

# Quora Question Pairs Similarity Detection



The best answer to any question

## 1. Business Problem

### 1.1 Description

Quora is a place to gain and share knowledge—about anything. It's a platform to ask questions and connect with people who contribute unique insights and quality answers. This empowers people to learn from each other and to better understand the world.

Over 100 million people visit Quora every month, so it's no surprise that many people ask similarly worded questions. Multiple questions with the same intent can cause seekers to spend more time finding the best answer to their question, and make writers feel they need to answer multiple versions of the same question. Quora values canonical questions because they provide a better experience to active seekers and writers, and offer more value to both of these groups in the long term.

Credits: Kaggle

#### Problem Statement

- Identify which questions asked on Quora are duplicates of questions that have already been asked.
- This could be useful to instantly provide answers to questions that have already been answered.
- We are tasked with predicting whether a pair of questions are duplicates or not.

### 1.2 Sources/Useful Links

- Source : <https://www.kaggle.com/c/quora-question-pairs> (<https://www.kaggle.com/c/quora-question-pairs>)

### **Useful Links**

- Discussions : <https://www.kaggle.com/anokas/data-analysis-xgboost-starter-0-35460-lb/comments> (<https://www.kaggle.com/anokas/data-analysis-xgboost-starter-0-35460-lb/comments>)
- Kaggle Winning Solution and other approaches: <https://www.dropbox.com/sh/93968fnrzh8bp5/AACZdtsApc1QSTQc7X0H3QZ5a?dl=0> (<https://www.dropbox.com/sh/93968fnrzh8bp5/AACZdtsApc1QSTQc7X0H3QZ5a?dl=0>)
- Blog 1 : <https://engineering.quora.com/Semantic-Question-Matching-with-Deep-Learning> (<https://engineering.quora.com/Semantic-Question-Matching-with-Deep-Learning>)
- Blog 2 : <https://towardsdatascience.com/identifying-duplicate-questions-on-quora-top-12-on-kaggle-4c1cf93f1c30> (<https://towardsdatascience.com/identifying-duplicate-questions-on-quora-top-12-on-kaggle-4c1cf93f1c30>)

## **1.3 Real world/Business Objectives and Constraints**

1. The cost of a mis-classification can be very high.
2. You would want a probability of a pair of questions to be duplicates so that you can choose any threshold of choice.
3. No strict latency concerns.
4. Interpretability is partially important.

## **2. Machine Learning Problem**

### **2.1 Data**

#### **2.1.1 Data Overview**

- Data will be in a file Train.csv
- Train.csv contains 5 columns : qid1, qid2, question1, question2, is\_duplicate
- Size of Train.csv - 60MB
- Number of rows in Train.csv = 404,290

#### **2.1.2 Example Data point**

```
"id","qid1","qid2","question1","question2","is_duplicate"
"0","1","2","What is the step by step guide to invest in share market in india?","What is the step by step
guide to invest in share market?","0"
"1","3","4","What is the story of Kohinoor (Koh-i-Noor) Diamond?","What would happen if the Indian governm
ent stole the Kohinoor (Koh-i-Noor) diamond back?","0"
"7","15","16","How can I be a good geologist?","What should I do to be a great geologist?","1"
"11","23","24","How do I read and find my YouTube comments?","How can I see all my Youtube comments?","1"
```

## **2.2 Mapping the real world problem to an ML problem**

### **2.2.1 Type of Machine Learning Problem**

It is a binary classification problem, for a given pair of questions we need to predict if they are duplicate or not.

### **2.2.2 Performance Metric**

Source: <https://www.kaggle.com/c/quora-question-pairs#evaluation> (<https://www.kaggle.com/c/quora-question-pairs#evaluation>)

Metric(s):

- log-loss : <https://www.kaggle.com/wiki/LogarithmicLoss> (<https://www.kaggle.com/wiki/LogarithmicLoss>)
- Binary Confusion Matrix

## **2.3 Train and Test Construction**

We build train and test by randomly splitting in the ratio of 70:30 or 80:20 whatever we choose as we have sufficient points to work with.

## **1. Importing all the libraries**

In [1]:

```
import warnings
warnings.filterwarnings("ignore")
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from subprocess import check_output
%matplotlib inline
import plotly.offline as py
py.init_notebook_mode(connected=True)
import plotly.graph_objs as go
import plotly.tools as tls
import os
import gc
import re
from nltk.corpus import stopwords
import distance
from nltk.stem import PorterStemmer
from bs4 import BeautifulSoup
import re
from nltk.corpus import stopwords
# This package is used for finding longest common subsequence between two strings
# you can write your own dp code for this
from nltk.stem import PorterStemmer
from bs4 import BeautifulSoup
from fuzzywuzzy import fuzz
from sklearn.manifold import TSNE
# Import the Required lib packages for WORD-Cloud generation
# https://stackoverflow.com/questions/45625434/how-to-install-wordcloud-in-python3-6
from wordcloud import WordCloud, STOPWORDS
from os import path
from PIL import Image
from IPython.core.display import display, HTML
display(HTML("<style>.container { width:100% !important; }</style>"))
import pandas as pd
import matplotlib.pyplot as plt
import re
import time
import warnings
import numpy as np
from nltk.corpus import stopwords
from sklearn.preprocessing import normalize
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.feature_extraction.text import TfidfVectorizer
import sys
import os
import pandas as pd
import numpy as np
from tqdm import tqdm
import spacy
import sqlite3
from sqlalchemy import create_engine # database connection
import csv
import os
from datetime import datetime as dt
import numpy as np
from nltk.corpus import stopwords
import seaborn as sns
from sklearn.metrics import confusion_matrix
from sklearn.metrics.classification import log_loss
from sklearn.feature_extraction.text import TfidfVectorizer
from collections import Counter
from scipy.sparse import hstack
from sklearn.svm import SVC
from sklearn.model_selection import StratifiedKFold, RandomizedSearchCV, train_test_split, GridSearchCV
from collections import Counter, defaultdict
from sklearn.calibration import CalibratedClassifierCV
import math
from sklearn.linear_model import SGDClassifier
from sklearn import model_selection
from sklearn.linear_model import LogisticRegression
import pickle
warnings.filterwarnings("ignore")
```

## 2. Reading data and basic stats

In [2]:

```
dataset = pd.read_csv("train.csv")
print("Number of data points:", dataset.shape[0])
```

Number of data points: 404290

In [3]:

```
dataset.head()
```

Out[3]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>question1</b>	<b>question2</b>	<b>is_duplicate</b>
<b>0</b>	0	1	2	What is the step by step guide to invest in sh...	What is the step by step guide to invest in sh...	0
<b>1</b>	1	3	4	What is the story of Kohinoor (Koh-i-Noor) Dia...	What would happen if the Indian government sto...	0
<b>2</b>	2	5	6	How can I increase the speed of my internet co...	How can Internet speed be increased by hacking...	0
<b>3</b>	3	7	8	Why am I mentally very lonely? How can I solve...	Find the remainder when $[math]23^{24}[/math]$ i...	0
<b>4</b>	4	9	10	Which one dissolve in water quickly sugar, salt...	Which fish would survive in salt water?	0

In [6]:

```
dataset.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 404290 entries, 0 to 404289
Data columns (total 6 columns):
id          404290 non-null int64
qid1        404290 non-null int64
qid2        404290 non-null int64
question1   404289 non-null object
question2   404288 non-null object
is_duplicate 404290 non-null int64
dtypes: int64(4), object(2)
memory usage: 18.5+ MB
```

As we can see from the information above, there are two null entries for question2. We will take care of this in later stages of our analysis. Typically the approach is to replace the null values with an empty string " ". The logic behind is that the similarity between any string and an empty string is always 0. So the two questions won't be duplicate of each other. The other approach is we can simply remove the datapoints corresponding to the null value.

We are given a minimal number of data fields here, consisting of:

- id: Looks like a simple rowID
- qid{1, 2}: The unique ID of each question in the pair
- question{1, 2}: The actual textual contents of the questions.
- is\_duplicate: The label that we are trying to predict - whether the two questions are duplicates of each other.

## 3. Exploratory Data Analysis on the given dataset

### 3.1 Distribution of data points among output classes

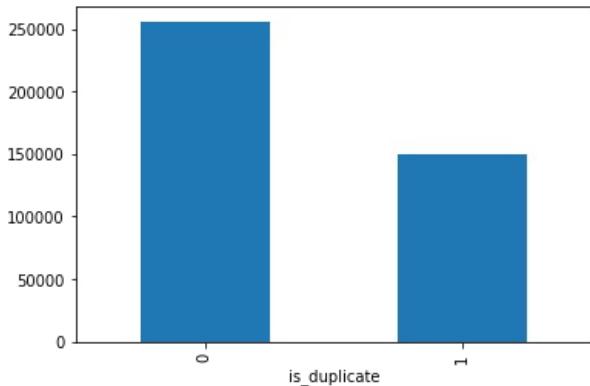
- Number of duplicate(similar) and non-duplicate(non similar) questions

In [0]:

```
dataset.groupby("is_duplicate")['id'].count().plot.bar()
```

Out[0]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x22b00727d30>
```



In [8]:

```
print('Total number of question pairs for training: {}'.format(len(dataset)))
```

```
Total number of question pairs for training: 404290
```

In [42]:

```
duplicate=dataset['is_duplicate'].value_counts()[0]
not_duplicate=dataset['is_duplicate'].value_counts()[1]
total = duplicate+not_duplicate

print('Question pairs that are not similar (is_duplicate = 0): {}'.format(np.round((not_duplicate/total)*100),3))
)
print('Question pairs that are similar (is_duplicate = 1) {}'.format(np.round((duplicate/total)*100),3))
```

```
Question pairs that are not similar (is_duplicate = 0): 36.92%
```

```
Question pairs that are similar (is_duplicate = 1) 63.08%
```

## 3.2 Number of unique questions

In [46]:

```
qids = pd.Series(dataset['qid1'].tolist() + dataset['qid2'].tolist())
unique_qs = len(np.unique(qids)) #Another approach unique=len(set(qids))
qs_morethan_onetime = np.sum(qids.value_counts() > 1) #qids.value_counts() will give the number of times each questions appear.
print ('Total number of questions that are unique: {}'.format(unique_qs))

print ('Number of unique questions that appear more than one time: {} ({}%)'.format(qs_morethan_onetime,np.round(qs_morethan_onetime/unique_qs*100,2)))
print ('Max number of times a single question is repeated: {}'.format(max(qids.value_counts())))

q_vals=qids.value_counts()
q_vals=q_vals.values
```

```
Total number of questions that are unique: 537933
```

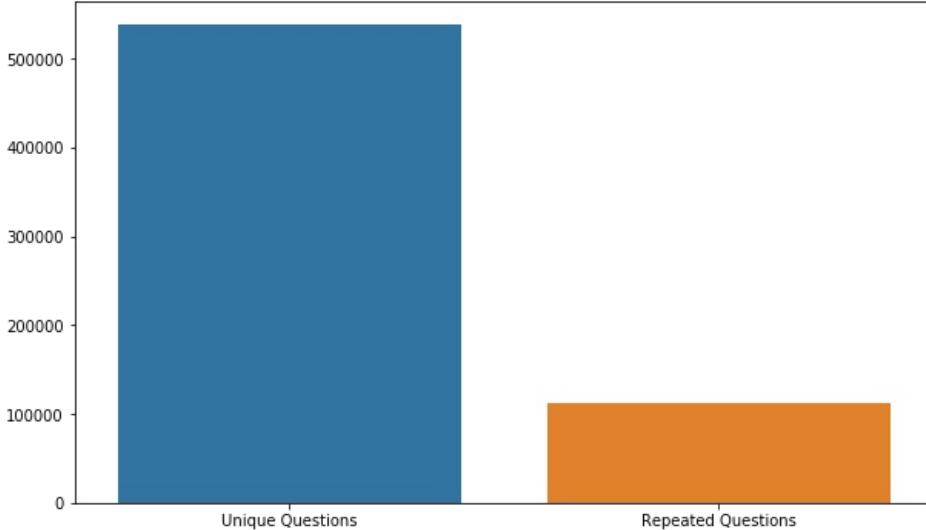
```
Number of unique questions that appear more than one time: 111780 (20.78%)
```

