Performance Evaluation Results of The Models

Machine Learning Algorithm	Accuracy (%)	Precision (%)	Recall (%)	F1 Score (%)
Support vector machine (SVM)	90.62%	91.50%	90.62%	86.16%
K-nearest neighbor (K-NN)	89.66%	85.86%	89.66%	87.07%
Random Forest	90.62%	91.50%	90.62%	86.17%
Naïve Bayes	86.64%	87.29%	86.64%	86.95%
Artificial Neural Network (ANN)	90.72%	87.82%	90.72%	87.07%

Accuracy - is the proportion of correct predictions made by the model. It's defined as the number of true positives (TP) and true negatives (TN) divided by the total number of samples.

Accuracy = (TP + TN) / (Total Samples)

Precision - focuses on the positive predictions and measures the proportion of actual positives (TP) among all the positive predictions (TP + FP).

Precision = TP / (TP + FP)

Recall - focuses on the actual positive cases and measures the proportion of correctly identified positive cases (TP) divided by all the actual positive cases (TP + FN).

Recall = TP / (TP + FN)

F1-score - is a harmonic mean of precision and recall, combining both metrics into a single score. It provides a balance between how well the model identifies positive cases (recall) and avoids false positives.

F1 = 2 * (Precision * Recall) / (Precision + Recall)

Best Performing Machine Learning Algorithm Per Evaluation Technique	
Accuracy (%)	Artificial Neural Network (ANN) – 90.72%
Precision (%)	Support vector machine (SVM) and Random Forest - 91.50%
Recall (%)	Artificial Neural Network (ANN) – 90.72%
F1 Score (%)	K-nearest neighbor (K-NN) and Artificial Neural Network (ANN) – 87.07%

Algorithms subjected to be developed into ensemble learning are:

- Support vector machine (SVM)
- Random Forest
- K-nearest neighbor (K-NN)
- Artificial Neural Network (ANN)