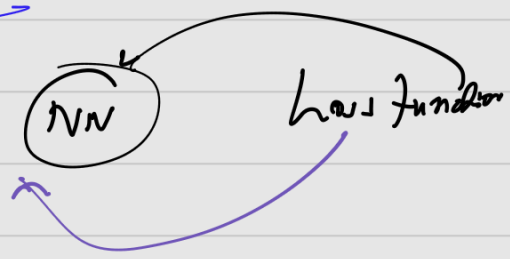
Loss functions:



Regression = MSE $\sum_{i=1}^{n} \frac{1}{n} (\hat{y}_i - y_i)^2$

$\frac{dL}{dw_1}$, $\frac{dL}{dw_2}$

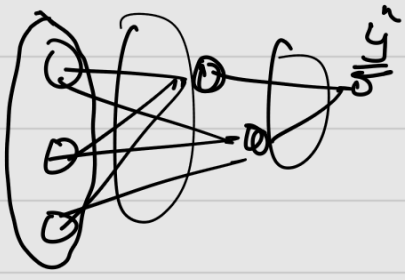
↑ Continuous & diff.

Regression Losses:

L MSE = $\sum_{i=1}^{n} \frac{1}{n} (y_i - \hat{y}_i)^2$

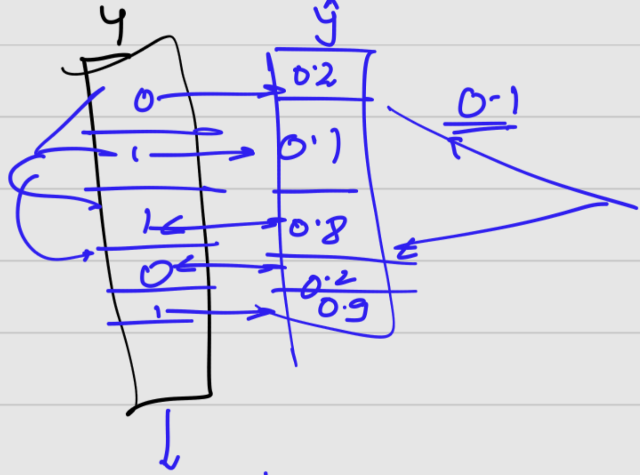
$\hat{y}_i = w$

$\frac{dL}{dw}$ = Chain Rule



Classification Loss

- Binary Class
- Multiclass Problem



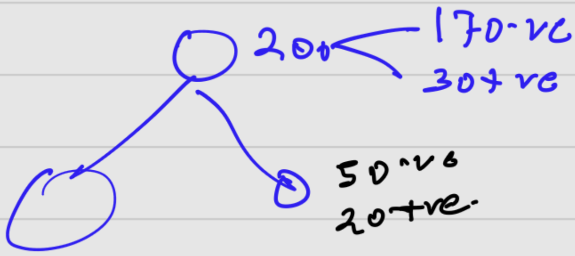
Log Loss

{0:2, 1:5}.

$$\sum_{i=1}^{n} \frac{1}{n} \left(5 \times y \times \log \hat{y} + 2 \times (1-y) \times \log(1-\hat{y}) \right).$$

Class {0:2, 1:5}.

