06XgbCV

November 10, 2018

1 XGB + CV

```
In [2]: import matplotlib.pyplot as plt
        from planar_utils import plot_decision_boundary, sigmoid, load_planar_dataset, load_ex
        import numpy as np
        import pandas as pd
        import os
        from collections import Counter

        from sklearn.neighbors import KNeighborsClassifier  ## KNN
        from sklearn.linear_model import LogisticRegressionCV  ## logistic regression
        from sklearn.tree import DecisionTreeClassifier  ## decision tree
        from sklearn.svm import SVC  ## SVM

        from sklearn.tree import DecisionTreeClassifier  ## decision tree
        from sklearn.ensemble import RandomForestClassifier, AdaBoostClassifier
        from xgboost import XGBClassifier

        import math
        import string
        import re

        import xgboost

        from preprocess import preprocess
```

2 鐵達尼號資料集

```
In [3]: df = pd.read_csv('train.csv')
        df = preprocess(df)
        df.head()
```

```
Out[3]:    PassengerId  Survived  Pclass  Sex   Age  SibSp  Parch  Ticket  Cabin  \
        0            1         0       3    1  22.0      1      0       2      0
        1            2         1       1    0  38.0      1      0       5      3
        2            3         1       3    0  26.0      0      0       7      0
```

```
3            4           1        1    0  35.0       1       0        1       3
4            5           0        3    1  35.0       0       0        1       0

   Embarked  Has_Cabin  Age_Cat  Fare_log2  Fare_Cat  Name_Length  \
0         0          0        1   2.857981         0           23
1         2          1        2   6.155492         5           51
2         0          0        1   2.986411         0           22
3         0          1        2   5.730640         4           44
4         0          0        2   3.008989         0           24

   Name_With_Special_Char  Family_Size  Title
0                       0            1      1
1                       1            1      3
2                       0            0      2
3                       1            1      3
4                       0            0      1
```

```
In [4]: X = df[['PassengerId', 'Pclass', 'Sex', 'Age', 'SibSp', 'Parch',
               'Ticket', 'Cabin', 'Embarked', 'Has_Cabin', 'Age_Cat', 'Fare_log2',
               'Fare_Cat', 'Name_Length', 'Name_With_Special_Char', 'Family_Size',
               'Title']].values
        Y = df['Survived'].values
```

```
In [5]: from sklearn.model_selection  import train_test_split

        X_train, X_valid, Y_train, Y_valid = train_test_split(X, Y, test_size =0.3, random_sta
        print(X_train.shape)  ## (445, 17)
        print(X_valid.shape)  ## (446, 17)
        print(Y_train.shape)  ## (445,)
        print(Y_valid.shape)  ## (446,)
```

```
(623, 17)
(268, 17)
(623,)
(268,)
```

```
In [6]: def get_accuracy(clf):
            #=============your works starts===============#
            clf =
            clf =
            y_pred =
            accuracy =
            #==============your works ends================#
            return accuracy

        print('SVM: ', get_accuracy(SVC))
        print('DecisionTree: ', get_accuracy(DecisionTreeClassifier))
        print('RandomForest: ', get_accuracy(RandomForestClassifier))
        print('AdaBoost: ', get_accuracy(AdaBoostClassifier))  ## Boosting 的演算法
        print('XGB: ', get_accuracy(XGBClassifier))

        # SVM:  0.609865470852
        # DecisionTree:  0.764573991031
        # RandomForest:  0.795964125561
        # AdaBoost:  0.784753363229
        # XGB:  0.80269058296
```

```
SVM:  0.6455223880597015
DecisionTree:  0.7611940298507462
RandomForest:  0.8544776119402985


  "avoid this warning.", FutureWarning)
  "10 in version 0.20 to 100 in 0.22.", FutureWarning)


AdaBoost:  0.7910447761194029
XGB:  0.8432835820895522
```

```
In [7]: # Set our parameters for xgboost
        params = {}
