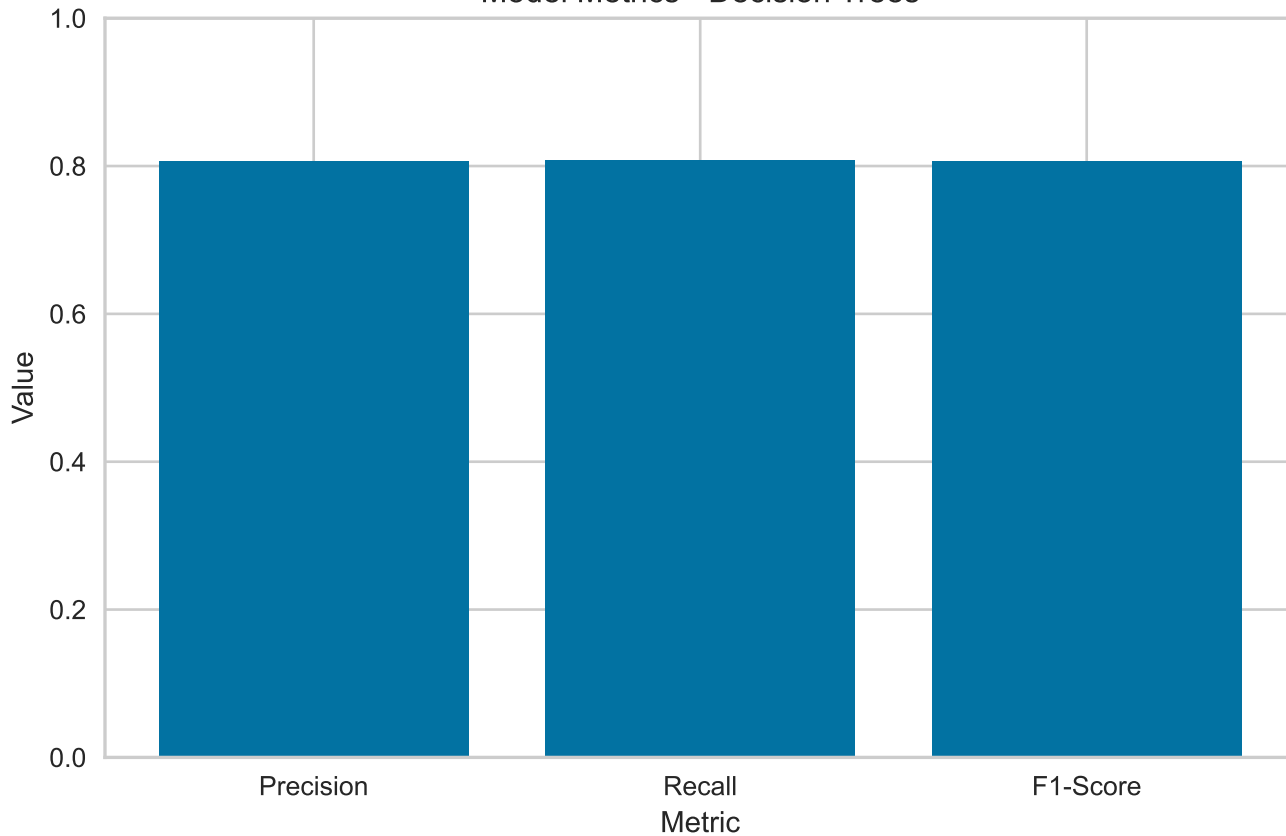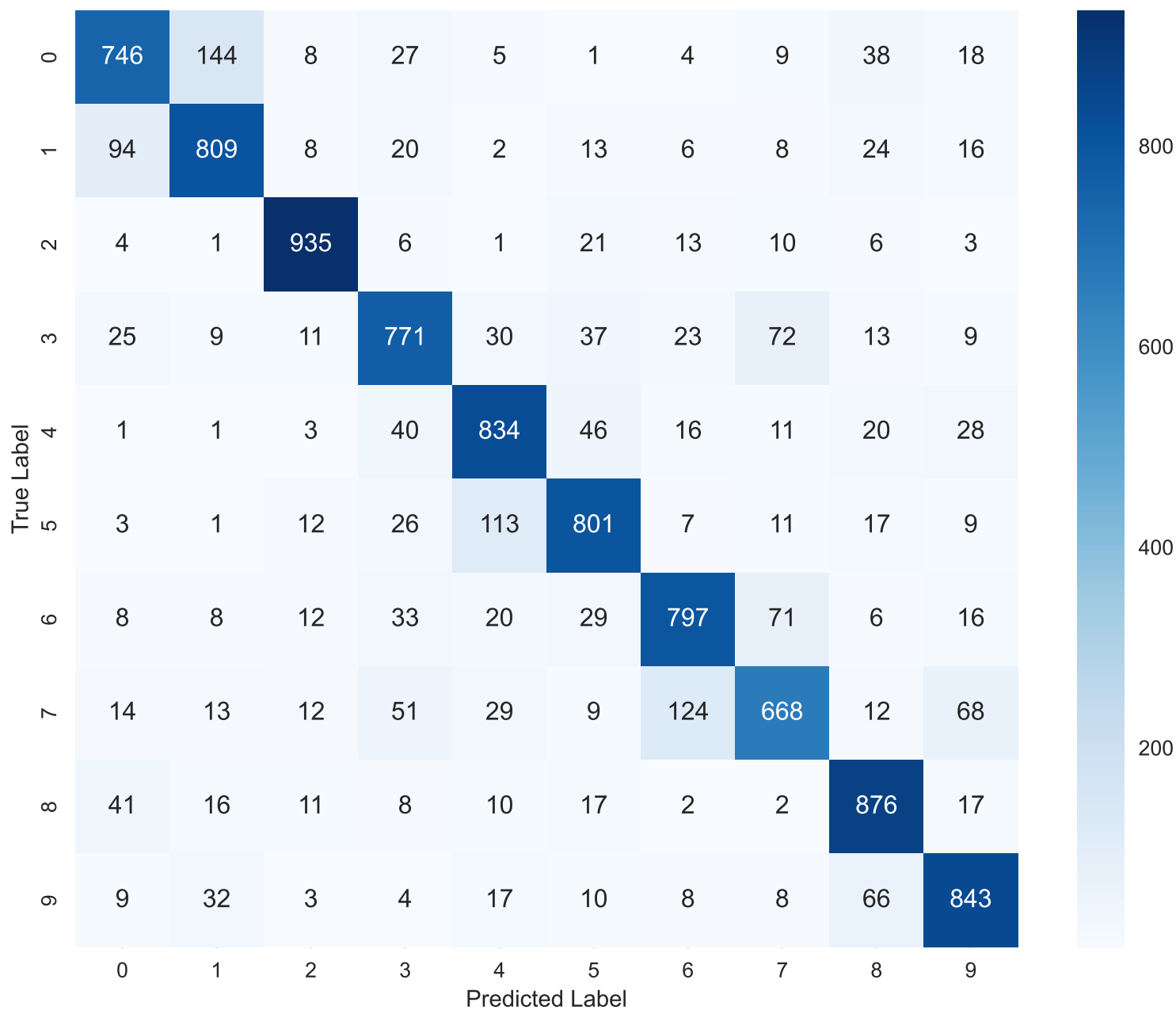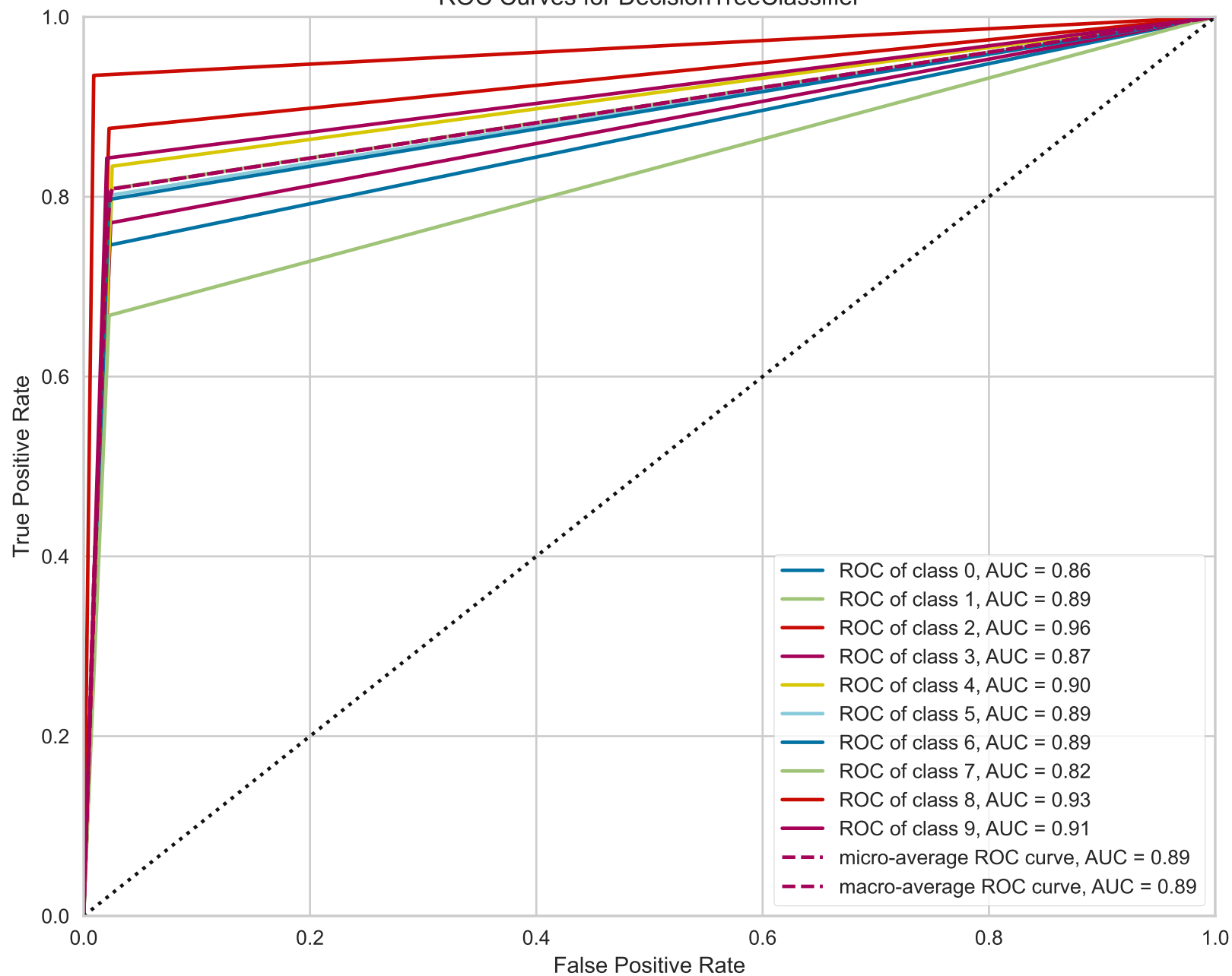Model Metrics - Decision Trees

Decision Trees - Confusion Matrix

ROC Curves for DecisionTreeClassifier

- ROC of class 0, AUC = 0.86
- ROC of class 1, AUC = 0.89
- ROC of class 2, AUC = 0.96
