***Customer Brand Preferences Report(C3-T2)***

1. **Overview of the Report**

The goal is to predict the brand preference of customers based on the available sales data. There are four questions that are asked to analyze to fulfill the goal for the report.

* For each method, did you experiment with adjusting the input values until you did not see an improvement in the error metrics?
* Did you include a brief explanation of your rationale for selecting the training model you did?
* Did you provide a simple chart that displays which brand Blackwell customers prefer?
* Did you include the logs of the results of each classifier run?

1. **Data**

* There are a total of 15,000 data (9,898- complete suvey and 5000- Incomplete surveys) data in the data frame with 7 variables as it is shown in the below result.

Text

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

1. **Analysis**

The data were analyzed based up on what have been asked.

* For each method, did you experiment with adjusting the input values until you did not see an improvement in the error metrics?
  + Yes, I had to change the data type for brand from integer to Factor.

Logo

Description automatically generated with medium confidence

Text

Description automatically generated

* + Result after changing the data type.

Text

Description automatically generated

* Did you include a brief explanation of your rationale for selecting the training model you did?
  + The prediction results for both models (Random Forest and GBM) are almost the same as per resample\_Results. The P- value is above 0.05.

|  |  |
| --- | --- |
| Graphical user interface, text, application  Description automatically generated | Chart, box and whisker chart  Description automatically generated |

* Did you provide a simple chart that displays which brand Blackwell customers prefer?
  + The below charts show the Customers Brand preference (0- Acer, 1-Sony). As we can see in all of the charts Customers prefer to have Sony over Acer.

|  |  |  |
| --- | --- | --- |
| Brand Preference | Code | Result |
| The whole  data set | Text  Description automatically generated |  |
| Random Forest Model | A picture containing logo  Description automatically generated | A picture containing diagram  Description automatically generated  Square  Description automatically generated with medium confidence |
| GBM Model | A picture containing text  Description automatically generated | A picture containing text  Description automatically generated  Square  Description automatically generated with low confidence |

* Did you include the logs of the results of each classifier run?
  + The result for logs for each classifier is as shown below. The results are quite the same.

|  |  |
| --- | --- |
| Text  Description automatically generated | Text  Description automatically generated with medium confidence |

1. **Conclusion and Recommendation**

As per the result from the prediction analysis it can be concluded that Customers prefer to have Sony more than they want to have Acer. So I recommend that Blackwell Electronics will be more profitable if more attention is given on increasing the number of production for Sony Brand.