**CLASSIFICATION REPORT**

**1. Random Forest:**

**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**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 90%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 88%

3. what is the correct classification of not purchased?(Recall) 92%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 86%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 93%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 87%

7. what is the overall performance of not purchased?(F1) 92%

**MACRO AVERAGE:**

8. what is the average performance of precision? 89%

9. what is the average performance of recall? 90%

10. what is the average performance of F1-score? 90%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 90%

12. what is the sum of product of proportion rate of each class?(Recall) 90%

13. what is the sum of product of proportion rate of each class?(F1) 90%

**2. Decision Tree:**

**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**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 87%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 84%

3. what is the correct classification of not purchased?(Recall) 89%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 82%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 90%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 83%

7. what is the overall performance of not purchased?(F1) 90%

**MACRO AVERAGE:**

8. what is the average performance of precision? 86%

9. what is the average performance of recall? 87%

10. what is the average performance of F1-score? 86%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 87%

12. what is the sum of product of proportion rate of each class?(Recall) 87%

13. what is the sum of product of proportion rate of each class?(F1) 87%

**3. SVM-Classification:**

**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**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 78%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 47%

3. what is the correct classification of not purchased?(Recall) 96%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 88%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 76%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 61%

7. what is the overall performance of not purchased?(F1) 85%

**MACRO AVERAGE:**

8. what is the average performance of precision? 82%

9. what is the average performance of recall? 72%

10. what is the average performance of F1-score? 73%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 81%

12. what is the sum of product of proportion rate of each class?(Recall) 78%

13. what is the sum of product of proportion rate of each class?(F1) 76%

**4. Logistic Regression:**

**precision recall f1-score support**

**0 0.63 1.00 0.78 85**

**1 0.00 0.00 0.00 49**

**accuracy 0.63 134**

**macro avg 0.32 0.50 0.39 134**

**weighted avg 0.40 0.63 0.49 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 63%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 0

3. what is the correct classification of not purchased?(Recall) 1%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 0

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 63%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 0

7. what is the overall performance of not purchased?(F1) 78%

**MACRO AVERAGE:**

8. what is the average performance of precision? 32%

9. what is the average performance of recall? 50%

10. what is the average performance of F1-score? 39%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 40%

12. what is the sum of product of proportion rate of each class?(Recall) 63%

13. what is the sum of product of proportion rate of each class?(F1) 49%

**5. K-Nearest Neighbor:**

**precision recall f1-score support**

**0 0.83 0.93 0.88 85**

**1 0.85 0.67 0.75 49**

**accuracy 0.84 134**

**macro avg 0.84 0.80 0.81 134**

**weighted avg 0.84 0.84 0.83 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 84%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 67%

3. what is the correct classification of not purchased?(Recall) 93%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 85%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 83%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 75%

7. what is the overall performance of not purchased?(F1) 88%

**MACRO AVERAGE:**

8. what is the average performance of precision? 84%

9. what is the average performance of recall? 80%

10. what is the average performance of F1-score? 81%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 84%

12. what is the sum of product of proportion rate of each class?(Recall) 84%

13. what is the sum of product of proportion rate of each class?(F1) 83%

**6. Multinomial NB:**

**precision recall f1-score support**

**0 0.63 1.00 0.78 85**

**1 0.00 0.00 0.00 49**

**accuracy 0.63 134**

**macro avg 0.32 0.50 0.39 134**

**weighted avg 0.40 0.63 0.49 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 63%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 0

3. what is the correct classification of not purchased?(Recall) 1%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 0

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 63%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 0

7. what is the overall performance of not purchased?(F1) 78%

**MACRO AVERAGE:**

8. what is the average performance of precision? 32%

9. what is the average performance of recall? 50%

10. what is the average performance of F1-score? 39%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 40%

12. what is the sum of product of proportion rate of each class?(Recall) 63%

13. what is the sum of product of proportion rate of each class?(F1) 49%

**7. Categorical NB:**

**precision recall f1-score support**

**0 0.82 0.96 0.89 85**

**1 0.91 0.63 0.75 49**

**accuracy 0.84 134**

**macro avg 0.87 0.80 0.82 134**

**weighted avg 0.85 0.84 0.84 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 84%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 63%

3. what is the correct classification of not purchased?(Recall) 96%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 91%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 82%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 75%

7. what is the overall performance of not purchased?(F1) 89%

**MACRO AVERAGE:**

8. what is the average performance of precision? 87%

9. what is the average performance of recall? 80%

10. what is the average performance of F1-score? 82%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 85%

12. what is the sum of product of proportion rate of each class?(Recall) 84%

13. what is the sum of product of proportion rate of each class?(F1) 84%

**8. Complement NB:**

**precision recall f1-score support**

**0 0.67 0.47 0.55 85**

**1 0.39 0.59 0.47 49**

**accuracy 0.51 134**

**macro avg 0.53 0.53 0.51 134**

**weighted avg 0.57 0.51 0.52 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 51%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 59%

3. what is the correct classification of not purchased?(Recall) 47%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 39%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 67%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 47%

7. what is the overall performance of not purchased?(F1) 55%

**MACRO AVERAGE:**

8. what is the average performance of precision? 53%

9. what is the average performance of recall? 53%

10. what is the average performance of F1-score? 51%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 57%

12. what is the sum of product of proportion rate of each class?(Recall) 51%

13. what is the sum of product of proportion rate of each class?(F1) 52%

**9. Gaussian NB:**

**precision recall f1-score support**

**0 0.91 0.94 0.92 85**

**1 0.89 0.84 0.86 49**

**accuracy 0.90 134**

**macro avg 0.90 0.89 0.89 134**

**weighted avg 0.90 0.90 0.90 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 90%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 84%

3. what is the correct classification of not purchased?(Recall) 94%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 89%

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 91%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 86%

7. what is the overall performance of not purchased?(F1) 92%

**MACRO AVERAGE:**

8. what is the average performance of precision? 90%

9. what is the average performance of recall? 89%

10. what is the average performance of F1-score? 89%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 90%

12. what is the sum of product of proportion rate of each class?(Recall) 90%

13. what is the sum of product of proportion rate of each class?(F1) 90%

**10. Bernaulli’s NB:**

**precision recall f1-score support**

**0 0.63 1.00 0.78 85**

**1 0.00 0.00 0.00 49**

**accuracy 0.63 134**

**macro avg 0.32 0.50 0.39 134**

**weighted avg 0.40 0.63 0.49 134**

**ACCURACY:**

1. what is the overall model performance?(Accuracy) 63%

**RECALL:**

2. what is the correct classification of purchased?(Recall) 0

3. what is the correct classification of not purchased?(Recall) 1%

**PRECISION:**

4. what is the percentage of correctly and wrongly classified as purchased?(Precision) 0

5. what is the percentage of correctly and wrongly classified as not purchased?(Precision) 63%

**F1-Measure:**

6. what is the overall performance of purchased?(F1) 0

7. what is the overall performance of not purchased?(F1) 78%

**MACRO AVERAGE:**

8. what is the average performance of precision? 32%

9. what is the average performance of recall? 50%

10. what is the average performance of F1-score? 39%

**WEIGHTED AVERAGE:**

11. what is the sum of product of proportion rate of each class? (Precision) 40%

12. what is the sum of product of proportion rate of each class?(Recall) 63%

13. what is the sum of product of proportion rate of each class?(F1) 49%