        # 請填入以下參數:
        # 目標函數: 二元分類
        # 評價函數: logloss
        # 學習速度: 0.04
        # 最大深度: 5
        #=============your works starts===============#
        params['objective'] =
        params['eval_metric'] =
        params['eta'] =
        params['max_depth'] =
        #==============your works ends================#

        d_train = xgboost.DMatrix(X_train, label=Y_train)
        d_valid = xgboost.DMatrix(X_valid, label=Y_valid)

        watchlist = [(d_train, 'train'), (d_valid, 'valid')]

        bst = xgboost.train(params, d_train, 100, watchlist, early_stopping_rounds=100, verbose
        y_pred = bst.predict(xgboost.DMatrix(X_valid))
        print("Accuracy: ", str(sum(Y_valid == (y_pred > 0.5))/Y_valid.shape[0]))
```

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```

```
Accuracy:  0.835820895522388
```

3 房價資料集

```
In [8]: import urllib.request
        if 'df_realestate_processed.csv' not in os.listdir():
            url = 'https://s3.amazonaws.com/datasets-jeremy/df_realestate_processed.csv'
            urllib.request.urlretrieve(url, 'df_realestate_processed.csv')

        # processed
        path = "df_realestate_processed.csv"
        df_realestate_processed = pd.read_csv(path)
        X = df_realestate_processed.drop(["price_per_meter", "total_price"], axis=1)
        Y = df_realestate_processed['total_price']
```

```
In [9]: X_train = X.iloc[:-1000]
        Y_train = Y.iloc[:-1000]
        Y_train = np.log(Y_train)

        X_valid = X.iloc[-1000:]
        Y_valid = Y.iloc[-1000:]
        Y_valid = np.log(Y_valid)
```

```
In [10]: # Set our parameters for xgboost
         params = {}

         # 請填入以下參數:
         # 目標函數: 線性回歸
         # 評價函數: rmse
         # 學習速度: 0.01
         # 最大深度: 5
         # bst = xgboost.train(params, d_train, 3000, watchlist, early_stopping_rounds=50, ver
         #=============your works starts===============#
         params['objective'] =
         params['eval_metric'] =
         params['eta'] =
         params['max_depth'] =
         d_train =
         d_valid =
         watchlist =
         bst =
         Y_pred =
         #==============your works ends================#
```

```
[19:18:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[0]        train-rmse:15.8112        valid-rmse:15.6215
Multiple eval metrics have been passed: 'valid-rmse' will be used for early stopping.
```

```
Will train until valid-rmse hasn't improved in 10 rounds.
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[10]        train-rmse:11.6632        valid-rmse:11.5317
[19:18:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
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[20]        train-rmse:8.60487        valid-rmse:8.51713
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[30]        train-rmse:6.35023        valid-rmse:6.30023
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[19:19:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[40]        train-rmse:4.68857        valid-rmse:4.66973
[19:19:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:19:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
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[19:19:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[50]        train-rmse:3.46457        valid-rmse:3.46551
[19:19:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[60]        train-rmse:2.56373        valid-rmse:2.58316
[19:19:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[70]        train-rmse:1.90185        valid-rmse:1.93611
[19:19:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:25] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[80]        train-rmse:1.41686        valid-rmse:1.46651
[19:19:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
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[19:19:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[90]        train-rmse:1.06302        valid-rmse:1.12422
