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CUSTOMER CHURN PREDICTION USING MACHINE LEARNING AND FLASK WEB PAGE

HINDUJA SREE S [1], BRINDHA M [2], DHARANI A [3]

[1]*Computer Science and Engineering, Bannari Amman Institute of Technology, (India)*

[2]*Computer Science and Engineering, Bannari Amman Institute of Technology, (India)*

[3]*Computer Science and Engineering, Bannari Amman Institute of Technology, (India)*

ABSTRACT:

The Customer Churn prediction is one of the challenging problems in all kind of business. Customer churn occurs when customers stop doing their business with the company or service. Attracting new customers is much more important than retaining existing ones. In this marketing company, customers have multiple choices of their services or company and they frequently switch from one service to another. At last we are finding whether the customer is available or not in the service. The goal of this project is to implement ml model to predict customer is churn or not using flask web application.

Keywords: *CUSTOMER CHURN PREDICTION, DECISION TREE CLASSIFIER, RANDOM FOREST CLASSIFIER.*

1. INTRODUCTION:

Travel companies are one of the important sectors in our day-today life. This is 21st century and people is moving very fast, and so now-a-days travel companies are in peak. Even though they need to go for nearby some market people are preferring taxi as a first preference, because of this the travel companies are now increasing widely. Considering this situation, we have decided to predict a customer churn, so that travel companies can work more efficiently knowing the customers view. To achieve this target, we have implemented a Machine Learning model using decision tree classifier algorithm.

1.1OBJECTIVE:

To analyze and predict the CustomerTravel data to get the prediction whether the customer is going to be churned or not.

1.3 PREREQUISITES:

- NumPy
- Pandas
- Seaborn

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- Matplotlib
- Decision Tree Classifier
- Flask
- Pickle
- Here we have used pycharm to run our code.

2. DATASET:

Here we have used CustomerTravel.csv dataset which consists of 954 rows and 7 columns (Age, FrequentFlyer, AnnualIncomeClass, ServicesOpted, AccountSyncedToSocialMedia, BookedHotelOrNot, Churn). The data in dataset is from 01/04/2021 to 05/12/2021. Let us discuss the Python libraries used in Customer Churn Prediction.

2.1 IMPORTED LIBRARIES:

NumPy:

NumPy is a python package it acts with numeric data that is it performs scientific estimations.

Pandas:

Pandas module is also a python library it works with tabular data. It is used to evaluate data.

Seaborn:

Seaborn is an open source python library. It is applied for data visualization and data analysis. Seaborn runs easily with data frames and pandas library.

Matplotlib:

Matplotlib is also python library it is used for data visualization.

Flask:

Flask is used to design a framework web page. There are many in built libraries which will be very useful for web page designing.

Pickle:

Python pickle module converts the .py file to byte stream. It is also used for serialization and de-serialization.

2.2 ALGORITHMS

Decision tree algorithm:

The decision tree is to create the training and testing model used to predict the class or value of the target.

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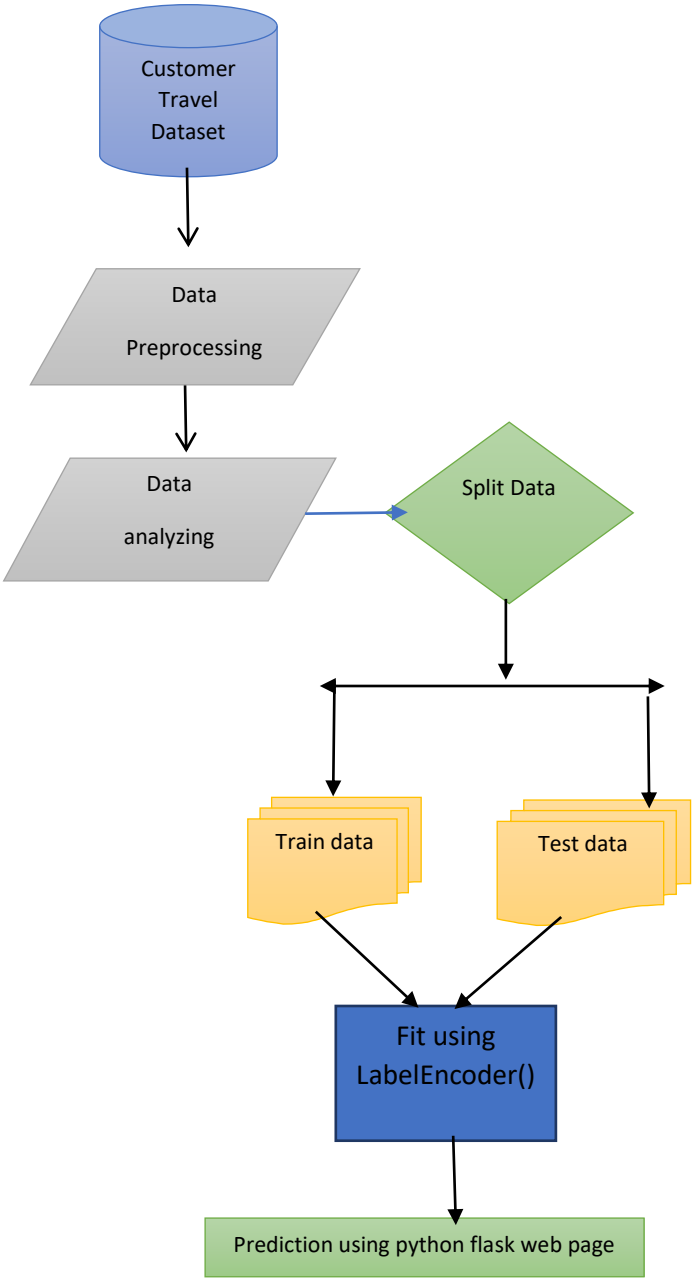
Random Forest Classifier:

Random Forest Classifier is the combination of decision tree classifier which has the average accuracy and prediction.

