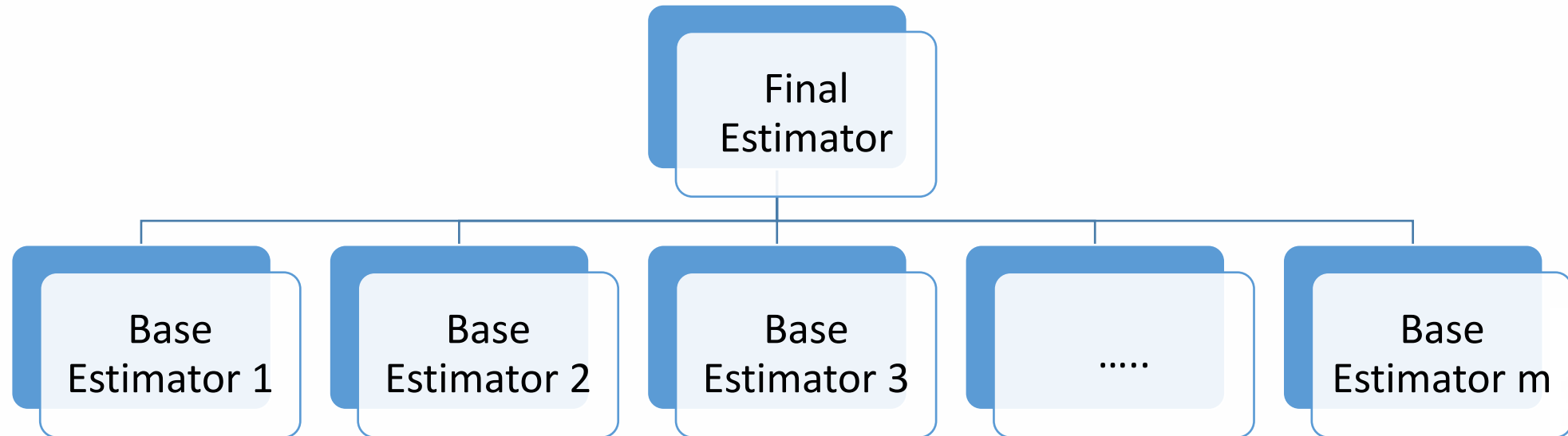


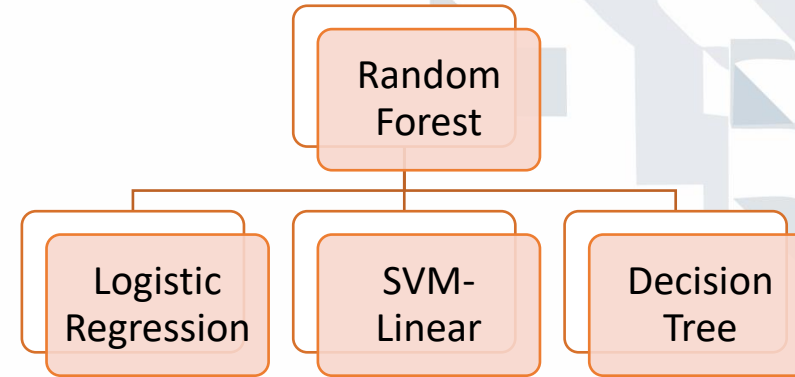
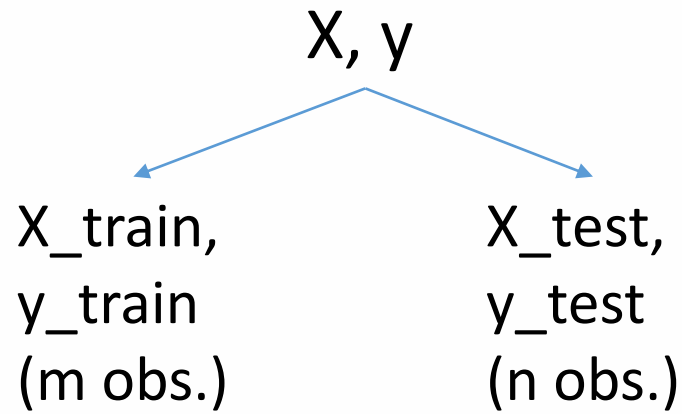
Stack Ensembling