- ROC of class 3, AUC = 0.87
- ROC of class 4, AUC = 0.90
- ROC of class 5, AUC = 0.89
- ROC of class 6, AUC = 0.89
- ROC of class 7, AUC = 0.82
- ROC of class 8, AUC = 0.93
- ROC of class 9, AUC = 0.91
- micro-average ROC curve, AUC = 0.89
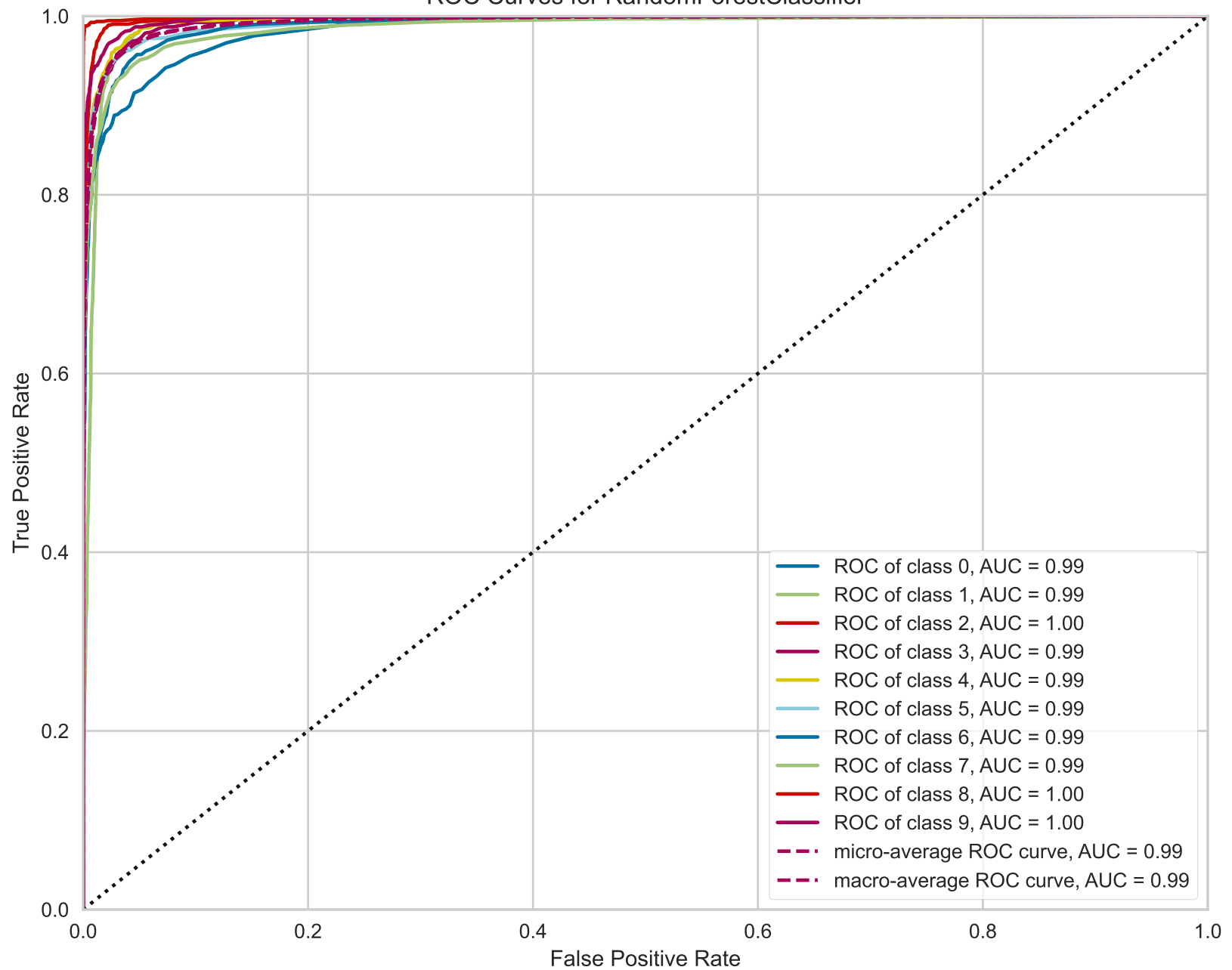- macro-average ROC curve, AUC = 0.89

