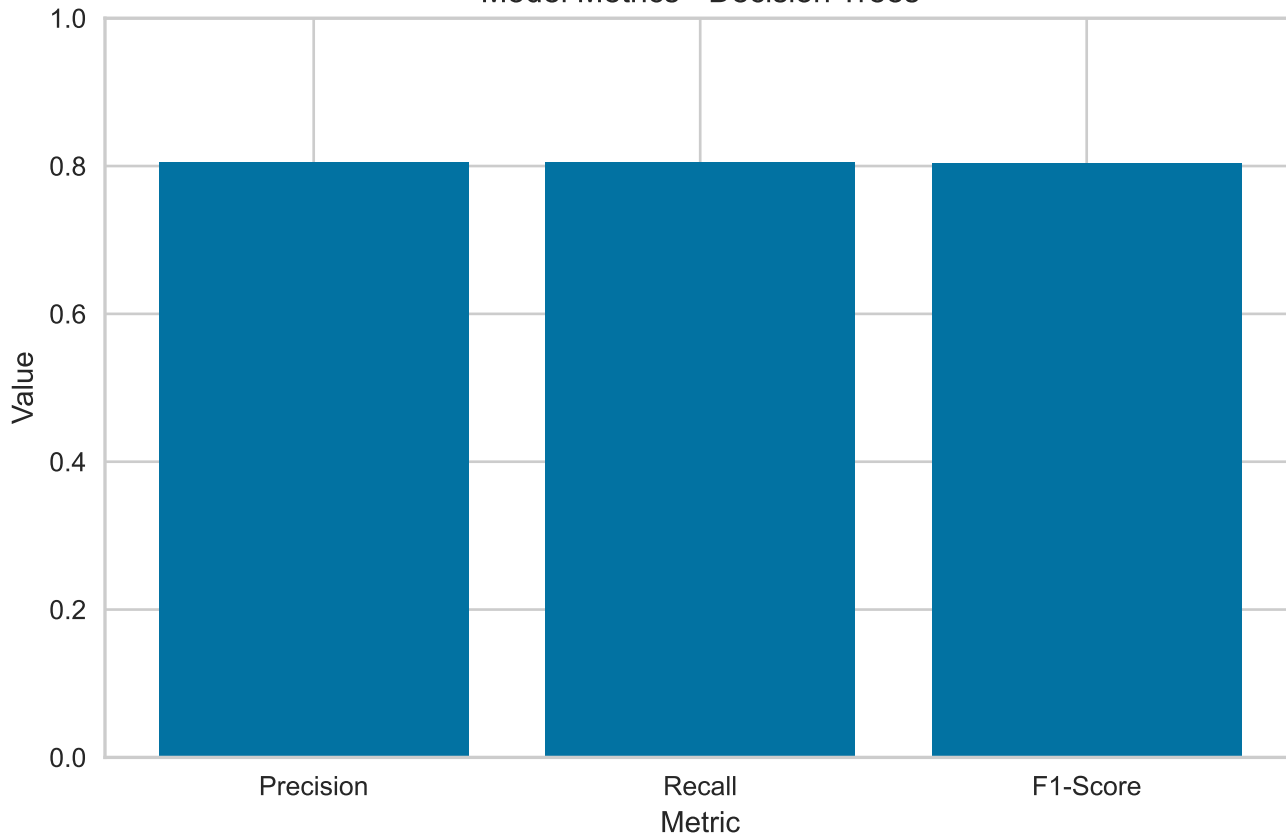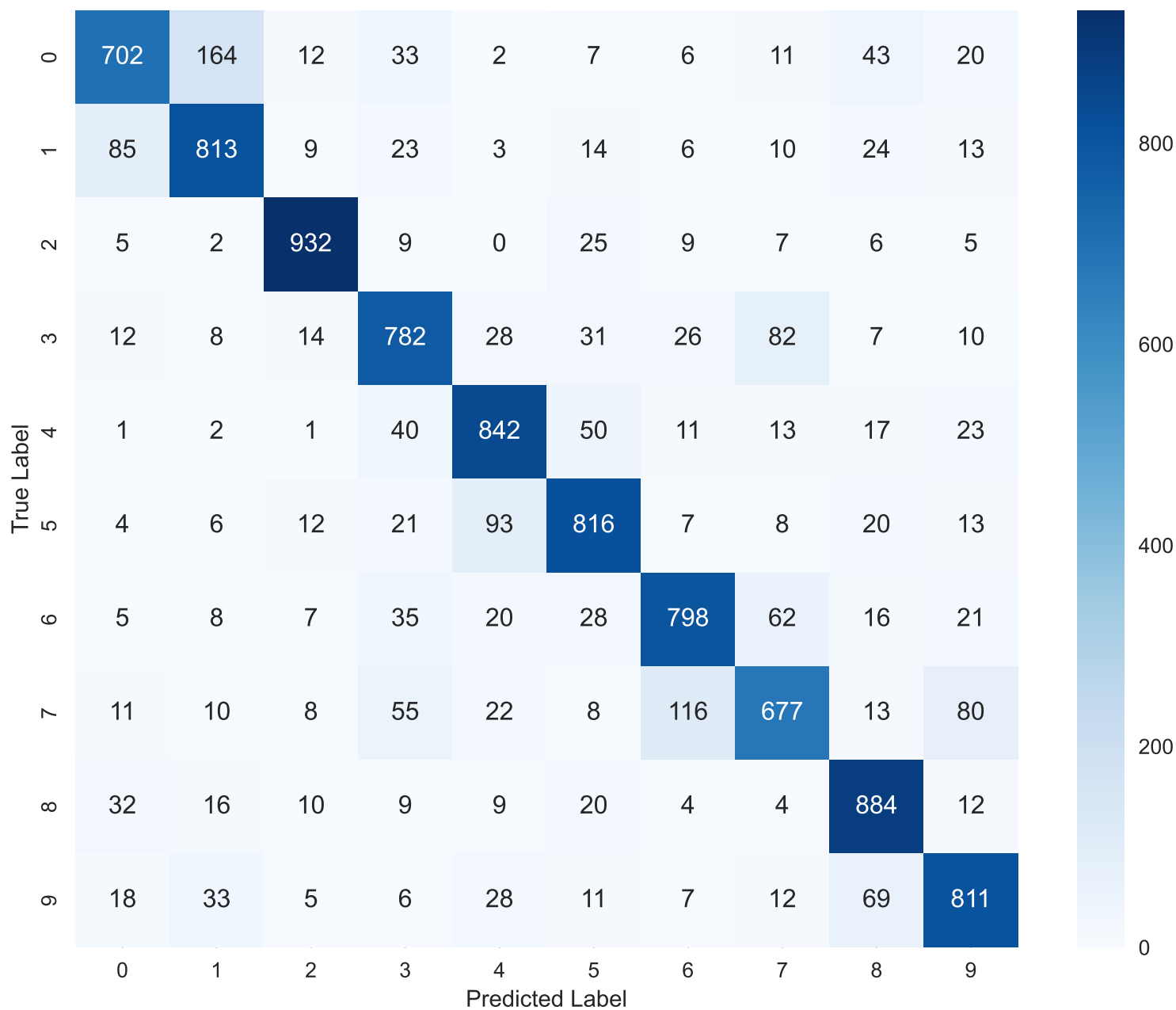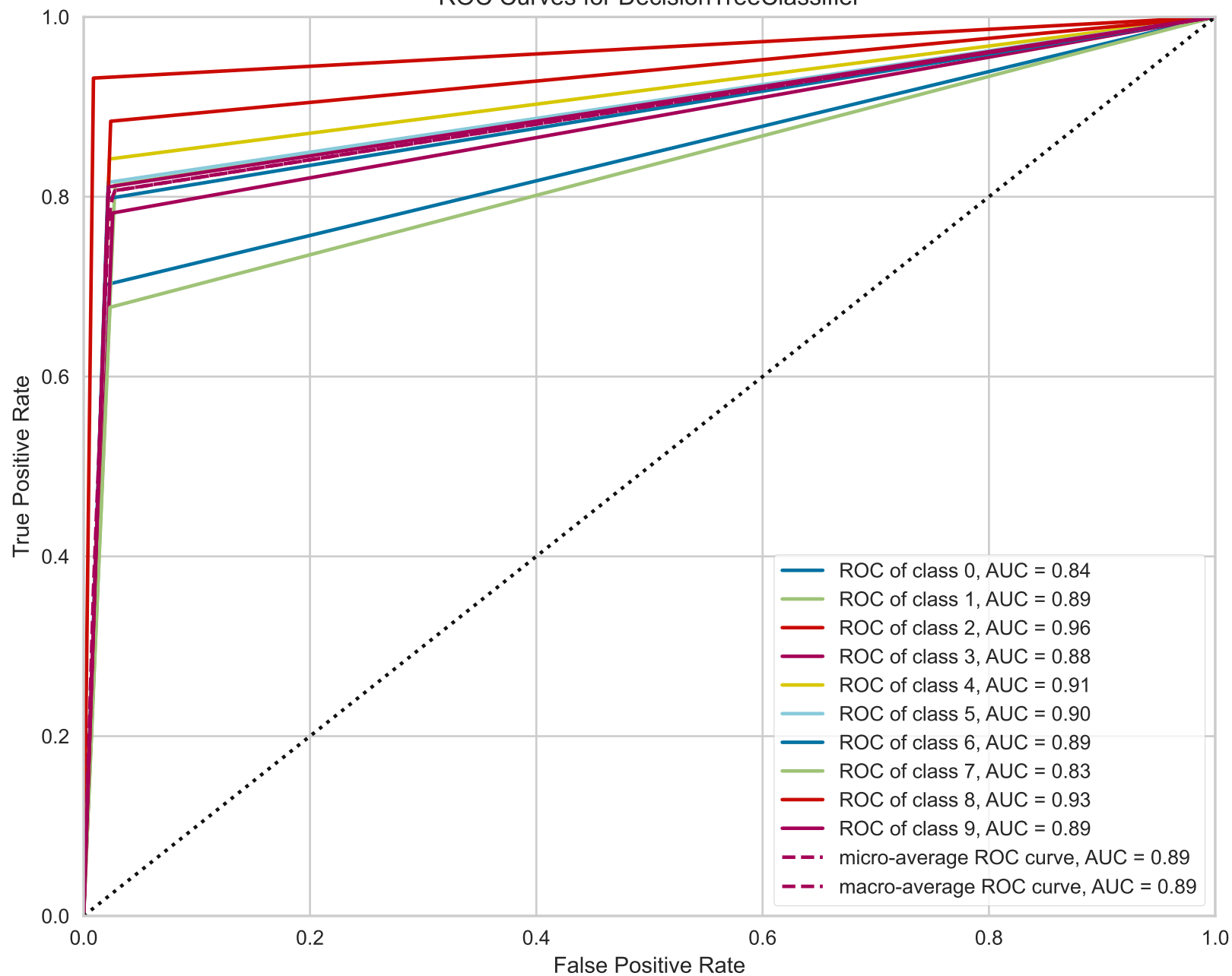Model Metrics - Decision Trees