Stack Ensembling

- In stacking, a new model is trained from the predictions from various models
- Predicted columns act as features with response variable as the original one



Stack Ensembling Example : Train Set Operations



LogisticRegression().fit(X_train, y_train) & .predict(X_train) → y_pred_lr
SVC().fit(X_train, y_train) & .predict(X_train) → y_pred_svc
TreeClassifier().fit(X_train, y_train) & .predict(X_train) → y_pred_dtc

m obs

y_pred_lr	y_pred_svc	y_pred_dtc
X_trn_pred		

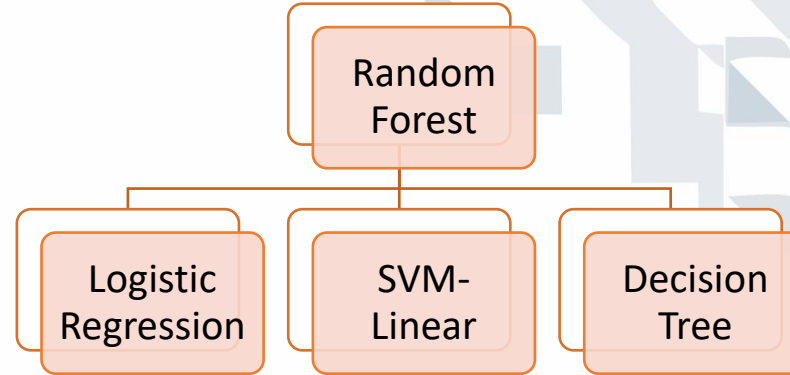
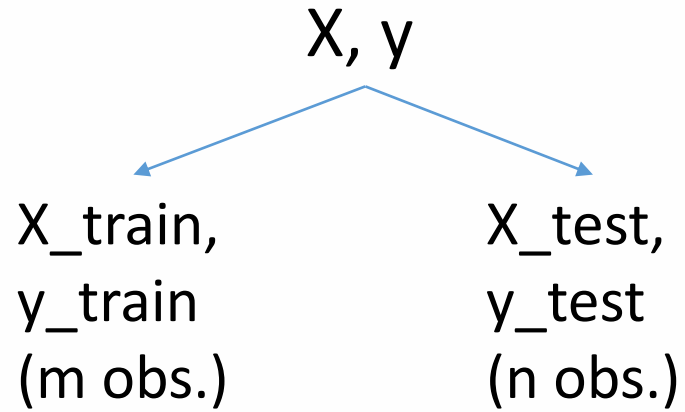
m observations

y_train

m observations

RandomForestClassifier.fit(X_trn_pred, y_train)

Stack Ensembling Example: Test Set Operations



LogisticRegression().predict(X_test) → y_pred_lr
SVC().predict(X_test) → y_pred_svc
DecisionTreeClassifier().predict(X_test) → y_pred_dtc

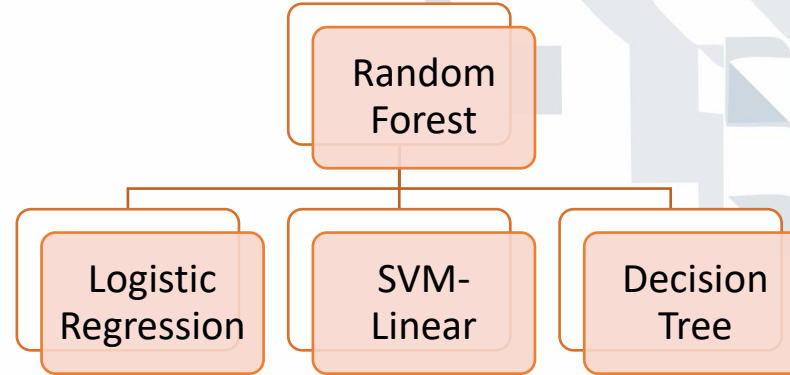
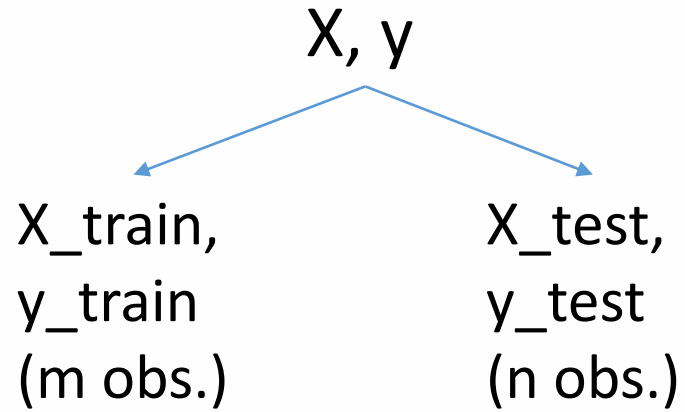
} n observations

