|  |  |  |
| --- | --- | --- |
|  | **Decision Tree** |  |
| **parameters** |  | **r\_score value** |
|  |  |  |
| **criterion** | **Squared\_error** | **0.9176646645345935** |
|  | **Friedman\_man** | **0.9134756140892237** |
|  | **Absolute\_error** | **0.9436927621085024** |
|  | **Poisson** | **0.9177656985417587** |
|  |  |  |
| **splitter** | **Best** | **0.8956606188199104** |
|  | **Random** | **0.807568120730798** |
|  |  |  |
| **max\_depth** | **3** | **0.940214300345898** |
|  |  |  |
| **min\_samples\_split** | **2** | **0.9129982226417168** |
|  |  |  |
| **min\_samples\_leaf** | **1** | **0.9033951189994589** |
|  |  |  |
| **min\_weight\_fraction\_leaf** | **0** | **0.9214363636486296** |
|  |  |  |
| **max\_features** | **sqrt** | **0.1858898183334527** |
|  | **log2** | **0.429598593866375** |
|  |  |  |
| **random\_state** | **1** | **0.93292418818757** |
|  |  |  |
| **max\_leaf\_nodes** | **100** | **0.909994064079993** |
|  |  |  |
| **min\_impurity\_decrease** | **2** | **0.924544180837127** |
|  |  |  |
| **ccp\_alpha** | **10** | **0.915112522644097** |
|  |  |  |

***The Decision Tree use R2 value (criterian=(“Absolute\_error”) value is* 0.9436927621085024**

|  |  |  |
| --- | --- | --- |
|  | ***Support Vector Machine*** |  |
| **parameters** |  | **r\_score value** |
|  |  |  |
| **kernel** | **linear** | **0.8774382180653425** |
|  | **poly** | **-0.0508965855544091** |
|  | **rbf** | **-0.0573237569922571** |
|  | **sigmoid** | **-0.0575056410878564** |
|  |  |  |
| **degree** | **3** | **-0.05732375699225711** |
|  |  |  |
| **gamma** | **scale** | **-0.05732375699225711** |
|  | **auto** | **-0.05749273461433346** |
|  |  |  |
| **coef0** | **4.7** | **-0.05732375699225711** |
|  |  |  |
| **tol** | **200** | **-0.05866389981069964** |
|  |  |  |
| **c** | **1.50** | **-0.05723930521133103** |
|  |  |  |
| **epsilon** | **510.9** | **-0.050940187304165** |
|  |  |  |
| **shrinking** | **True** | **-0.0573237569922571** |
|  |  |  |
| **cache\_size** | **200** | **-0.0227882747799638** |
|  |  |  |
| **verbose** | **False** | **-0.0573237569922571** |
|  |  |  |
| **max\_iter** | **-1** | **-0.0573237569922571** |
|  |  |  |

***The support vector machine use R2 value kernel=(“linear”) value is***

**0.8774382180653425**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameters-1 |  | Parameters-2 |  | r\_score value |
|  |  |  |  |  |
| *n\_estimators* | *50* | *criterion* | *squared\_error* | *0.9389117624194596* |
| *n\_estimators* | *50* | *criterion* | *absolute\_error* | *0.948693326529627* |
| *n\_estimators* | *50* | *criterion* | *friedman\_mse* | *0.9412573579646382* |
| *n\_estimators* | *50* | *criterion* | *poisson* | *0.9278594215519025* |
|  |  |  |  |  |
| *n\_estimators* | *50* | *max\_depth* | *None* | *0.9514314396809749* |
|  |  |  |  |  |
| *criterion* | *absolute\_error* | *min\_samples\_split* | *2* | *0.9446325366931598* |
| *criterion* | *friedman\_mse* | *min\_samples\_split* | *2* | *0.9421106719899953* |
| *criterion* | *poisson* | *min\_samples\_split* | *2* | *0.9409670249245359* |
|  |  |  |  |  |
| *min\_weight\_fraction\_leaf* | *0.0* | *max\_features* | *1.0* | *0.9441799664596608* |
| *min\_weight\_fraction\_leaf* | *0.0* | *max\_features* | *sqrt* | *0.8528255094768025* |
| *min\_weight\_fraction\_leaf* | *0.0* | *max\_features* | *log2* | *0.7716529090495537* |
|  |  |  |  |  |
| *min\_weight\_fraction\_leaf* | *0.0* | *min\_impurity\_decrease* | *0.0* | *0.9330832747992756* |
|  |  |  |  |  |
| *min\_weight\_fraction\_leaf* | *0.0* | *bootstrap* | *True* | *0.9346468098335717* |
| *min\_weight\_fraction\_leaf* | *0.1* | *oob\_score* | *True* | *0.91218273319364840* |
|  |  |  |  |  |

***Random Forest***

***Combine parameters***

***The random forest use R2 value (n\_estimators=50,max\_depth=None)***

***0.95143143968097***

***Result :***

***Random forest is the best method for the given for the given model, because when we combine these two parameter***

***(n\_estimators=50,max\_depth=None) we get the highest r2 value and the r2 vale is 0.95143143968097***

***:***