Decision Trees - Confusion Matrix

ROC Curves for DecisionTreeClassifier

- ROC of class 0, AUC = 0.84
- ROC of class 1, AUC = 0.89
- ROC of class 2, AUC = 0.96
- ROC of class 3, AUC = 0.88
- ROC of class 4, AUC = 0.91
- ROC of class 5, AUC = 0.90
- ROC of class 6, AUC = 0.89
- ROC of class 7, AUC = 0.83
- ROC of class 8, AUC = 0.93
- ROC of class 9, AUC = 0.89
- micro-average ROC curve, AUC = 0.89
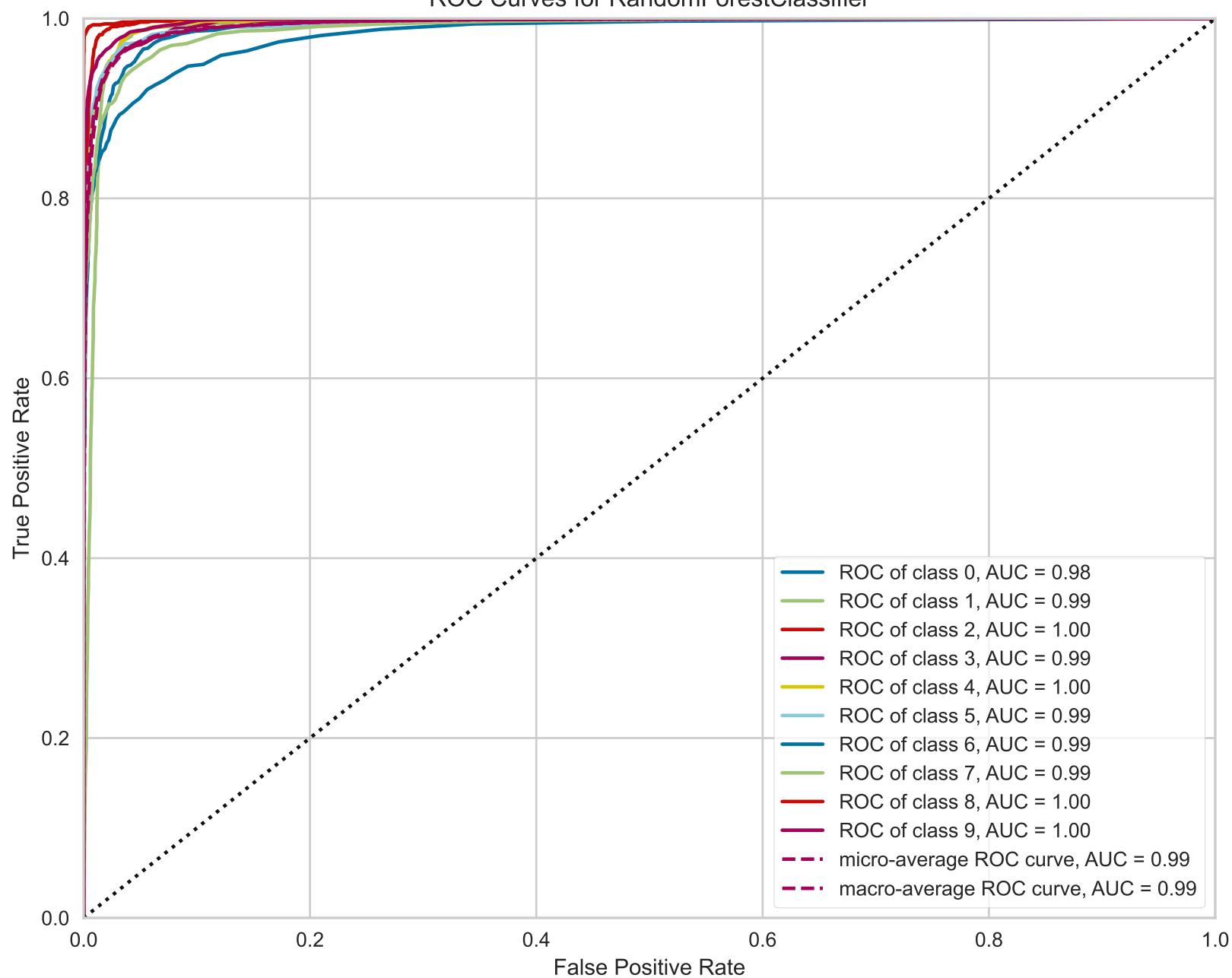- macro-average ROC curve, AUC = 0.89

