Random Forest Classification

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy = 0.91 (91%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.90 (90%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.92 (92%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.86 (86%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.94 (94%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score = 0.88 (88%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score = 0.93 (93%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average = 0.90 (90%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average = 0.91 (91%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average = 0.90 (90%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average = 0.91 (91%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average = 0.91 (91%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average = 0.91 (91%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134

Decision Tree Classification

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy = 0.89 (89%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.84 (84%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.92 (92%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.85 (85%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.91 (91%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score = 0.85 (85%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score = 0.91 (91%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average = 0.88 (88%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average = 0.88 (88%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average = 0.88 (88%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average = 0.89 (89%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average = 0.89 (89%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average = 0.89 (89%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134

Support Vector Classification

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy = 0.78 (78%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.47 (47%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.96 (96%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.88 (88%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.76 (76%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score = 0.61 (61%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score = 0.85 (85%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average = 0.82 (82%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average = 0.72 (72%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average = 0.73 (73%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average = 0.81 (81%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average = 0.78 (78%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average = 0.76 (76%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134

Logistic Regression - Classification

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy = 0.63 (63%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0 (0%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 1.00 (100%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0 (0%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.63 (63%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score = 0 (0%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score = 0.78 (78%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average = 0.32 (32%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average = 0.50 (50%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average = 0.39 (39%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average = 0.40 (40%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average = 0.63 (63%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average = 0.49 (49%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134

K-NEAREST NEIGHBOR

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy = 0.79 (79%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.51 (51%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class = 0.95 (95%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.86 (86%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class = 0.77 (77%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score = 0.64 (64%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score = 0.85 (85%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average = 0.82 (82%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average = 0.73 (73%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average = 0.75 (75%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average = 0.80 (80%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average = 0.79 (79%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average = 0.78 (78%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134

Naive Bayes

Dataset File name: **Social_Network_Ads.csv**

Q1. What is the percentage of **correct classification of both Purchased & Not Purchased** to the total input of the test set?

Ans: Accuracy

MultinomialNB – 0.63 (63%)

BernoulliNB – 0.63 (63%)

CategoricalNB - 0.84 (84%)

ComplementNB – 0.51 (51%)

Q2. What is the percentage of **correct classification of Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class

MultinomialNB – 0 (0%)

BernoulliNB – 0 (0%)

CategoricalNB - 0.63 (63%)

ComplementNB – 0.59 (59%)

Q3. What is the percentage of **correct classification of Not Purchased** to the input of the test set?

Ans: Recall - Only correctly classified class

MultinomialNB – 1.00 (100%)

BernoulliNB – 1.00 (100%)

CategoricalNB - 0.96 (96%)

ComplementNB – 0.47 (47%)

Q4. What is the percentage of correct classification of **Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class

MultinomialNB – 0 (0%)

BernoulliNB – 0 (0%)

CategoricalNB - 0.91 (91%)

ComplementNB – 0.39 (39%)

Q5. What is the percentage of correct classification of **Not Purchased** to sum of **correctly classified and wrongly classified** in the test set?

Ans: Precision – Correctly and wrongly classified class

MultinomialNB – 0.63 (63%)

BernoulliNB – 0.63 (63%)

CategoricalNB - 0.82 (82%)

ComplementNB – 0.67 (67%)

Q6. What is the **overall performance of Purchased?**

Ans: F1 Score

MultinomialNB – 0 (0%)

BernoulliNB – 0 (0%)

CategoricalNB - 0.75 (75%)

ComplementNB – 0.47 (47%)

Q7. What is the **overall performance of Not Purchased?**

Ans: F1 Score

MultinomialNB – 0.78 (78%)

BernoulliNB – 0.78 (78%)

CategoricalNB - 0.89 (89%)

ComplementNB – 0.55 (55%)

Q8. What is the **average performance of Precision** (Correctly and wrongly classified)?

Ans: Macro Average

MultinomialNB – 0.32 (32%)

BernoulliNB – 0.32 (32%)

CategoricalNB - 0.87 (87%)

ComplementNB – 0.53 (53%)

Q9. What is the **average performance of Recall** (Correctly classified)?

Ans: Macro Average

MultinomialNB – 0.50 (50%)

BernoulliNB – 0.50 (50%)

CategoricalNB - 0.80 (80%)

ComplementNB – 0.53 (53%)

Q10. What is the **average performance of F1 - Measure** (Correctly classified)?

Ans: Macro Average

MultinomialNB – 0.39 (39%)

BernoulliNB – 0.39 (39%)

CategoricalNB - 0.82 (82%)

ComplementNB – 0.51 (51%)

Q11. What is the **sum of product of proportion rate (weight)** of precision?

Ans: Weighted Average

MultinomialNB – 0.40 (40%)

BernoulliNB – 0.40 (40%)

CategoricalNB - 0.85 (85%)

ComplementNB – 0.57 (57%)

Q12. What is the **sum of product of proportion rate (weight)** of recall?

Ans: Weighted Average

MultinomialNB – 0.63 (63%)

BernoulliNB – 0.63 (63%)

CategoricalNB - 0.84 (84%)

ComplementNB – 0.51 (51%)

Q13. What is the **sum of product of proportion rate (weight)** of F1 - Measure?

Ans: Weighted Average

MultinomialNB – 0.49 (49%)

BernoulliNB – 0.49 (49%)

CategoricalNB - 0.84 (84%)

ComplementNB – 0.52 (52%)

Q14. What is the **total count of purchased** in the test set?

Ans: Support = 49

Q15. What is the **total count of Not purchased** in the test set?

Ans: Support = 85

Q16. What is the **total count of Purchased & Not purchased** in the test set?

Ans: Support = 134