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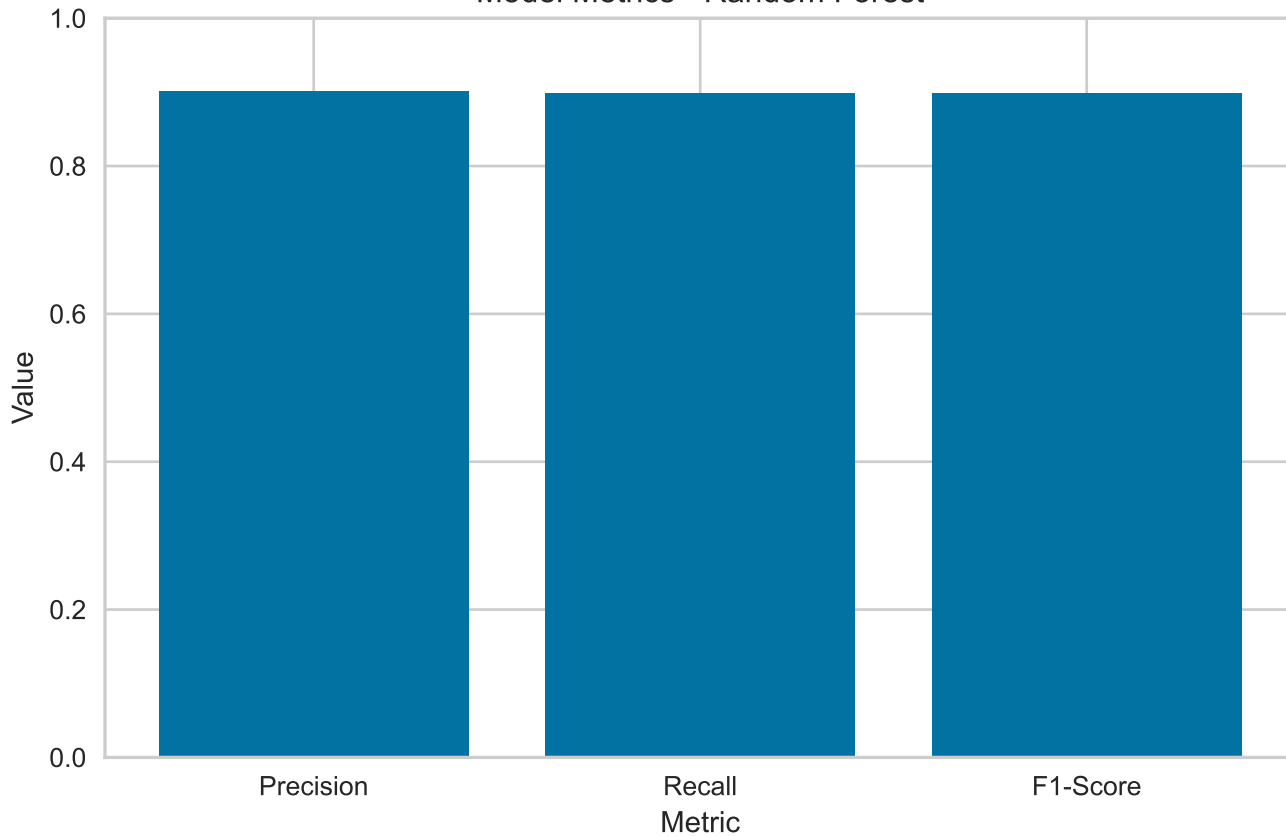
Random Forest - Confusion Matrix
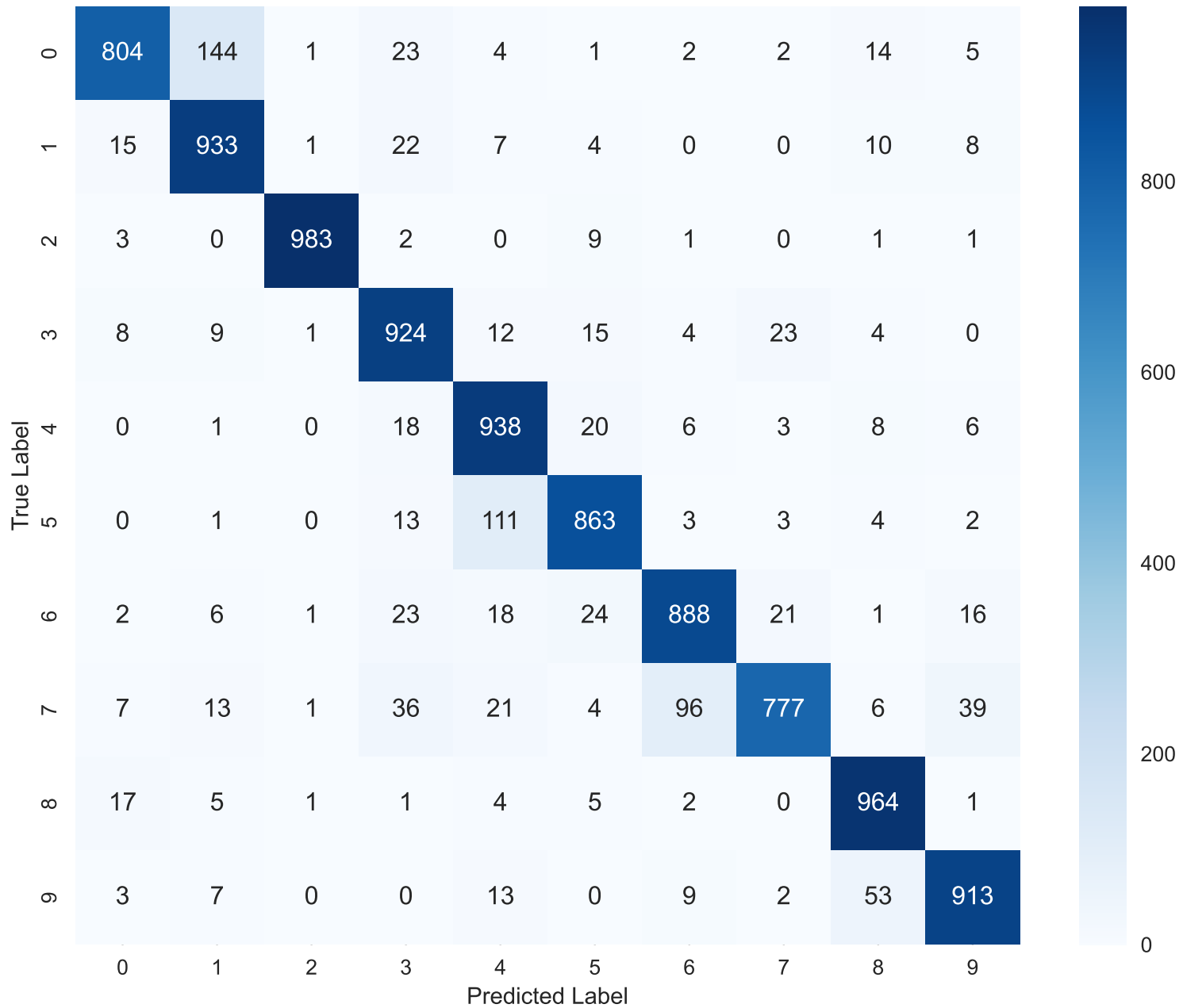
ROC Curves for RandomForestClassifier

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 = 0.99
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