Model Metrics - Random Forest
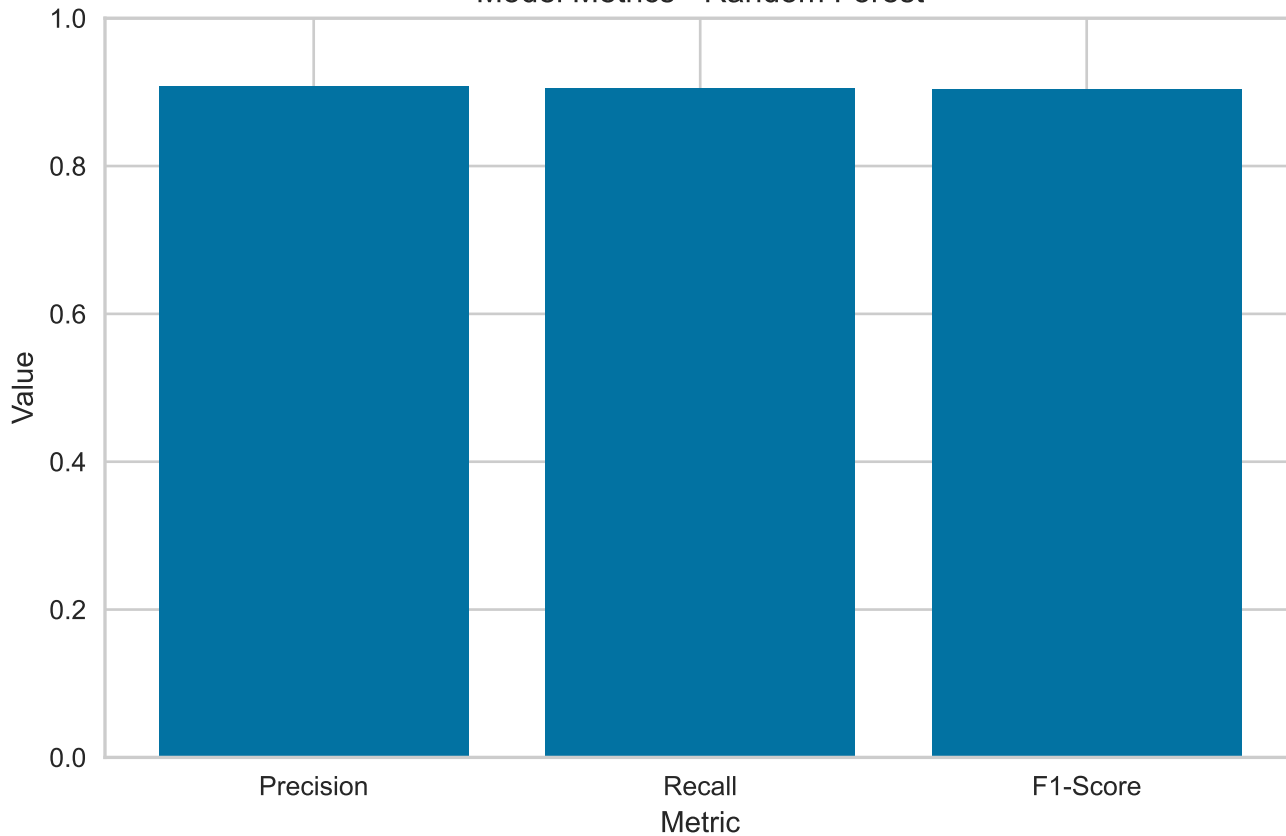
Random Forest - Confusion Matrix
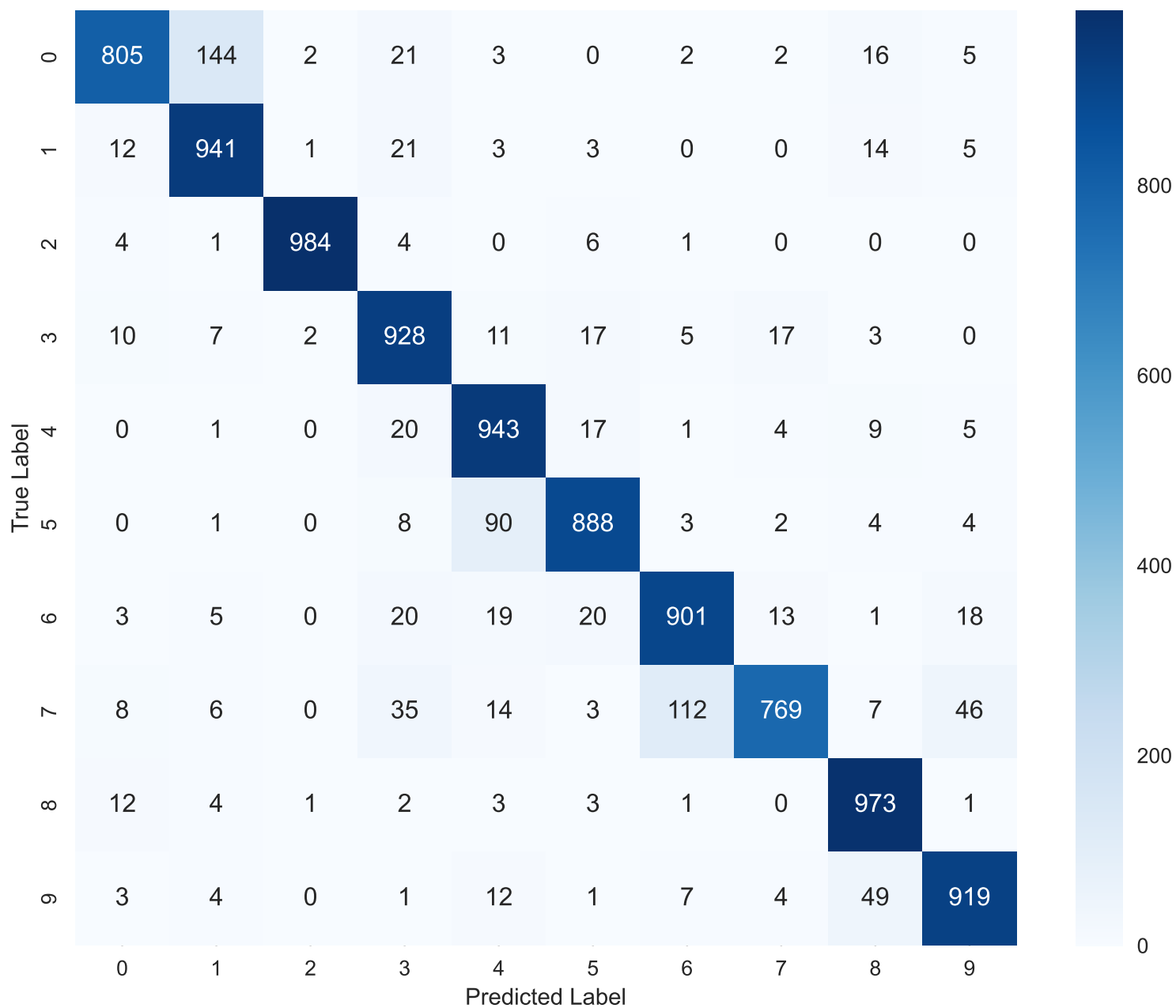
ROC Curves for RandomForestClassifier

