מגיש: יונתן שירמן ת.ז 208870246

מבוא ללמידת מכונה – מטלה מס' 1

תוצאות ניסויי הרצה

קובץ זה מהווה את חלק ב' של המטלה – הרצת מס' ניסויים לקבלת הערכים הטובים ביותר לקבלת דיוק מירבי. פרמטר הדיוק הנבחר הוא f1_score.

לכל הרצה מצוינים הפרמטרים ששונו. הפרמטרים המסומנים בצהוב בין ניסוי לניסוי הם הפרמטרים שבוצע בהם שינוי.

ניסוי מס' 1 הוא ניסוי עם ערכים דיפולטיביים כדי לקבל המחשה לדיוק המודלים עם ערכים ברירת מחדל

ניסוי מס' 1 – ערכים דיפולטיביים Default Parameters

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	Default	Default	Default
RESULTS	AdaBoost Results: accuracy: 0.956140350877193 confusion_matrix: [[44 3] [2 65]] precision: 0.9558823529411765 recall: 0.9701492537313433 f1_score: 0.9629629629629629	Random Forest Results: accuracy: 0.9649122807017544 confusion_matrix: [[46 1] [3 64]] precision: 0.9846153846153847 recall: 0.9552238805970149 f1_score: 0.9696969696969697	Decision Tree Results: accuracy: 0.9035087719298246 confusion_matrix: [[44 3] [8 59]] precision: 0.9516129032258065 recall: 0.8805970149253731 f1_score: 0.9147286821705426
BEST MODEL	the best classifier based on f1_score metric is:Random Forest		

ניסוי מס' 2

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	•n_estimators=100 •,random_state=0, •learning_rate=5	•n_estimators=100, •criterion='entropy', •max_depth=8 ,•min_impurity_decrease=0.05, •max_features=3, •random_state=0, •ccp_alpha=0.05	•(criterion='entropy', •ccp_alpha=0.05, •random_state=0, •max_features=2, •max_depth=10)
RESULTS	AdaBoost Results: accuracy: 0.8421052631578947 confusion_matrix: [[29 18] [0 67]] precision: 0.788235294117647 recall: 1.0 f1_score: 0.881578947368421	Random Forest Results: accuracy: 0.9473684210526315 confusion_matrix: [[44 3] [3 64]] precision: 0.9552238805970149 recall: 0.9552238805970149 f1_score: 0.9552238805970149	Decision Tree Results: accuracy: 0.9035087719298246 confusion_matrix: [[43 4] [7 60]] precision: 0.9375 recall: 0.8955223880597015 f1_score: 0.916030534351145
BEST MODEL	the best classifier based on f1_score metric is:Random Forest		

ניסוי מס' 3

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	•n_estimators=100 •,random_state=0, •learning_rate=1	•n_estimators=100, •criterion='entropy', •max_depth=6 ,•min_impurity_decrease=0.05, •max_features=5, •random_state=0, •ccp_alpha=0.04	•(criterion='entropy', •ccp_alpha=0.04, •random_state=0, •max_features=3, •max_depth=8)
RESULTS	AdaBoost Results: accuracy: 0.956140350877193 confusion_matrix: [[44 3] [2 65]] precision: 0.9558823529411765 recall: 0.9701492537313433 f1_score: 0.9629629629629629	Random Forest Results: accuracy: 0.9473684210526315 confusion_matrix: [[44 3] [3 64]] precision: 0.9552238805970149 recall: 0.9552238805970149 f1_score: 0.9552238805970149	Decision Tree Results: accuracy: 0.9649122807017544 confusion_matrix: [[43 4] [0 67]] precision: 0.9436619718309859 recall: 1.0 f1_score: 0.9710144927536232
BEST MODEL	the best classifier based on f1_score metric is:Decision Tree		

ניסוי מס' 4

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	•n_estimators=150 •,random_state=0, •learning_rate=0.5	•n_estimators=150, •criterion='entropy', •max_depth=7 ,•min_impurity_decrease=0.05, •max_features=5, •random_state=0, •ccp_alpha=0.03	•(criterion='entropy', •ccp_alpha=0.03, •random_state=0, •max_features=3, •max_depth=7)
RESULTS	AdaBoost Results: accuracy: 0.9824561403508771 confusion_matrix: [[45 2] [0 67]] precision: 0.9710144927536232 recall: 1.0 f1_score: 0.9852941176470589	Random Forest Results: accuracy: 0.9473684210526315 confusion_matrix: [[44 3] [3 64]] precision: 0.9552238805970149 recall: 0.9552238805970149 f1_score: 0.9552238805970149	Decision Tree Results: accuracy: 0.9298245614035088 confusion_matrix: [[41 6] [2 65]] precision: 0.9154929577464789 recall: 0.9701492537313433 f1_score: 0.9420289855072463
BEST MODEL	the best classifier based on f1_score metric is:AdaBoost		

ניסוי מס' 5

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	•n_estimators=200 •,random_state=0, •learning_rate=0.9	•n_estimators=150, •criterion='entropy', •max_depth=7 ,•min_impurity_decrease=0.03, •max_features=8, •random_state=0, •ccp_alpha=0.027	•(criterion='entropy', •ccp_alpha=0.02, •random_state=0, •max_features=3, •max_depth=6)
RESULTS	AdaBoost Results: accuracy: 0.9824561403508771 confusion_matrix: [[45 2] [0 67]] precision: 0.9710144927536232 recall: 1.0 f1_score: 0.9852941176470589	Random Forest Results: accuracy: 0.9736842105263158 confusion_matrix: [[45 2] [1 66]] precision: 0.9705882352941176 recall: 0.9850746268656716 f1_score: 0.9777777777777777	Decision Tree Results: accuracy: 0.956140350877193 confusion_matrix: [[42 5] [0 67]] precision: 0.9305555555555556 recall: 1.0 f1_score: 0.9640287769784173
BEST MODEL	the best classifier based on f1_score metric is:AdaBoost		

ניסוי מס' 6

	ADABOOST	RANDOM FOREST	DECISION TREE
PARAMETERS	•n_estimators=200 •,random_state=0, •learning_rate=0.905	•n_estimators=200, •criterion='entropy', •max_depth=8 ,•min_impurity_decrease=0.027, •max_features=8, •random_state=0, •ccp_alpha=0.027	•(criterion='entropy', •ccp_alpha=0.02, •random_state=42, •max_features=3, •max_depth=6)
RESULTS	AdaBoost Results: accuracy: 0.9912280701754386 confusion_matrix: [[46 1] [0 67]] precision: 0.9852941176470589 recall: 1.0 f1_score: 0.9925925925925926	Random Forest Results: accuracy: 0.9736842105263158 confusion_matrix: [[45 2] [1 66]] precision: 0.9705882352941176 recall: 0.9850746268656716 f1_score: 0.9777777777777777	Decision Tree Results: accuracy: 0.9912280701754386 confusion_matrix: [[47 0] [1 66]] precision: 1.0 recall: 0.9850746268656716 f1_score: 0.9924812030075187
BEST MODEL	the best classifier based on f1_score metric is:AdaBoost		