Imbalanced Class

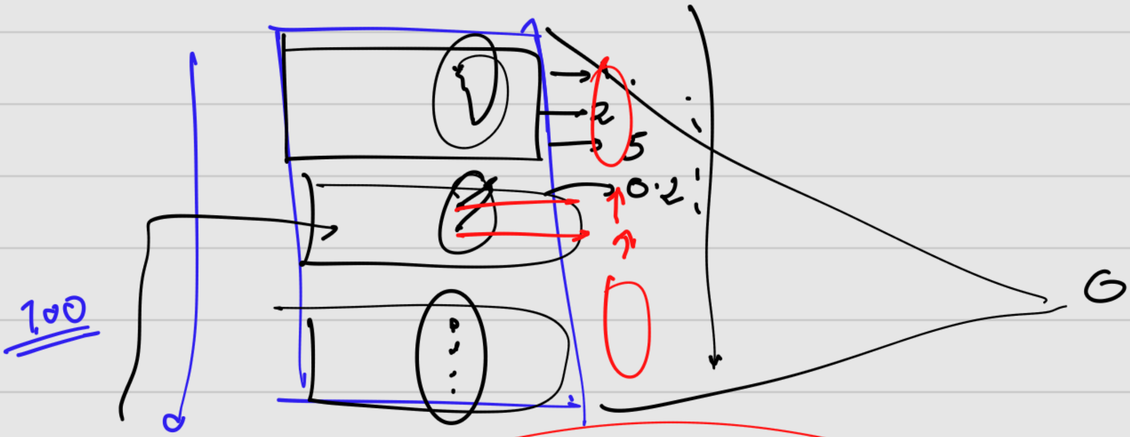


SMOTE

$$p = \frac{10 \times 5}{10 + 120 \times 2}$$

120 -ve

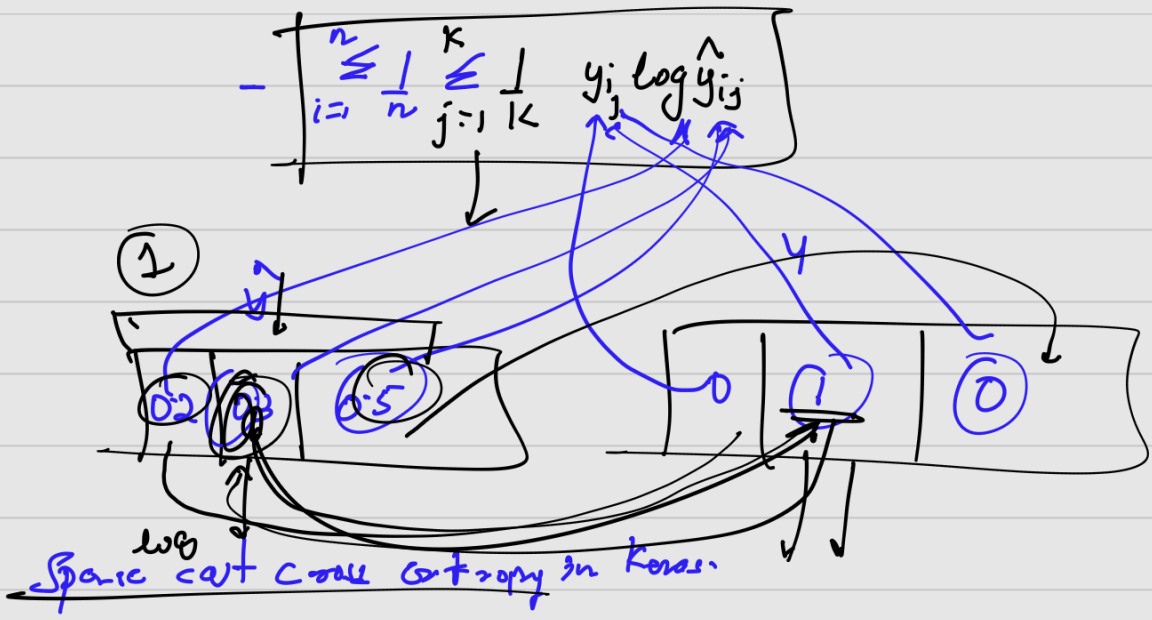
10 +ve



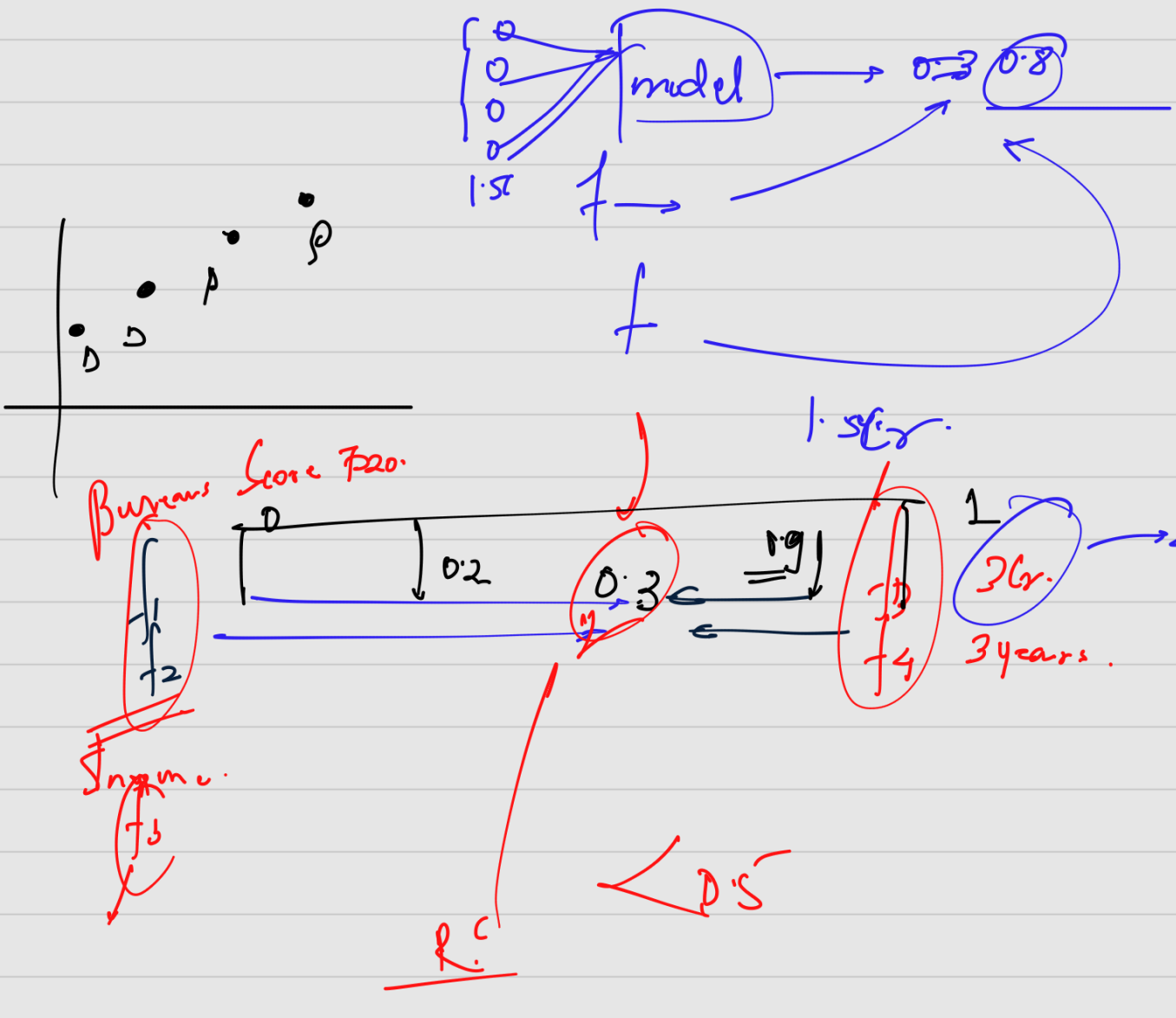
