

Classification Assignment

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:

Predict the Chronic Kidney Disease based on the given dataset using Machine Learning -> Supervised Learning -> Classification

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

399 rows and 28 columns.

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

Nominal data: converting rbc, pc, pcc, ba, btn, dm, cad, appet, pe, ane and classification strings to number.

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.)

a.) Logistic-Grid-Classification

```
39]: print("The report:\n",clf_report)
```

The report:

	precision	recall	f1-score	support
0	0.98	1.00	0.99	51
1	1.00	0.99	0.99	82
accuracy			0.99	133
macro avg	0.99	0.99	0.99	133
weighted avg	0.99	0.99	0.99	133

b.) SVM-Grid-Classification

```
]: print("The report:\n",clf_report)
```

The report:

	precision	recall	f1-score	support
0	0.96	1.00	0.98	51
1	1.00	0.98	0.99	82
accuracy			0.98	133
macro avg	0.98	0.99	0.98	133
weighted avg	0.99	0.98	0.99	133

c.) Decision Tree-Grid-Classification

The report:

	precision	recall	f1-score	support
0	0.94	1.00	0.97	51
1	1.00	0.96	0.98	82
accuracy			0.98	133
macro avg	0.97	0.98	0.98	133
weighted avg	0.98	0.98	0.98	133

d.) Random Forest-Grid-Classification

The report:

	precision	recall	f1-score	support
0	0.98	1.00	0.99	51
1	1.00	0.99	0.99	82
accuracy			0.99	133
macro avg	0.99	0.99	0.99	133
weighted avg	0.99	0.99	0.99	133

e.) KNN-Classification

```
print(clf_report)
```

	precision	recall	f1-score	support
0	0.57	0.78	0.66	51
1	0.83	0.63	0.72	82
accuracy			0.69	133
macro avg	0.70	0.71	0.69	133
weighted avg	0.73	0.69	0.70	133

f.) Naïve baye's-Classification

	precision	recall	f1-score	support
0	0.69	0.98	0.81	51
1	0.98	0.73	0.84	82
accuracy			0.83	133
macro avg	0.84	0.86	0.83	133
weighted avg	0.87	0.83	0.83	133

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

Final model is Random Forest Grid Classification because of the Accuracy is 0.99.