamma='scale', coef0=0.0, tol=0.001, C=1.0, epsilon=0.1, shrinking=True, cache_size=200, verbose=False, max_iter=-1)*

kernel{'linear', 'poly', 'rbf', 'sigmoid', 'precomputed'} or callable, default='rbf')

SVM R2 score = 0.9301

| SNO | Hyper Parameter | Linear (r value) | Rbf(non-linear) | POLY | SIGMOID |
|-----|-----------------|------------------|-----------------|----------|----------|
| 1 | C=1.0 | -0.0556 | -0.0574 | -0.05710 | -0.05720 |
| 2 | C=10 | -0.0396 | -0.0568 | -0.0536 | -0.0547 |
| 3 | C=1000 | 0.7802 | 0.0067 | 0.2661 | 0.1850 |
| 4 | C=10000 | 0.9239 | 0.3718 | 0.8129 | 0.8535 |
| 5 | C=100000 | 0.9301 | 0.7085 | 0.4002 | -0.8433 |

3.DECISION TREE:

(class sklearn.tree.DecisionTreeRegressor(, criterion='squared_error', splitter='best', max_depth=None, min_samples_split=2, min_samples_leaf=1, min_weight_fraction_leaf=0.0, max_features=None, random_state=None, max_leaf_nodes=None, min_impurity_decrease=0.0, ccp_alpha=0.0, monotonic_cst=None)*

*criterion{"squared_error", "friedman_mse", "absolute_error", "poisson"},
default="squared_error")*

| SNO | CRITERION | SPLITTER | R2 Value |
|-----|-----------------------|----------|----------|
| 1 | <i>squared_error</i> | best | 0.9099 |
| 2 | <i>squared_error</i> | random | 0.7506 |
| 3 | <i>friedman_mse</i> | best | 0.9119 |
| 4 | <i>friedman_mse</i> | random | 0.8166 |
| 5 | <i>absolute_error</i> | best | 0.9575 |
| 6 | <i>absolute_error</i> | random | 0.8540 |
| 7 | <i>poisson</i> | best | 0.9184 |
| 8 | <i>poisson</i> | random | 0.7968 |

DECISION TREE R2 Score (absolute_error,best) = 0.9575
