Telco Customer Churn

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MSDS692\_X40\_ Data Practicum I

**Introduction**

Telco Customer Churn is a data set taken from Kaggle website ([www.kaggle.com/blastchar/telco-customer-churn](https://www.kaggle.com/blastchar/telco-customer-churn)).The context of the data set is to predict customer behavior.With the help of this data we will learn about some of the basic marketing analytical skills.We will create our own churn models, perform customer segmentation and make prediction using various machine learning model.

**Details about Data Set:**

The data source comprises of data set the details of which are as follows;

**Telcom Customer Churn --** The raw data contains 7043 rows (customers) and 21 columns (features)

* customerID: Customer ID
* gender: Whether the customer is a male or a female.
* SeniorCitizen: customer is a senior citizen or not (1, 0)
* Partner: Whether the customer has a partner or not (Yes, No).
* Dependents: Whether the customer has dependents or not (Yes, No)
* tenure: Number of months the customer has stayed with the company
* PhoneService: Whether the customer has a phone service or not (Yes, No)
* MultipleLines:Whether the customer has multiple lines or not (Yes, No, No phone service)
* InternetService: Customer’s internet service provider (DSL, Fiber optic, No)
* OnlineSecurity: Whether the customer has online security or not (Yes, No, No internet service)
* OnlineBackup: Whether the customer has online backup or not (Yes, No, No internet service)
* DeviceProtection: Whether the customer has device protection or not (Yes, No, No internet service)
* TechSupport:Whether the customer has tech support or not (Yes, No, No internet service)
* StreamingTV:Whether the customer has streaming TV or not (Yes, No, No internet service)
* StreamingMovies:Whether the customer has streaming movies or not (Yes, No, No internet service)
* Contract:The contract term of the customer (Month-to-month, One year, Two year)
* PaperlessBilling:Whether the customer has paperless billing or not (Yes, No)
* PaymentMethod:The customer’s payment method (Electronic check, Mailed check, Bank transfer (automatic), Credit card (automatic))
* MonthlyCharges:The amount charged to the customer monthly
* TotalCharges: The total amount charged to the customer
* Churn:Whether the customer churned or not (Yes or No)

**Project Description**

In this project we will be performing tasks that are normally performed in while conducting marketing analytical research. Marketing concepts such as customer segmentation, churn modeling, customer life time value will be focal point of this project as we will be generating customer life time value, customer purchase pattern.We will fit logistic regression and decision tree models for churn prediction.Furthermore, we will use hyper parameter tuning to improve the model performance.

Following is the break down for weekly activity that will be performed accordingly:

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| Week 1 | Performing exploratory data analysis i.e cleaning and summarizing the data set and uploading the necessary libraries.Exploring the data by using various visualization tools. |
| Week 2 | Preparing the data for machine learning models by separating the numerical and categorical columns. |
| Week 3 | Predicting churn with logistic regression model, fitting decision tree. |
| Week 4 | Building up more models (i.e K-Nearest Neighbor Model & Random Forest Classification Model) and calculating the accuracy of all models. |
| Week 5 | Using different visualization tools to visualize the findings and key factors of the data set |
| Week 6 | Creating Confusion and other model matrix |
| Week 7 | Reflecting on some of the models that can help in improvement of model performance |
| Week 8 | Preparing video and a PowerPoint presentation that will delineate the key findings of the project |

For successful execution of the project different kernels and online sources will be used for getting befitting results.The objective of this project of project is to understand the core concept of marketing analytical research and how with the help of Python and different machine learning models we can anticipate the future outcome and understand the customer behavior in the most befitting manner.