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CS 6375.003

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Collaborative Filtering

Mean Absolute Error (MAE) = 0.9096

Root Mean Squared Error (RMSE) = 1.995

SVM

#	Parameters	Accuracy	Error Rate
1	kernel='linear', C=2.0	93.81	6.19
2	kernel='linear', C=1.0	94.04	5.96
3	kernel='poly', gamma='auto', max_iter=5, degree=2	25.79	74.21
4	kernel='rbf', C=5, decision_function_shape='ovo'	98.41	1.59
5	kernel='rbf', C=1, max_iter=100	92.71	7.29
6	C=0.9, kernel='poly', degree=3	97.68	2.32
7	kernel='sigmoid', C=1, class_weight='balanced'	77.63	22.37
8	C=100, kernel='linear', gamma='auto', max_iter=1000, probability=False, random_state=None	80.14	19.86
9	kernel='rbf', gamma='scale', random_state=None	97.92	2.08
10	kernel='sigmoid', coef0=0.68, degree=15, random_state=1	71.55	28.45

MLPC

#	Parameters	Accuracy	Error Rate
1	solver='sgd', activation='logistic', alpha=1, learning_rate_init=.1, early_stopping=True	91.05	8.95

2	activation = 'identity'	92.41	7.59
3	activation = 'logistic'	97.84	2.16
4	activation='relu', solver='adam',hidden_layer_sizes=(15,),random_state=1	94.8	5.2
5	solver='sgd', random_state=1, batch_size = 'auto'	97.3	2.7
6	solver='adam', validation_fraction=0.2, beta_1=0.9, beta_2=0.999	97.79	2.21
7	solver='sgd', nesterovs_momentum = False	97.17	2.83
8	solver='sgd', random_state=2, batch_size = 'auto'	97.06	2.94
9	hidden_layer_sizes=(10, 5), max_iter=500	93.21	6.79
10	activation='relu',solver='lbfgs', hidden_layer_sizes=(10,10),random_state=35, alpha=0.001,learning_rate='constant',learning_rate_init = 0.7,shuffle=True, max_iter = 100	85.56	14.44

KNN

#	Parameters	Accuracy	Error Rate
1	n_neighbors=6	96.77	3.23
2	n_neighbors=7, weights='distance'	97	3
3	n_neighbors=6, weights='distance'	97.09	2.91
4	n_neighbors=3,algorithm="kd_tree",leaf_size=30,weights='distance'	97.17	2.83
5	n_neighbors=5,algorithm="kd_tree",leaf_size=30, weights='distance'	96.91	3.09
6	algorithm='brute', n_jobs=5	96.88	3.12
7	algorithm='brute', n_jobs=10, weights='distance'	96.91	3.09
8	n_neighbors=10,algorithm='brute', n_jobs=10, weights='distance'	96.84	3.16
9	n_neighbors=15,algorithm='brute', n_jobs=10, weights='distance', leaf_size=50	96.47	3.53
10	n_neighbors=2, weights='distance', algorithm='ball_tree', n_jobs=3	96.91	3.09

BEST ERROR RATE FOR EACH CLASSIFIER

Classifier	Error Rate
SVM	1.59
MLPC	2.16
KNN	2.91