Logistic Regression:

This algorithm is used when the prediction or classification depends upon one identical column in dataset.

3. METHODOLOGY PROPOSED:



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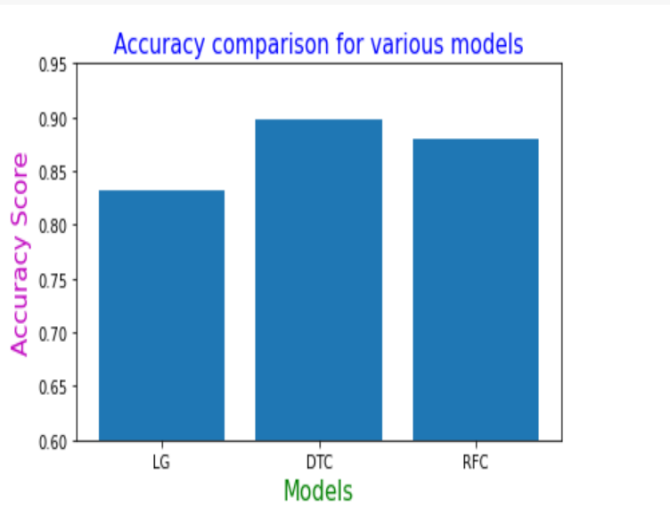
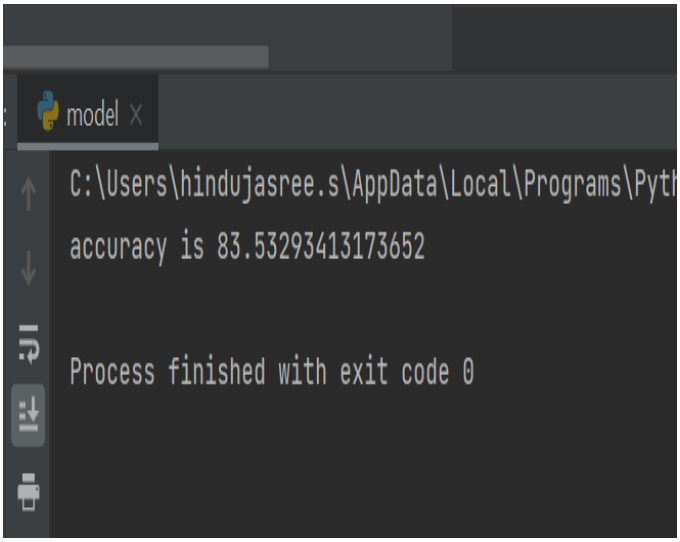
4. ANALYSIS RESULTS:

Comparison of random forest and decision tree: The comparison for three algorithm has been made to predict the best one for customer churn prediction.



From the above chart, the decision classifier is higher than logistic regression and random forest classifier.

The accuracy for implementing customer churn prediction using Decision tree classifier is as below:



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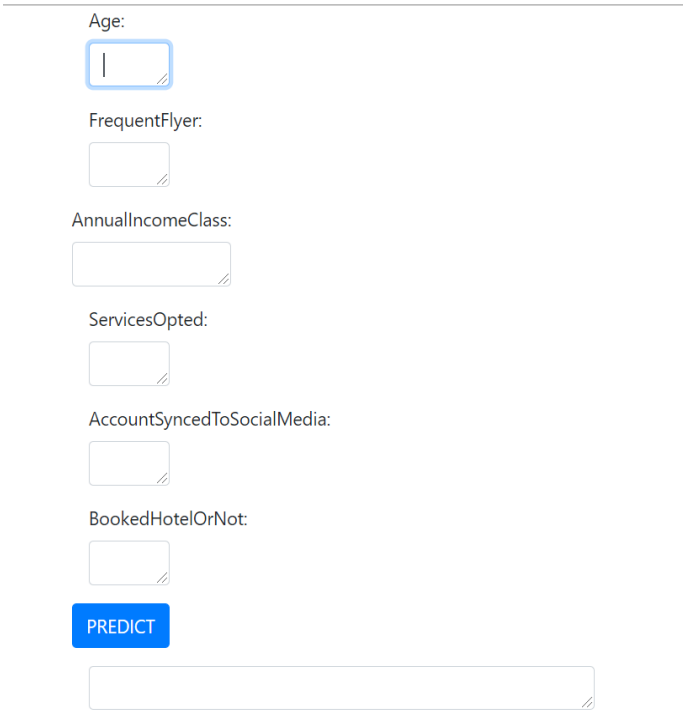
The web page is hosted using pickle and flask module in local host server for easy readability for the user.

The hosted web page will look as like below:



If the user enters the value in the input box, then based on the input entered value output will be predicted whether the customer is CHURN or NOT.

5. CONCLUSION:

The important research of this type of project implementation is know that customer is fully satisfied or not. Predicting the customer churn will help the association to know about customers thought. In future, this web page will be connected to database for storing a customer information with security authentication so that data will be not missed or unused by unknown persons.

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