To find following the machine learning regression method using in r_value

1. **MULTIPLE LINEAR REGRESSION** (R_value)=0.78947
2. **SUPPORT VECTOR MACHINE:**

SI.No	HYPER PARAMETER	Linear	rbf	Poly	sigmoid
1	**C=1.0**	-0.01010	-0.08338	-0.07569	-0.07542
2	**C=10.0**	0.46246	-0.03227	0.03871	0.03930
3	**C=100.0**	0.62887	0.32003	0.06179	0.52761
4	**C=500.0**	0.76105	0.66429	0.82636	0.44460
5	**C=1000.0**	0.76310	0.81020	0.85664	0.28747
6	**C=2000.0**	0.74404	0.85477	0.86055	-0.59395
7	**C=3000.0**	0.74142	0.86633	0.85989	-2.12441

The **SVM Regression** using hyper tuning parameter with **C = 3000.0** in **rbf** has 0.86633 **Highest Accuracy**.

3. **DECISION TREE:**

SI.NO	CRITERION	SPLITTER	MAX_FEAURES	R VALUE
1	*friedman_mse*	best	sqrt	0.60967
2	*friedman_mse*	random	sqrt	0.61316
3	*friedman_mse*	best	log2	0.65189
4	*friedman_mse*	random	log2	0.68463
5	*friedman_mse*	best	none	0.69332
6	*friedman_mse*	random	none	0.70127
7	*squared_error*	best	sqrt	0.70383
8	*squared_error*	random	sqrt	0.71077
9	*squared_error*	best	log2	0.62264
10	*squared_error*	random	log2	0.68136
11	*squared_error*	best	none	0.68010

12	*squared_error*	random	none	0.71077
13	*absolute_error*	best	sqrt	0.76355
14	*absolute_error*	random	sqrt	0.74423
15	*absolute_error*	best	log2	0.73536
16	*absolute_error*	random	log2	0.64685
17	*absolute_error*	best	none	0.66792
18	*absolute_error*	random	none	0.70688
19	*Poisson*	best	sqrt	0.75398
20	*Poisson*	random	sqrt	0.66874
21	*Poisson*	best	log2	0.70685
22	*Poisson*	random	log2	0.62464
23	*Poisson*	best	none	0.71623
24	*Poisson*	random	none	0.74130

The Decision Tree Regression use R value (*absolute_error*, best, sqrt) = 0.76355

4. RANDOM FOREST:

SI.NO	N_ESTIMATORS	CRITERION	MAX_FEATURES	R_VALUE
1	50	*friedman_mse*	sqrt	0.86966
2	100	*friedman_mse*	sqrt	0.87185
3	50	*friedman_mse*	log2	0.87033
4	100	*friedman_mse*	log2	0.87191
5	50	*friedman_mse*	none	0.84971
6	100	*friedman_mse*	none	0.85505
7	50	*squared_error*	sqrt	0.86720
8	100	*squared_error*	sqrt	0.87168
9	50	*squared_error*	log2	0.87072
10	100	*squared_error*	log2	0.86891
11	50	*squared_error*	none	0.85059

12	100	*squared_error*	none	0.85317
13	50	*absolute_error*	sqrt	0.86777
14	100	*absolute_error*	sqrt	0.87425
15	50	*absolute_error*	log2	0.86926
16	100	*absolute_error*	log2	0.86773
17	50	*absolute_error*	none	0.85032
18	100	*absolute_error*	none	0.85499
19	50	*Poisson*	sqrt	0.86733
20	100	*Poisson*	sqrt	0.86797
21	50	*Poisson*	log2	0.87112
22	100	*Poisson*	log2	0.86931
23	50	*Poisson*	none	0.85174
24	100	*Poisson*	none	0.85770

The Random Forest Regression use R_value (N_ESTIMATORS=100**,** CRITERION= *absolute_error,* MAX_FEATURES= sqrt)=0.87425