



Telco Customer Churn Recommendation

Request for Proposal

RFP#: DM – F2.H2

Title: Churn Model for Telco Customers

Closing Date and Time: October 17, 2022 @ 5:00 PM

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Background and Purpose:

By responding to this RFP, the proposer agrees that s/he has read and understood all documents within this RFP package.

Submission Details:

Responders to this RFP should supply:

- A business report up to 5 pages (not including cover page or table of contents), including any supporting plots and tables
- The commented code (in a separate file) used to produce the results

The report should address all points described in the “Objective” section below and should be submitted electronically through Moodle by 5:00 PM on October 17, 2022.

Objective

Telco is interested in contracting your services to build a decision tree model to predict churn at their company. They would like to compare the predictability of your decision tree model to their in-house models. In order to keep consistency with their practices, you will need to use an 80-20 split (training and test) when creating your tree model. Be sure to provide information on the decision tree you would recommend including the splitting information with a nice visual of the tree. They are also interested in knowing the misclassification rate for the test data.

Data provided

Set seed to 123 before splitting

The TelcoChurn.csv dataset has 21 columns:

- **CustomerID**
- **Gender**
- **SeniorCitizen** – 1 senior citizen, 0 not
- **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 or not the customer has phone service (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 or not 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 (yes, no, no internet)
- **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 years)
- **PaperlessBilling** – whether 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 customer monthly
- **TotalCharges** – the total amount charged to the customer
- **Churn** – whether the customer churned or not (yes, no)