Dataset: bank-tr.csv

Experiment: exp_03

DecisionTreeClassifier(random_state=0)

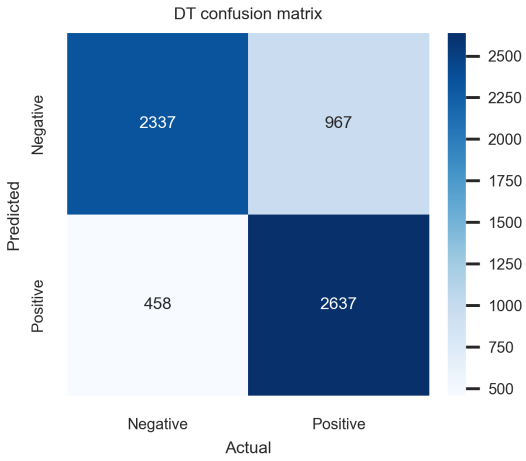
DT experiment best results:

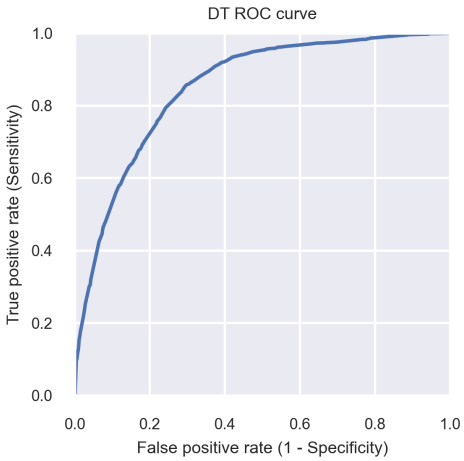
Experiment best score (accuracy): 0.777314

DT cross validation scores:

Accuracy: 0.777314
Precision: 0.733095
Recall: 0.852019
F1: 0.787407
AUC: 0.846372

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_03

DecisionTreeClassifier(random_state=0)

Experiment parameters:

n_splits: 5
scoring: accuracy
target: made_deposit
categorical columns:
job
married
education
housing
last_contact
cc_tr
last_contact_month
poutcome
feature selection:
accountID: False
town: False
country: False
age: True
job: True
married: True
education: True
defaulted?: False
current_balance: False
housing: True
has_loan: False
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_03

MLPClassifier(max_iter=5000, random_state=0)

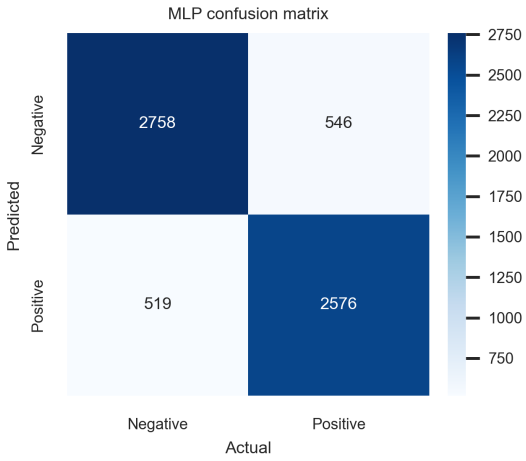
MLP experiment best results:

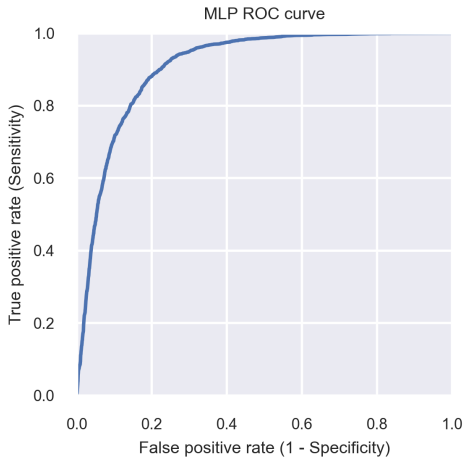
Experiment best score (accuracy): 0.833569

MLP cross validation scores:

Accuracy: 0.833569
Precision: 0.825185
Recall: 0.832310
F1: 0.828554
AUC: 0.909905

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_03

MLPClassifier(max_iter=5000, random_state=0)

Experiment parameters:

n_splits: 5
scoring: accuracy
target: made_deposit
categorical columns:
job
married
education
housing
last_contact
cc_tr
last_contact_month
poutcome
feature selection:
accountID: False
town: False
country: False
age: True
job: True
married: True
education: True
defaulted?: False
current_balance: False
housing: True
has_loan: False
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_03

LogisticRegression(max_iter=1000, random_state=0)

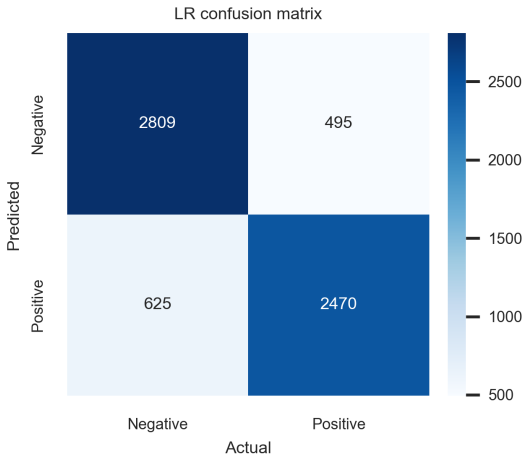
LR experiment best results:

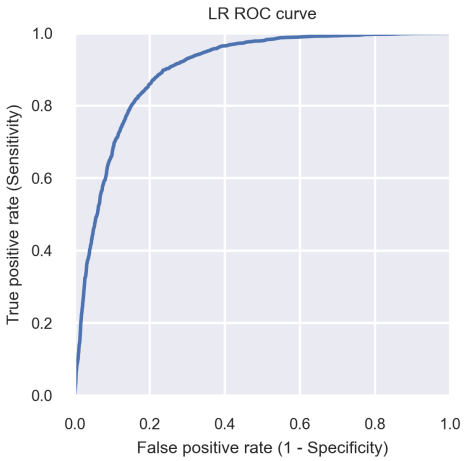
Experiment best score (accuracy): 0.824974

LR cross validation scores:

Accuracy: 0.824974
Precision: 0.833014
Recall: 0.798061
F1: 0.815121
AUC: 0.900385

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_03

LogisticRegression(max_iter=1000, random_state=0)

Experiment parameters:

- n_splits: 5
- scoring: accuracy
- target: made_deposit
- **categorical columns:**
  - job
  - married
  - education
  - housing
  - last_contact
  - cc_tr
  - last_contact_month
  - poutcome
- **feature selection:**
  - accountID: False
  - town: False
  - country: False
  - age: True
  - job: True
  - married: True
  - education: True
  - defaulted?: False
  - current_balance: False
  - housing: True
  - has_loan: False
  - 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