Dataset: bank-tr.csv

Experiment: exp_02

DecisionTreeClassifier(random_state=0)
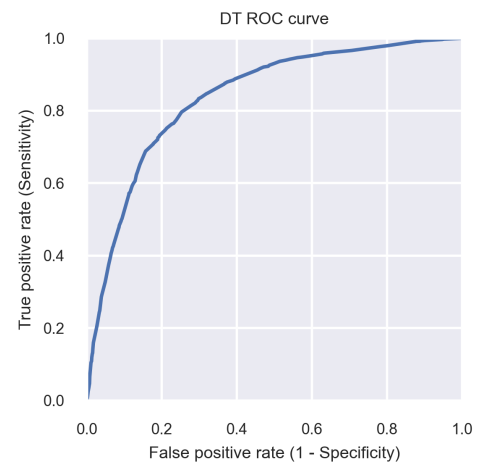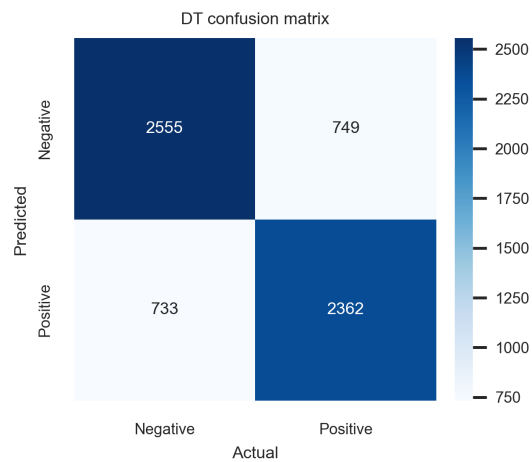
DT experiment best results:

Experiment best score (accuracy): 0.768402

DT cross validation scores:

Accuracy: 0.768402
Precision: 0.763056
Recall: 0.763166
F1: 0.759561
AUC: 0.835908

DT confusion matrix & ROC curve:

Best classifier:

DecisionTreeClassifier(random_state=0)

Best hyperparameters:

ccp_alpha: 0.001
criterion: gini
max_depth: 9
max_features: sqrt

Grid search hyperparameters:

ccp_alpha: [0.001]
criterion: ['gini']
max_depth: [9]
max_features: ['sqrt']

Dataset: bank-tr.csv
Experiment: exp_02

DecisionTreeClassifier(random_state=0)

Experiment parameters:
  n_splits: 5
  scoring: accuracy
  target: made_deposit
  categorical columns:
    defaulted?
    has_loan
    last_contact
    cc_tr
    last_contact_month
    poutcome
  feature selection:
    accountID: False
    town: False
    country: False
    age: False
    job: False
    married: False
    education: False
    defaulted?: True
    current_balance: True
    housing: False
    has_loan: True
    last_contact: True
    cc_tr: True
    last_contact_day: True
    last_contact_month: True
    last_contact_duration_s: True
    campaign: True
    days_since_last_contact: True
    previous: True
    poutcome: True
    made_deposit: True

Dataset: bank-tr.csv

Experiment: exp_02

MLPClassifier(max_iter=5000, random_state=0)

MLP experiment best results:

Experiment best score (accuracy): 0.836852

MLP cross validation scores:
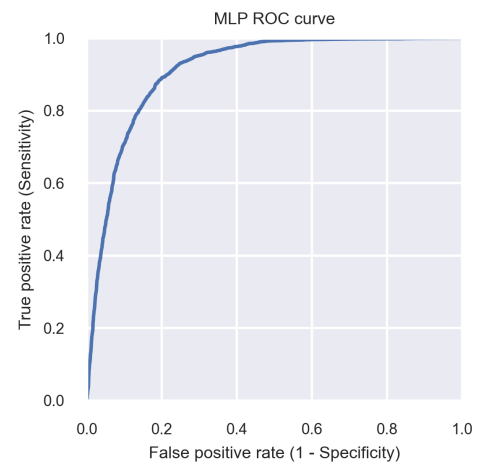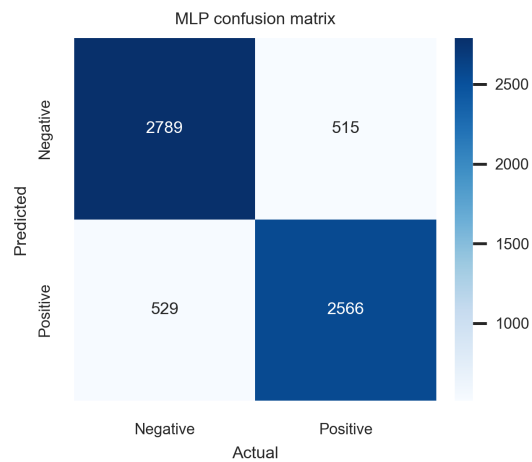
Accuracy: 0.836852
Precision: 0.832808
Recall: 0.829079
F1: 0.830893
AUC: 0.913013

