**Data Science Use Case: Customer Cancellation of Services**

**Background:**

You are working as a data scientist for a company that provides various services, such as internet, cable TV, and phone plans. The company has been experiencing a high rate at which customers cancel the services, and they are looking for a data-driven solution to identify customers who are likely to cancel the services. The goal is to develop a predictive model that can accurately predict customers that can cancel services and provide insights to help the company proactively retain at-risk customers.

**Data Description:**

The company has provided you with a dataset containing historical customer data, including demographic information, service usage, billing details, and customer churn status. The dataset consists of the following features:

Customer ID: Unique identifier for each customer.

Demographic Information: Age, gender, marital status, and geographic location.

Service Usage: Number of months as a customer, types of services subscribed to, monthly charges, and total charges.

Billing Details: Payment method, paperless billing, and payment history.

Customer Cancellation: whether the customer cancelled (churned) or not (stayed), or joined.

**Use Case Steps:**

* Create a solution and develop program to apply data science to above use case and derive insights to help the company with the required information for data-driven decisions.
* Create a document to explain step-by-step process followed showing intermediate results in each step describing how you arrived at the solution/insights.
* Explain how you will validate and prove your analysis and prediction accuracy based on data and analytical solution.

**Additional Information:**

* Present your findings and recommendations to stakeholders, providing actionable insights to reduce customer cancellation and improve customer retention strategies.

**Submission Requirements:**

To demonstrate your capabilities, you should submit the following within 24 hours of receiving this use case document.

* Jupyter Notebook or Python script containing the code for the data science process.
* A document summarizing your findings, including visualizations, model performance metrics, and key insights.
* Ensure that your code is well-documented, follows best practices, and demonstrates a clear understanding of data science principles and techniques.
* Additionally, you will be asked to provide a brief presentation or demo to showcase your work in person. This will after your submission is evaluated by the interviewer and scheduled for a later date/time. So save your work for the demo later.