NN → model. → training

0.8 0.5

Break! CCE

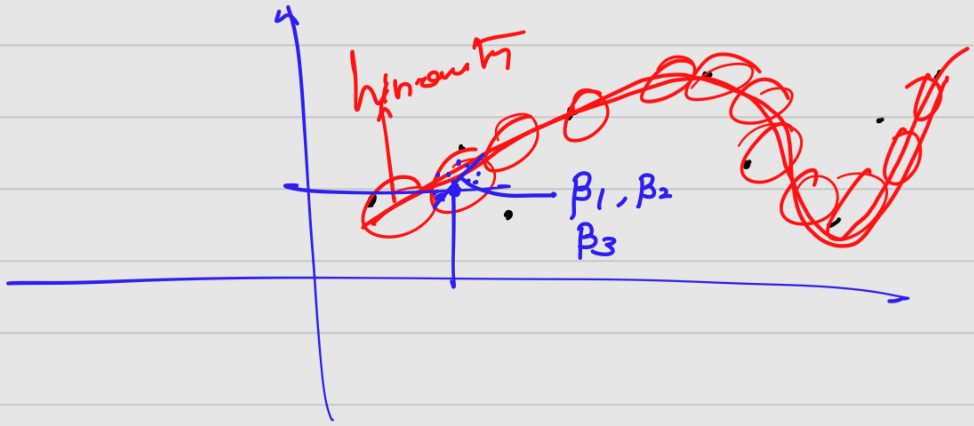


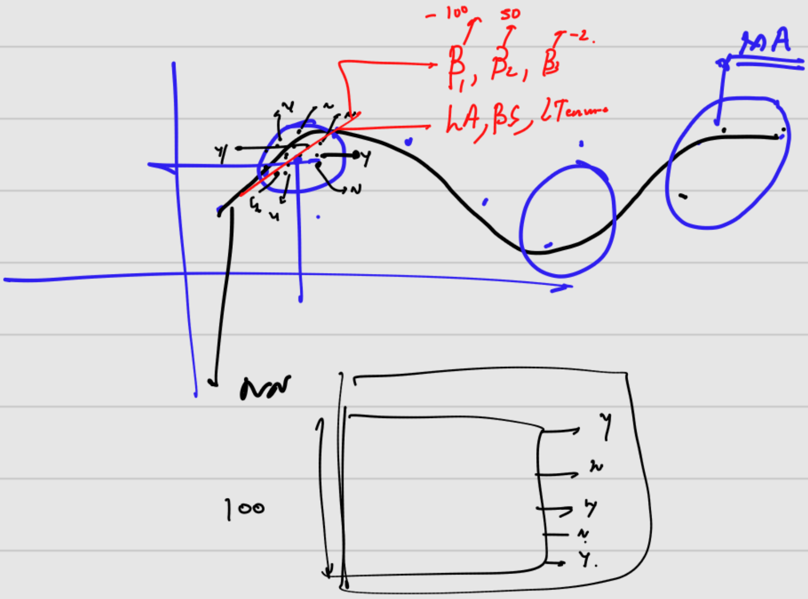
Model explainability (NN)



LIME : Local interpretable model agnostic explainability

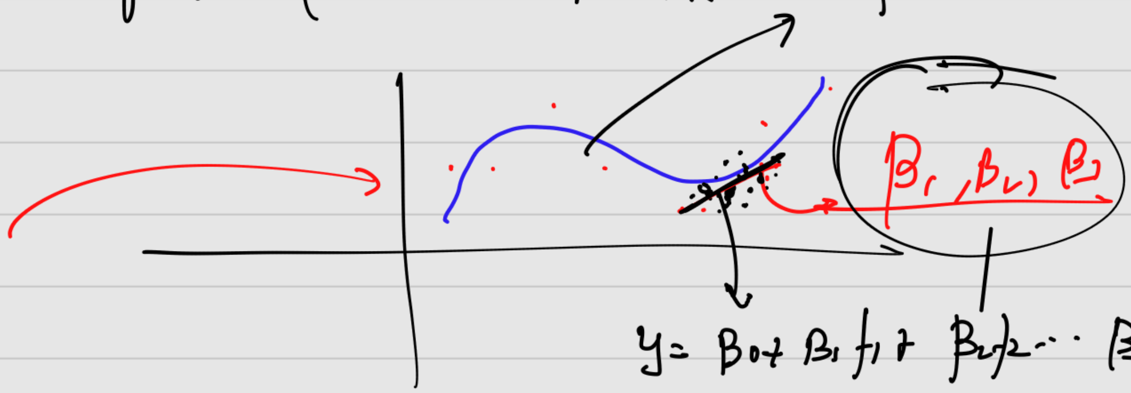
