1. THE THREE STAGES OF PROBLEM IDENTIFICATIONS ARE:

- Machine learning
- Supervised
- Regression

2. THE BASIC INFORMATION ABOUT THE DATASET

- Total number of rows=1338
- Total number of columns=6

3. R2_SCORE

➢ MULTIPLE LINEAR REGRESSIONI

In Multiple Linear Regression the R2_score value = 0.7894

➢ SUPPORT VECTOR MACHINE:

S.NO	KERNEL	R2_SCORE
1	rbf	-0.0833
2	poly	-0.0756
3	linear	-0.0101
4	sigmoid	-0.0754

In Support Vector Machine Regression the R2_value (linear) = -0.0101

➢ DECISION TREE:

S.no	CRITERION	MAX_FEATURES	SPLITTER	R2_SCORE
1	Mse	Auto	Best	0.7079
2	Mse	Auto	Random	0.7320
3	Mse	Sqrt	Best	0.7477
4	Mse	Sqrt	Random	0.7053
5	Mse	Log2	Best	0.7196

6	Mse	Log2	Random	0.7250
7	Mae	Auto	Best	0.6731
8	Mae	Auto	Random	0.7538
9	Mae	Sqrt	Best	0.6595
10	Mae	Sqrt	Random	0.6653
11	Mae	Log2	Best	0.7117
12	Mae	Log2	Random	0.6850
13	Friedman_mse	Auto	Best	0.7018
14	Friedman_mse	Auto	Random	0.7150
15	Friedman_mse	Sqrt	Best	0.7402
16	Friedman_mse	Sqrt	Random	0.6776
17	Friedman_mse	Log2	Best	0.7130
18	Friedman_mse	Log2	Random	0.6776

In Decision Tree Regression the R2_score value (Mae, Auto, Random) = 0.7538

- **RANDOM FOREST:**

S.NO	CRITERION	MAX_FEATURES	N_ESTIMTOR	R2_VALUE
1	Mse	Log2	10	0.8522
2	Mse	Log2	100	0.8686
3	Mse	Sqrt	10	0.8470
4	Mse	Sqrt	100	0.8688
5	Mae	Log2	10	0.8585
6	Mae	Log2	100	0.8719
7	Mae	Sqrt	10	0.8514
8	Mae	Sqrt	100	0.8750
9	Friedman_mse	Log2	10	0.8504
10	Friedman_mse	Log2	100	0.8681
11	Friedman_mse	Sqrt	10	0.8439
12	Friedman_mse	Sqrt	100	0.8689

In Random Forest Regression the R2_score value (Mae, Sqrt, 100) = 0.8750