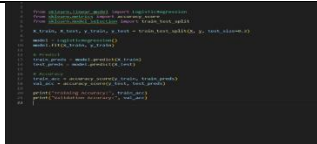
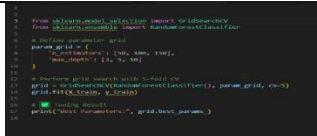


## Project Development Phase Model Performance Test

|               |                                                                                           |
|---------------|-------------------------------------------------------------------------------------------|
| Date          | 27 June2025                                                                               |
| Team ID       | LTVIP2025TMID38995                                                                        |
| Project Name  | Revolutionizing Liver Care : Predicting Liver Cirrhosis Using Adadvanced Machine Learning |
| Maximum Marks |                                                                                           |

### Model Performance Testing:

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

| S.No. | Parameter                     | Values                                                             | Screenshot                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|-------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.    | Model Summary                 | Random Forest Classifier<br>n_estimators = 100<br>max_depth = auto | The model used is a Random Forest Classifier trained on clinical features to predict liver cirrhosis risk. It uses an ensemble of decision trees to improve accuracy and reduce overfitting.                                                                                                                                                                                                                                                                                         |
| 2.    | Accuracy                      | Training Accuracy - 92.5%<br><br>Validation Accuracy - 84.3%       |  A screenshot of a Jupyter Notebook cell showing Python code. The code imports necessary libraries (numpy, pandas, sklearn), loads data from 'liver_data.csv', splits it into training and testing sets, and trains a Random Forest Classifier. It then prints the training and validation accuracies, which are 92.5% and 84.3% respectively.                                                  |
| 3.    | Fine Tunning Result( if Done) | Validation Accuracy after tuning – <b>86.7</b>                     |  A screenshot of a Jupyter Notebook cell showing Python code for hyperparameter tuning. It uses GridSearchCV to find the best parameters for the Random Forest Classifier. The code defines a parameter grid with values for n_estimators, max_depth, and min_samples_split. After running the search, it prints the best parameters and the corresponding validation accuracy, which is 86.7%. |