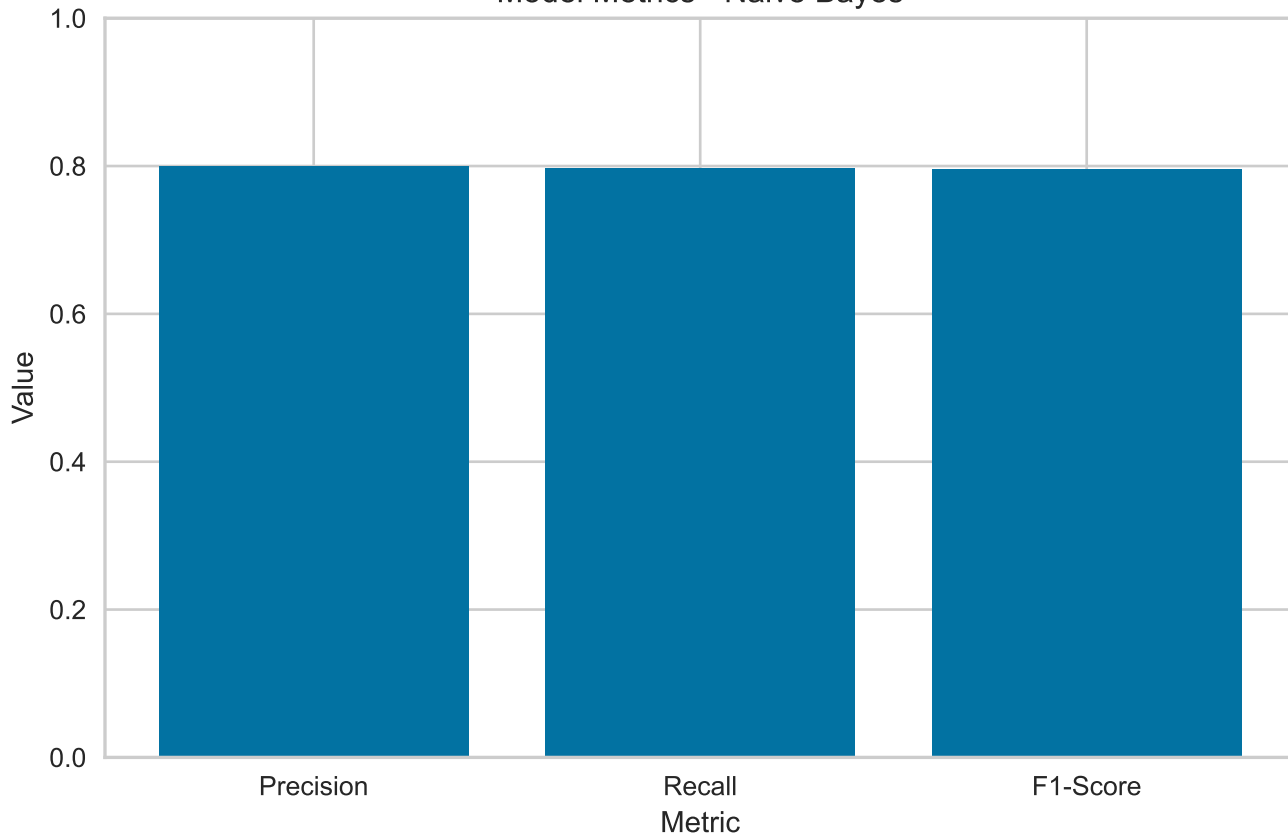
Naive Bayes - Confusion Matrix

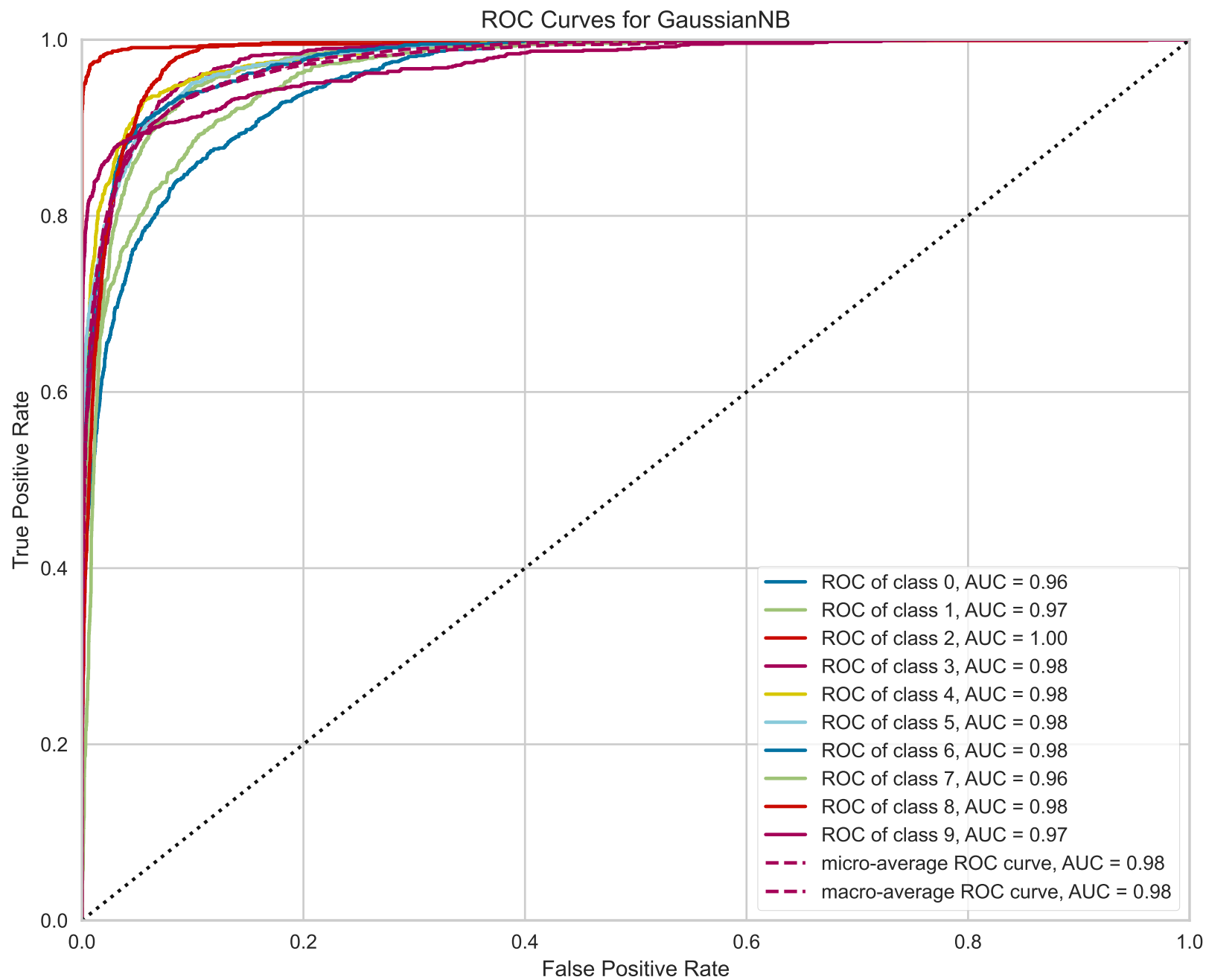|	0	1	2	3	4	5	6	7	8	9
0	622	234	16	43	9	0	2	11	54	9
1	16	805	2	89	8	6	0	3	56	15
2	14	1	972	4	0	5	2	1	0	1
3	18	9	2	805	33	19	22	92	0	0
4	2	0	0	21	882	26	4	21	31	13
5	0	1	5	36	178	733	4	24	16	3
6	7	5	36	14	25	49	808	41	1	14
