# DECISION TREE CLASSIFICATION:

# Confusion Matrix

|  |  |  |
| --- | --- | --- |
|  | **Predicted: 0** | **Predicted: 1** |
| **Actual: 0** | 85 | 0 |
| **Actual: 1** | 0 | 49 |

## Classification Report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Precision** | **Recall** | **F1-Score** | **Support** |
| 0 | 1.00 | 1.00 | 1.00 | 85 |
| 1 | 1.00 | 1.00 | 1.00 | 49 |
| **Accuracy** |  |  | 1.00 | 134 |
| **Macro Avg** | 1.00 | 1.00 | 1.00 | 134 |
| **Weighted Avg** | 1.00 | 1.00 | 1.00 | 134 |

## Possible Questions:

### What will be the overall performance of the model for Decision Tree? *Accuracy = 1.00*

### What is the correct classification of Not-Purchased Product? *Recall (Class 0) = 1.00*

### How precise is the model in predicting Purchased Products? *Precision (Class 1) = 1.00*

### What is the F1-score for Purchased Products? *F1-Score (Class 1) = 1.00*

### What is the average performance across all classes? *Macro Avg F1-Score = 1.00*

# RANDOM FOREST CLASSIFICATION:

# Confusion Matrix

|  |  |  |
| --- | --- | --- |
|  | **Predicted: 0** | **Predicted: 1** |
| **Actual: 0** | 82 | 3 |
| **Actual: 1** | 0 | 49 |

## Classification Report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Precision** | **Recall** | **F1-Score** | **Support** |
| 0 | 0.97 | 0.97 | 0.97 | 85 |
| 1 | 0.94 | 1.00 | 0.97 | 49 |
| **Accuracy** |  |  | 0.98 | 134 |
| **Macro Avg** | 0.96 | 0.98 | 0.97 | 134 |
| **Weighted Avg** | 0.98 | 0.98 | 0.98 | 134 |

## Possible Questions:

### What will be the overall performance of the model for Random Forest? *Accuracy = 0.98*

### What is the correct classification of Not-Purchased Product? *Recall (Class 0) = 0.97*

### How precise is the model in predicting Purchased Products? *Precision (Class 1) = 0.94*

### What is the F1-score for Purchased Products? *F1-Score (Class 1) = 0.97*

### What is the average performance across all classes? *Macro Avg F1-Score = 0.97*

# SUPPORT VECTOR MACHINE CLASSIFICATION:

# Confusion Matrix

|  |  |  |
| --- | --- | --- |
|  | **Predicted: 0** | **Predicted: 1** |
| **Actual: 0** | 82 | 3 |
| **Actual: 1** | 26 | 23 |

## Classification Report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **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 |

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |

1. What will be the overall performance of the model for SVM?  
   Accuracy = 0.78
2. What is the correct classification of Not-Purchased Product?  
   Recall (Class 0) = 0.96
3. How precise is the model in predicting Purchased Products?  
   Precision (Class 1) = 0.88
4. What is the F1-score for Purchased Products?  
   F1-Score (Class 1) = 0.61
5. What is the average performance across all classes?  
   Macro Avg F1-Score = 0.73