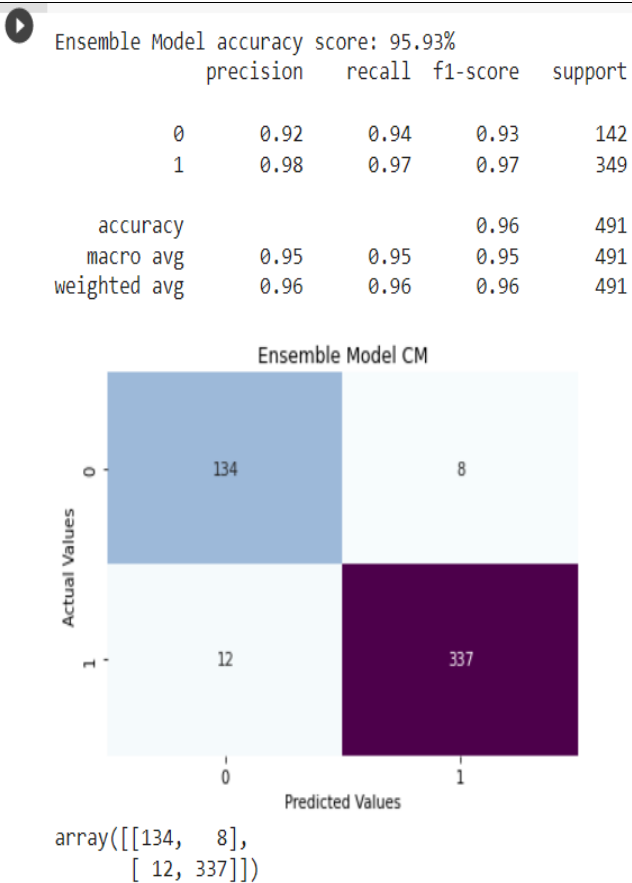


Project Development Phase Model Performance Test

Date	15 November 2022
Team ID	PNT2022TMID52707
Project Name	Project – Statistical Machine Learning Approaches to Liver Disease Prediction
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Metrics	Classification Model: Ensemble Model(Voting Classifier)-KNN(K-Nearest Neighbor,Decision Tree,Random Forest) Confusion Matrix , Accuray Score- 95.93% & Classification Report	 <p>The screenshot displays the performance metrics and confusion matrix for an Ensemble Model. At the top, it shows the accuracy score as 95.93%. Below this, a table lists precision, recall, f1-score, and support for classes 0 and 1. A second table provides accuracy, macro avg, and weighted avg for the same classes. The confusion matrix is visualized as a heatmap with values 134, 8, 12, and 337. At the bottom, the confusion matrix is represented as a NumPy array.</p> <pre> Ensemble Model accuracy score: 95.93% precision recall f1-score support 0 0.92 0.94 0.93 142 1 0.98 0.97 0.97 349 accuracy 0.96 491 macro avg 0.95 491 weighted avg 0.96 491 Ensemble Model CM Actual Values \ Predicted Values 0 134 8 1 12 337 array([[134, 8], [12, 337]]) </pre>

2.	Tune the Model	<p>Hyperparameter Tuning – Grid SearchCV, Finding best estimators for each algorithm in ensemble model</p> <p>Validation Method – Cross Validation</p>	<div><p>Cross Validation Scores</p><table><tr><th>ML Models</th><th>Mean Accuracy</th></tr><tr><td>KNeighborsClassifier</td><td>94.58</td></tr><tr><td>Decision Tree Classifier</td><td>88.55</td></tr><tr><td>Random Forest Classifier</td><td>94.49</td></tr></table></div> <div><p>Fitting 10 folds for each of 40 candidates, totalling 400 fits 94.58428680396644</p><p>Fitting 10 folds for each of 250 candidates, totalling 2500 fits 88.55835240274601</p><p>Fitting 10 folds for each of 54 candidates, totalling 540 fits 94.49885583524026</p></div>	ML Models	Mean Accuracy	KNeighborsClassifier	94.58	Decision Tree Classifier	88.55	Random Forest Classifier	94.49
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