Evaluation Metrics of the Confusion Matrix for the Following Algorithms

Random Forest -Classification Report

	precision	Recall	F1-score	Support
0	0.93	0.92	0.92	85
1	0.86	0.88	0.87	49
accuracy			0.90	134
Macro Avg	0.89	0.90	0.90	134
Weighted Avg	0.90	0.90	0.90	134

Questions:

1. What is the **overall performance** of the model? **(or)**
   What is the **percentage of correct classification** of both the **Apple & orange** to the total input of the **test dataset?**
   Answer: 0.90% **(Accuracy)**

2. What is the percentage of **correct classification** of **Apple** to the total count of **apples** in the test dataset?

   Answer: Recall percentage of class 0 - 0.92%
   Recall percentage of class 1 - 0.88%

3. What is the percentage of **correct classification of class apple** to the **sum** of **correctly and wrongly classified apples?**
   Answer: Precision percentage of 0 - 0.93%
   Precision percentage of 1 - 0.86%

4. How will you **validate your model performance** if the recall value is low and the precision value is high?
   Answer: F1 measure of **0** - 0.92%
   F1 measure of **1** - 0.87%

5. What is the **Average performance of precision?**
   Answer: 0.89%

6. What is the **Average performance of recall?**
   Answer: 0.90%

7. What is the **Average performance of the F1 measure?**
   Answer: 0.90%

8. What is the **proportion rate or participation %** of each class, **Apple & Orange,** from the total counts in the test dataset?
   Answer: Weighted Avg of precision - 0.90%
   Weighted Avg of recall – 0.90%
   Weighted Avg of F1 measure – 0.90%

Decision Tree – Classification Report

	precision	Recall	F1-score	Support
0	0.90	0.89	0.90	85
1	0.82	0.84	0.83	49
accuracy			0.87	134
Macro Avg	0.86	0.87	0.86	134
Weighted Avg	0.87	0.87	0.87	134

Questions:

1. What is the **overall performance** of the model? **(or)**
   What is the **percentage of correct classification** of both the **Apple & orange** to the total input of the **test dataset?**

   Answer: 0.87% **(Accuracy)**

2. What is the percentage of **correct classification** of **Apple** to the total count of **apples** in the test dataset?
   Answer: Recall percentage of class 0 – 0.89%
   Recall percentage of class 1 – 0.84%

3. What is the percentage of **correct classification of class apple** to the **sum** of **correctly and wrongly classified apples?**
   Answer: Precision percentage of 0 - 0.90%
   Precision percentage of 1 - 0.82%

4. How will you **validate your model performance** if the recall value is low and the precision value is high?
   Answer: F1 measure of **0 -** 0.90%
   F1 measure of **1 -** 0.83%

5. What is the **Average performance of precision?**
   Answer: 0.86%

6. What is the **Average performance of recall?**
   Answer: 0.87%

7. What is the **Average performance of the F1 measure?**
   Answer: 0.86%

8. What is the **proportion rate or participation %** of each class, **Apple & Orange,** from the total counts in the test dataset?

Answer: Weighted Avg of precision - 0.87%

         Weighted Avg of recall – 0.87%

         Weighted Avg of F1-score – 0.87%

<u>Support Vector Machine – Classification Report</u>

	precision	Recall	F1-score	Support
0	0.76	0.96	0.85	85
1	0.88	0.47	0.61	49
accuracy			0.78	134
Macro Avg	0.82	0.72	0.73	134
Weighted Avg	0.81	0.78	0.76	134

Questions:

1. What is the **overall performance** of the model? **(or)**
   What is the **percentage of correct classification** of both the **Apple & orange** to the total input of the **test dataset?**
   Answer: 0.78% **(Accuracy)**

2. What is the percentage of **correct classification** of **Apple** to the total count of **apples** in the test dataset?

   Answer: Recall percentage of class 0 – 0.96%
   Recall percentage of class 1 – 0.47%

3. What is the percentage of **correct classification of class apple** to the **sum** of **correctly and wrongly classified apples?**
   Answer: Precision percentage of 0 – 0.76%
   Precision percentage of 1 – 0.88%

4. How will you **validate your model performance** if the recall value is low and the precision value is high?
   Answer: F1 measure of **0** - 0.85%
   F1 measure of **1** - 0.61%

5. What is the **Average performance of precision?**
   Answer: 0.82%

6. What is the **Average performance of recall?**
   Answer: 0.72%

7. What is the **Average performance of the F1 measure?**
   Answer: 0.73%

8. What is the **proportion rate or participation %** of each class, **Apple & Orange,** from the total counts in the test dataset?
   Answer: Weighted Avg of precision - 0.81%
   Weighted Avg of recall – 0.78%
   Weighted Avg of F1 measure – 0.76%