**Classification:**

**Random Forest:**

1. What is the Accuracy of correct classification? - **0.99**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **0.99**
   2. Not Purchased - **1.00**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **1.00**
   2. Not Purchased – **0.98**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.99**
   2. Not Purchased – **0.99**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.99**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.99**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.99**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.99**
   2. What is the sum of proportion rate of each classification of recall? – **0.99**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.99**
7. **ROC Score - 0.9866092778574844**

A screenshot of a computer screen

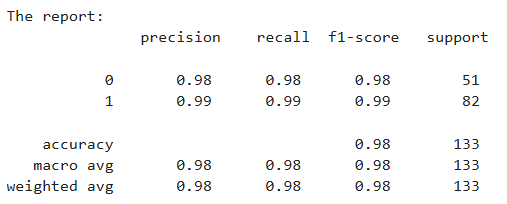
Description automatically generated

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Description automatically generated

**Decision Tree:**

1. What is the Accuracy of correct classification? - **0.98**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **0.99**
   2. Not Purchased - **0.98**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.99**
   2. Not Purchased – **0.98**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.99**
   2. Not Purchased – **0.98**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.98**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.98**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.98**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.98**
   2. What is the sum of proportion rate of each classification of recall? – **0.98**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.98**
7. **ROC Score - 0.** **9840985174557627**



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Description automatically generated

**SVM:**

1. What is the Accuracy of correct classification? - **0.99**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **1.00**
   2. Not Purchased - **0.98**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.99**
   2. Not Purchased – **1.00**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.99**
   2. Not Purchased – **0.99**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.99**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.99**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.99**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.99**
   2. What is the sum of proportion rate of each classification of recall? – **0.99**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.99**
7. **ROC Score – 1.0**

A screenshot of a computer screen

Description automatically generated

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Description automatically generated

**Logistic:**

1. What is the Accuracy of correct classification? - **0.99**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **1.00**
   2. Not Purchased - **0.98**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.99**
   2. Not Purchased – **1.00**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.99**
   2. Not Purchased – **0.99**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.99**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.99**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.99**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.99**
   2. What is the sum of proportion rate of each classification of recall? – **0.99**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.99**
7. **ROC Score – 1.0**

A screenshot of a graph

Description automatically generated

A black and white text

Description automatically generated

**KNN:**

1. What is the Accuracy of correct classification? - **0.94**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **1.00**
   2. Not Purchased - **0.86**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **1.00**
   2. Not Purchased – **0.90**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.95**
   2. Not Purchased – **0.93**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.93**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.95**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.94**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.95**
   2. What is the sum of proportion rate of each classification of recall? – **0.94**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.94**
7. **ROC Score – 1.0**

A screenshot of a computer

Description automatically generated

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Description automatically generated

**Multinominal NB:**

1. What is the Accuracy of correct classification? - **0.82**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **0.98**
   2. Not Purchased - **0.68**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.72**
   2. Not Purchased – **0.98**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.83**
   2. Not Purchased – **0.81**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.83**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.85**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.82**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.87**
   2. What is the sum of proportion rate of each classification of recall? – **0.82**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.82**

**ROC Score – 0.9151123864179818**

A screenshot of a computer

Description automatically generated

A number with black and white numbers

Description automatically generated with medium confidence

**Bernoulli NB:**

1. What is the Accuracy of correct classification? - **0.94**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **1.00**
   2. Not Purchased - **0.86**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.90**
   2. Not Purchased – **1.00**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.95**
   2. Not Purchased – **0.93**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.93**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.95**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.94**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.95**
   2. What is the sum of proportion rate of each classification of recall? – **0.94**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.94**

**ROC Score – 0.** **9966523194643712**

A screenshot of a computer screen

Description automatically generated

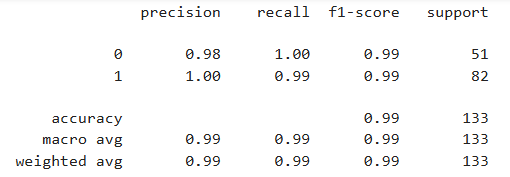
A number with black lines

Description automatically generated with medium confidence

**Categorical NB:**

1. What is the Accuracy of correct classification? - **0.99**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **1.00**
   2. Not Purchased - **0.98**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **1.00**
   2. Not Purchased – **0.99**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.99**
   2. Not Purchased – **0.99**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.99**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.99**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.99**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.99**
   2. What is the sum of proportion rate of each classification of recall? – **0.99**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.99**

**ROC Score – 1.0**





**Complement NB:**

1. What is the Accuracy of correct classification? - **0.82**
2. What is the correct classification of purchased and not purchased (precision)?
   1. Purchased – **0.98**
   2. Not Purchased - **0.68**
3. How many correct predictions out of all predictions of purchased and not purchased (recall)?
   1. Purchased – **0.72**
   2. Not Purchased – **0.98**
4. What is the overall performance of Purchased and not purchased (f1 score)
   1. Purchased – **0.83**
   2. Not Purchased – **0.81**
5. Macro-Average
   1. What is the overall performance of the precision of correctly and wrongly classified? – **0.83**
   2. What is the overall performance of the recall of correctly and wrongly classified? - **0.85**
   3. What is the overall performance of the f1-measure correctly and wrongly classified? – **0.82**
6. Weighted Average:
   1. What is the sum of proportion rate of each classification of precision? - **0.87**
   2. What is the sum of proportion rate of each classification of recall? – **0.82**
   3. What is the sum of proportion rate of each classification of f1-measure? - **0.82**

**ROC Score – 0.** **9151123864179818**

A screenshot of a computer screen

Description automatically generated

A number with black lines

Description automatically generated with medium confidence

Based on the Score **SVM** and **Logistics** and **Categorical NB** are provides good model