Page: W1P5 - Data Analytics Project Scenario and Roles

Customer Churn Analysis for Telecommunications Company

The telecommunications industry is experiencing a significant transformation driven by the rapid advancement of digital technologies. However, amidst this evolution, one persistent challenge continues to haunt leading companies: high customer churn rates.
In this dynamic landscape, understanding the intricate factors contributing to customer churn and devising effective retention strategies have become imperative for ensuring sustained growth and competitiveness.
To address this challenge, your team have enlisted the expertise of a data analyst to delve deep into client customer data, unearth insights, and develop actionable recommendations to mitigate churn.

As a data analyst, your primary objective is to analyse the provided dataset meticulously, identifying the key drivers influencing customer churn. Leveraging Python programming language and essential libraries such as Pandas, NumPy, matplotlib, and Scikit-learn, you will embark on a journey of data exploration, visualisation, and predictive modeling.

Your analysis will illuminate the factors contributing to customer churn and pave the way for developing robust retention strategies to preserve our valuable customer base.

Project Execution

Data Preparation and Preprocessing:

- Load and preprocess the dataset.
- Handle missing data points and encode categorical variables.
- Perform feature scaling and normalisation.
- Ensure data integrity and consistency.

Clustering Analysis:

- Utilise clustering algorithms to segment customers.
- Determine the optimal number of clusters.
- Train the clustering model and interpret results.
- Create visualisations for interpretation.

Predictive Modeling:

- Define the architecture of the ANN model.
- Train the model and optimise convergence.
- Predict customer churn based on critical attributes.
- Evaluate model performance and analyse predictions.

Report Compilation and Presentation:

- Compile final report summarising key findings.
- Identify factors contributing to churn and retention.
- Recommend targeted retention strategies.
- Document limitations and challenges encountered.
- Present outcomes and recommendations to stakeholders.

Project Roles

- Project Manager (https://acslearn.instructure.com/courses/1412/pages/page-w1p6-project-manager)
- Data Engineer - Preprocessing and Feature Engineering (https://acslearn.instructure.com/courses/1412/pages/page-w1p7-data-engineer)
- Data Analyst - Clustering Analysis (https://acslearn.instructure.com/courses/1412/pages/page-w1p8-data-analyst-predictive-modeling-2)
- Data Analyst - Predictive Modeling (https://acslearn.instructure.com/courses/1412/pages/page-w1p9-data-analyst-clustering-analysis-2)
- Business Analyst (https://acslearn.instructure.com/courses/1412/pages/page-w1p10-business-analyst)

Project Deliverables

Stage 1: Project Planning and Setup

1-1-Project Charter: Formal document defining project objectives, scope, timeline, milestones, project purpose, goals, roles, responsibilities and resources.

Stage 2: Data Preparation and Modeling

2-1-Data Preparation Deliverables:

- A preprocessed dataset that handles missing data and encodes categorical variables.
- Split dataset into training and testing sets.
- Applied appropriate scaling techniques for normalization.

2-2-Clustering Analysis Deliverables:

- Identified the optimal number of clusters using the elbow method.
- Trained K-Means clustering model on the dataset.
- Visualised and labelled resulting clusters for interpretation.

Stage 3: Predicting Customer Churn and Reporting

3-1-Predictive Modeling Deliverables:

- Defined architecture of ANN model.
- Trained ANN model on provided dataset.
- Predicted customer churn and evaluated model performance.

3-2-Final Report:

- Summary of key findings from customer segmentation and churn prediction.
- Identification of factors contributing to churn and retention.

- Recommendations for targeted retention strategies.
- Documentation of limitations and proposed solutions.
- Presentation of outcomes and recommendations to stakeholders.

Now that you're familiar with the project scenario, roles, and different stages, please proceed to watch the project sponsor video on the next page.