Legend	
ROC of class 0, AUC = 0.98	
ROC of class 1, AUC = 0.99	
ROC of class 2, AUC = 1.00	
ROC of class 3, AUC = 0.99	
ROC of class 4, AUC = 1.00	
ROC of class 5, AUC = 0.99	
ROC of class 6, AUC = 0.99	
ROC of class 7, AUC = 0.99	
ROC of class 8, AUC = 1.00	
ROC of class 9, AUC = 1.00	
micro-average ROC curve, AUC = 0.99	
macro-average ROC curve, AUC = 0.99	

Model Metrics - Naive Bayes
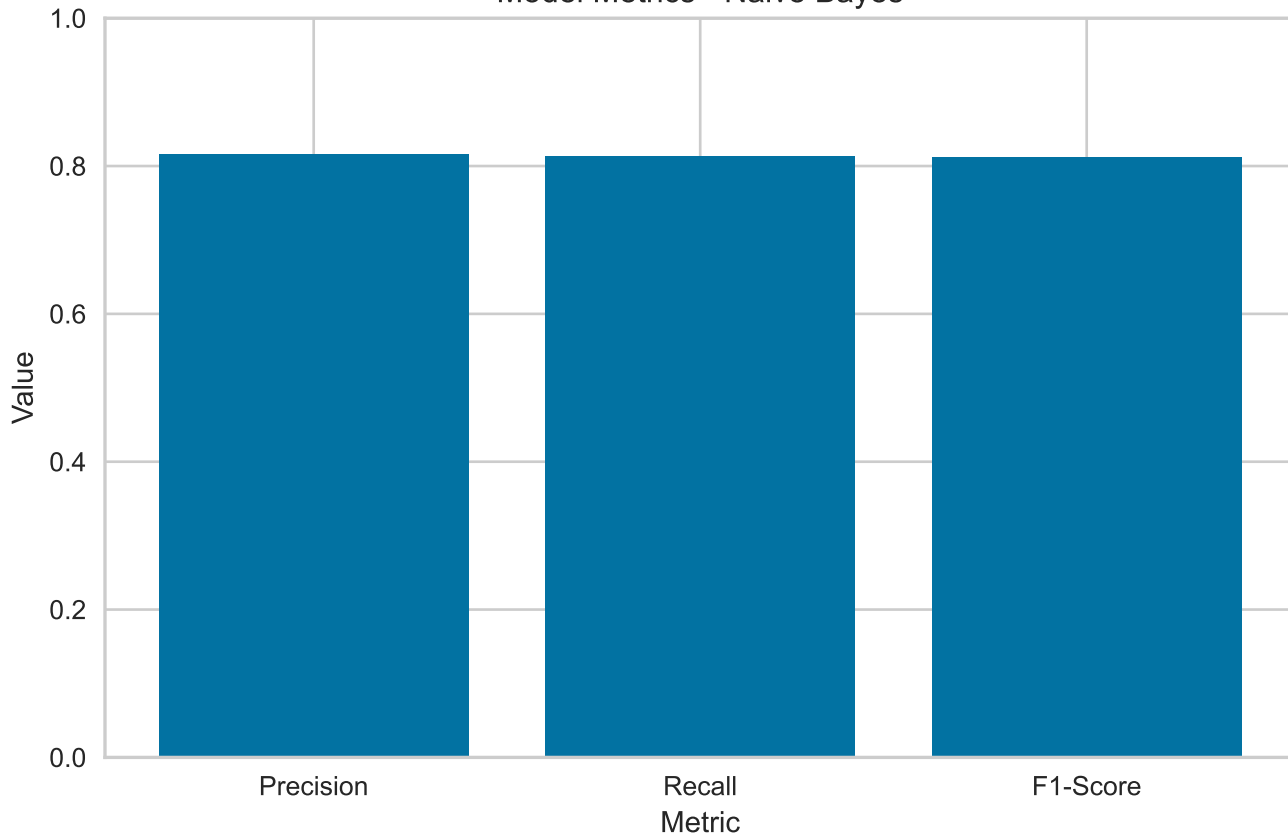
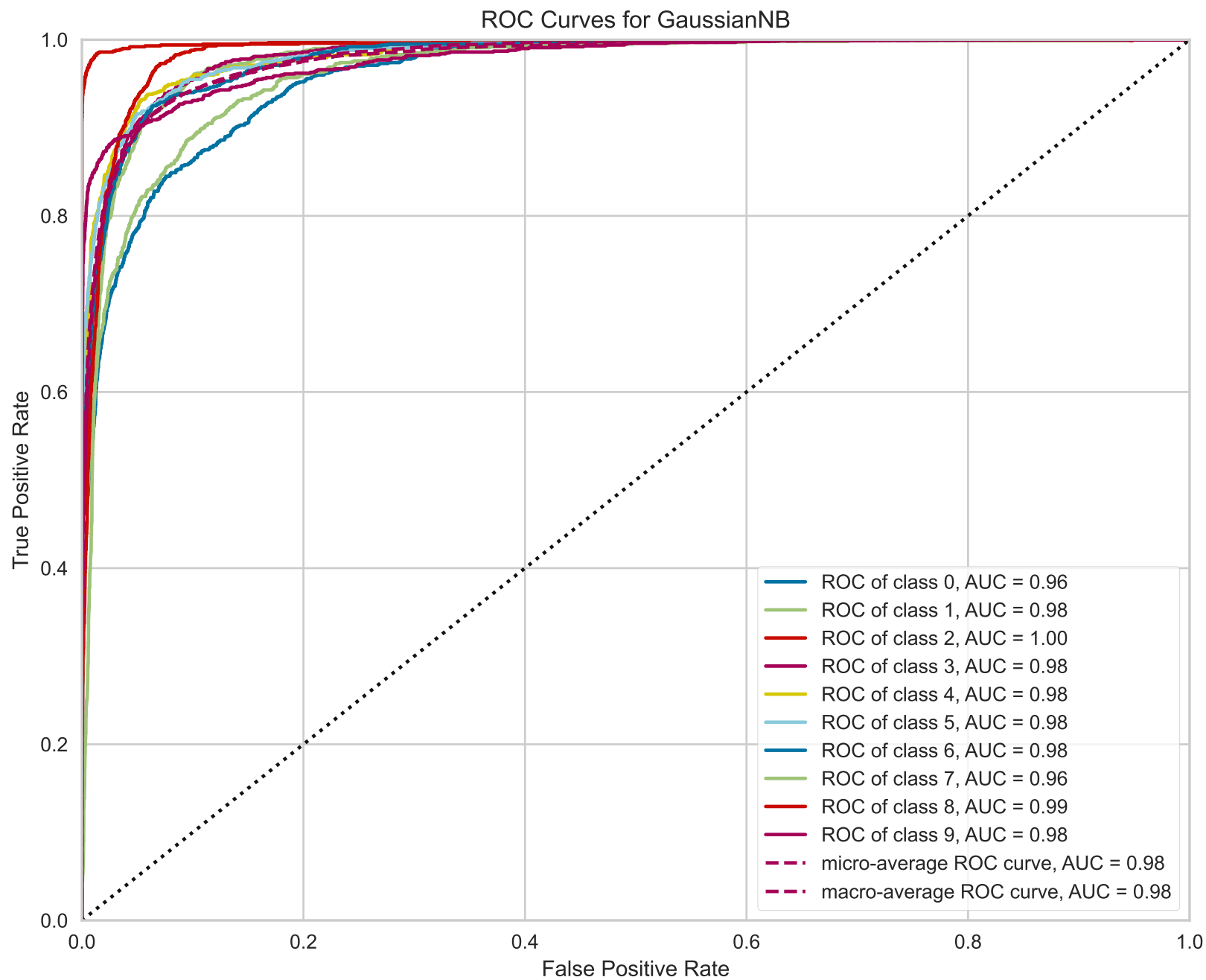Naive Bayes - Confusion Matrix

