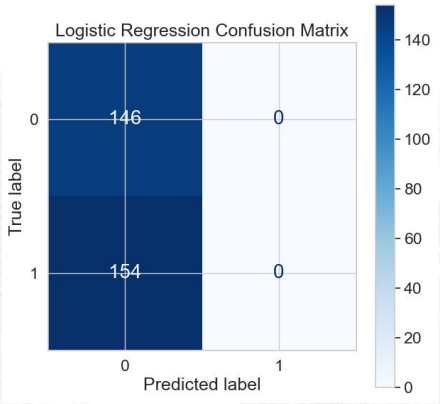
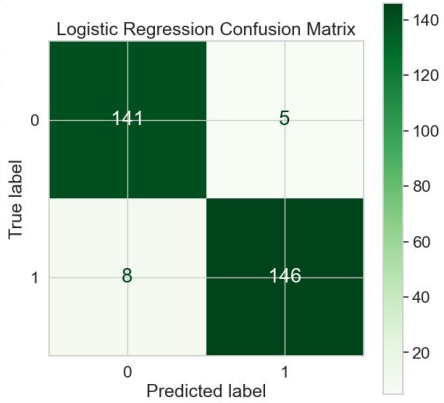
Logistic Regression

1st Experiment Result




```
'Accuracy': 0.49,
'Precision': 0.00,
'Recall': 0.00,
'F1-Score': 0.00
```

2nd Experiment Result



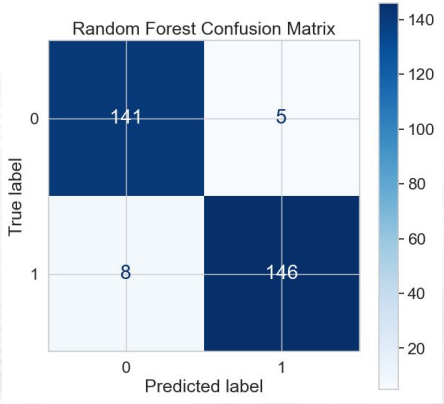

```
'Accuracy': 0.96,
'Precision': 0.97,
'Recall': 0.95,
'F1-Score': 0.96
```

- Standardization has significantly improved the model's accuracy, precision, recall, and F1-score
- Prior to standardization, the model has low accuracy (49%) and it significantly improves to 95%
- This experiment shows the importance of data preprocessing, especially standardization to improve the performance of machine learning models.

For further details, please refer to this Jupyter Notebook

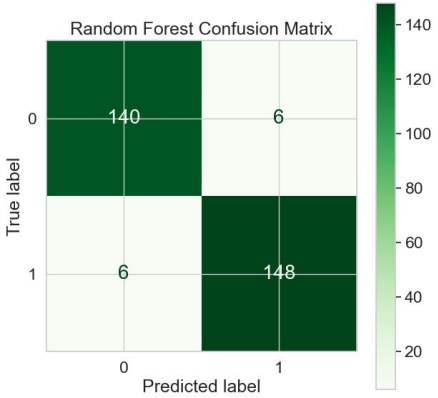
Random Forest

1st Experiment Result




```
'Accuracy': 0.96
'Precision': 0.97
'Recall': 0.95
'F1-Score': 0.96
```

2nd Experiment Result (Standardized)

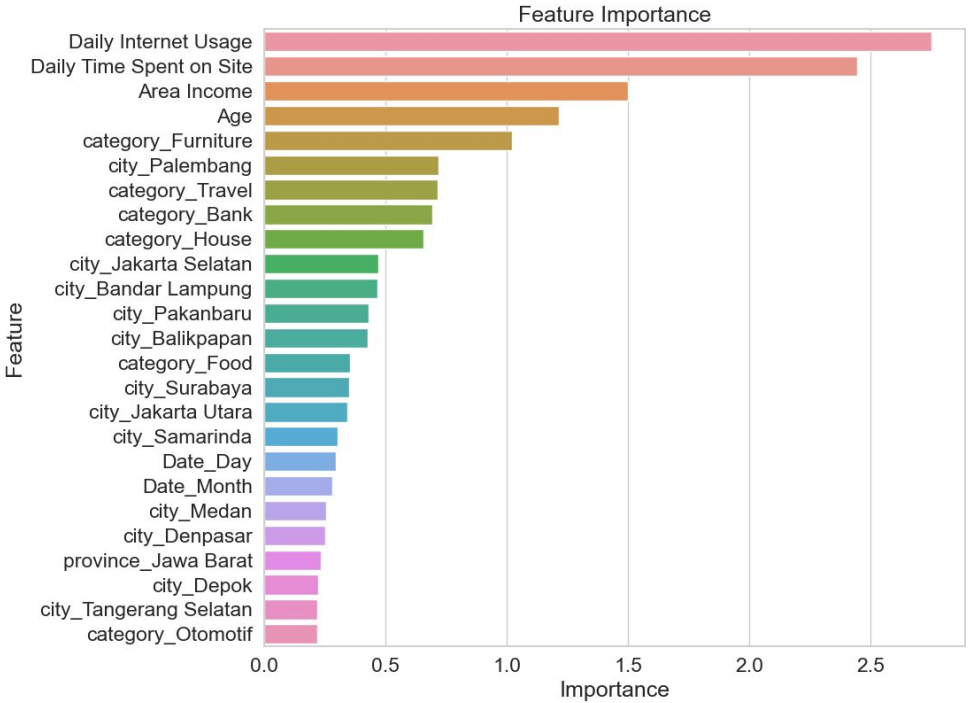



```
'Accuracy': 0.96
'Precision': 0.96
'Recall': 0.96
'F1-Score': 0.96
```

