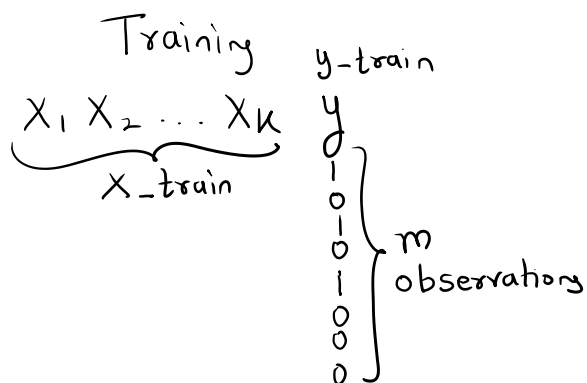
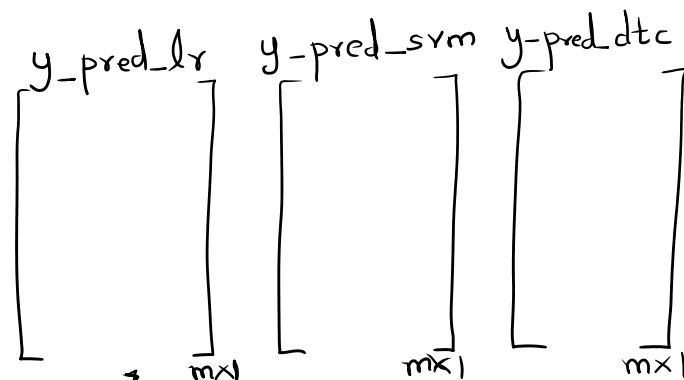
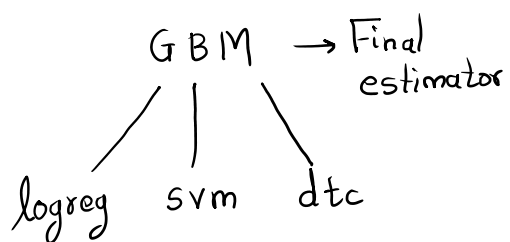


Stacking

Saturday, July 15, 2023 11:03 AM



$\left. \begin{array}{l} \text{logreg.fit}(X_{\text{train}}, y_{\text{train}}) \\ \text{svm.fit}(X_{\text{train}}, y_{\text{train}}) \\ \text{dttc.fit}(X_{\text{train}}, y_{\text{train}}) \end{array} \right\} .\text{predict}(X_{\text{train}})$



$y_{\text{-pred_lr}}$	$y_{\text{-pred_svm}}$	$y_{\text{-pred_dttc}}$	$y_{\text{-train}}$
$X_{\text{trn_pred}}$			
$m \times 3$			$m \times 1$

$\text{gbm.fit}(X_{\text{trn_pred}}, y_{\text{-train}})$

Testing

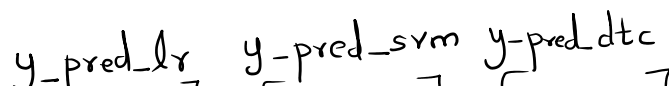
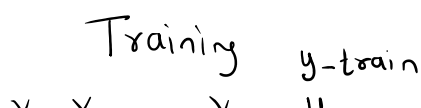
X_1, X_2, \dots, X_k

$\underline{n \text{ obs}}$ $\left. \begin{array}{l} \text{logreg} \\ \text{svm} \\ \text{dttc} \end{array} \right\} .\text{predict}()$

$y_{\text{-pred_lr}}$	$y_{\text{-pred_svm}}$	$y_{\text{-pred_dttc}}$
$X_{\text{tst_pred}}$		
$n \times 3$		

$\text{gbm.pred}(X_{\text{ts_pred}}) \rightarrow \text{Final Predictions}$

passthrough=True



Training

$X_1 X_2 \dots X_k$
 X_{train}

y
 y_{train}

$\left. \begin{matrix} y \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{matrix} \right\} m \text{ observations}$

$y_{\text{pred_lr}}$ $y_{\text{pred_svm}}$ $y_{\text{pred_dtc}}$

$\left[\begin{matrix} \vdots \\ \vdots \\ \vdots \end{matrix} \right]_{m \times 1}$ $\left[\begin{matrix} \vdots \\ \vdots \\ \vdots \end{matrix} \right]_{m \times 1}$ $\left[\begin{matrix} \vdots \\ \vdots \\ \vdots \end{matrix} \right]_{m \times 1}$

$\left. \begin{matrix} \text{logreg.fit}(X_{\text{train}}, y_{\text{train}}) \\ \text{svm.fit}() \\ \text{dtc.fit}() \end{matrix} \right\} \cdot \text{predict}(X_{\text{train}})$

GBM \rightarrow Final estimator

$\left. \begin{matrix} \text{logreg} \\ \text{svm} \\ \text{dtc} \end{matrix} \right\}$

$X_1 X_2 \dots X_k$	$y_{\text{pred_lr}}$	$y_{\text{pred_svm}}$	$y_{\text{pred_dtc}}$	y_{train}
$X_{\text{trn_pred}}$				
$m \times (k+3)$				

$\text{gbm.fit}(X_{\text{trn_pred}}, y_{\text{train}})$

Testing

$X_1 X_2 \dots X_k$

$\underline{\underline{n \text{ obs}}}$

$\left. \begin{matrix} \text{logreg} \\ \text{svm} \\ \text{dtc} \end{matrix} \right\} \cdot \text{predict}()$

$X_1 X_2 \dots X_k$	$y_{\text{pred_lr}}$	$y_{\text{pred_svm}}$	$y_{\text{pred_dtc}}$
$X_{\text{tst_pred}}$			
$n \times (k+3)$			

$\text{gbm.pred}(X_{\text{ts_pred}}) \rightarrow \text{Final Predictions}$