Peer-graded Assignment: Final Assignment

Reviews 1 left to complete

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CRISP

by Anonymous Learner
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PROMPT

Which topic did you choose to apply the data science methodology to? **(2 points)**

DATA SCIENCE

RUBRIC

Did the student pick one of the three topics proposed in the assignment overview?

- ○ 0 pts
  No
- ◉ 2 pts
  Yes

PROMPT

Next, you will play the role of the client and the data scientist.

Using the topic that you selected, complete the Business Understanding stage by coming up with a problem that you would like to solve and phrasing it in the form of a question that you will use data to answer. **(3 points)**

You are required to:

1. Describe the problem, related to the topic you selected.
2. Phrase the problem as a question to be answered using data.

For example, using the food recipes use case discussed in the labs, the question that we defined was, "Can we automatically determine the cuisine of a given dish based on its ingredients?".

Topic: Improving Customer Retention in an E-commerce Platform

Problem Description:

In the e-commerce industry, retaining customers is crucial for sustaining growth and profitability. Many online retailers struggle with understanding why customers leave or stop purchasing from their platform. Identifying the factors contributing to customer churn can help in implementing targeted strategies to improve retention and increase overall revenue. The challenge is to analyze customer behavior, transaction history, and other relevant data to determine patterns and key factors leading to churn.

Problem Question:

"What are the key factors contributing to customer churn on our e-commerce platform, and how can we use this data to develop effective retention strategies?"

RUBRIC

The student is required to come up a problem related to the topic they selected and the problem must be phrased as a question that can be answered using data. Use your best judgement to rate the student's completion of the Business Understanding stage.

- ○ 1 pt
  Poor. Some description is provided about the problem, but the question to be answered is missing.
- ○ 2 pts
  Good. The problem to be solved is described and a question is submitted but the question does not match the problem described.
- ◉ 3 pts
  Excellent. The student gave sufficient description of the problem, and the question to be answered reflects the problem described.

PROMPT

Briefly explain how you would complete each of the following stages for the problem that you described in the Business Understanding stage, so that you are ultimately able to answer the question that you came up with. **(5 points)**:

1. Analytic Approach
2. Data Requirements
3. Data Collection
4. Data Understanding and Preparation
5. Modeling and Evaluation

You can always refer to the labs as a reference with describing how you would complete each stage for your problem.

Analytic Approach:

1. **Define Objectives:** The objective is to identify factors contributing to customer churn and develop strategies to retain customers. This involves segmenting customers into those who have churned and those who have remained, and analyzing patterns in their behavior.
2. **Select Techniques:** Use statistical analysis and machine learning models, such as logistic regression or decision trees, to identify significant predictors of churn. Incorporate clustering techniques to understand different customer segments.

Data Requirements:

1. **Identify Data Needs:** To address the problem, data requirements include customer demographics, transaction history, browsing behavior, interaction history (e.g., customer service interactions), and any feedback or complaints.
2. **Data Attributes:** Essential attributes might include customer age, gender, purchase frequency, average order value, time between purchases, product categories bought, and customer service interaction metrics.

Data Collection:

1. **Data Sources:** Collect data from various sources such as transaction logs, customer service databases, web analytics, and CRM systems. Ensure that data is collected consistently over time.
2. **Data Integration:** Combine data from different sources into a central repository, ensuring it is clean and comprehensive for analysis.

Data Understanding and Preparation:

1. **Explore Data:** Perform exploratory data analysis (EDA) to understand data distributions, identify missing values, and recognize patterns. Use visualization tools to reveal trends in customer behavior.
2. **Data Cleaning:** Handle missing values, outliers, and inconsistent data. Transform data into a format suitable for analysis, such as normalizing numerical values and encoding categorical variables.

Modeling and Evaluation:

1. **Build Models:** Develop predictive models using techniques like logistic regression, decision trees, or ensemble methods to identify factors leading to customer churn. Train models using the cleaned dataset.
2. **Evaluate Models:** Assess model performance using metrics like accuracy, precision, recall, and F1 score. Perform cross-validation to ensure the model generalizes well to new data. Refine models based on evaluation results to improve predictive accuracy.

By following these stages, you'll be able to analyze customer data comprehensively, identify key churn factors, and develop actionable strategies to enhance customer retention.

RUBRIC

The student is required to explain how they would complete each stage for the problem that they described in the Business Understanding stage. Use your best judgement to rate the student's description of each stage.

- ○ 1 pt
  Poor. Many stages are missing and insufficient description is provided.
- ○ 3 pts
  Good. At least three stages are described and the description is clear and applies to the question defined in the Business Understanding stage. However, some stages are missing.
- ◉ 5 pts
  Excellent. All stages are described appropriately and the description is clear and applies to the question that they defined in the Business Understanding stage.

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TA **Thomas AWOUNFOUET** a few seconds ago

Good Job

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