ROC Curves for GaussianNB

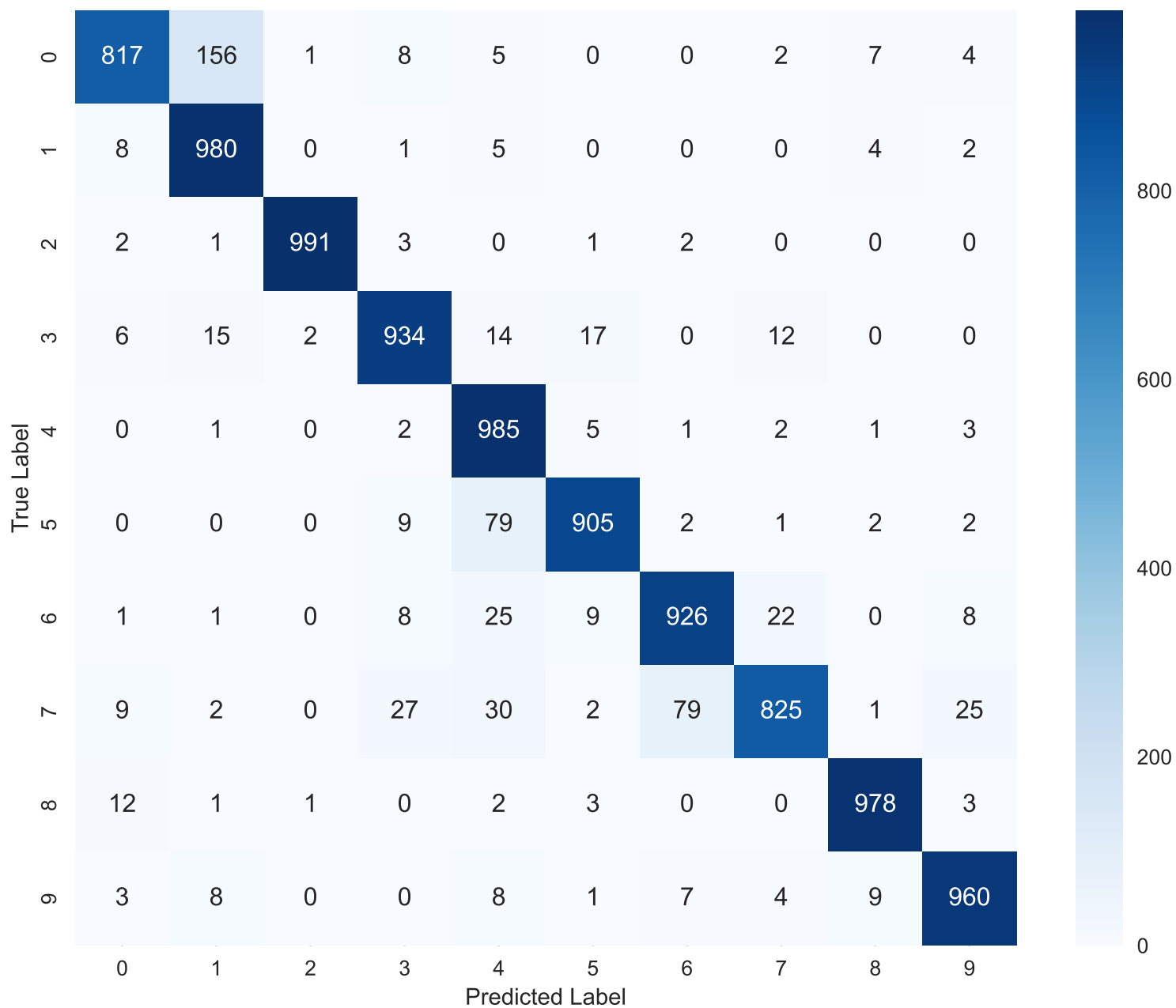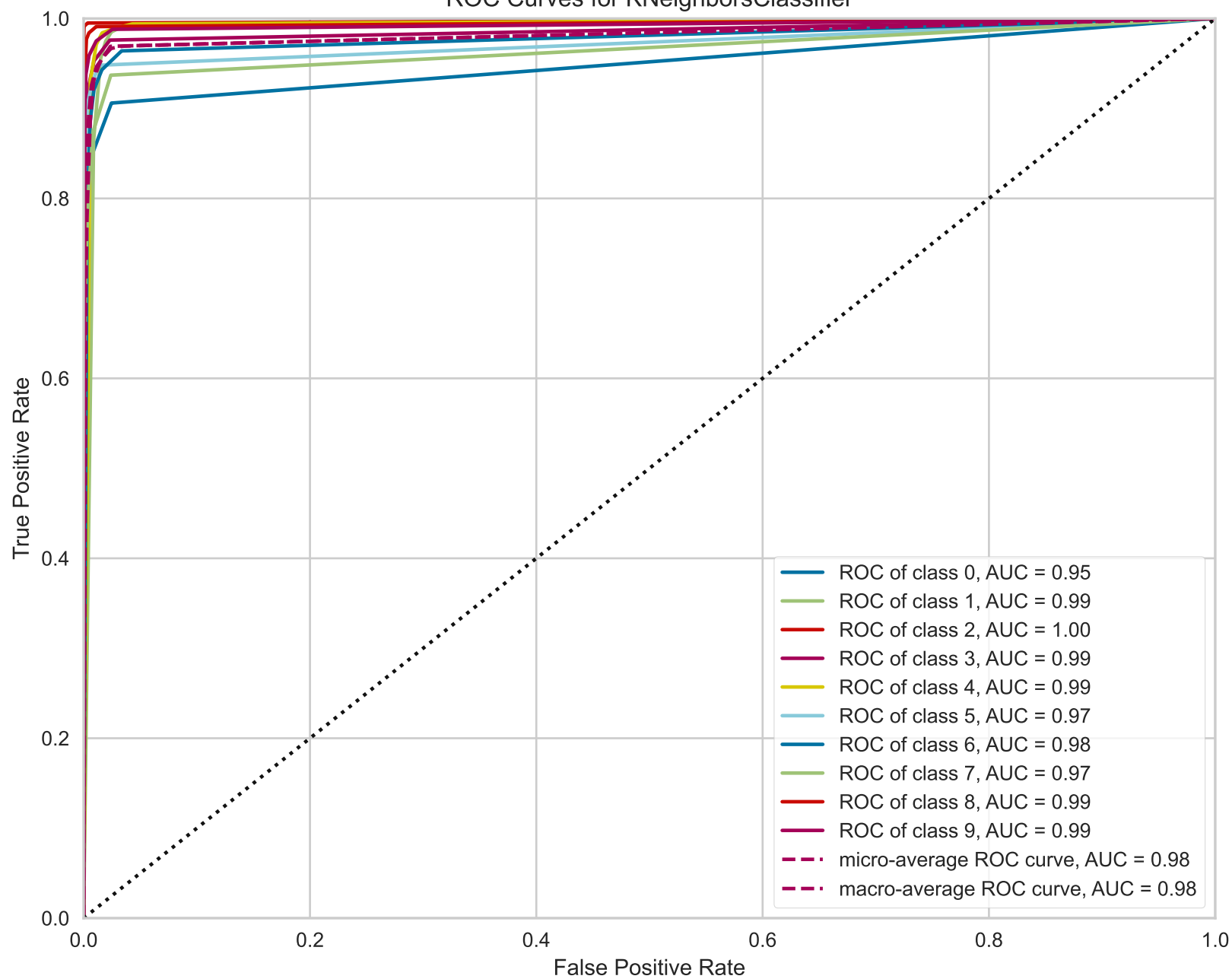|	
ROC of class 0, AUC = 0.96	
ROC of class 1, AUC = 0.98	
ROC of class 2, AUC = 1.00	
ROC of class 3, AUC = 0.98	
ROC of class 4, AUC = 0.98	
ROC of class 5, AUC = 0.98	