7	9	11	4	45	33	1	182	698	4	13
8	99	25	25	3	2	6	1	2	827	10
9	15	10	5	0	19	0	8	17	107	819

ROC Curves for GaussianNB

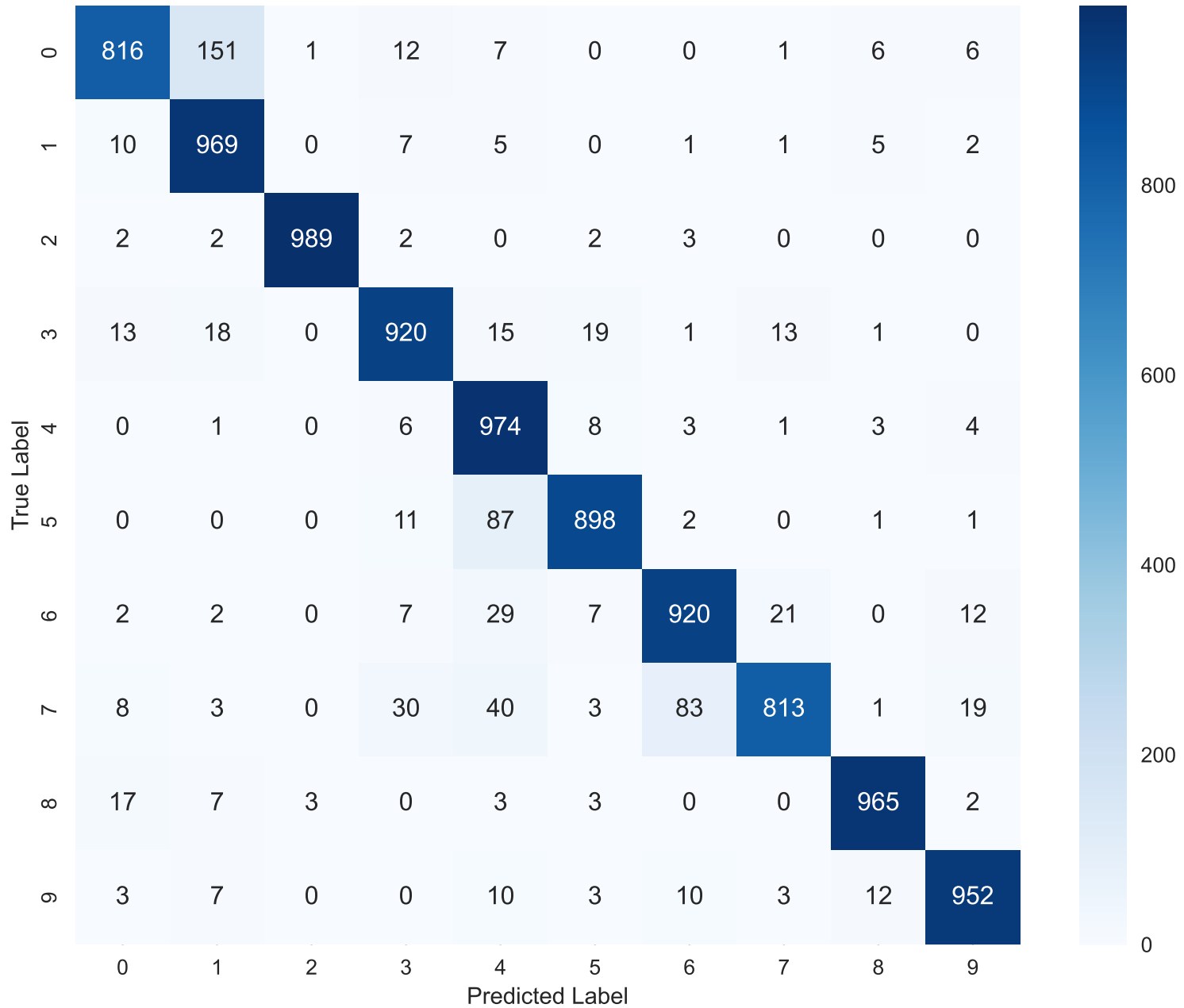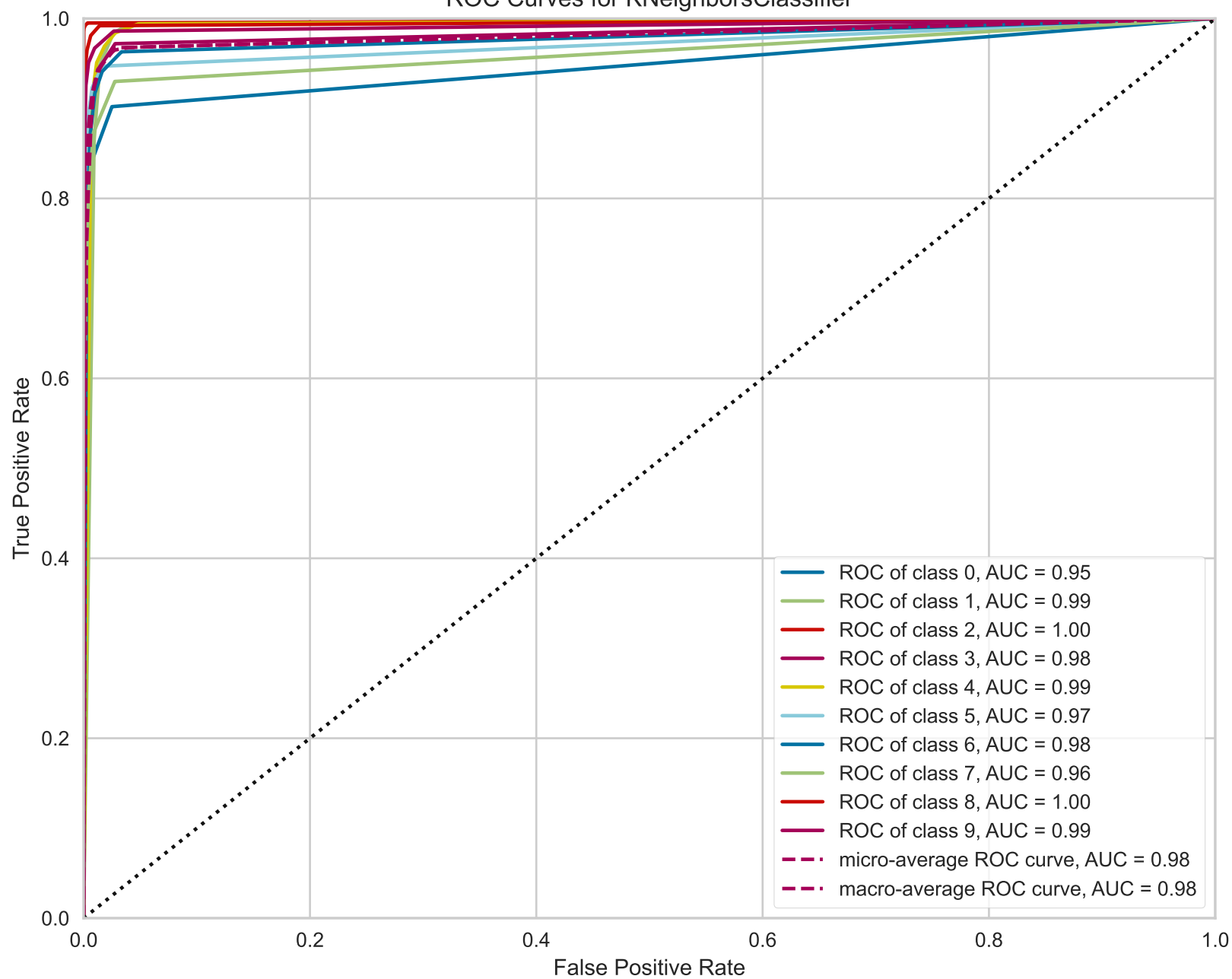|	
ROC of class 0, AUC = 0.96	
ROC of class 1, AUC = 0.97	
ROC of class 2, AUC = 1.00	
ROC of class 3, AUC = 0.98	
