

Model Evaluation:

The performance of our machine learning models was evaluated using metrics such as accuracy, precision, recall, and F1-score. We also used a confusion matrix to visualize the model’s predictions. These metrics helped us understand how well each model detected phishing emails while minimizing false positives and false negatives.

Labels: Legit = 0 | Phishing = 1 (0/1)

S.N.	Models	Accuracy	Precision	Recall	F1-Score
1.	Random Forest	0.99	0.99 0.99	0.99 1.0	0.99 0.99
2.	Naive Bayes	0.98	0.95 1.0	1.0 0.96	0.97 0.98
3.	Logistic Regression	0.99	1.00 0.99	0.99 1.0	0.99 1.00
4.	Multilayer perceptron	1.00	1.00 1.00	1.00 1.0	1.00 1.00
5.	SVM	1.00	1.00 1.00	1.00 1.0	1.00 1.00

- **Confusion Matrix:**

A confusion matrix is a table used to evaluate the performance of a classification model. It shows the number of true positives (TP), true negatives (TN), false positives (FP), and false negatives (FN), helping us understand how well the model is predicting each class

TN	FP
FN	TP

Fig: Confusion Matrix Elements

Where,

1. True Negative (TN): Legit emails correctly identified.
2. False Positive (FN): Legit emails wrongly classified as phishing.
3. True Positive (TP): Phishing emails correctly detected.
4. False Negative (FN): Phishing emails classified as legit.

- **Confusion Matrix of Each Model:**

1. Random Forest:

3455	34
20	4124

2. Logistic Regression:

3438	24
17	4154

3. Multilayer Perceptron:

3479	10
3	4141

4. Support Vector Machine:

3479	10
1	4143

5. Naive Bayes:

3484	5
183	3961