



# Evaluation Metrics for Model Performance

# Classification Metrics

Some of the popular evaluation metrics for classification problems are:

- Confusion Matrix
- Accuracy
- Precision
- Recall
- F1 Score
- AUC-ROC





# Confusion Matrix

# Confusion Matrix

Confusion Matrix is a NxN table that helps evaluate a machine learning model's performance by comparing its predictions to actual values, with rows and columns representing classes.

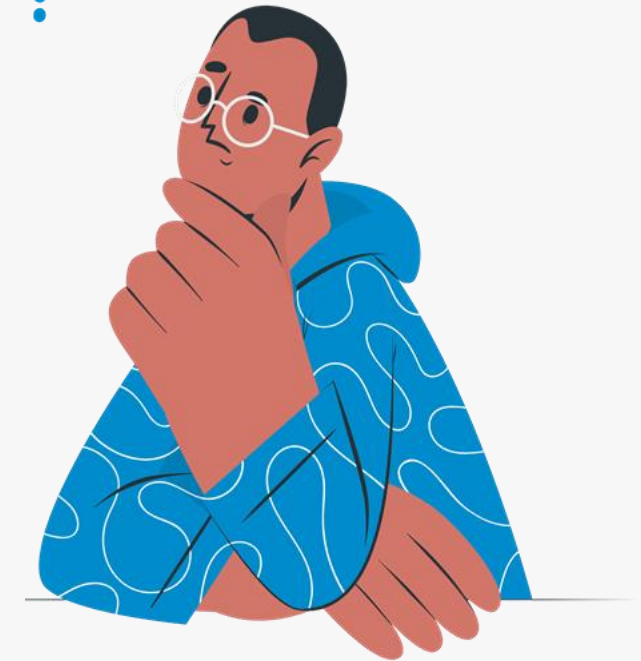
Confusion Matrix		Predicted value	
		NO	YES
Actual value	NO	True Negative - $x$ (TN)	False Positive - $a$ (FP)
	YES	False Negative - $y$ (FN)	True Positive - $b$ (TP)



# Confusion Matrix

A confusion matrix for Synergix to predict whether a product sells more than 1000 units or not.

Confusion Matrix		Predicted value	
		NO (Units_sold<1000)	YES (Units_sold>1000)
Actual value	NO (Units_sold<1000)	True Negative - 1500 (TN)	False Positive - 854 (FP)
	YES (Units_sold>1000)	False Negative - 1036 (FN)	True Positive - 2500 (TP)



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		NO (Units_sold<1000)	YES (Units_sold>1000)	
				Class 0 (Negative Class)
Actual value	NO (Units_sold<1000)	True Negative - 1500 (TN)	False Positive - 854 (FP)	Class 1 (Positive Class)
	YES (Units_sold>1000)	False Negative - 1036 (FN)	True Positive - 2500 (TP)	

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$TP + TN = \text{Total number of correct predictions}$

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**Which should we try to minimize?  
False Positives or False Negatives?**

JUPYTER