MLP confusion matrix & ROC curve:

Best classifier:

MLPClassifier(max_iter=5000, random_state=0)

Best hyperparameters:

activation: tanh
alpha: 0.05
hidden_layer_sizes: (10,)
learning_rate: constant
max_iter: 10000
solver: adam

Grid search hyperparameters:

hidden_layer_sizes: [(10,)]
activation: ['tanh']
solver: ['adam']
alpha: [0.05]
learning_rate: ['constant']
max_iter: [10000]

Dataset: bank-tr.csv

Experiment: exp_02

MLPClassifier(max_iter=5000, random_state=0)

Experiment parameters:
  n_splits: 5
  scoring: accuracy
  target: made_deposit
  categorical columns:
    defaulted?
    has_loan
    last_contact
    cc_tr
    last_contact_month
    poutcome
  feature selection:
    accountID: False
    town: False
    country: False
    age: False
    job: False
    married: False
    education: False
    defaulted?: True
    current_balance: True
    housing: False
    has_loan: True
    last_contact: True
    cc_tr: True
    last_contact_day: True
    last_contact_month: True
    last_contact_duration_s: True
    campaign: True
    days_since_last_contact: True
    previous: True
    poutcome: True
    made_deposit: True

Dataset: bank-tr.csv
Experiment: exp_02

LogisticRegression(max_iter=1000, random_state=0)

LR experiment best results:

Experiment best score (accuracy): 0.813254

LR cross validation scores:
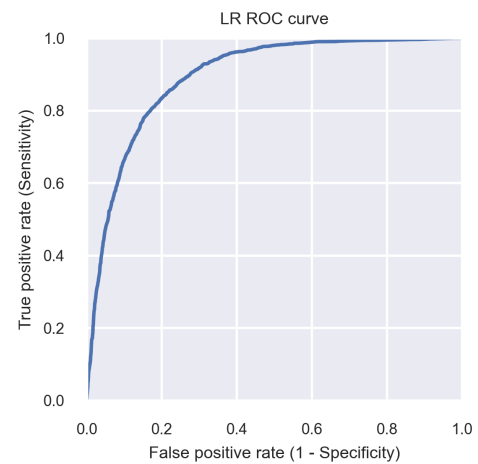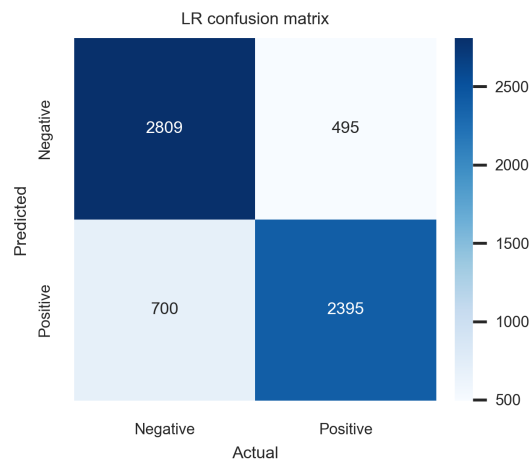
Accuracy: 0.813254
Precision: 0.828712
Recall: 0.773829
F1: 0.800237
AUC: 0.894677

LR confusion matrix & ROC curve:

Best classifier:

LogisticRegression(max_iter=1000, random_state=0)

Best hyperparameters:

C: 10
penalty: l1
solver: liblinear

Grid search hyperparameters:

penalty: ['l1']
C: [10]
solver: ['liblinear']

Dataset: bank-tr.csv

Experiment: exp_02

<u>LogisticRegression(max_iter=1000, random_state=0)</u>

Experiment parameters:
    n_splits: 5
    scoring: accuracy
    target: made_deposit
    categorical columns:
        defaulted?
        has_loan
        last_contact
        cc_tr
        last_contact_month
        poutcome
    feature selection:
        accountID: False
        town: False
        country: False
        age: False
        job: False
        married: False
        education: False
        defaulted?: True
        current_balance: True
        housing: False
        has_loan: True
        last_contact: True
        cc_tr: True
        last_contact_day: True
        last_contact_month: True
        last_contact_duration_s: True
        campaign: True
        days_since_last_contact: True
        previous: True
        poutcome: True
        made_deposit: True