1.) Identify your problem statement :

Here they wanted to predict the insurance charges based on many integer input.
Stage1: Machin Learning
Stage2: Supervised Learning
Stage3: Regression

2.) Tell basic info about the dataset (Total number of rows, columns)

There is #6 column in that one dependand variable i.e: **charges,** others #5 are independent variables.

3.) Mention the pre-processing method if you're doing any (like converting string to number – nominal data)

Male & smoker column have only two option like Yes or No/male or female, so I used to covert this string value to integer.

4.) Develop a good model with r2_score. You can use any machine learning algorithm; you can create many models. Finally, you have to come up with final model.

As far analysis says Random forest Alogrithom gives me good score which is 87%. When I am using follow hyper turning parameter:

Criterion: log2

n_estimators: 1000

Max_features: squared_error

Multi-Linear regression:

R2_Score: 0.7894

Simple Vector Machine:

Sl.No	Hyper Parameter	Linear	Poly	Rbf	Singmoid
1.	Default(C=1.0)	-0.11166	0.06429	-0.08842	-0.0899
2.	C=10	-0.001617	-0.09311	-0.081969	-0.09078
3.	C-0.1	-0.12207	-0.08625	-0.0895762	-0.08974
4.	C=100	0.54328	-0.09976	-0.12480367	-0.118145

5.	C=1000	0.6340369	-0.055505	-0.11749	-1.66590
6.	C=10000	0.744482			
7.	C=1000000	0.786068			

Radom Forest Regression:

Sl.No	criterion	n_estimators	max_features	R2_score
1.	squared_error	10	1.0(default)	0.83303
2.	squared_error	10	Sqrt	0.852000
3.	squared_error	100	Sqrt	0.871027
4.	squared_error	1000	Sqrt	0.87192
5.	squared_error	10	Log2	0.852000
6.	squared_error	1000	Log2	0.8719226
7.	squared_error	10	None	0.83303
8.	absolute_error	10	1.0(default)	0.83506
9.	absolute_error	100	1.0(default)	0.852009
10	friedman_mse	10	1.0(default)	0.833166
11	friedman_mse	100	1.0(default)	0.8540518935
12	friedman_mse	100	Sqrt	0.871054401
13	friedman_mse	10	Sqrt	0.85027
14	friedman_mse	10	Log2	0.85027
15	poisson	10	Log2	0.854495
16	poisson	100	Log2	0.86801
17.	poisson	100	Sqrt	0.8680156

Decision Tree Regression:

Sl.No	Crieterion	Max_features	Spliter	E2_score
1	squared_error	None	Best	0.69158
2	squared_error	None	Random	0.692133
3	squared_error	Sqrt	Random	0.64995
4	squared_error	Log2	Random	0.671321
5	friedman_mse	None	Best	0.7124979
6	friedman_mse	None	Random	0.6936323
7	friedman_mse	sqrt	Random	0.609113
8	friedman_mse	Log2	Random	0.70905668
9	absolute_error	None	Best	0.65877
10	absolute_error	sqrt	Best	0.76348
11	absolute_error	Log2	Best	0.7398803064

12	absolute_error	None	Random	0.72477
13	absolute_error	sqrt	Random	0.759169
14	absolute_error	Log2	Random	0.74747
15	poisson	None	Random	0.741717
16	poisson	sqrt	Random	0.54537
17	Poisson	Log2	Random	0.73113
18	poisson	None	Best	0.65556
19	poisson	sqrt	Best	0.74170
20	Poisson	Log2	Best	0.73263
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Conclusion:

When I checked same dataset with all the model, random forest gives me the maximum results of 87%, this is best algorithm for this problem statement. (highlighted in yellow in above table)