Light gbm

# example code

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| # Import list  from lightgbm import LGBMClassifier  from lightgbm import plot\_importance  import pandas as pd  import numpy as np  from sklearn.datasets import load\_breast\_cancer  from sklearn.model\_selection import train\_test\_split  from sklearn.metrics import accuracy\_score, precision\_score, recall\_score  from sklearn.metrics import f1\_score, roc\_auc\_score  import matplotlib.pyplot as plt  # Random Seed  SEED = 30  # Load Dataset from sklearn  dataset = load\_breast\_cancer()  X = dataset.data  Y = dataset.target  # Split data.  x\_train,x\_test,y\_train,y\_test = train\_test\_split(X,Y,*test\_size*=0.2,*random\_state*=SEED)  # Setting Parameters.  num\_rounds = 400  # Make model and train Model.  evals = [(x\_test,y\_test)]  light\_gbm\_model = LGBMClassifier(*n\_estimators*=num\_rounds)  light\_gbm\_model.fit(x\_train,y\_train,*early\_stopping\_rounds*=100,*eval\_metric*='logloss', *eval\_set*= evals, *verbose*= True)  # predict test data and check the result.  pred= light\_gbm\_model.predict(x\_test)  print("xgb\_moded Prediction Probability result (head(10))")  print(np.round(pred[:10],3))  # def for model accuracy test.  *def* get\_accuracy(*y\_test*,*y\_pred*):  accuracy = accuracy\_score(*y\_test*,*y\_pred*)  precision = precision\_score(*y\_test*,*y\_pred*)  recall = recall\_score(*y\_test*,*y\_pred*)  F1 = f1\_score(*y\_test*,*y\_pred*)  AUC = roc\_auc\_score(*y\_test*,*y\_pred*)  print('\n accuarcy: {*:.4f*}'.format(accuracy))  print('precision: {*:.4f*}'.format(precision))  print('recall: {*:.4f*}'.format(recall))  print('F1: {*:.4f*}'.format(F1))  print('AUC: {*:.4f*}'.format(AUC))  # Model accuarcy test.  get\_accuracy(y\_test,pred)  # Draw Feature importance graph.  fig, ax = plt.subplots(*figsize*=(10,12))  plot\_importance(light\_gbm\_model, *ax*=ax)  plt.show() |

# testing result

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| [1] valid\_0's binary\_logloss: 0.591437  [2] valid\_0's binary\_logloss: 0.530108  [3] valid\_0's binary\_logloss: 0.478158  [4] valid\_0's binary\_logloss: 0.435812  [5] valid\_0's binary\_logloss: 0.400005  [6] valid\_0's binary\_logloss: 0.371245  [7] valid\_0's binary\_logloss: 0.345629  [8] valid\_0's binary\_logloss: 0.321479  [9] valid\_0's binary\_logloss: 0.302389  [10] valid\_0's binary\_logloss: 0.284662  [11] valid\_0's binary\_logloss: 0.267336  [12] valid\_0's binary\_logloss: 0.255334  [13] valid\_0's binary\_logloss: 0.242387  [14] valid\_0's binary\_logloss: 0.232467  [15] valid\_0's binary\_logloss: 0.225252  [16] valid\_0's binary\_logloss: 0.216202  [17] valid\_0's binary\_logloss: 0.207929  [18] valid\_0's binary\_logloss: 0.201419  [19] valid\_0's binary\_logloss: 0.193937  [20] valid\_0's binary\_logloss: 0.19044  [21] valid\_0's binary\_logloss: 0.185611  [22] valid\_0's binary\_logloss: 0.178548  [23] valid\_0's binary\_logloss: 0.171764  [24] valid\_0's binary\_logloss: 0.167728  [25] valid\_0's binary\_logloss: 0.162337  ...  accuarcy: 0.9561  precision: 0.9452  recall: 0.9857  F1: 0.9650  AUC: 0.9474 |