y_pred_lr	y_pred_svc	y_pred_dtc
X_tst_pred		

} n observations

RandomForestClassifier.predict
(X_tst_pred)
→ Final Prediction

Stack Ensembling Example : Train Set Operations (Pass Through)



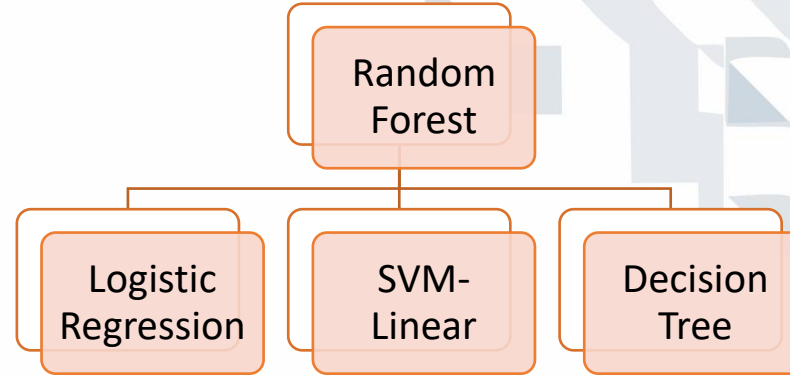
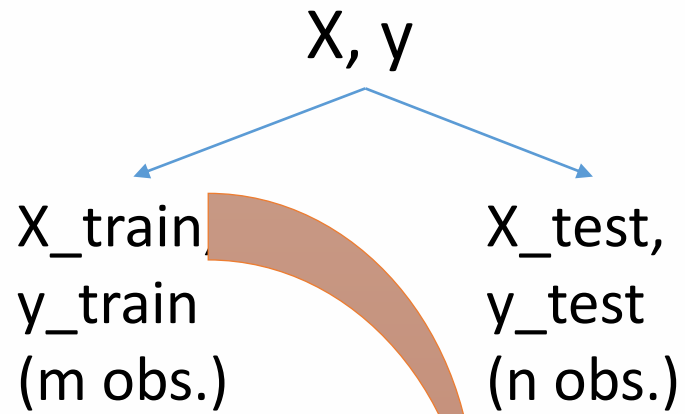
LogisticRegression().fit(X_train, y_train) & .predict(X_train) → y_pred_lr
SVC().fit(X_train, y_train) & .predict(X_train) → y_pred_svc
TreeClassifier().fit(X_train, y_train) & .predict(X_train) → y_pred_dtc

m obs

y_pred_lr	y_pred_svc	y_pred_dtc
	X_trn_pred	

m obs.

