Machine Learning –Regression-Hands-on-Final Model Report

1. Multiple Linear Regression : R2_Score = 0.9358680970046241

2. SVM_Regression: R2_Score = 0.895077923					
Sl.No.	**HYPER PARAMETER**	**LINEAR**	**RBF (NON-LINEAR)**	**POLY (NON-LINEAR)**	**SIGMOID (NON-LINEAR)**
1	C=1.0	0.895077923	-0.057317309	-0.050890118	-0.057499197
2	C=10	-2.43721504	-0.055800923	0.025312389	-0.057615386
3	C=100	-357.0795147	-0.03023556	0.465662634	-0.058780024
4	C=1000	-36014.0206	0.160600292	0.640323938	-0.070701273

3. Decision Tree Regression: R2_Score = 0.941619187				
Sl.No.	**CRITERION**	**MAX FEATURES**	**SPLITTER**	**R_SCORE**
1	squared_error	auto	best	0.889601674
2	squared_error	auto	random	0.83397785
3	squared_error	sqrt	best	0.719123121
4	squared_error	sqrt	random	0.667839737
5	squared_error	log2	best	0.617065738
6	squared_error	log2	random	0.790701301
7	squared_error	none	best	0.922285343
8	squared_error	none	random	0.936031187
9	friedman_mse	auto	best	0.911395205
10	friedman_mse	auto	random	0.880905402
11	friedman_mse	sqrt	best	0.702960179
12	friedman_mse	sqrt	random	0.665920916
13	friedman_mse	log2	best	0.752015745
14	friedman_mse	log2	random	0.518877623
15	friedman_mse	none	best	0.904733929
16	friedman_mse	none	random	0.871414317
17	absolute_error	auto	best	0.941619187
18	absolute_error	auto	random	0.870885152
19	absolute_error	sqrt	best	0.761975614
20	absolute_error	sqrt	random	0.607711223
21	absolute_error	log2	best	0.905705648
22	absolute_error	log2	random	0.397913578
23	absolute_error	none	best	0.933761366
24	absolute_error	none	random	0.912573347
25	poisson	auto	best	0.751713687
26	poisson	auto	random	0.34871581
27	poisson	sqrt	best	0.476640282
28	poisson	sqrt	random	0.142876265
29	poisson	log2	best	0.349271453

30	poisson	log2	random	0.158837084
31	poisson	none	best	0.722705563
32	poisson	none	random	0.834030279

4. Random Forest_Regression: R2_Score = 0.946004355					
Sl.No.	**N_ESTIMATORS**	**CRITERION**	**MAX FEATURES**	**Random_state**	**R_SCORE**
1	50	squared_error	sqrt	0	0.683002237
2	100	squared_error	sqrt	0	0.75915045
3	50	squared_error	log2	0	0.683002237
4	100	squared_error	log2	0	0.75915045
5	50	squared_error	None	0	0.944633639
6	100	squared_error	None	0	0.946004355
7	50	friedman_mse	sqrt	0	0.688918213
8	100	friedman_mse	sqrt	0	0.760859221
9	50	friedman_mse	log2	0	0.688918213
10	100	friedman_mse	log2	0	0.760859221
11	50	friedman_mse	None	0	0.938895763
12	100	friedman_mse	None	0	0.941270197
13	50	**absolute_error**	sqrt	0	0.722235187
14	100	**absolute_error**	sqrt	0	0.785748335
15	50	**absolute_error**	log2	0	0.722235187
16	100	**absolute_error**	log2	0	0.785748335
17	50	**absolute_error**	None	0	0.940193525
18	100	**absolute_error**	None	0	0.945909746
19	50	**poisson**	sqrt	0	0.664182807
20	100	**poisson**	sqrt	0	0.72725406
21	50	**poisson**	log2	0	0.664182807
22	100	**poisson**	log2	0	0.72725406
23	50	**poisson**	None	0	0.786217301
24	100	**poisson**	None	0	0.784064238

Result:

Therefore comparison of all the 4 regression model creation, ***Random Forest Method, R2_Score = 0.946004355*** Value is the best result.