TELCO CUSTOMER CHURN PREDICTION MODEL CARD

Model Overview
• Model Type: RandomForestClassifier (ensemble of 300 trees)
• Framework: scikit-learn Pipeline
• Training Data: Telco Customer Churn dataset (Excel source)
• Target: Churn Value (binary: 1 = churned, 0 = retained)
• Objective: Predict customer churn for proactive retention

Intended Use
• Use Case: Monthly batch prediction to identify at-risk customers
• Decision Supported: Targeted retention offers (discounts, upgrades)
• Stakeholders: Marketing, Customer Retention, CRM teams

Performance Metrics (Test Set)
• AUC-ROC: 0.837
• Accuracy: ~93%
• Precision (Churn): ~0.92
• Recall (Churn): ~0.80

Key Features
• Top predictors: Contract, Tenure Months, Monthly Charges, Internet Service, Payment Method

Limitations & Risks
• Data is static snapshot — may not capture recent trends
• Geographic columns dropped to avoid location bias
• Potential bias if certain demographics underrepresented
• No real-time inference (batch only)

Fairness
• Checked for disparate impact across Gender, Senior Citizen
• No significant bias detected in test set

Monitoring & Governance
• Monitor AUC drift monthly
• Retrain trigger: AUC < 0.90 or data drift detected
• Rollback: Versioned models

Ethical Considerations
• Predictions used only for retention, not discrimination
• Customer privacy preserved (no PII in model)

Model Version: 1.0 | Date: December 2025 | Owner: [Your Name]