Stack Ensembling Example : Train Set Operations (Pass Through)



`LogisticRegression().fit(X_train, y_train) & .predict(X_train) → y_pred_lr`
`SVC().fit(X_train, y_train) & .predict(X_train) → y_pred_svc`
`TreeClassifier().fit(X_train, y_train) & .predict(X_train) → y_pred_dtc`

m obs

X_train	y_pred_lr	y_pred_svc	y_pred_dtc

X_trn_pred

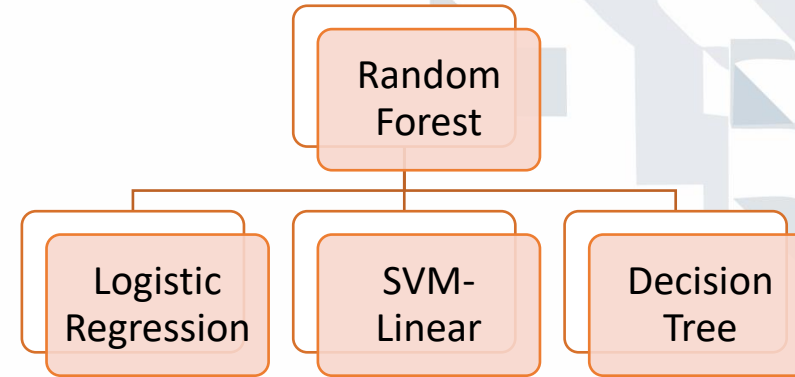
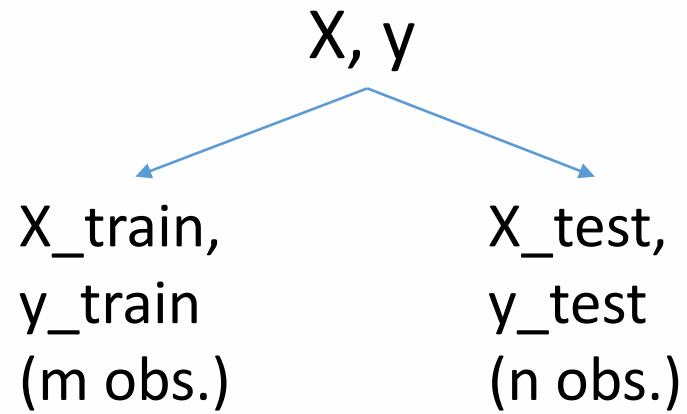
m obs.

y_train

m obs.

`RandomForestClassifier.fit(X_trn_pred, y_train)`

Stack Ensembling Example: Test Set Operations (Pass Through)



LogisticRegression().predict(X_test) → y_pred_lr
SVC().predict(X_test) → y_pred_svc
DecisionTreeClassifier().predict(X_test) → y_pred_dtc

} n observations

y_pred_lr	y_pred_svc	y_pred_dtc
X_tst_pred		

} n observations

Stack Ensembling Example: Test Set Operations (Pass Through)

X, y

$X_{\text{train}},$
 y_{train}
(m obs.)

$X_{\text{test}},$
 y_{test}
(n obs.)

`LogisticRegression().predict(X_test)`

`SVC().predict(X_test)`

`DecisionTreeClassifier().predict(X_test)`

→ $y_{\text{pred_lr}}$

→ $y_{\text{pred_svc}}$

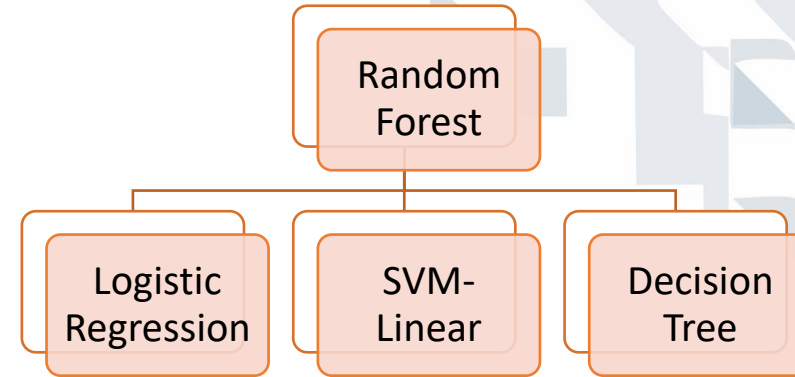
→ $y_{\text{pred_dtc}}$

n observations

X_test								y_pred_lr	y_pred_svc	y_pred_dtc

$X_{\text{tst_pred}}$

n
Obs.



`RandomForestClassifier.predict`

`(X_tst_pred)`

→ Final Prediction