Hope Artificial Intelligence

Assignment-Classification Algorithm

**Problem Statement or Requirement:**

A requirement from the Hospital, Management asked us to create a predictive model which will predict the chronic kidney disease (CKD) based on the several parameters. The Client has provided the dataset of the same.

1. Identify your problem statement
2. Tell basic info about the dataset (Total number of rows, columns)
3. Mention the pre-processing method if you’re doing any (like converting string to number – nominal data)
4. Develop a good model with good evaluation metric. You can use any machine learning algorithm; you can create many models. Finally, you have to come up with final model.
5. All the research values of each algorithm should be documented. (You can make tabulation or screenshot of the results.)
6. Mention your final model, justify why u have chosen the same.
7. Need to predict the chronic kidney disease (CKD) based on given dataset.

Problem Identification stages,

* Stage 1 - Machine Learning
* Stage 2 – Supervised
* Stage 3 – Classification

1. The dataset contains 399 rows and 25 columns
2. The dataset contains string data so converted into number – nominal (one hot encoding)

**Models with score**

|  |  |  |
| --- | --- | --- |
| **Algorithm** | **F score** | **roc\_auc\_score** |
| SVM | 0.9924946382275899 | 1.0 |
| DC | 0.9625928174473452 | 0.9658058345289334 |
| RF | 0.9924946382275899 | 0.9998804399808704 |
| LR | 0.9924946382275899 | 1.0 |
| KNN | 0.9701163285572423 | 0.9873266379722621 |
| NB | 0.7669172932330827 | 0.9966523194643712 |

I have created many models using machine learning algorithm and tested with f score and roc\_auc\_score. Finally, I have selected “SVM” model which gives high score by comparing other models.

So, I saved “SVM” model with in a filename =”[finalized\_model\_random\_forest.sav](http://localhost:8888/edit/Assingnment/finalized_model_random_forest.sav" \t "_blank)”

Also, deployment for end user.