Customer Churn Prediction Report

1. Exploratory Data Analysis Insights

The dataset provides information about customer demographics, service usage, and contract details. Key insights include:

- The average age of customers is around 50 years.
- Monthly charges and total charges vary significantly among customers.
- There are distinct patterns in churn rates based on contract types and tech support usage.

2. Model Performance

We evaluated two models: Decision Tree and Logistic Regression. Here are the key findings for each model:

Decision Tree:

	precision	recall	f1-score	support
0	0.80	1.00	0.89	793
1	0.75	0.03	0.06	207
accuracy			0.80	1000
macro avg	0.77	0.51	0.47	1000
weighted avg	0.79	0.80	0.71	1000

Confusion Matrix:

[[791 2]

[201 6]]

Logistic Regression:

	precision	recall	f1-score	support
0	0.80	0.54	0.65	793
1	0.22	0.48	0.30	207
accuracy			0.53	1000
macro avg	0.51	0.51	0.47	1000
weighted avg	0.68	0.53	0.58	1000

Confusion Matrix:

[[432 361]

[108 99]]

3. Future Churn Prediction

The Decision Tree model predicts a churn rate of approximately 0.80%.

The Logistic Regression model predicts a churn rate of approximately 46.00%.

4. ROC Curves

ROC Curve - Decision Tree

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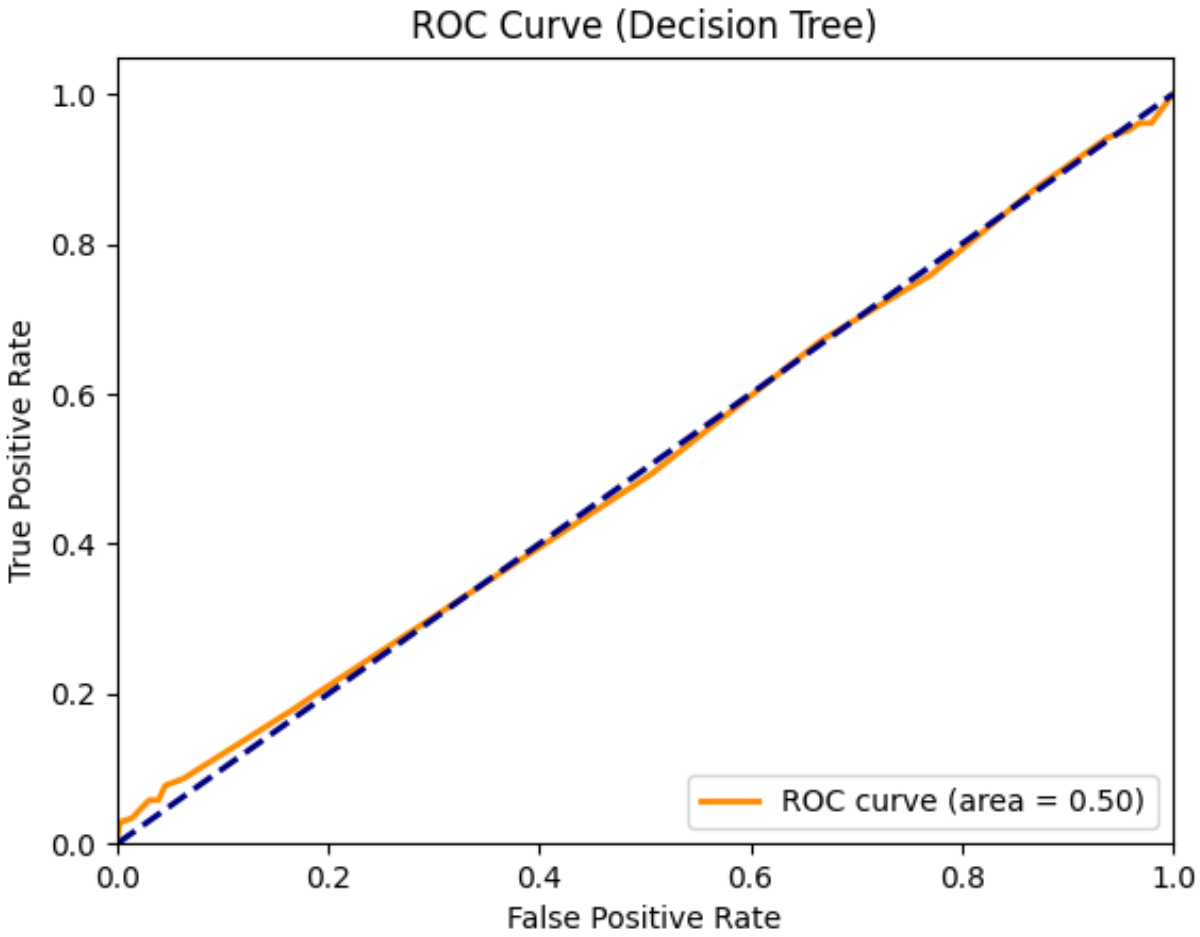

ROC Curve - Logistic Regression

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