[19:19:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[100]       train-rmse:0.806951       valid-rmse:0.876425
[19:19:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[110]       train-rmse:0.624079       valid-rmse:0.700146
[19:19:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[120]       train-rmse:0.496058       valid-rmse:0.577805
[19:19:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:19:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:20:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
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[130]        train-rmse:0.408926        valid-rmse:0.49603
[19:20:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[140]        train-rmse:0.351423        valid-rmse:0.442858
[19:20:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[150]        train-rmse:0.314738        valid-rmse:0.409589
[19:20:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:25] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[160]        train-rmse:0.291941        valid-rmse:0.387703
[19:20:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[170]        train-rmse:0.277808        valid-rmse:0.373504
[19:20:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:20:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
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[19:20:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[180]        train-rmse:0.26903        valid-rmse:0.364483
[19:20:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[190]        train-rmse:0.263451        valid-rmse:0.358139
[19:20:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:20:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[200]        train-rmse:0.259615        valid-rmse:0.352701
[19:21:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[210]        train-rmse:0.256954        valid-rmse:0.349393
[19:21:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
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[19:21:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[220]        train-rmse:0.254944        valid-rmse:0.347053
[19:21:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:25] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[230]        train-rmse:0.253445        valid-rmse:0.345315
[19:21:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[240]        train-rmse:0.252139        valid-rmse:0.343419
[19:21:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[250]        train-rmse:0.251006        valid-rmse:0.342147
[19:21:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:21:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[260]        train-rmse:0.250072        valid-rmse:0.341061
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[19:21:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:21:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[270]        train-rmse:0.249214        valid-rmse:0.340131
[19:22:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[280]        train-rmse:0.248427        valid-rmse:0.339297
[19:22:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[290]        train-rmse:0.247735        valid-rmse:0.338445
[19:22:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[300]        train-rmse:0.247081        valid-rmse:0.33738
[19:22:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
[19:22:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning e
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[19:22:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[310]        train-rmse:0.24648         valid-rmse:0.337037
[19:22:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:22:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[320]        train-rmse:0.245882        valid-rmse:0.336335
[19:23:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[330]        train-rmse:0.245386        valid-rmse:0.335948
[19:23:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[340]        train-rmse:0.244862        valid-rmse:0.335533