NN, SVM, KNN, DT, ENSEMBLE



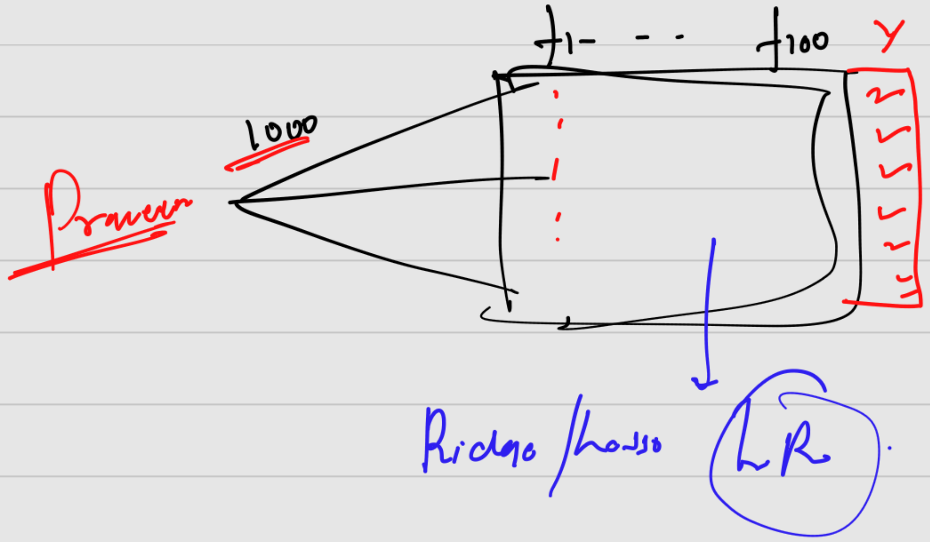


Sample model. predict (xtest) → $\hat{y}$ < A, R

NN



$$y = \beta_0 + \beta_1 f_1 + \beta_2 f_2 \cdots \beta_3 f_3$$



Lime / Shap :