Regression assignment

Problem statement

A client's requirement is, he wants to predict the insurance charges based on

the several parameters. The Client has provided the dataset of the same.

As a data scientist, you must develop a model which will predict the insurance

charges.

1) Identify your problem statement

Client Want's to predict the Insurance charges based on Several parameter

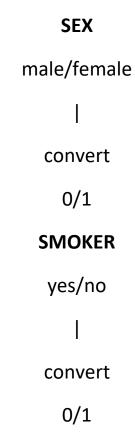## Domain selection

Machine learning

|

Supervised learning

|

Regression

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

1338 rows*6columns

dataset->Insurance charges prediction

Age

|

Sex

(Male/Female)

|

BMI

|

Childrens

|

Smoker

(Yes/No)

|

Charges

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

Converting string to numerical value in the dataset.

SEX

male/female

|

convert

0/1

SMOKER

yes/no

|

convert

0/1

It is nominal data.

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.

Here I use four types of algorithm:

>Multiple linear regression

>Support vector machine

>DecisionTree

>RandomForest

The final model selected is Random Forest, with an R^2 score of 0.873.

5.) All the research values (r2_score of the models) should be documented. (You can make tabulation or screenshot of the results.)

Algorithm	R^2 Score
Multiple Linear Regression	0.789
Support Vector Machine	-0.102
Decision Tree	0.652
Random Forest	0.873

6) Mention your final model, justify why u have chosen the same.

RandomForest

In the Random Forest algorithm, I achieved the highest R^2 score compared to the other models. Specifically, I obtained an accuracy of 0.873.

Why i choose this algorithms....

"Due to its high accuracy, Random Forest is a preferred model. It consists of multiple decision trees that process the dataset in a tree-like structure. Finally, it returns the highest accuracy by aggregating the results of the best-performing trees."