[19:23:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:23:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
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[19:23:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[350]         train-rmse:0.244334        valid-rmse:0.33528
[19:23:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[360]         train-rmse:0.243893        valid-rmse:0.334766
[19:23:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[370]         train-rmse:0.243417        valid-rmse:0.334686
[19:23:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:23:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[380]         train-rmse:0.242968        valid-rmse:0.334314
[19:24:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:24:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[390]         train-rmse:0.242505        valid-rmse:0.333969
[19:24:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
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[19:24:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[400]        train-rmse:0.242057        valid-rmse:0.333667
[19:24:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:25] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
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[19:24:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[410]        train-rmse:0.241676        valid-rmse:0.333362
[19:24:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[420]        train-rmse:0.241232        valid-rmse:0.332969
[19:24:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:44] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[430]        train-rmse:0.240818        valid-rmse:0.332734
[19:24:45] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:46] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:47] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:48] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
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[19:24:49] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:50] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:51] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[440]        train-rmse:0.24045         valid-rmse:0.332447
[19:24:52] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:53] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:54] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:55] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:56] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:57] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:58] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:24:59] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[450]        train-rmse:0.240066        valid-rmse:0.332321
[19:25:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:00] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:01] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:02] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:03] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:04] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:05] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:06] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[460]        train-rmse:0.239724        valid-rmse:0.331935
[19:25:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:07] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:08] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:09] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:10] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:11] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:12] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:13] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[470]        train-rmse:0.239354        valid-rmse:0.331688