ROC of class 6, AUC = 0.98	
ROC of class 7, AUC = 0.96	
ROC of class 8, AUC = 0.99	
ROC of class 9, AUC = 0.98	
micro-average ROC curve, AUC = 0.98	
macro-average ROC curve, AUC = 0.98	
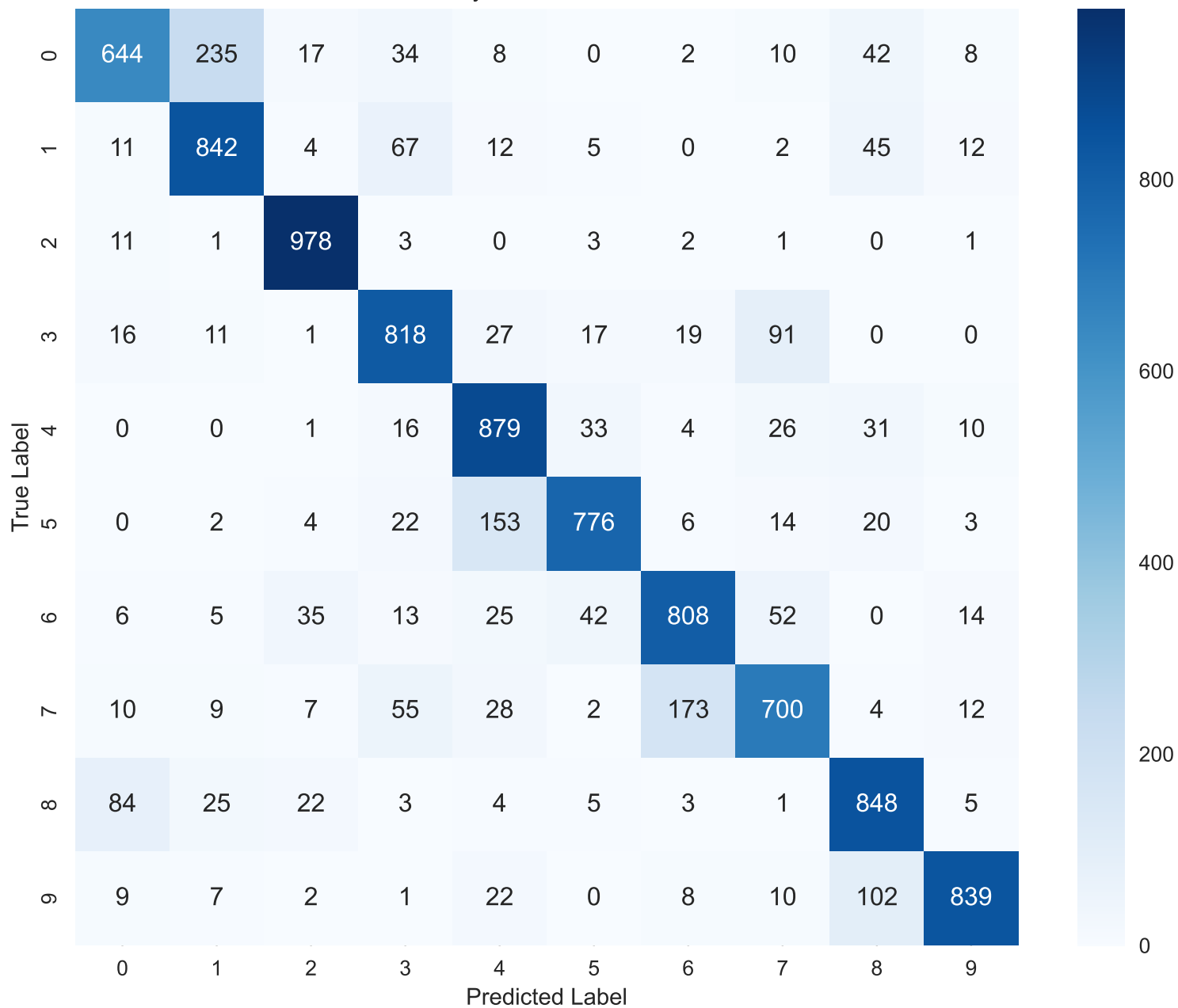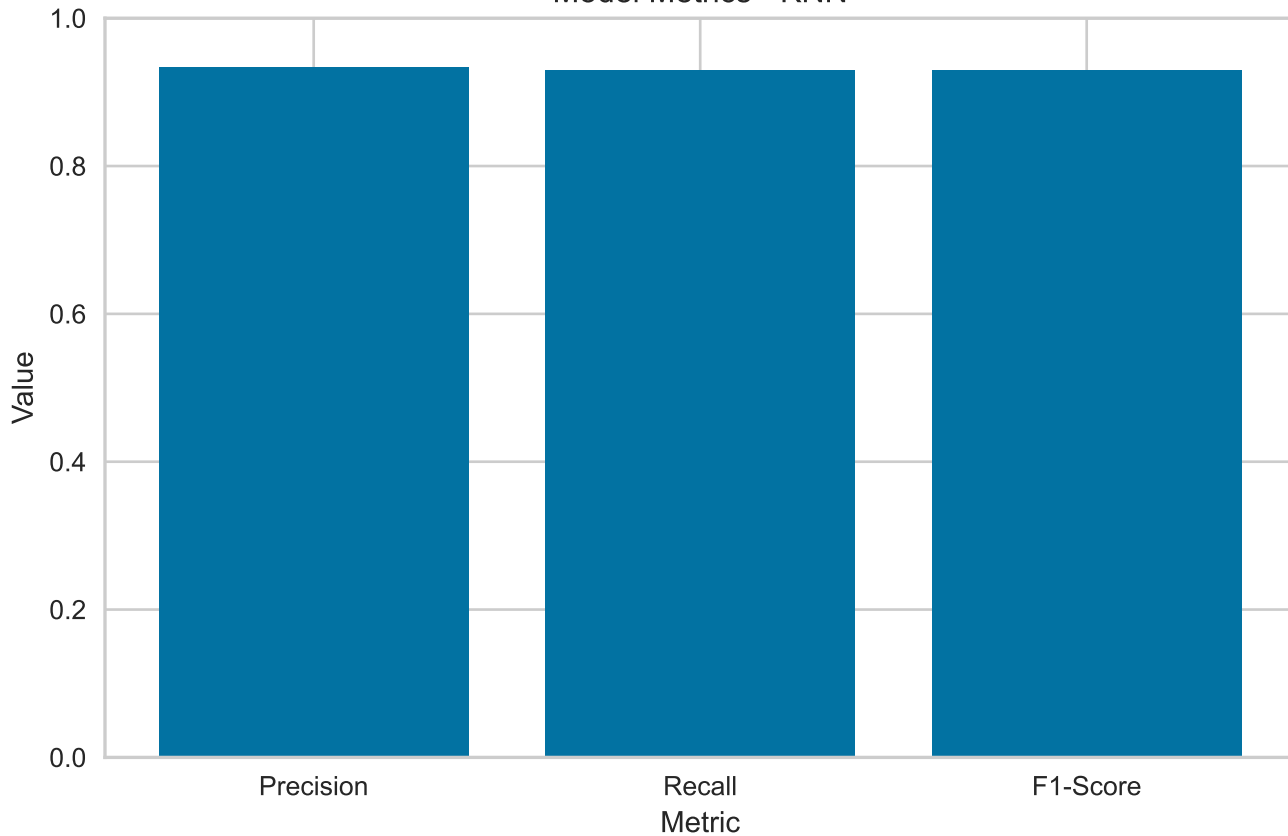
Model Metrics - KNN