ROC of class 4, AUC = 0.98	
ROC of class 5, AUC = 0.98	
ROC of class 6, AUC = 0.98	
ROC of class 7, AUC = 0.96	
ROC of class 8, AUC = 0.98	
ROC of class 9, AUC = 0.97	
micro-average ROC curve, AUC = 0.98	
macro-average ROC curve, AUC = 0.98	

Model Metrics - KNN

KNN - Confusion Matrix

ROC Curves for KNeighborsClassifier
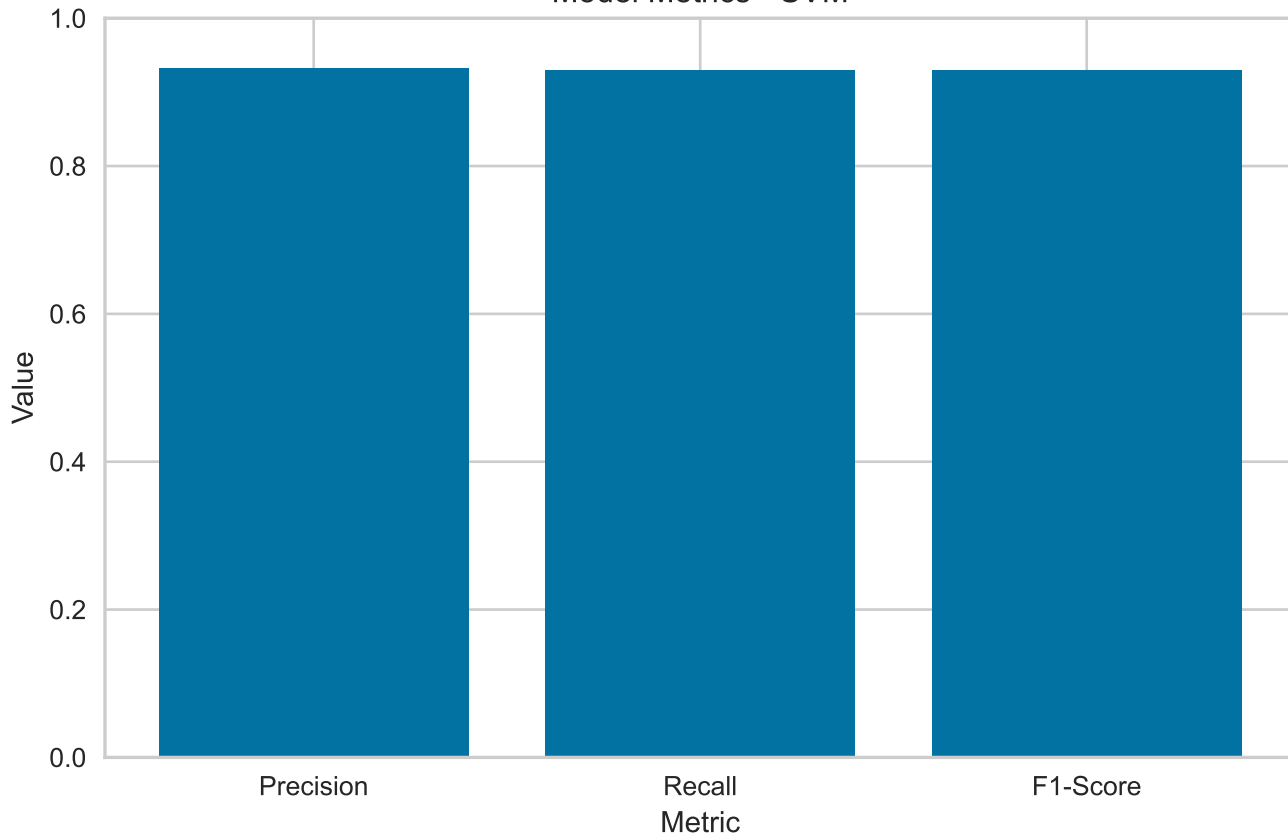
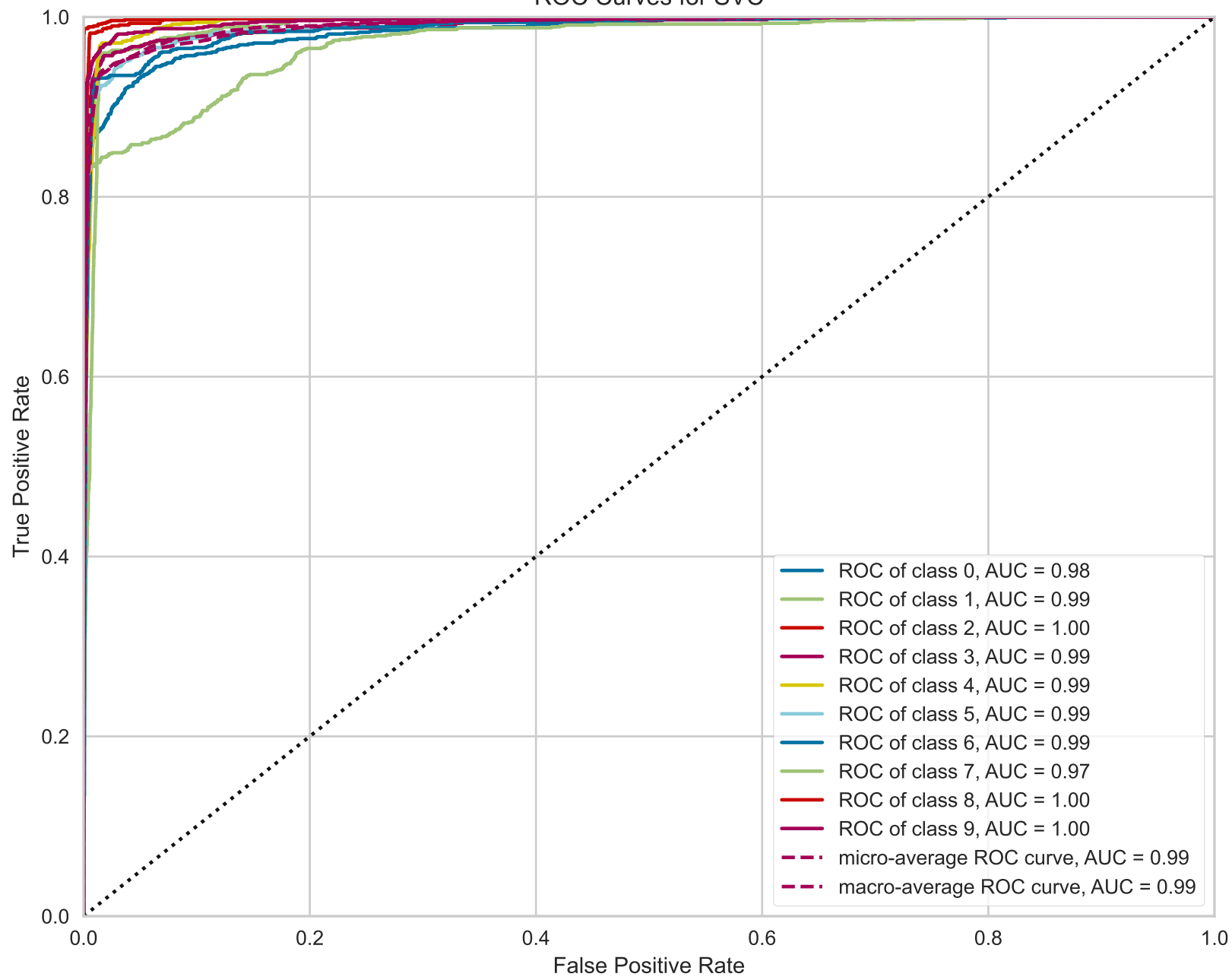SVM - Confusion Matrix

ROC Curves for SVC

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 = 0.99	
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	
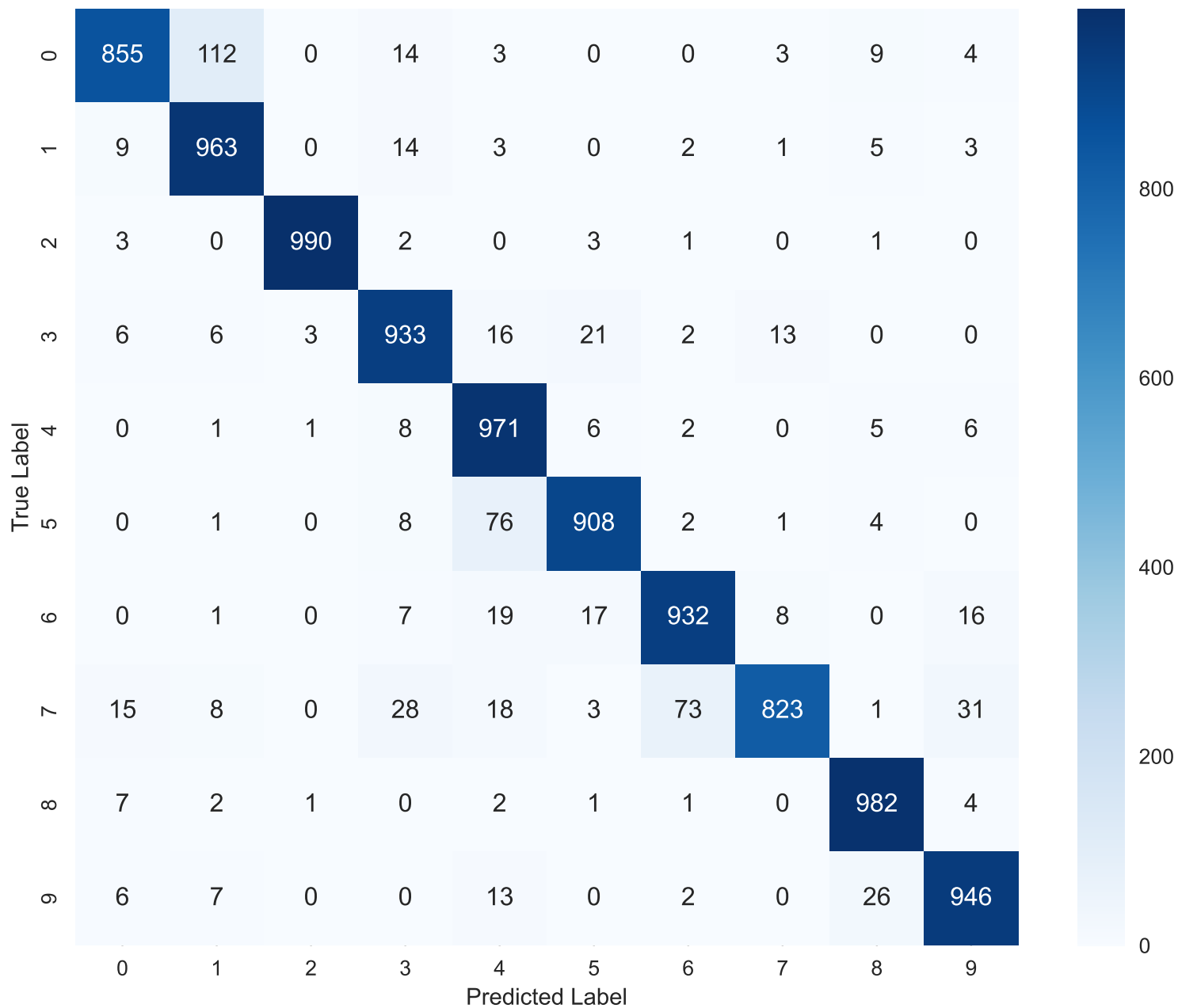
Model Comparison - PCA 20 components

Model	Precision	Recall	F1-Score
Decision Trees	0.8073290693212728	0.8080000000000002	0.8070150275573147
Random Forest	0.9018342054752877	0.8987	0.8981863952083083
Naive Bayes	0.8003195624378133	0.7971	0.7957485286511963
KNN	0.9254707712081416	0.9216	0.9214195021608221
SVM	0.9324768219217587	0.9302999999999999	0.9299547153508169