1. Domain- Machine Learning
   Learning – Supervised Learning
   Regressor or Classification – Regressor

2. Our dataset has 6 columns and 1338 rows
   Chargers column is the output column and remaining columns are input columns

3. Data-preprocessing method used for sex and smoker column is ordinal-mapping label encoder method.

4. R2_score for MLR is 0.789

5. SVM

C	rbf	linear	poly	sigmoid
1	-0.083	-0.010	-0.075	-0.075
10	-0.0322	0.462	0.038	0.039
100	0.320	0.628	0.617	0.527
1000	0.810	0.764	0.856	0.287

Decision Tree

criterion	splitter	Max_features	R score
Squared_error	Best	Sqrt	0.752
Friedman_mse	Best	Sqrt	0.684
Absolute_error	Best	Sqrt	0.726
Poisson	Best	Sqrt	0.737
Squared_error	Best	Log2	0.766
Friedman_mse	Best	Log2	0.735
Absolute_error	Best	Log2	0.718
Poisson	Best	Log2	0.690
Squared_error	Random	Sqrt	0.683
Friedman_mse	Random	Sqrt	0.649
Absolute_error	Random	Sqrt	0.715
Poisson	Random	Sqrt	0.605
Squared_error	Random	Log2	0.682
Friedman_mse	Random	Log2	0.674
Absolute_error	Random	Log2	0.789
Poisson	Random	Log2	0.638
Squared_error	Best	None	0.693
Friedman_mse	Best	None	0.694
Absolute_error	Best	None	0.658
Poisson	Best	None	0.720

Squared_error	Random	None	0.709
Friedman_mse	Random	None	0.700
Absolute_error	Random	None	0.720
Poisson	Random	None	0.658

Random Forest

N_estimators	**criterion**	**R score**
100	Squared_error	0.849
100	Friedman_mse	0.849
100	Absolute_error	0.848
100	Poisson	0.853
50	Squared_error	0.851
50	Friedman_mse	0.854
50	Absolute_error	0.851
50	Poisson	0.851

N_estimators	**Criterion**	**Max_features**	**R score**
100	Squared_error	Sqrt	0.872
100	Friedman_mse	Sqrt	0.872
100	Absolute_error	Sqrt	0.873
100	Poisson	Sqrt	0.871
50	Squared_error	Sqrt	0.871
50	Friedman_mse	Sqrt	0.868
50	Absolute_error	Sqrt	0.871
50	Poisson	Sqrt	0.863
100	Squared_error	Log2	0.871
100	Friedman_mse	Log2	0.870
100	Absolute_error	Log2	0.870
100	Poisson	Log2	0.868
50	Squared_error	Log2	0.871
50	Friedman_mse	Log2	0.871
50	Absolute_error	Log2	0.871
50	Poisson	Log2	0.868

6. Random forest regressor with criterion-'Absolute_error' and n_estimators-100 and max_features='sqrt' has the r_score 0.873 with is the highest r_score among all regressors.