KNN - Confusion Matrix

ROC Curves for KNeighborsClassifier

True Positive Rate	

False Positive Rate

- ROC of class 0, AUC = 0.95
- ROC of class 1, AUC = 0.99
- ROC of class 2, AUC = 1.00
- ROC of class 3, AUC = 0.99
- ROC of class 4, AUC = 0.99
- ROC of class 5, AUC = 0.97
- ROC of class 6, AUC = 0.98
- ROC of class 7, AUC = 0.97
- ROC of class 8, AUC = 0.99
- ROC of class 9, AUC = 0.99
- micro-average ROC curve, AUC = 0.98
- macro-average ROC curve, AUC = 0.98

Model Metrics - SVM
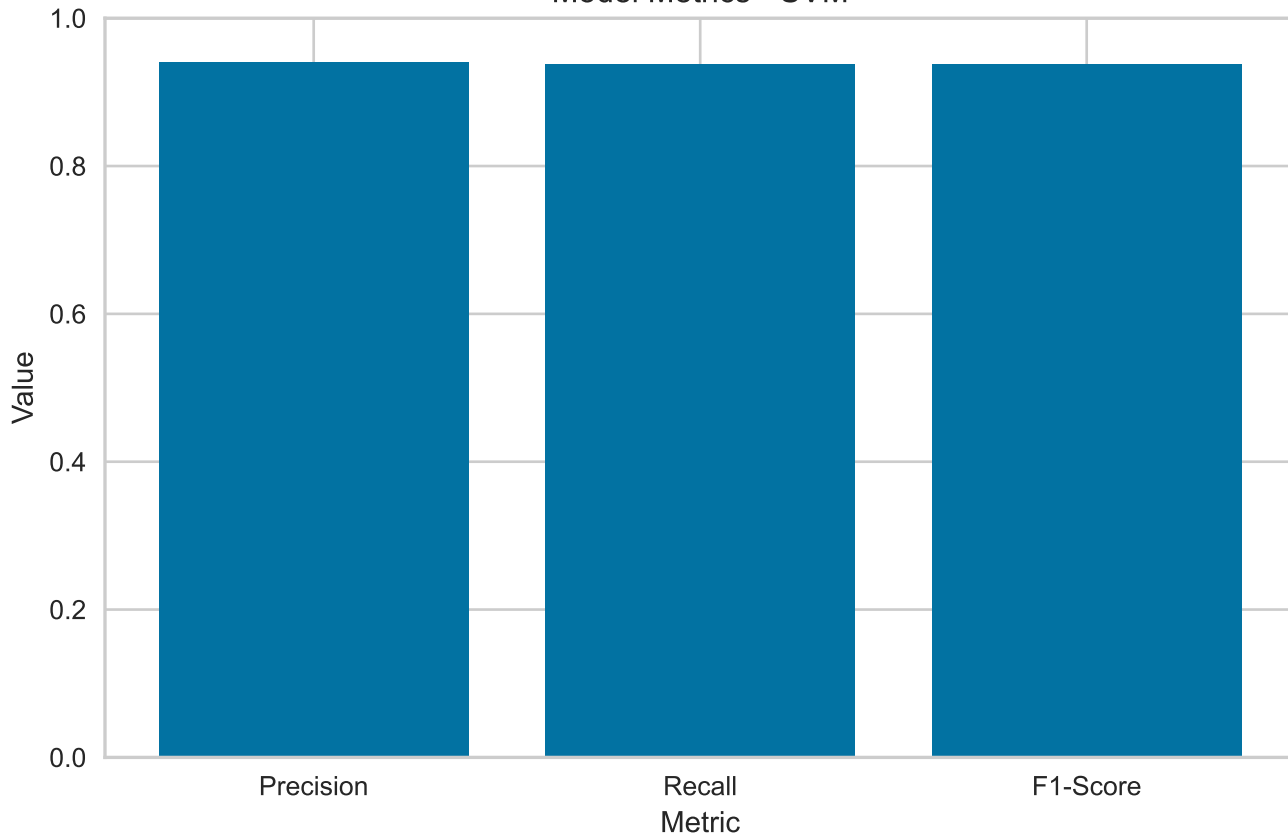
SVM - Confusion Matrix