[19:25:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:14] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:15] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:16] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:17] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:18] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
[19:25:19] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning en
```

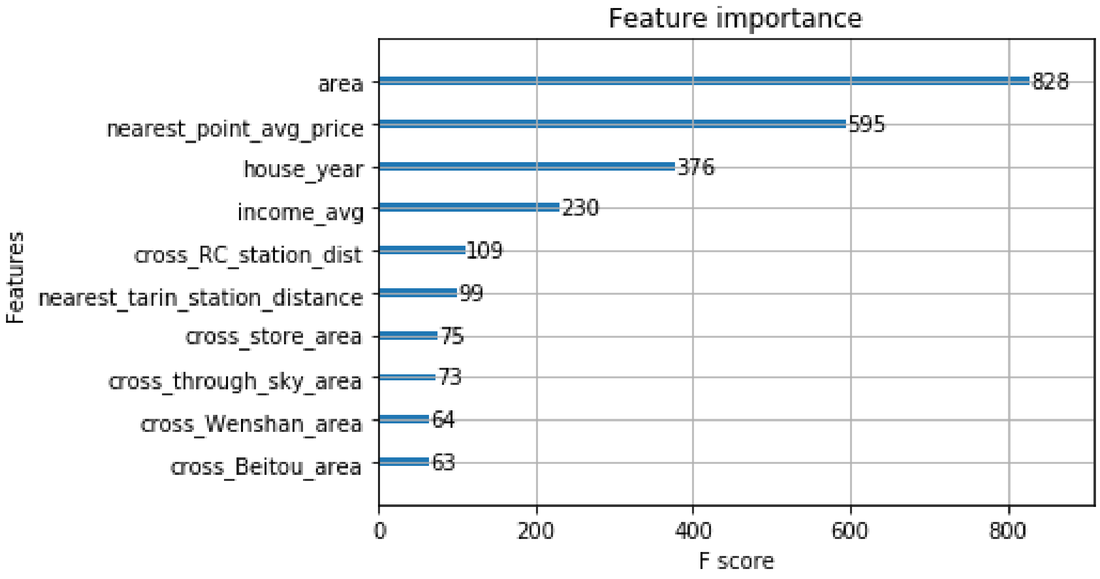
```
[19:25:20] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[480]        train-rmse:0.238993        valid-rmse:0.331617
[19:25:21] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:22] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:23] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:24] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:25] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:26] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:27] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[490]        train-rmse:0.23864        valid-rmse:0.331323
[19:25:28] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:29] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:30] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:31] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:32] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:33] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:34] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[500]        train-rmse:0.238285        valid-rmse:0.331034
[19:25:35] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:36] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:37] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:38] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:39] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:40] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:41] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[510]        train-rmse:0.23793        valid-rmse:0.331124
[19:25:42] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
[19:25:43] C:\Users\Administrator\Desktop\xgboost\src\tree\updater_prune.cc:74: tree pruning er
Stopping. Best iteration:
[502]        train-rmse:0.238198        valid-rmse:0.33097
```

```
In [ ]: #   模型 save 與 load 的方式自己看
        # bst.save_model("bst_subtotal_log_with_cross.pickle.dat")
        # bst = xgboost.Booster({'nthread':1}) #init model
        # bst.load_model("bst_subtotal_log_with_cross.pickle.dat") # load data
```

```
In [11]: # 請使用 xgboost.plot_importance，並設定 max_num_features=10
         #!============your works starts===============!#
```

```
#!==============your works ends================!#

plt.show()
```



```
In [12]: df_result = pd.DataFrame()

         # 1. 使用 X_valid 去評價此模型
         # 2. 使用 ['predict', 'truth', 'error'] 三個欄位的 DataFrame 去使決畫呈現預測結果
         #    (1). 請注意與測結果 (Y_pred) 與真實值 (Y_valid) 都必須取 exp 方能反映實際情況
         #    (2). error 請使用計算 (predict-truth)/truth 計算誤差百分比
         #=============your works starts===============#
         Y_pred =
         df_result['predict'] =
         df_result['truth'] =
         df_result['error'] =
         df_result_sort =
         #==============your works ends================#

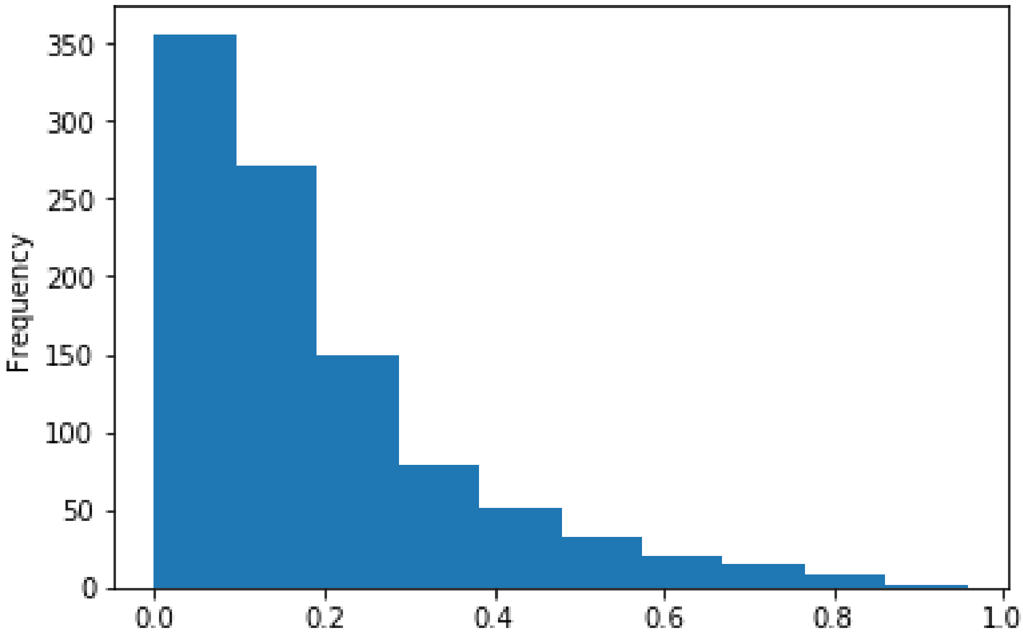
         df_result.head()
```

```
Out[12]:       predict        truth     error
         0  15413886.0  15880006.78  0.029353
         1  12065383.0  10999982.00  0.096855
         2  29951496.0  28199982.04  0.062110
         3  23521218.0  21920043.69  0.073046
         4   5400714.5   3220663.36  0.676895
```

```
In [13]: # 請使用 df_result_sort 濾掉 error 大於 1 的部分畫出 error 的分布圖
         #!=============your works starts===============!#

         #!==============your works ends================!#

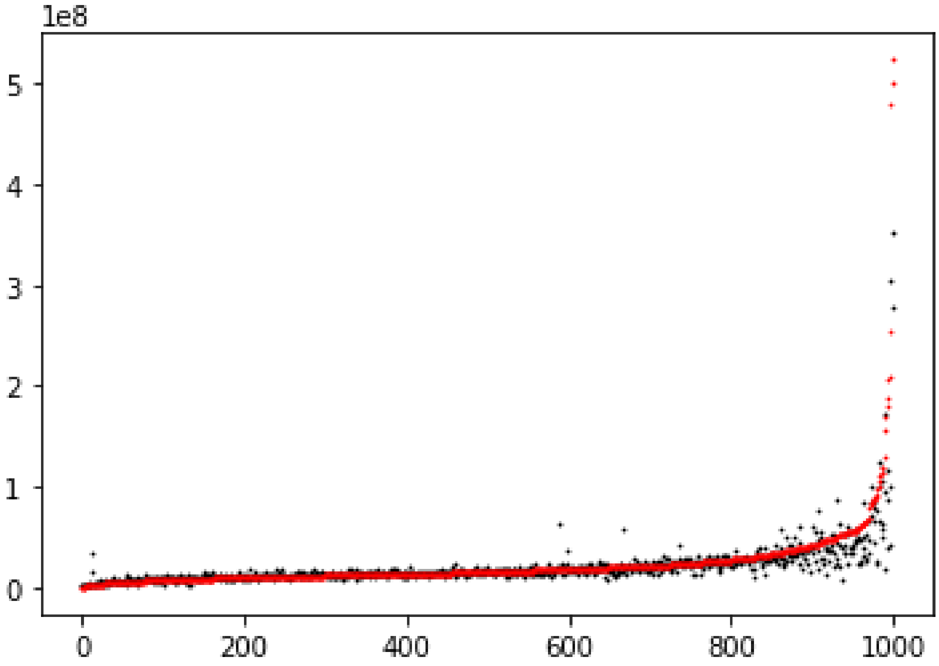
         plt.show()
```



```
In [14]: # 請使用 plt.scatter，以 0~len(df_result) 作為 x，預測值 (黑色) 與實際值 (紅色) 作為 y。
         #!=============your works starts===============!#


         #!==============your works ends================!#

         plt.show()
```


1e8
5
4
3
2
1
0
0
200
400
600
800
1000