- Generally, all the scores are similar before and after standardization. Both shows high accuracy, precision and recall and F1 score.
- In contrast of Logistic Regression, this model shows a good performance before and after standardization, showing its robustness to standardization.

For further details, please refer to this Jupyter Notebook

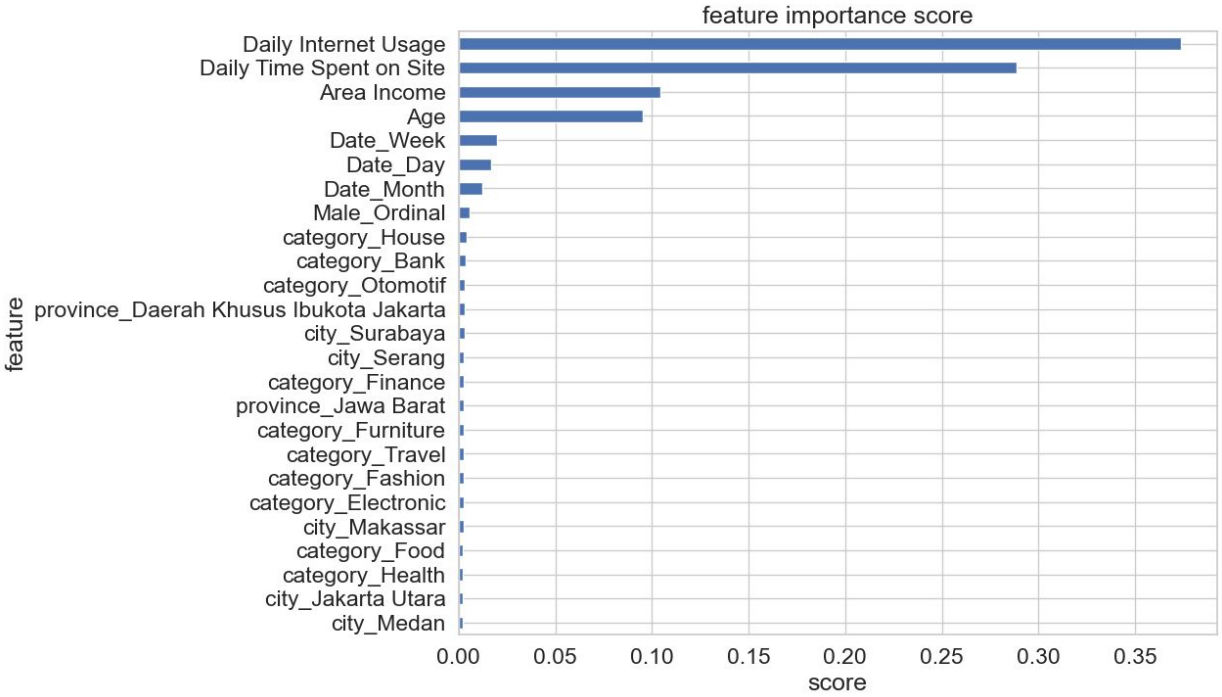
Feature Importance (Logistic Regression)



- The figure shows the hierarchy of the most important features to click ad classification
- Daily internet usage and daily time spent on site are the most important features followed by area income and age.
- Furniture category is the most important category that affects click ad classification
- Meanwhile, Palembing is the city that most affect click ad classification

For further details, please refer to this Jupyter Notebook

Feature Importance (Random Forest)



- The figure shows the hierarchy of the most important features to click ad classification
- Four top features are similar to the previous figure
- Week of the year and day are the next most important features that affect click ad classification

For further details, please refer to this Jupyter Notebook