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 | ***squared\_error*** | best | 0.9099 |
| 2 | ***squared\_error*** | random | 0.7506 |
| 3 | ***friedman\_mse*** | best | 0.9119 |
| 4 | ***friedman\_mse*** | random | 0.8166 |
| 5 | ***absolute\_error*** | best | 0.9575 |
| 6 | ***absolute\_error*** | random | 0.8540 |
| 7 | ***poisson*** | best | 0.9184 |
| 8 | ***poisson*** | random | 0.7968 |

DECISION TREE R2 Score (absolute\_error,best) = 0.9575