## Classification Measures.

\* finding how good or bad our dassification algorithm is

in case of lineal regression we used coefficient of determination

95 predicted correctly

ocuracy

i) accuracy

many we got wrong)

problem if the dataset is very stew ie

( Liberary 615 615

our dansifier starts predicted all o's

still the accuracy will be 951. even though the classifier is pretty bad.

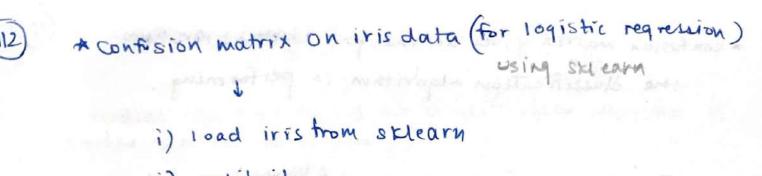
Mence, accuracy might not be a good metric to rudge classification algos.

## ii) confusion matrix

	predo	pred 1	The second secon	
trueo	40	10	day 0 day 1	
true 1	5	45	40 >0 45 >1 10 >1 5 >0	
truco	95	٥		ase (
truel	5	0	VOVE NO	5 ↓ 5 → 1 ) → 0

\* confusion matrix gives an insight (better) on how the dassification algorithm is performing. degree of confusion between (+) terms: i) true tree: predicted the and they usable ii) true - ves: predicted - ve and they were binary majorly. Tii) false tue: predicted the and they were but confusion prediction c they were actually matrix will be used iv) false -ve : similar to above all the time I predicted we but I was wrong \* confision matrix for multi-class problems. predicting blu ceausaless o. to 9 0 0 5 1 -> confision matrix for 0 teus us the classes blu which our algo.

is getting confused.



ii) sput it

iv) fit on logistic Regression

v) predict using legistic regression

v) predict using logistic regression

1) import confusion matrix from

stlearn. matricu.

from skleam. Metrice import confusion matrix

true predicted

confusion matrix (y - train, y - train-pred)

and all were correctly classefied 0 41 4

class 2 had

cessor45 stotal idatapoints and

oplo no Alli were correctly dassified

bisother pritting whereas I were classified as class 3

insight into what the classifier 13 doing.

dassified accuracy -> all datapoints pridicted right / all datapoints

for the above -> 107/112

0.95535

\* extending concept of confusion matrix to come up (113) with nutrics to decide how well certain algorithm is performing. without them, it is majorly intuition based (coumn) i) precision -> non many of the total producted values crows ii) recall and proper of a certain day are how many ratues I how many true values of a class among actual values were predicted correctly. were recalled pred a pred b these values are always for a 40 artain class. -> pre(a) = 40/48 42

true class a true dans b

a

pred a pred b 0

recall La) = 40/50 recall (b): 42/50

we would want precision and recall to be high for any class

precision (a) = 95/100 = 0.95

classifier is skewed

Precision (b) = 0/0 (ND)

recoll (a) = 95/95 = 1

very bad on recau (b) = 0/5 = 0 class b

from sklearn watrics import classification\_report

print(classification\_report(y-test\_7-test\_pred))

f score) > harmonic means

of precision and

to reach to recall, of

a sing & no.

a class

rather than depending

on two

support -) actual true values or a class that we had in the dataset