**Telecom Data Analysis Documentation**

**1. Introduction**

This document provides an overview and documentation of the Python script used for analyzing telecommunication data. The primary goal is to extract meaningful insights regarding subscriber preferences and churn rates, which are crucial for strategic decision-making in the telecom sector.

**2. Data Loading and Preprocessing**

The script starts by loading the telecom data from a CSV file. It includes preprocessing steps to clean and prepare the data for further analysis.

**3. Gender-Based Analysis**

This section of the script focuses on analyzing the telecom services based on gender (excluding senior citizens). It provides insights into the different services preferred by male and female subscribers.

**4. Contract and Churn Analysis**

The analysis includes examining different types of contracts and their associated churn rates. It categorizes the data by contract type and churn status to understand subscriber retention trends.

**5. Data Visualization**

Various visualizations are generated to display the distribution of subscribed services by gender and the churn rates across different contract types. These visual aids help in the interpretation of data.

**6. Conclusion**

The document concludes with a summary of key findings from the analysis. It also discusses the potential business implications based on the insights derived from the telecom data.

**7. Appendices**

This section can include additional code snippets, data tables, charts, or any relevant information that supports the analysis.

**8. Code Snippets**

This section contains key code snippets from the Python script used for the telecom data analysis. These snippets illustrate the main steps of the data analysis process.

# Example Code Snippet

import pandas as pd

import matplotlib.pyplot as plt

# Data loading

df = pd.read\_csv('telecom\_data.csv')

# Data preprocessing

# [Code for data preprocessing]

# Gender-based analysis

# [Code for gender-based analysis]

# Contract and churn analysis

# [Code for contract and churn analysis]

# Data visualization

# [Code for generating plots and charts]