ONLINE SHOPPER'S PURCHASING INTENTION

BY

JYOTSNA ELTEPU

Objective

- In 2021, nearly $1 in every $5 spent on retail purchases came from digital orders.
- The goal of the project is to predict the purchasing intention of an online shopper so that the business can use targeted marketing to increase the profits.

Data Source

- The data used is Online Shoppers Purchasing Intention data set provided on the UC Irvine's Machine Learning Repository.

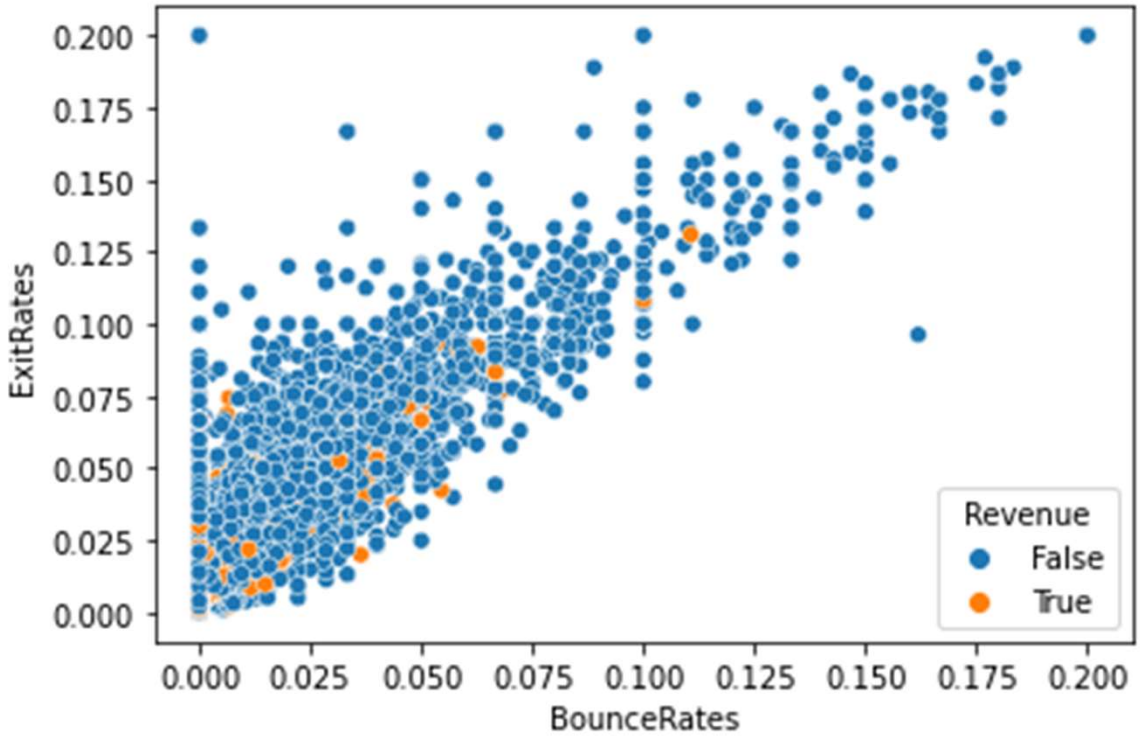
Data Wrangling

- The dataset consists of feature vectors belonging to 12,330 sessions of different users in a one-year period.
- The dataset consists of 10 numerical and 8 categorical attributes.
- There are no null values.
- Target variable is Revenue

Exploratory Data Analysis

- In this dataset, 85% of the users did not end up making any purchase and only 15% users made a final purchase.
- This is an imbalanced dataset. The figure shows the sample proportion of the revenue.
- Also, there is a high correlation between the page values and revenue.

Exploratory Data Analysis



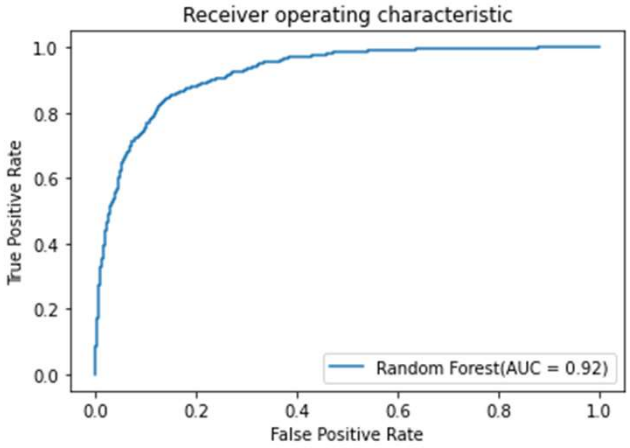
Model Selection

- Three different machine learning classification models were run:
  - Logistic Regression
  - Random Forest Classifier
  - Support Vector Classifier

- The chosen metric was F1 score as we have an imbalanced dataset.

Hyperparameter Tuning

- Applied hyperparameter tuning on the Random Forest model using the Grid Search Cross Validation.
- The accuracy of the model further increased from 88.32 % to 89.18%.

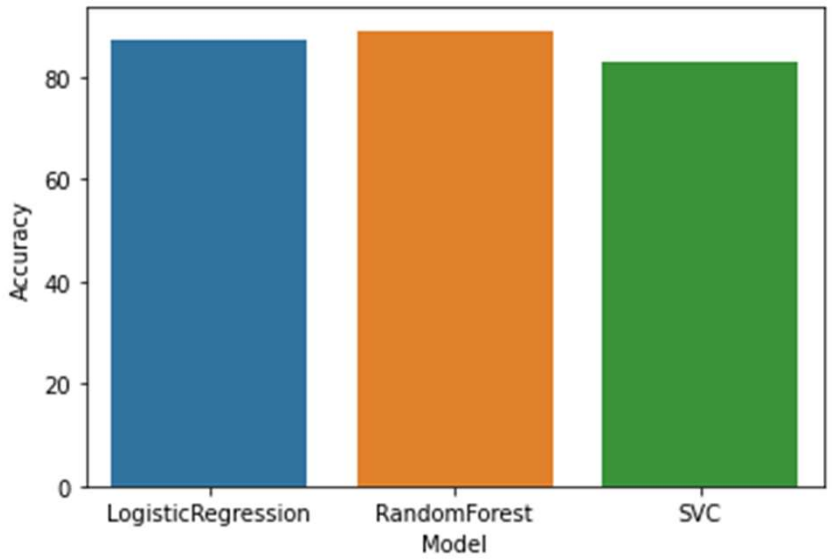


Model Comparison

- Comparison of the three models

  Model Accuracy

  - Logistic Regression 87.40
  - Random Forest 89.13
  - SVC 83.18



Conclusion

- The Random Forest model is the best model for predicting the online shopper's purchasing intention.
- The page values feature is the most important feature followed by Exit rates, product related page values and the bounce rates.
- We can further try running different models, like Naïve Byes, Neural Networks etc and see if it further enhances the model performance.

Thank You!