ROC Curves for SVC

——	ROC of class 0, AUC = 0.99
——	ROC of class 1, AUC = 0.99
——	ROC of class 2, AUC = 1.00
——	ROC of class 3, AUC = 0.99
——	ROC of class 4, AUC = 1.00
——	ROC of class 5, AUC = 0.99
——	ROC of class 6, AUC = 0.99
——	ROC of class 7, AUC = 0.97
——	ROC of class 8, AUC = 1.00
——	ROC of class 9, AUC = 1.00
- - -	micro-average ROC curve, AUC = 0.99
- - -	macro-average ROC curve, AUC = 0.99
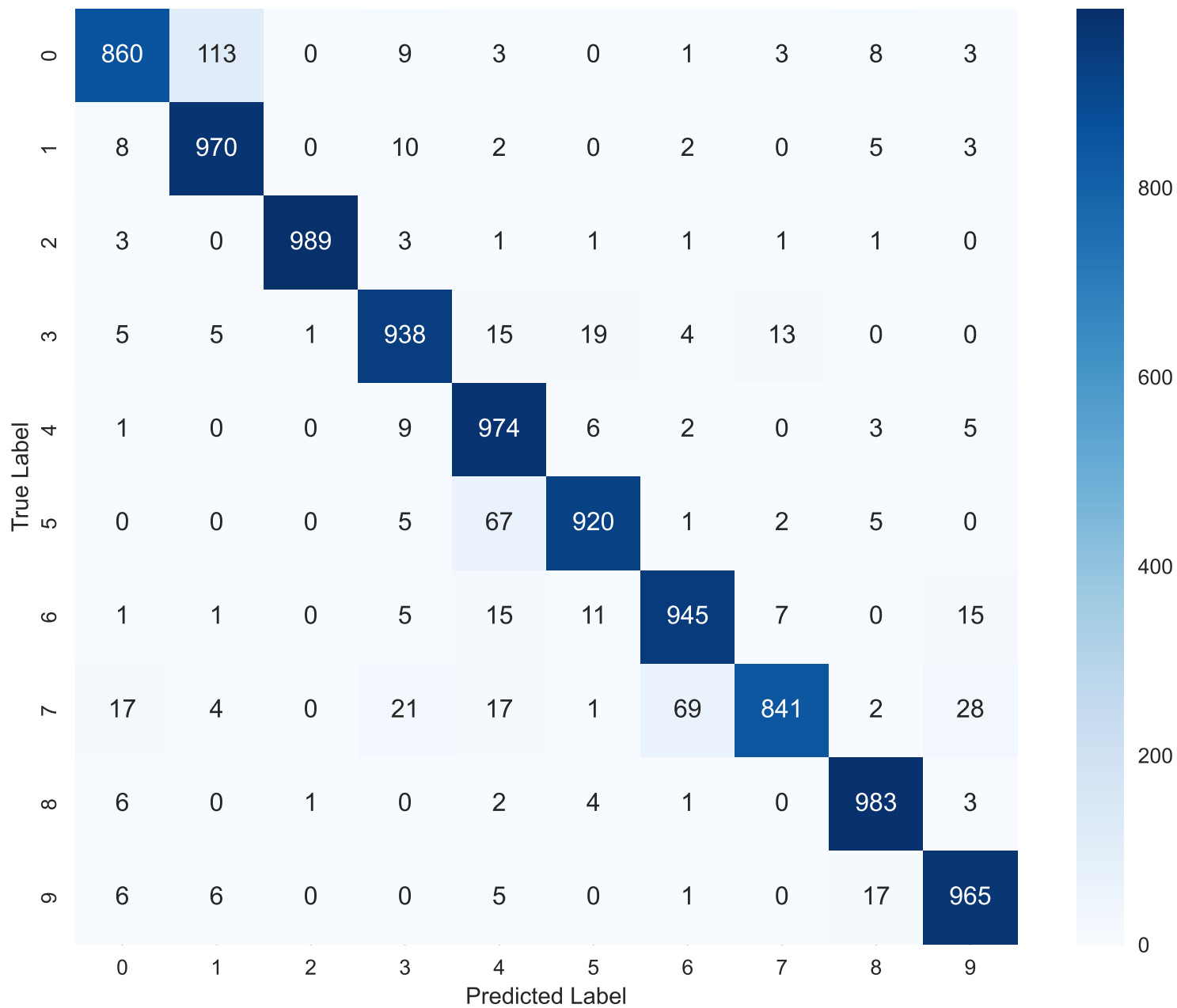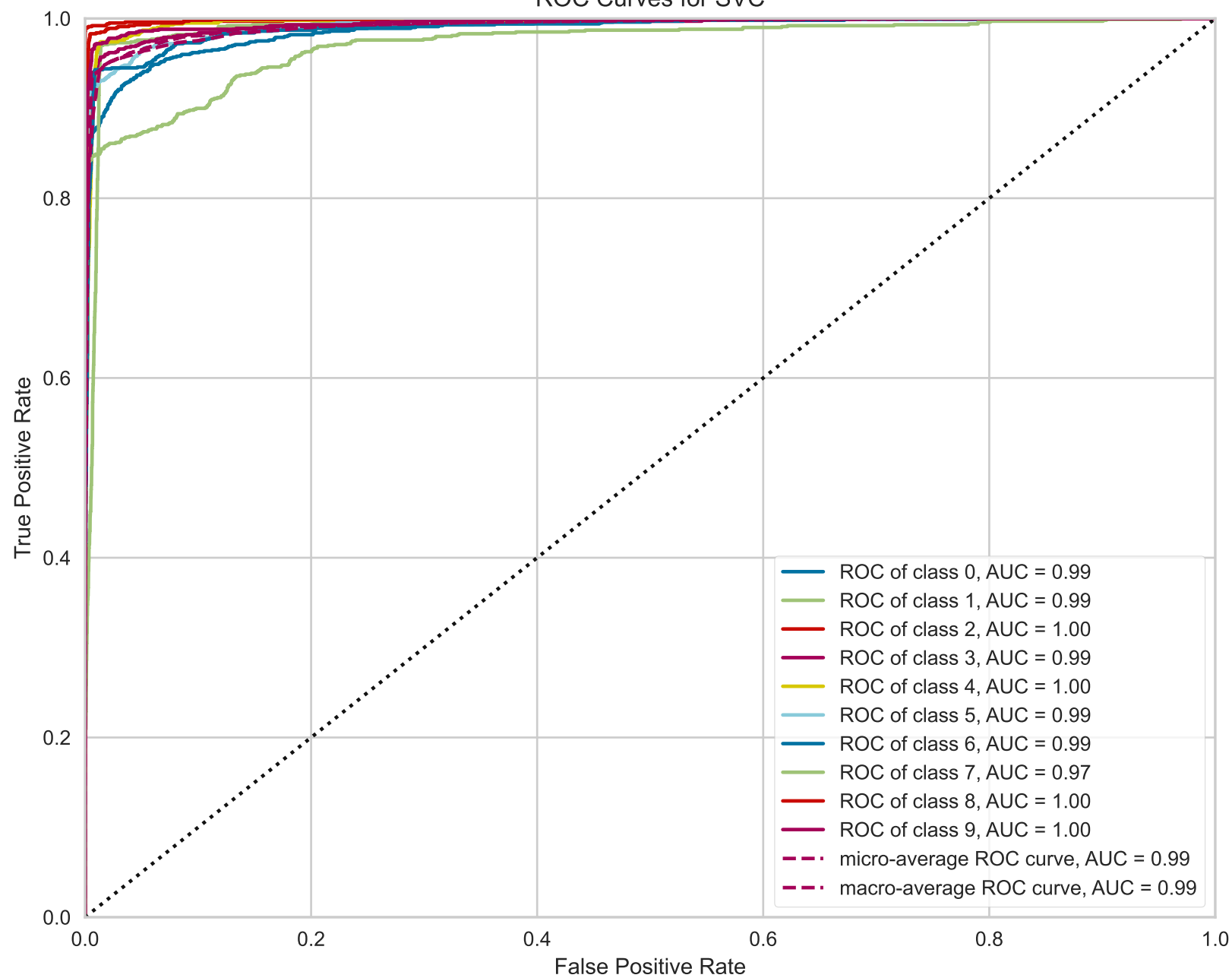
Model Comparison - PCA 30 components

Model	Precision	Recall	F1-Score
Decision Trees	0.8053782509220089	0.8057000000000001	0.8046281789436222
Random Forest	0.90801587005272	0.9051	0.9043792708011622
Naive Bayes	0.8163116953566556	0.8131999999999999	0.8119793203450658
KNN	0.9335281137418313	0.9300999999999998	0.9297705903220634
SVM	0.9402129761758014	0.9385	0.9381823919643638