```
Max number of times a single question is repeated: 157
```

In [47]:

```
#Bar plot for unique and repeated questions.  
x = ["Unique Questions" , "Repeated Questions"]  
y = [unique_qs , qs_morethan_onetime]  
  
plt.figure(figsize=(10, 6))  
plt.title ("Plot representing unique and repeated questions.")  
sns.barplot(x,y)  
plt.show()
```

Plot representing unique and repeated questions.



### 3.3 Checking for Duplicates pairs of questions.

In [52]:

```
#Checking whether there are any repeated pair of questions.  
pair_duplicates = dataset.groupby(['qid1','qid2']).count().reset_index()  
print ("Number of duplicate questions:",(pair_duplicates).shape[0] - dataset.shape[0])
```

Number of duplicate questions: 0

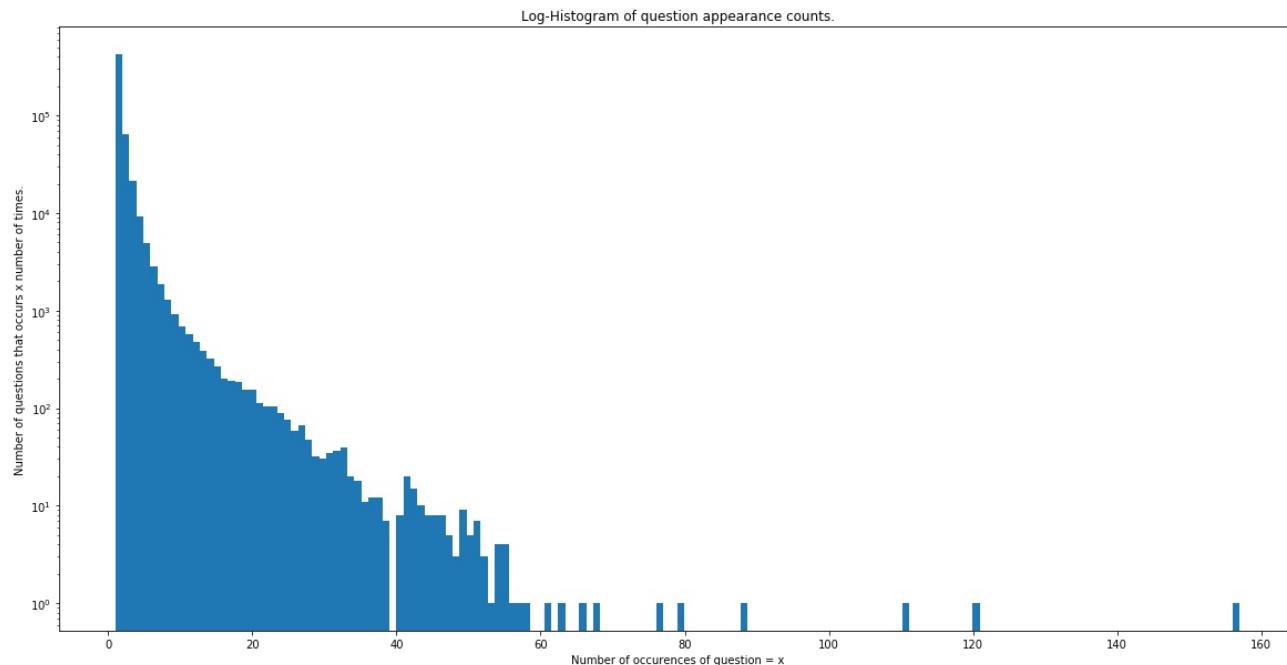
### 3.4 Number of occurrences of each question

In [56]:

```
plt.figure(figsize=(20, 10))
plt.hist(qids.value_counts(), bins=160) #Max value of a single question being repeated is 157, hence we chose 160 as the bin size.
plt.yscale('log', nonposy='clip')
plt.title('Log-Histogram of question appearance counts.')
plt.xlabel('Number of occurrences of question = x')
plt.ylabel('Number of questions that occurs x number of times.')
```

Out[56]:

Text(0,0.5, 'Number of questions that occurs x number of times.')



## Observation:

1. Our dataset is not totally imbalanced. We have almost 63% pairs of questions which belongs to the "Not Duplicate" category, and 33% questions which belongs to the "Duplicate" category!
2. The total number of unique questions that we have is 537933 (80%). Almost 20% of the questions are repeated more than 1 times!
3. The maximum number of occurrence for any single question is 157!
4. If we look at the Log Histogram above, we see that most questions occurs once between 1-20 times.

## 3.5 Checking for NULL values

In [61]:

```
#Checking the rows with null values.
nan_rows = dataset[dataset.isnull().any(1)]
print(nan_rows)
```

```
      id      qid1      qid2      question1 \
105780  105780  174363  174364  How can I develop android app?
201841  201841  303951  174364  How can I create an Android app?
363362  363362  493340  493341          NaN

      question2  is_duplicate
105780        NaN            0
201841        NaN            0
363362  My Chinese name is Haichao Yu. What English na...            0
```

- There are two rows with null values in question2

In [63]:

```
# Filling the null values with ''
dataset = dataset.fillna('')
nan_rows = dataset[dataset.isnull().any(1)]
print(nan_rows)
```

Empty DataFrame

Columns: [id, qid1, qid2, question1, question2, is\_duplicate]

Index: []

In [65]:

*#Save the dataset after filling it with null values.*

```
dataset.to_csv('train_without_NAN.csv')
```

## 4. Basic Feature Extraction (before cleaning)

Let us now construct a few features like:

- **freq\_qid1** = Frequency of qid1's
- **freq\_qid2** = Frequency of qid2's
- **q1len** = Length of q1
- **q2len** = Length of q2
- **q1\_n\_words** = Number of words in Question 1
- **q2\_n\_words** = Number of words in Question 2
- **word\_Common** = (Number of common unique words in Question 1 and Question 2)
- **word\_Total** = (Total num of words in Question 1 + Total num of words in Question 2)
- **word\_share** = (word\_common)/(word\_Total)
- **freq\_q1+freq\_q2** = sum total of frequency of qid1 and qid2
- **freq\_q1-freq\_q2** = absolute difference of frequency of qid1 and qid2

### 4.1 Extracting Basic Features

In [3]:

```

if os.path.isfile('dataset_fe_without_preprocessing_train.csv'):
    dataset = pd.read_csv("dataset_fe_without_preprocessing_train.csv",encoding='latin-1')
else:

    def freq(question):
        count=0
        for i in range(0,dataset.shape[0]):
            if(question==dataset['question1'][i]):
                count+=1
        return count

    dataset['freq_qid1'] = dataset.groupby('qid1')['qid1'].transform('count') #This part is not clear.
    dataset['freq_qid2'] = dataset.groupby('qid2')['qid2'].transform('count')
    dataset['q1len'] = dataset['question1'].str.len()
    dataset['q2len'] = dataset['question2'].str.len()
    dataset['q1_n_words'] = dataset['question1'].apply(lambda row: len(row.split(" ")))
    dataset['q2_n_words'] = dataset['question2'].apply(lambda row: len(row.split(" ")))

    def normalized_word_Common(row):
        w1 = set(map(lambda word: word.lower().strip(), row['question1'].split(" ")))
        w2 = set(map(lambda word: word.lower().strip(), row['question2'].split(" ")))
        return 1.0 * len(w1 & w2)
    dataset['word_Common'] = dataset.apply(normalized_word_Common, axis=1)

    def normalized_word_Total(row):
        w1 = set(map(lambda word: word.lower().strip(), row['question1'].split(" ")))
        w2 = set(map(lambda word: word.lower().strip(), row['question2'].split(" ")))
        return 1.0 * (len(w1) + len(w2))
    dataset['word_Total'] = dataset.apply(normalized_word_Total, axis=1)

    def normalized_word_share(row):
        w1 = set(map(lambda word: word.lower().strip(), row['question1'].split(" ")))
        w2 = set(map(lambda word: word.lower().strip(), row['question2'].split(" ")))
        return 1.0 * len(w1 & w2)/(len(w1) + len(w2))
    dataset['word_share'] = dataset.apply(normalized_word_share, axis=1)

    dataset['freq_q1+q2'] = dataset['freq_qid1']+dataset['freq_qid2']
    dataset['freq_q1-q2'] = abs(dataset['freq_qid1']-dataset['freq_qid2'])

    dataset.to_csv("dataset_fe_without_preprocessing_train.csv", index=False)

```

dataset.head()

Out[3]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>question1</b>	<b>question2</b>	<b>is_duplicate</b>	<b>freq_qid1</b>	<b>freq_qid2</b>	<b>q1len</b>	<b>q2len</b>	<b>q1_n_words</b>	<b>q2_n_words</b>	<b>v</b>
<b>0</b>	0	1	2	What is the step by step guide to invest in sh...	What is the step by step guide to invest in sh...	0	1	1	66	57	14	12	
<b>1</b>	1	3	4	What is the story of Kohinoor (Koh-i-Noor) Dia...	What would happen if the Indian government sto...	0	4	1	51	88	8	13	
<b>2</b>	2	5	6	How can I increase the speed of my internet co...	How can Internet speed be increased by hacking...	0	1	1	73	59	14	10	
<b>3</b>	3	7	8	Why am I mentally very lonely? How can I solve...	Find the remainder when $[math]23^{24}[/math]$ i...	0	1	1	50	65	11	9	
<b>4</b>	4	9	10	Which one dissolve in water quickly sugar, salt...	Which fish would survive in salt water?	0	3	1	76	39	13	7	

## 4.2 EDA using dataset description

In [95]:

```
dataset.describe()
```

Out[95]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>is_duplicate</b>	<b>freq_qid1</b>	<b>freq_qid2</b>	<b>q1len</b>	
<b>count</b>	404290.000000	404290.000000	404290.000000	404290.000000	404290.000000	404290.000000	404290.000000	4042
<b>mean</b>	202144.500000	217243.942418	220955.655337	0.369198	2.827609	3.046961	59.536709	
<b>std</b>	116708.614502	157751.700002	159903.182629	0.482588	4.487418	6.026871	29.940655	
<b>min</b>	0.000000	1.000000	2.000000	0.000000	1.000000	1.000000	0.000000	
<b>25%</b>	101072.250000	74437.500000	74727.000000	0.000000	1.000000	1.000000	39.000000	
<b>50%</b>	202144.500000	192182.000000	197052.000000	0.000000	1.000000	1.000000	52.000000	
<b>75%</b>	303216.750000	346573.500000	354692.500000	1.000000	3.000000	2.000000	72.000000	
<b>max</b>	404289.000000	537932.000000	537933.000000	1.000000	50.000000	120.000000	623.000000	11

### Observation:

1. The average length of questions 1 is 52. This differs very slightly from the average length of question 2 which is 51.
2. There are only 25% questions which is greater than 72 units of length. The maximum length of question 1 is 623 and question 2 is 1169.

## 5. Analysis and EDA of some of the basic extracted features

- Here are some questions have only one single words.

In [96]:

```
import os
if os.path.isfile('dataset_fe_without_preprocessing_train.csv'):
    dataset = pd.read_csv("dataset_fe_without_preprocessing_train.csv",encoding='latin-1')

print ("Minimum length of the questions in question1 : " , min(dataset['q1_n_words']))
print ("Minimum length of the questions in question2 : " , min(dataset['q2_n_words']))
print ("Number of Questions with minimum length [question1] :" , dataset[dataset['q1_n_words']== 1].shape[0])
print ("Number of Questions with minimum length [question2] :" , dataset[dataset['q2_n_words']== 1].shape[0])

Minimum length of the questions in question1 : 1
Minimum length of the questions in question2 : 1
Number of Questions with minimum length [question1] : 67
Number of Questions with minimum length [question2] : 24
```

### 5.1 Semantic Analysis of the given dataset

Used Reference from: <https://www.kaggle.com/anokas/data-analysis-xgboost-starter-0-35460-lb/notebook>  
<https://www.kaggle.com/anokas/data-analysis-xgboost-starter-0-35460-lb/notebook>

In [36]:

```
ques = pd.Series(dataset['question1'].tolist() + dataset['question2'].tolist()).astype(str)
```

In [105]:

```
qmarks = np.mean(ques.apply(lambda x: x.__contains__('?')))
math = np.mean(ques.apply(lambda x: x.__contains__('[math]')))
fullstop = np.mean(ques.apply(lambda x: x.__contains__('.')))
capital_first = np.mean(ques.apply(lambda x: x[0].isupper()))
capitals = np.mean(ques.apply(lambda x: max([y.isupper() for y in x])))
numbers = np.mean(ques.apply(lambda x: max([y.isdigit() for y in x])))
href = np.mean(ques.apply(lambda x: x.__contains__('href')))
hack = np.mean(ques.apply(lambda x: x.__contains__('hack')))
prog = np.mean(ques.apply(lambda x: x.__contains__('program')))
sex = np.mean(ques.apply(lambda x: x.__contains__('sex')))
phone = np.mean(ques.apply(lambda x: x.__contains__('phone')))
rel = np.mean(ques.apply(lambda x: x.__contains__('religion')))
ind = np.mean(ques.apply(lambda x: x.__contains__('India')))
web = np.mean(ques.apply(lambda x: x.__contains__('web')))
quora = np.mean(ques.apply(lambda x: x.__contains__('Quora')))
trump = np.mean(ques.apply(lambda x: x.__contains__('Trump')))
girl = np.mean(ques.apply(lambda x: x.__contains__('girl')))

print('Questions with question marks: {:.2f}%'.format(qmarks * 100))
print('Questions with [math] tags: {:.2f}%'.format(math * 100))
print('Questions with full stops: {:.2f}%'.format(fullstop * 100))
print('Questions with capitalised first letters: {:.2f}%'.format(capital_first * 100))
print('Questions with capital letters: {:.2f}%'.format(capitals * 100))
print('Questions with numbers: {:.2f}%'.format(numbers * 100))
print('Questions with URLs: {:.2f}%'.format(href * 100))
print()
print('Questions related to hacking: {:.2f}%'.format(hack * 100))
print('Questions related to programming: {:.2f}%'.format(prog * 100))
print('Questions related to sexuality: {:.2f}%'.format(sex * 100))
print('Questions related to phones: {:.2f}%'.format(phone * 100))
print('Questions related to India: {:.2f}%'.format(ind * 100))
print('Questions related to web: {:.2f}%'.format(web * 100))
print('Questions related to the Quora company: {:.2f}%'.format(quora * 100))
print('Questions related to Donald Trump: {:.2f}%'.format(trump * 100))
print('Questions related to girls: {:.2f}%'.format(girl * 100))
```

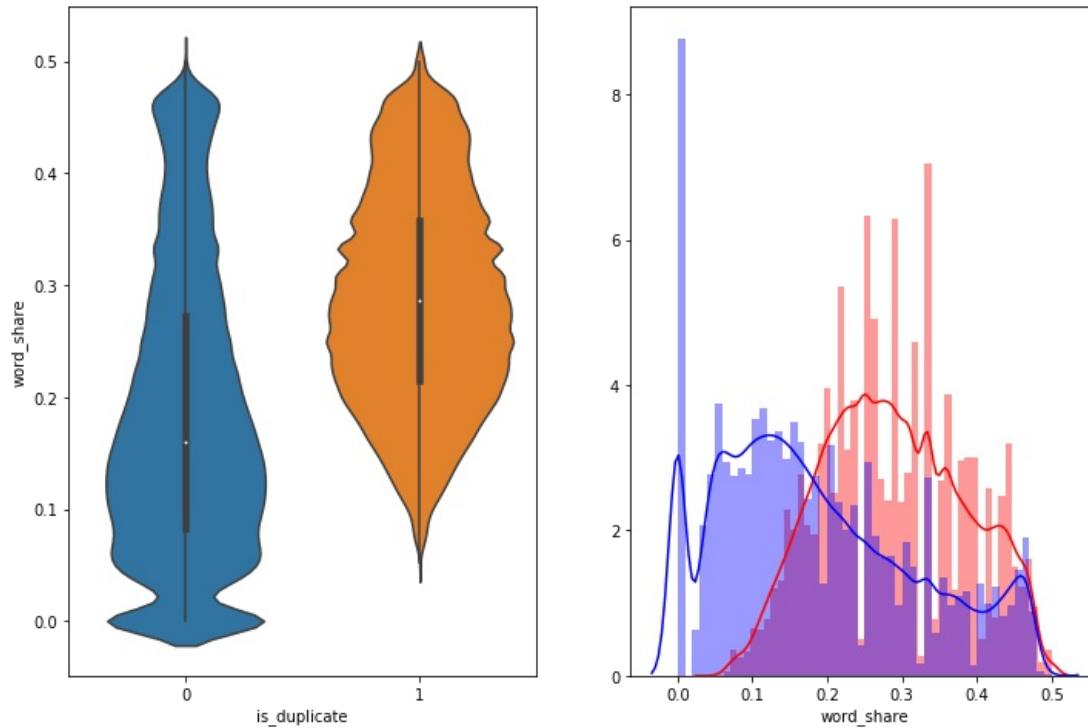
Questions with question marks: 99.87%  
Questions with [math] tags: 0.12%  
Questions with full stops: 6.31%  
Questions with capitalised first letters: 99.81%  
Questions with capital letters: 99.95%  
Questions with numbers: 11.85%  
Questions with URLs: 0.00%

Questions related to hacking: 0.58%  
Questions related to programming: 1.02%  
Questions related to sexuality: 0.92%  
Questions related to phones: 1.22%  
Questions related to India: 4.70%  
Questions related to web: 1.15%  
Questions related to the Quora company: 2.21%  
Questions related to Donald Trump: 1.26%  
Questions related to girls: 1.44%

## 5.2 Feature: word\_share

In [5]:

```
plt.figure(figsize=(12, 8))
plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'word_share', data = dataset[0:])
plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['word_share'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['word_share'][0:] , label = "0" , color = 'blue' )
plt.show()
```



- The distributions for normalized word\_share have some overlap on the far right-hand side, i.e., there are quite a lot of questions with high word similarity
- The average word share and Common no. of words of qid1 and qid2 is more when they are duplicate(Similar)

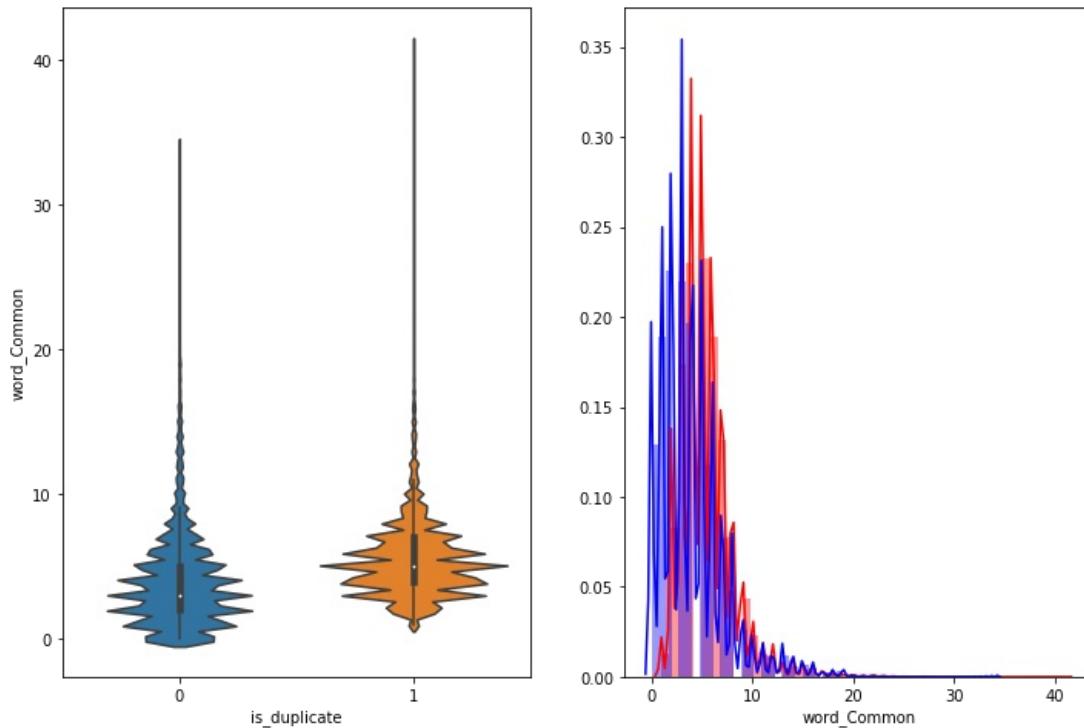
### 5.3 Feature: word\_Common

In [6]:

```
plt.figure(figsize=(12, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'word_Common', data = dataset[0:])

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['word_Common'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['word_Common'][0:] , label = "0" , color = 'blue' )
plt.show()
```



The distributions of the word\_Common feature in similar and non-similar questions are highly overlapping. So word\_Common alone cannot distinguish between the duplicate and non duplicate questions

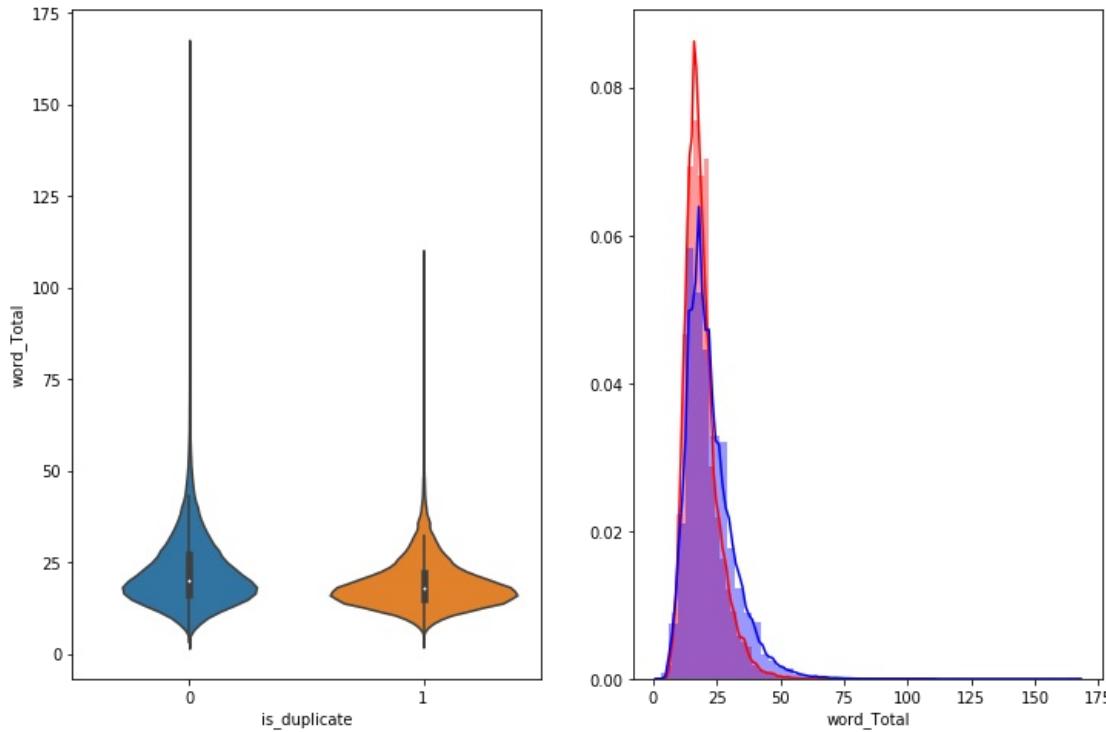
#### 5.4 Feature: word\_Total

In [97]:

```
plt.figure(figsize=(12, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'word_Total', data = dataset[0:])

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['word_Total'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['word_Total'][0:] , label = "0" , color = 'blue' )
plt.show()
```



The distribution of word\_Total features for duplicate as well as non duplicate pairs of questions are heavily overlapping. This feature might not be the best of choice!

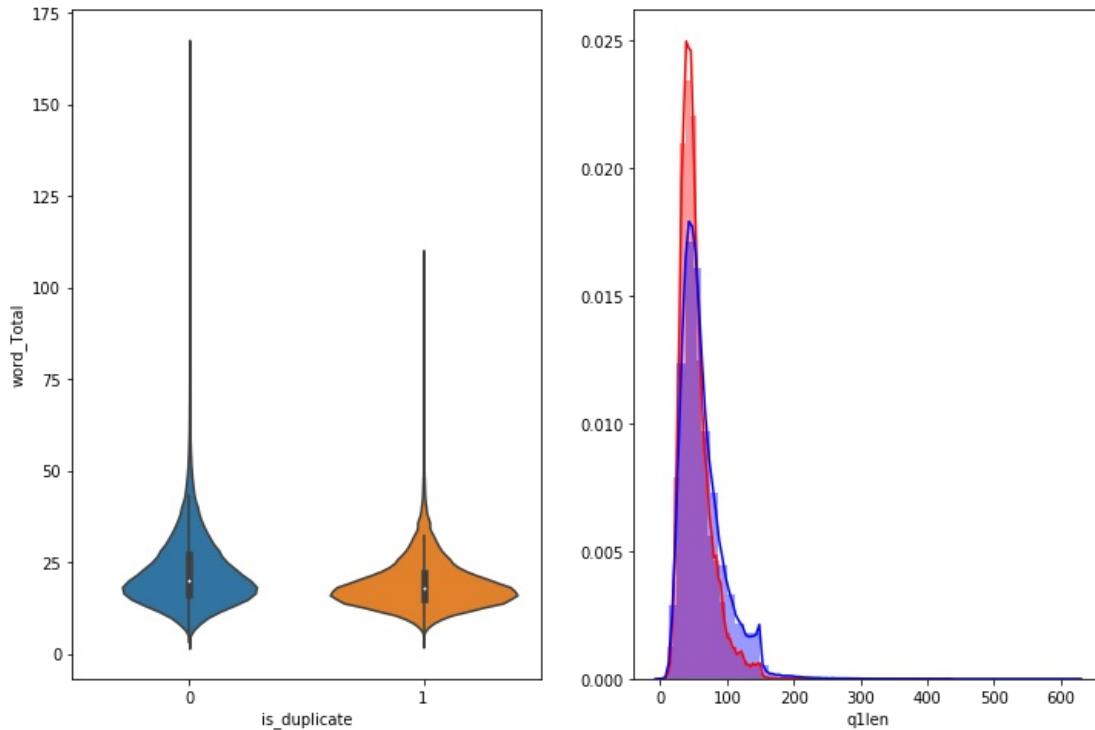
## 5.5 Feature: q1len

In [8]:

```
plt.figure(figsize=(12, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'word_Total', data = dataset[0:])

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['qllen'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['qllen'][0:] , label = "0" , color = 'blue' )
plt.show()
```



The feature q1len is very overlapping for both the duplicate as well as non duplicate questions which suggests q1len alone cannot distinguish between the duplicate and the non duplicate questions. Also, we can see that the length of question 1 varies from 0 to a maximum of almost 200. This means most of the users posts questions which are less than 200 units of length.

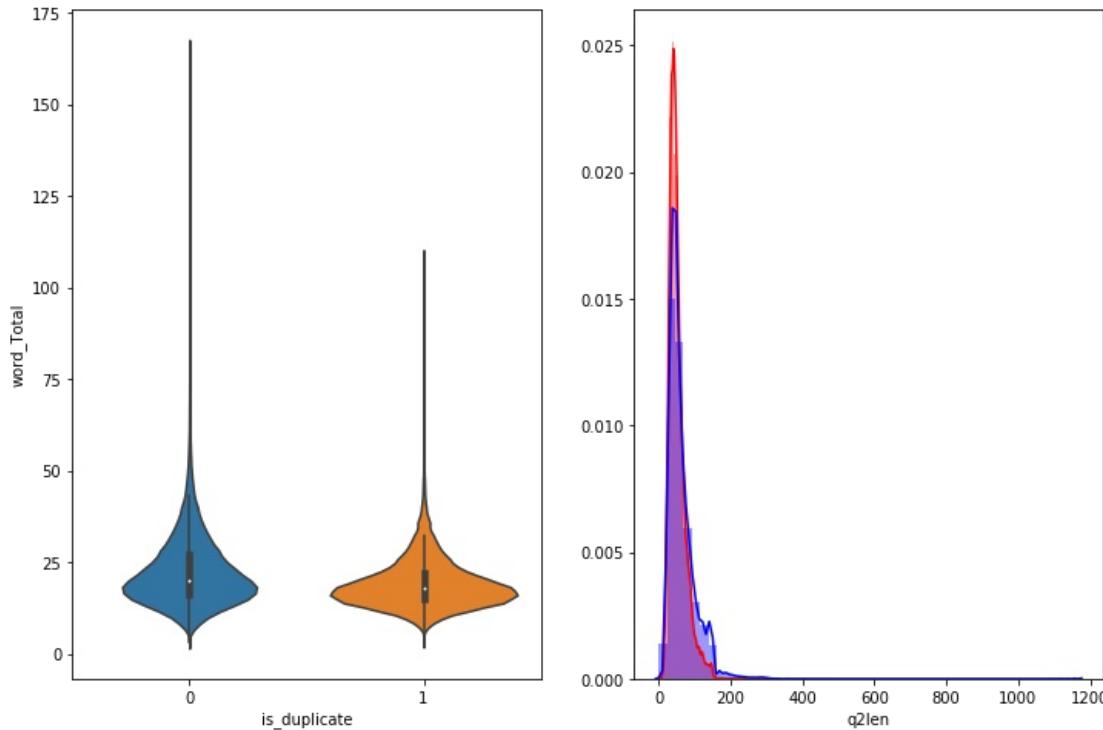
## 5.6 Feature: q2len

In [10]:

```
plt.figure(figsize=(12, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'word_Total', data = dataset[0:])

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['q2len'][0:], label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['q2len'][0:], label = "0", color = 'blue' )
plt.show()
```

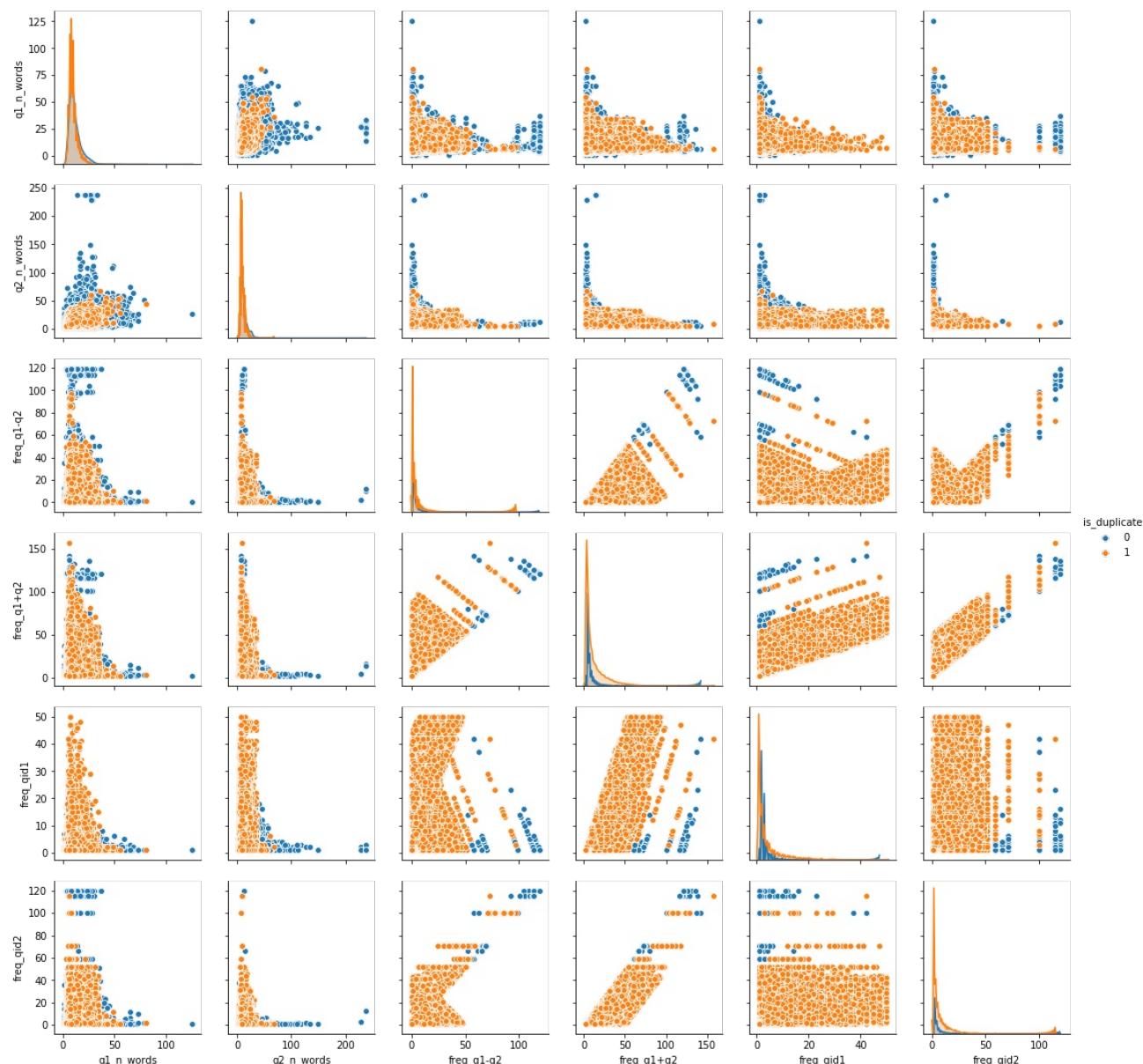


The feature q2len is very overlapping for both the duplicate as well as non duplicate questions which suggests q1len alone cannot distinguish between the duplicate and the non duplicate questions. Also, we can see that the length of question 2 varies from 0 to a maximum of almost 200. This means most of the users posts questions which are less than 200 units of length.

**5.7 Draw pair plots for basic features: 'q1\_n\_words', 'q2\_n\_words', 'freq\_q1-q2', 'freq\_q1+q2','freq\_qid1','freq\_qid2'**

In [102]:

```
n = dataset.shape[0]
sns.pairplot(dataset[['q1_n_words', 'q2_n_words', 'freq_q1-q2', 'freq_q1+q2','freq_qid1','freq_qid2','is_duplicate']][0:n], hue='is_duplicate', vars=['q1_n_words', 'q2_n_words', 'freq_q1-q2', 'freq_q1+q2','freq_qid1','freq_qid2'])
plt.show()
```



### Observation:

- From the above pair plot, we can see that some of the features are very useful in separating the two classes (0 and 1). We can write simple if-else rules to classify the datapoints.
- If we take a look at the distributions of each of these features, all of them are highly skewed towards the left. This suggests that the spread is very small.
- Some simple rule based systems we can write using the above pair plots are as follows:
  - if  $\text{freq\_qid2} < 60$  and  $\text{freq\_q1+q2} < 100$ , we can say that it is more likely that the point belongs to the duplicate class.
  - if  $\text{freq\_qid1} > 10$  and  $\text{freq\_q1+q2} < 50$ , the datapoint has a higher chance of belonging to the duplicate class.

## 6. EDA: Advanced Feature Extraction.

In [2]:

```
#https://stackoverflow.com/questions/12468179/unicodedeerror-utf8-codec-cant-decode-byte-0x9c
if os.path.isfile('dataset_fe_without_preprocessing_train.csv'):
    dataset = pd.read_csv("dataset_fe_without_preprocessing_train.csv",encoding='latin-1')
    dataset = dataset.fillna('')
else:
    print("get dataset_fe_without_preprocessing_train.csv from drive or run the previous notebook")
```

## 6.1. Preprocessing of Text

- Preprocessing:
  - Removing html tags
  - Removing Punctuations
  - Performing stemming
  - Removing Stopwords
  - Expanding contractions etc.

In [13]:

```
def preprocess(x):
    x = str(x).lower()
    x = x.replace(",000,000", "m").replace(",000", "k").replace("'", "").replace("", "")\
        .replace("won't", "will not").replace("cannot", "can not").replace("can't", "can not")\
        .replace("n't", " not").replace("what's", "what is").replace("it's", "it is")\
        .replace("ve", " have").replace("i'm", "i am").replace("re", " are")\
        .replace("he's", "he is").replace("she's", "she is").replace("s", " own")\
        .replace("%", " percent ").replace("₹", " rupee ").replace("$", " dollar ")\
        .replace("€", " euro ").replace("ll", " will")
    x = re.sub(r"([0-9]+)000000", r"\1m", x)
    x = re.sub(r"([0-9]+)000", r"\1k", x)

porter = PorterStemmer()
pattern = re.compile('\W')

if type(x) == type(''):
    x = re.sub(pattern, ' ', x)

if type(x) == type(''):
    x = porter.stem(x)
    example1 = BeautifulSoup(x)
    x = example1.get_text()
return x
```

- Function to Compute and get the features : With 2 parameters of Question 1 and Question 2

## 6.2. Advanced Feature Extraction (NLP and Fuzzy Features)

Definition:

- **Token**: You get a token by splitting sentence a space
- **Stop\_Word** : stop words as per NLTK.
- **Word** : A token that is not a stop\_word

Features:

- **cwc\_min** : Ratio of common\_word\_count to min length of word count of Q1 and Q2  
 $cwc\_min = \text{common\_word\_count} / (\min(\text{len}(q1\_words), \text{len}(q2\_words)))$
- **cwc\_max** : Ratio of common\_word\_count to max length of word count of Q1 and Q2  
 $cwc\_max = \text{common\_word\_count} / (\max(\text{len}(q1\_words), \text{len}(q2\_words)))$
- **csc\_min** : Ratio of common\_stop\_count to min length of stop count of Q1 and Q2  
 $csc\_min = \text{common\_stop\_count} / (\min(\text{len}(q1\_stops), \text{len}(q2\_stops)))$
- **csc\_max** : Ratio of common\_stop\_count to max length of stop count of Q1 and Q2  
 $csc\_max = \text{common\_stop\_count} / (\max(\text{len}(q1\_stops), \text{len}(q2\_stops)))$
- **ctc\_min** : Ratio of common\_token\_count to min length of token count of Q1 and Q2  
 $ctc\_min = \text{common\_token\_count} / (\min(\text{len}(q1\_tokens), \text{len}(q2\_tokens)))$
- **ctc\_max** : Ratio of common\_token\_count to max length of token count of Q1 and Q2  
 $ctc\_max = \text{common\_token\_count} / (\max(\text{len}(q1\_tokens), \text{len}(q2\_tokens)))$
- **last\_word\_eq** : Check if First word of both questions is equal or not  
 $\text{last\_word\_eq} = \text{int}(q1\_tokens[-1] == q2\_tokens[-1])$
- **first\_word\_eq** : Check if First word of both questions is equal or not  
 $\text{first\_word\_eq} = \text{int}(q1\_tokens[0] == q2\_tokens[0])$
- **abs\_len\_diff** : Abs. length difference  
 $\text{abs\_len\_diff} = \text{abs}(\text{len}(q1\_tokens) - \text{len}(q2\_tokens))$
- **mean\_len** : Average Token Length of both Questions  
 $\text{mean\_len} = (\text{len}(q1\_tokens) + \text{len}(q2\_tokens))/2$
- **fuzz\_ratio** : <https://github.com/seatgeek/fuzzywuzzy#usage> (<https://github.com/seatgeek/fuzzywuzzy#usage>)  
<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/> (<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/>)
- **fuzz\_partial\_ratio** : <https://github.com/seatgeek/fuzzywuzzy#usage> (<https://github.com/seatgeek/fuzzywuzzy#usage>)  
<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/> (<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/>)
- **token\_sort\_ratio** : <https://github.com/seatgeek/fuzzywuzzy#usage> (<https://github.com/seatgeek/fuzzywuzzy#usage>)  
<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/> (<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/>)
- **token\_set\_ratio** : <https://github.com/seatgeek/fuzzywuzzy#usage> (<https://github.com/seatgeek/fuzzywuzzy#usage>)  
<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/> (<http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/>)
- **longest\_substr\_ratio** : Ratio of length longest common substring to min length of token count of Q1 and Q2  
 $\text{longest\_substr\_ratio} = \text{len}(\text{longest common substring}) / (\min(\text{len}(q1\_tokens), \text{len}(q2\_tokens)))$

In [9]:

```
# To get the results in 4 decimal points
SAFE_DIV = 0.0001

STOP_WORDS = stopwords.words("english")

def get_token_features(q1, q2):
    token_features = [0.0]*10

    # Converting the Sentence into Tokens:
    q1_tokens = q1.split()
    q2_tokens = q2.split()
```

```

if len(q1_tokens) == 0 or len(q2_tokens) == 0:
    return token_features

# Get the non-stopwords in Questions
q1_words = set([word for word in q1_tokens if word not in STOP_WORDS])
q2_words = set([word for word in q2_tokens if word not in STOP_WORDS])

#Get the stopwords in Questions
q1_stops = set([word for word in q1_tokens if word in STOP_WORDS])
q2_stops = set([word for word in q2_tokens if word in STOP_WORDS])

# Get the common non-stopwords from Question pairs
common_word_count = len(q1_words.intersection(q2_words))

# Get the common stopwords from Question pair
common_stop_count = len(q1_stops.intersection(q2_stops))

# Get the common Tokens from Question pair
common_token_count = len(set(q1_tokens).intersection(set(q2_tokens)))

token_features[0] = common_word_count / (min(len(q1_words), len(q2_words)) + SAFE_DIV)
token_features[1] = common_word_count / (max(len(q1_words), len(q2_words)) + SAFE_DIV)
token_features[2] = common_stop_count / (min(len(q1_stops), len(q2_stops)) + SAFE_DIV)
token_features[3] = common_stop_count / (max(len(q1_stops), len(q2_stops)) + SAFE_DIV)
token_features[4] = common_token_count / (min(len(q1_tokens), len(q2_tokens)) + SAFE_DIV)
token_features[5] = common_token_count / (max(len(q1_tokens), len(q2_tokens)) + SAFE_DIV)

# Last word of both question is same or not
token_features[6] = int(q1_tokens[-1] == q2_tokens[-1])

# First word of both question is same or not
token_features[7] = int(q1_tokens[0] == q2_tokens[0])

token_features[8] = abs(len(q1_tokens) - len(q2_tokens))

#Average Token Length of both Questions
token_features[9] = (len(q1_tokens) + len(q2_tokens))/2
return token_features

# get the Longest Common sub string
def get_longest_substr_ratio(a, b):
    strs = list(distance.lcsubstrings(a, b)) #lcsubstrings("sedentar", "dentist") --> {'dent'}
    if len(strs) == 0:
        return 0
    else:
        return len(strs[0]) / (min(len(a), len(b)) + 1)

def extract_features(dataset):
    # preprocessing each question
    dataset["question1"] = dataset["question1"].fillna("").apply(preprocess)
    dataset["question2"] = dataset["question2"].fillna("").apply(preprocess)

    print("token features...")

# Merging Features with dataset

token_features = dataset.apply(lambda x: get_token_features(x["question1"], x["question2"]), axis=1)

dataset["cwc_min"]      = list(map(lambda x: x[0], token_features))
dataset["cwc_max"]      = list(map(lambda x: x[1], token_features))
dataset["csc_min"]      = list(map(lambda x: x[2], token_features))
dataset["csc_max"]      = list(map(lambda x: x[3], token_features))
dataset["ctc_min"]      = list(map(lambda x: x[4], token_features))
dataset["ctc_max"]      = list(map(lambda x: x[5], token_features))
dataset["last_word_eq"] = list(map(lambda x: x[6], token_features))
dataset["first_word_eq"] = list(map(lambda x: x[7], token_features))
dataset["abs_len_diff"] = list(map(lambda x: x[8], token_features))
dataset["mean_len"]      = list(map(lambda x: x[9], token_features))

#Computing Fuzzy Features and Merging with Dataset

# do read this blog: http://chairnerd.seatgeek.com/fuzzywuzzy-fuzzy-string-matching-in-python/
# https://stackoverflow.com/questions/31806695/when-to-use-which-fuzz-function-to-compare-2-strings
# https://github.com/seatgeek/fuzzywuzzy
print("fuzzy features...")

dataset["token_set_ratio"]      = dataset.apply(lambda x: fuzz.token_set_ratio(x["question1"], x["question2"]),
axis=1)
# The token sort approach involves tokenizing the string in question, sorting the tokens alphabetically, and
# then joining them back into a string We then compare the transformed strings with a simple ratio().
dataset["token_sort_ratio"]     = dataset.apply(lambda x: fuzz.token_sort_ratio(x["question1"], x["question2"]),
axis=1)

```

```

dataset["fuzz_ratio"] = dataset.apply(lambda x: fuzz.QRatio(x["question1"], x["question2"])), axis=1)
dataset["fuzz_partial_ratio"] = dataset.apply(lambda x: fuzz.partial_ratio(x["question1"], x["question2"]))
dataset["longest_substr_ratio"] = dataset.apply(lambda x: get_longest_substr_ratio(x["question1"], x["question2"])), axis=1)
return dataset

```

In [10]:

```

if os.path.isfile('dataset_advance_features_preprocessed_train.csv'):
    dataset.fillna('')
    dataset = pd.read_csv("dataset_advance_features_preprocessed_train.csv", encoding='latin-1')

else:
    print("Extracting features for train:")
    dataset = pd.read_csv("train.csv")
    dataset = extract_features(dataset)
    dataset.to_csv("dataset_advance_features_preprocessed_train.csv", index=False)

dataset.head()

```

Out[10]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>question1</b>	<b>question2</b>	<b>is_duplicate</b>	<b>cwc_min</b>	<b>cwc_max</b>	<b>csc_min</b>	<b>csc_max</b>	...	<b>ctc_max</b>	<b>last_word_error</b>
<b>0</b>	0	1	2	what is the step by step guide to invest in sh...	what is the step by step guide to invest in sh...	0	0.999980	0.833319	0.999983	0.999983	...	0.785709	0
<b>1</b>	1	3	4	what is the story of kohinoor koh i noor dia...	what would happen if the indian government sto...	0	0.799984	0.399996	0.749981	0.599988	...	0.466664	0
<b>2</b>	2	5	6	how can i increase the speed of my internet co...	how can internet speed be increased by hacking...	0	0.399992	0.333328	0.399992	0.249997	...	0.285712	0
<b>3</b>	3	7	8	why am i mentally very lonely how can i solve...	find the remainder when math 23 24 math i...	0	0.000000	0.000000	0.000000	0.000000	...	0.000000	0
<b>4</b>	4	9	10	which one dissolve in water quickly sugar salt...	which fish would survive in salt water	0	0.399992	0.199998	0.999950	0.666644	...	0.307690	0

5 rows x 21 columns

## 6.3. Analysis of advance extracted features

### 6.3.1 Plotting Word clouds

- Creating Word Cloud of Duplicates and Non-Duplicates Question pairs
- We can observe the most frequent occurring words

In [6]:

```
if os.path.isfile('dataset_advance_features_preprocessed_train.csv'):
    dataset = pd.read_csv("dataset_advance_features_preprocessed_train.csv",encoding='latin-1')
    dataset.fillna('')

dataset_duplicate = dataset[dataset['is_duplicate'] == 1]
dataset_nonduplicate = dataset[dataset['is_duplicate'] == 0]

# Converting 2d array of q1 and q2 and flatten the array: like {{1,2},{3,4}} to {1,2,3,4}
p = np.dstack([dataset_duplicate["question1"], dataset_duplicate["question2"]]).flatten()
n = np.dstack([dataset_nonduplicate["question1"], dataset_nonduplicate["question2"]]).flatten()

print ("Number of data points in class 1 (question duplicate pairs) :",len(p))
print ("Number of data points in class 0 (question non-duplicate pairs) :",len(n))

#Saving the np array into a text file
np.savetxt('train_p.txt', p, delimiter=' ', fmt='%s')
np.savetxt('train_n.txt', n, delimiter=' ', fmt='%s')
```

Number of data points in class 1 (question duplicate pairs) : 298526  
Number of data points in class 0 (question non-duplicate pairs) : 510054

In [14]:

```
# reading the text files and removing the Stop Words:
d = path.dirname('.')

textp_w = open(path.join(d, 'train_p.txt')).read()
textn_w = open(path.join(d, 'train_n.txt')).read()

stopwords = set(STOPWORDS)
stopwords.add("said")
stopwords.add("br")
stopwords.add(" ")
stopwords.remove("not")
stopwords.remove("no")
stopwords.remove("like")
#stopwords.remove("!")
print ("Total number of words in duplicate pair questions :",len(textp_w))
print ("Total number of words in non duplicate pair questions :",len(textn_w))
```

Total number of words in duplicate pair questions : 16110763  
Total number of words in non duplicate pair questions : 33201102

### 6.3.2. Word Clouds generated from duplicate pair question's text

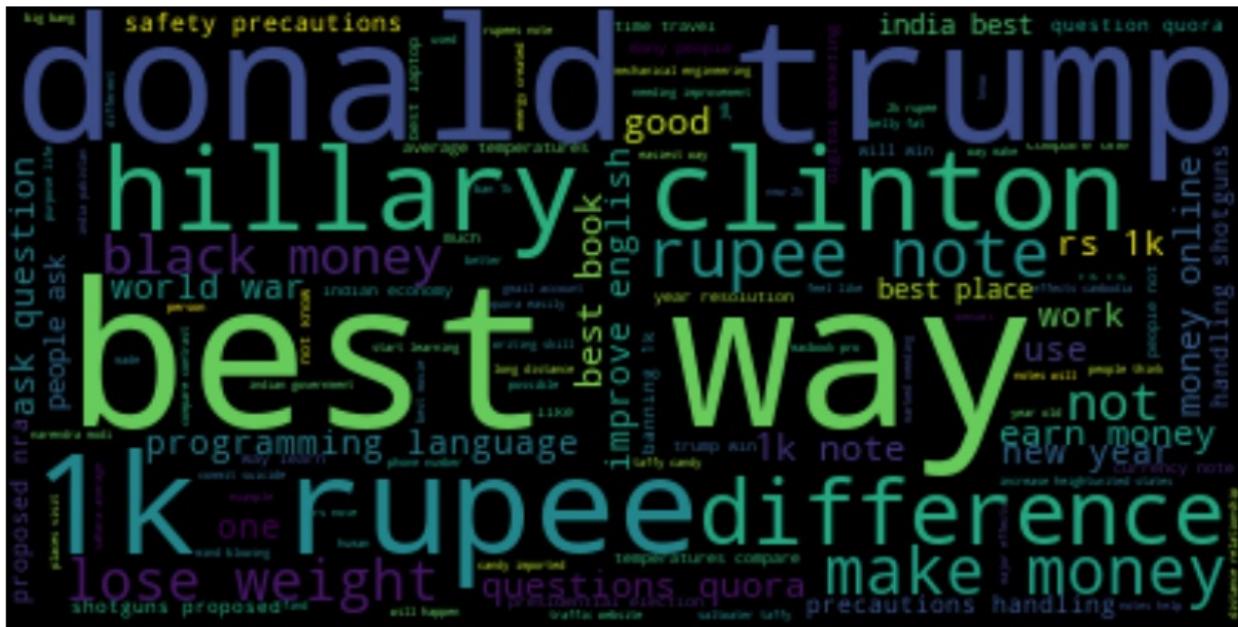
In [15]:

```

wc = WordCloud(background_color="black", max_words=len(textp_w), stopwords=stopwords)
wc.generate(textp_w)
print ("Word Cloud for Duplicate Question pairs")
plt.figure(figsize=(15,10))
plt.imshow(wc, interpolation='bilinear')
plt.axis("off")
plt.show()

```

## Word Cloud for Duplicate Question pairs



We see 'donald trump' is the most talked about subject in the duplicate questions category, followed by some of the words like 'best way', there are a lot of duplicate questions related to 'loosing weight', 'hillary clinton' etc.

### **6.3.3. Word Clouds generated from non duplicate pair question's text**

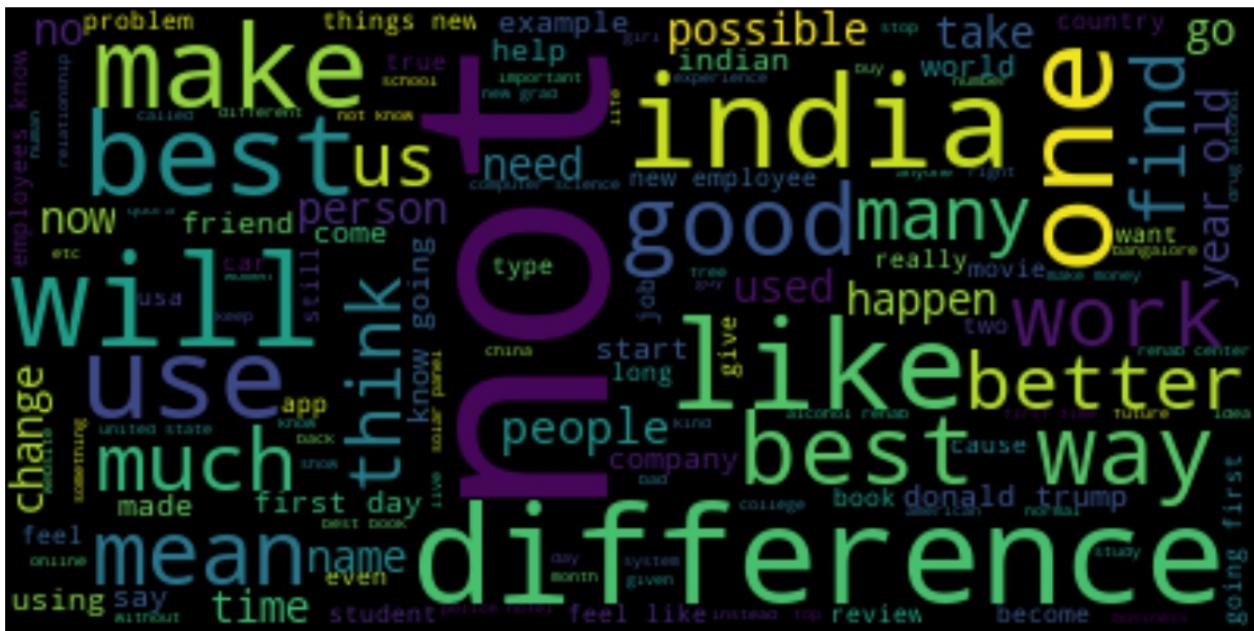
In [16]:

```

wc = WordCloud(background_color="black", max_words=len(textn_w),stopwords=stopwords)
# generate word cloud
wc.generate(textn_w)
print ("Word Cloud for non-Duplicate Question pairs:")
plt.figure(figsize=(20,12))
plt.imshow(wc, interpolation='bilinear')
plt.axis("off")
plt.show()

```

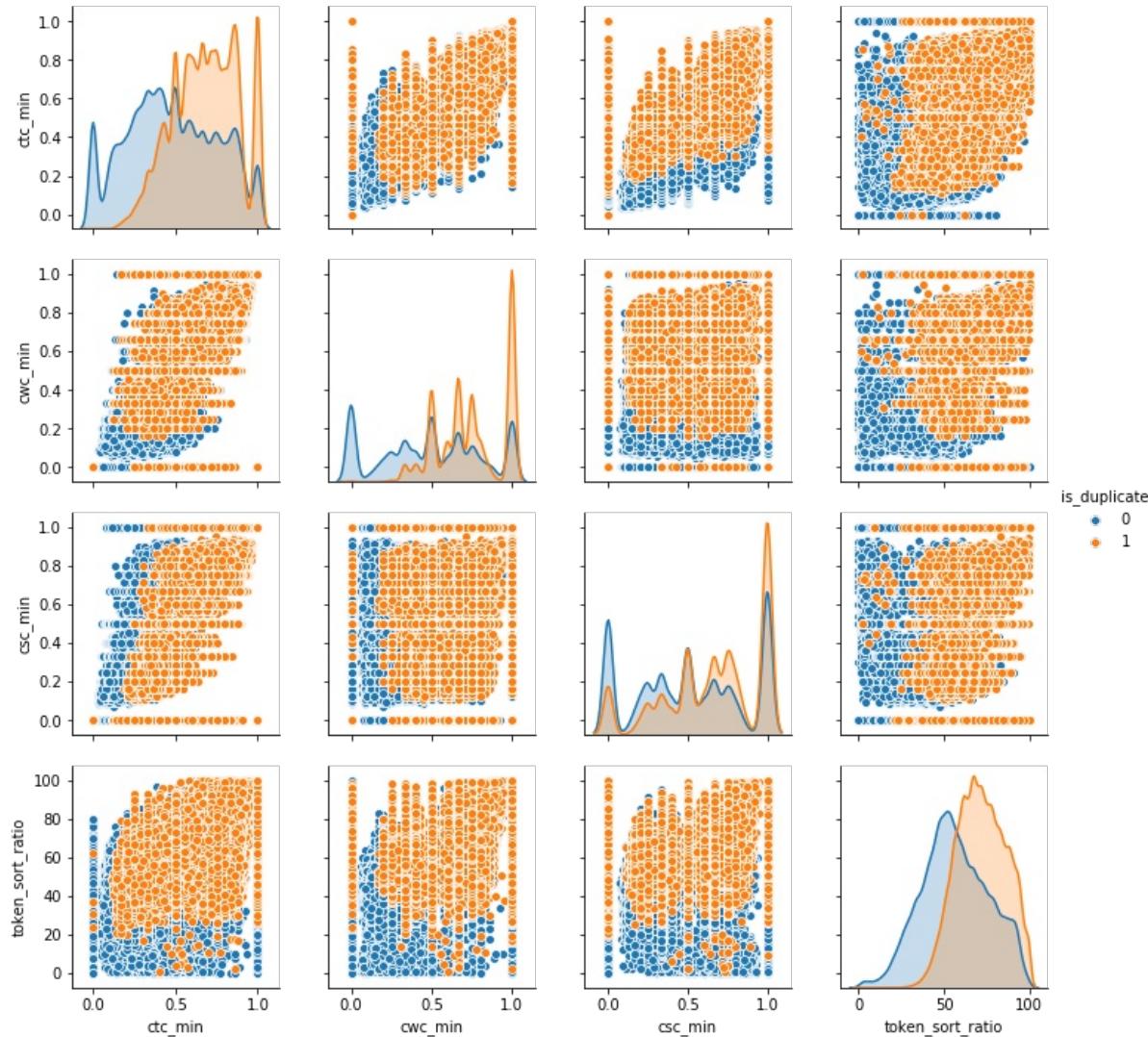
Word Cloud for non-Duplicate Question pairs:



## 7.1 Pair plot of advance features ['ctc\_min', 'cwc\_min', 'csc\_min', 'token\_sort\_ratio']

In [21]:

```
n = dataset.shape[0]
sns.pairplot(dataset[['ctc_min', 'cwc_min', 'csc_min', 'token_sort_ratio', 'is_duplicate']][0:n], hue='is_duplicate', vars=['ctc_min', 'cwc_min', 'csc_min', 'token_sort_ratio'])
plt.show()
```



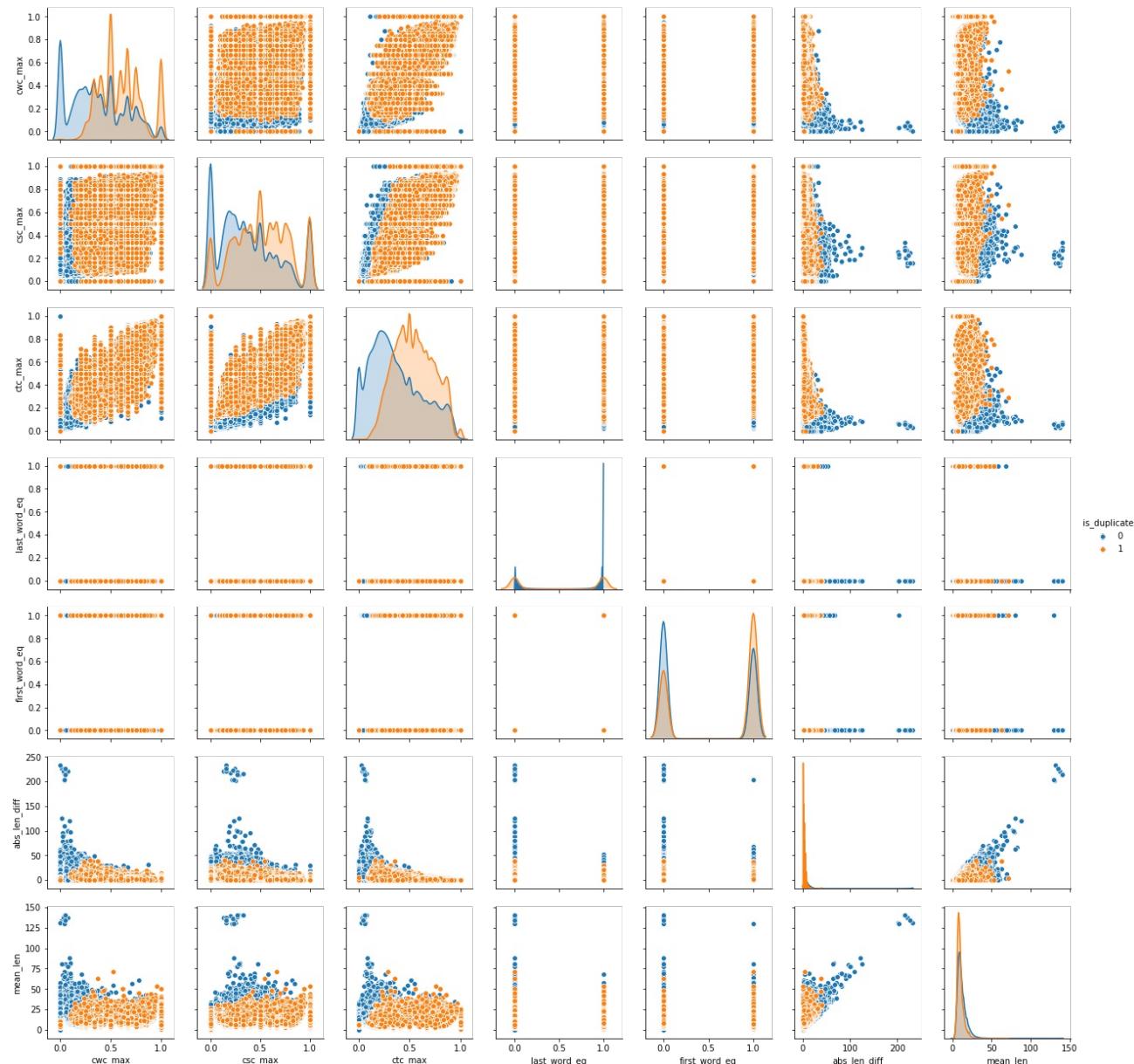
Here by looking at the PDFs and scatter plots we can clearly see that the feature `token_sort_ratio` is well separable from rest of the features! '`ctc_min`', '`cwc_min`', '`csc_min`', '`token_sort_ratio`' are indeed good features as they are able to partially separate the duplicate and non duplicate questions. From the above pair plot we can come up with few conclusions.

1. By looking at the '`ctc_min`' distribution we can see that both the distributions (for duplicate as well as non duplicate questions), the questions tends to be duplicate of one another as the value of '`ctc_min`' increases. This means '`ctc_min`' can partially separate both the classes. This suggests that it's a good feature.
2. By looking at the '`cwc_min`' distribution we can see that both the distributions (for duplicate as well as non duplicate questions), the questions tends to be duplicate of one another as the value of '`cwc_min`' increases. This means '`cwc_min`' can partially separate both the classes. This suggests that it's a good feature.
3. If we take a closer look at the distributions of feature '`csc_min`', we can see that the two classes are completely overlapping. There is no strict rule to separate the two classes (duplicate or not) solely based on this feature.
4. '`token_sort_ratio`' separates the two classes partially. In general, as the value of '`token_sort_ratio`' becomes higher, there is a higher chance of two questions being duplicate of one another.

## 7.2 Pair plot of advance features ['`cwc_max`', '`csc_max`', '`ctc_max`', '`last_word_eq`', '`first_word_eq`', '`abs_len_diff`', '`mean_len`']

In [27]:

```
n = dataset.shape[0]
sns.pairplot(dataset[['cwc_max', 'csc_max', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len', 'is_duplicate']][0:n], hue='is_duplicate', vars=['cwc_max', 'csc_max', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len'])
plt.show()
```

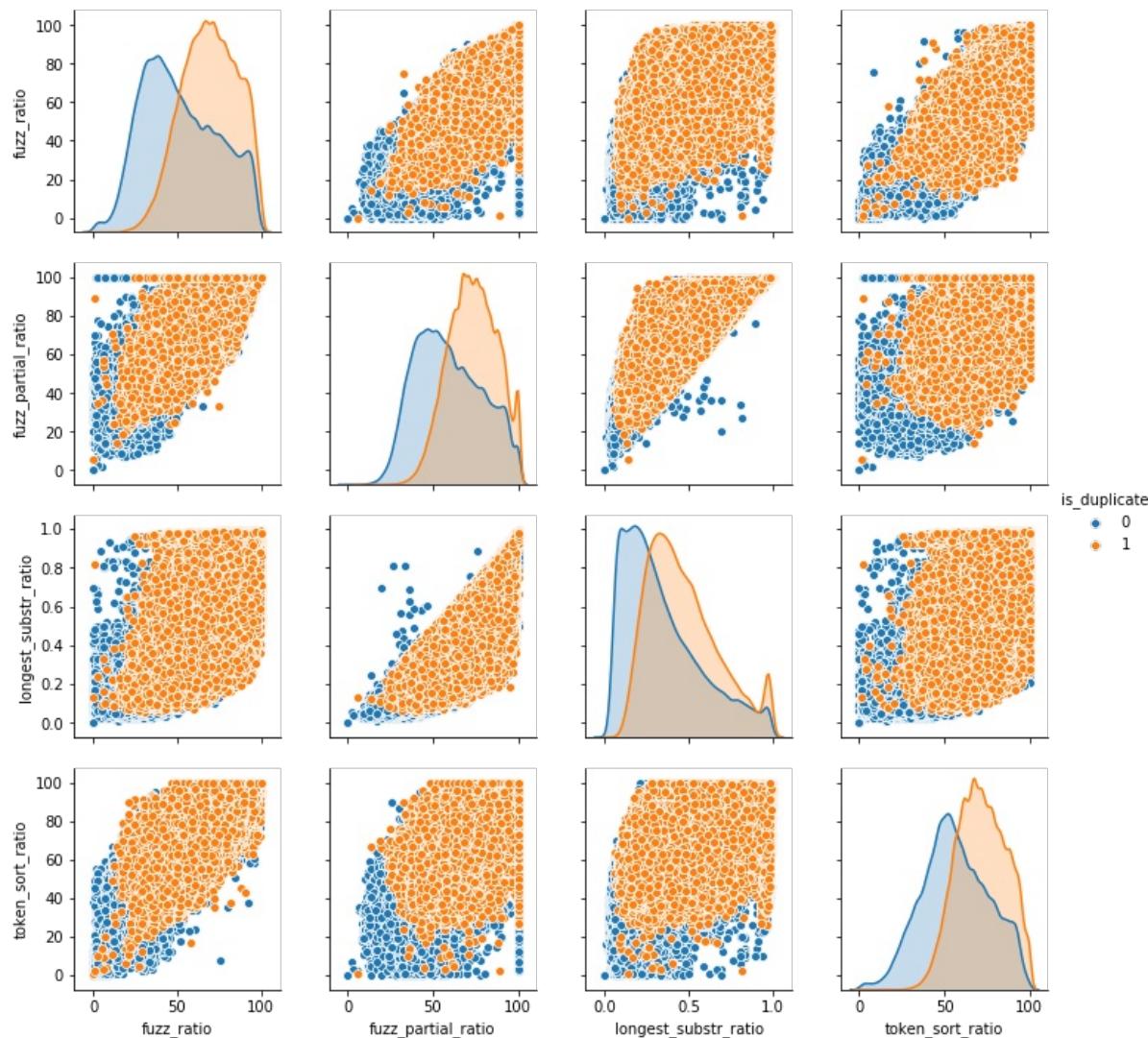


1. By looking at the histogram generated by 'cwc\_max', we can say that it can partially separate the class values. In general as the value of 'cwc\_max' increases there is a higher tendency of questions becoming duplicates of one another.
2. 'csc\_max' alone cannot distinguish between the class labels that much. By looking at the histogram, we find that the two class distributions are overlapping. However, 'csc\_max' vs 'mean\_len' scatter plot suggests that the two classes can be well separated by a simple if-else condition, i.e if  $\text{mean\_len} > 50$  there is a higher chance of two questions being duplicate of one another.
3. 'mean\_len', 'abs\_len\_diff', 'first\_word\_eq', 'last\_word\_eq' are not very robust features when it comes to single handedly separating both the classes. As we can see from each of their histograms, the classes are highly overlapping.
4. 'ctc\_max' vs 'mean\_len' scatter plot can separate both the classes using simple if-else conditions. We can say if  $\text{ctc\_max} > 0.25$  and  $\text{mean\_len} < 50$ , there is a higher chance of a data point belonging to the duplicate class.

### 7.3 Pair plot of fuzzy features ['fuzz\_ratio', 'fuzz\_partial\_ratio', 'longest\_substr\_ratio', 'token\_sort\_ratio']

In [26]:

```
n = dataset.shape[0]
sns.pairplot(dataset[['fuzz_ratio', 'fuzz_partial_ratio', 'longest_substr_ratio', 'token_sort_ratio', 'is_duplicate']][0:n], hue='is_duplicate', vars=['fuzz_ratio', 'fuzz_partial_ratio', 'longest_substr_ratio', 'token_sort_ratio'])
plt.show()
```



Here by looking at the PDFs and scatter plots we can clearly see that the feature `token_sort_ratio` is well seperable from rest of the features! `'ctc_min'`, `'cwc_min'`, `'csc_min'`, `'token_sort_ratio'` are indeed good features as they are able to partially seperate the duplicate and non duplicate questions. From the above pair plot we can come up with few conclusions.

1. By looking at the `'fuzz_ratio'` distribution we can see that both the distributions (for duplicate as well as non duplicate questions), the questions tends to be duplicate of one another as the value of `'fuzz_ratio'` increases. This means `'fuzz_ratio'` can alone partially seperate both the classes. This suggests that it's a good feature.
2. By looking at the `'fuzz_partial_ratio'` distribution we can see that both the distributions (for duplicate as well as non duplicate questions), the questions tends to be duplicate of one another as the value of `'fuzz_partial_ratio'` increases. This means `'fuzz_partial_ratio'` can alone partially seperate both the classes which suggests that it's a good feature.
3. `'longest_substr_ratio'` also separates the two classes partially. In general, as the value of `'longest_substr_ratio'` increases, the questions tends to duplicates of one another.
4. `'token_sort_ratio'` separates the two classes partially. In general, as the value of `'token_sort_ratio'` becomes higher, there is a higher chance of two questions being duplicate of one another.
5. For the scatter plot of `'fuzz_ratio'` and `'longest_substr_ratio'` we can see that the two classes can be easily seperated by using a simple if-else condition. If `'fuzz_ratio' > 50`, we can mostly say that the questions are duplicates.
6. `'token_sort_ratio'` vs `'longest_substr_ratio'` can also seperate the two classes based on simple if-else conditions. We can clearly say if `token_sort_ratio > 45`, there is a higher likelihood of questions becoming duplicates of one another.
7. For `'token_sort_ratio'` vs `'fuzz_partial_ratio'` we can say if `token_sort_ratio > 30` and `fuzz_partial_ratio > 40`, the questions are most likely duplicates of one another.

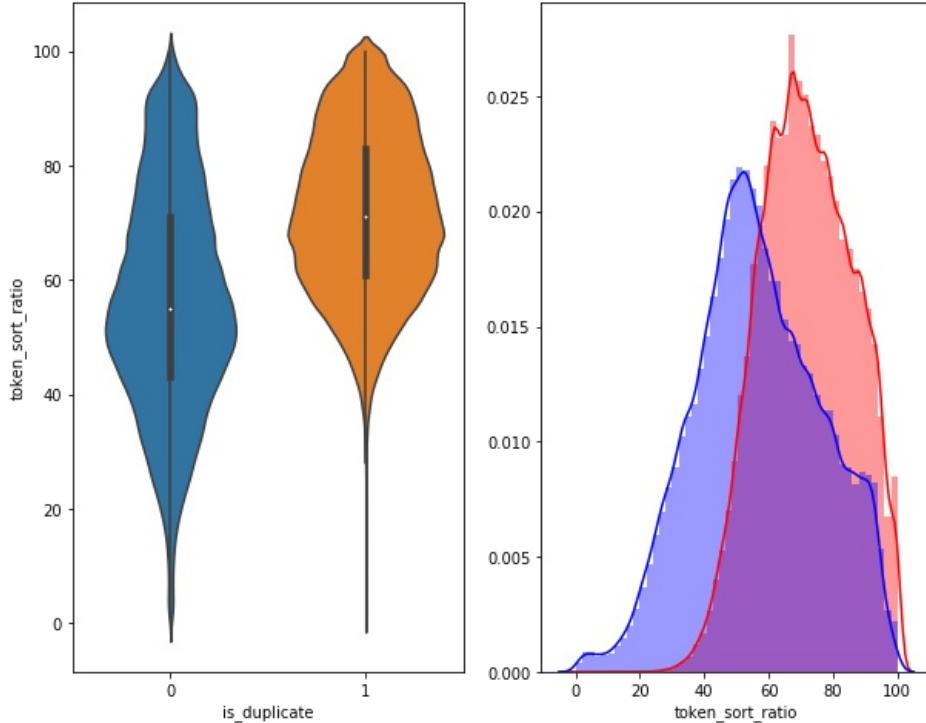
## 8.1. Distribution of the `token_sort_ratio`

In [20]:

```
plt.figure(figsize=(10, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'token_sort_ratio', data = dataset[0:] , )

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['token_sort_ratio'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['token_sort_ratio'][0:] , label = "0" , color = 'blue' )
plt.show()
```



The percentile ranges in the violin plot is also not very clearly separable. The 75% percentile of `token_sort_ratio` in determining duplicates points coincides with the 25% percentile of the other class. This means the model will have a chance of making 25% error when it will try to predict a new data as duplicate or not solely based on this feature. Here we have a slight overlap between the distributions. But in general, we see as the `token_sort_ratio` increases the tendency of the questions to be similar increases.

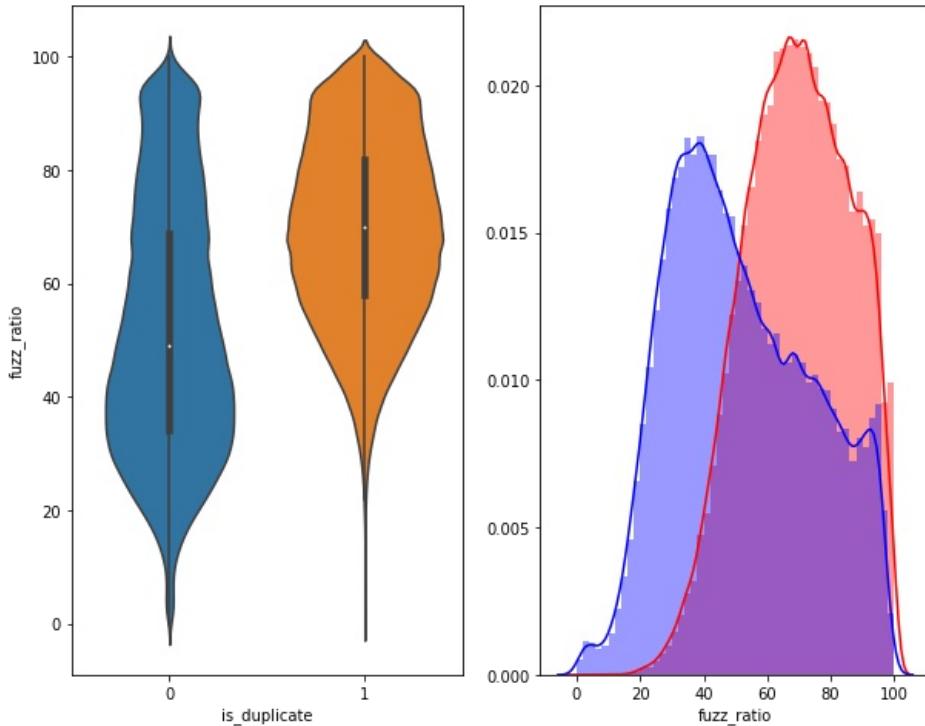
## 8.2. Distribution of the `fuzz_ratio`

In [19]:

```
plt.figure(figsize=(10, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'fuzz_ratio', data = dataset[0:] , )

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['fuzz_ratio'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['fuzz_ratio'][0:] , label = "0" , color = 'blue' )
plt.show()
```



Here again the same thing, the percentile ranges in the violin plot is also not very clearly separable. The 75% percentile of 'fuzz\_ratio' in determining duplicates points coincides with the 25% percentile of the other class. This means the model will have a chance of making 25% error when it will try to predict a new data as duplicate or not solely based on this feature. 'fuzz\_ratio' partially separates the duplicate and non-duplicate classes. They are neither completely overlapping nor completely separable. In general, we notice that as the value of 'fuzz\_ratio' increases, the tendency of questions being duplicates of one another increases.

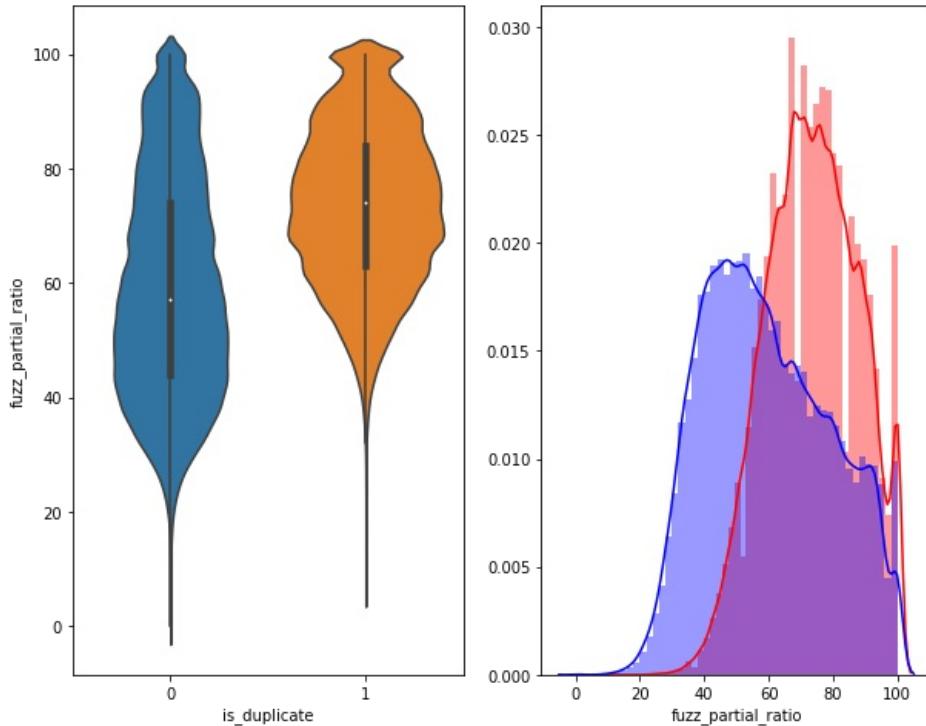
### 8.3. Distribution of the fuzz\_partial\_ratio

In [111]:

```
plt.figure(figsize=(10, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'fuzz_partial_ratio', data = dataset[0:] , )

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['fuzz_partial_ratio'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['fuzz_partial_ratio'][0:] , label = "0" , color = 'blue' )
plt.show()
```



Here also, we see the overlapping of the percentiles. 'fuzz\_partial\_ratio' distributions are overlapping for the two classes. So there is not a concrete way to separate the two classes. However, as we see above, if the 'fuzz\_partial\_ratio' value is higher, more often than not the question tends to be a duplicate. If the PDF of 'fuzz\_partial\_ratio' is higher than 0.020 we can mostly say that the question is a duplicate.

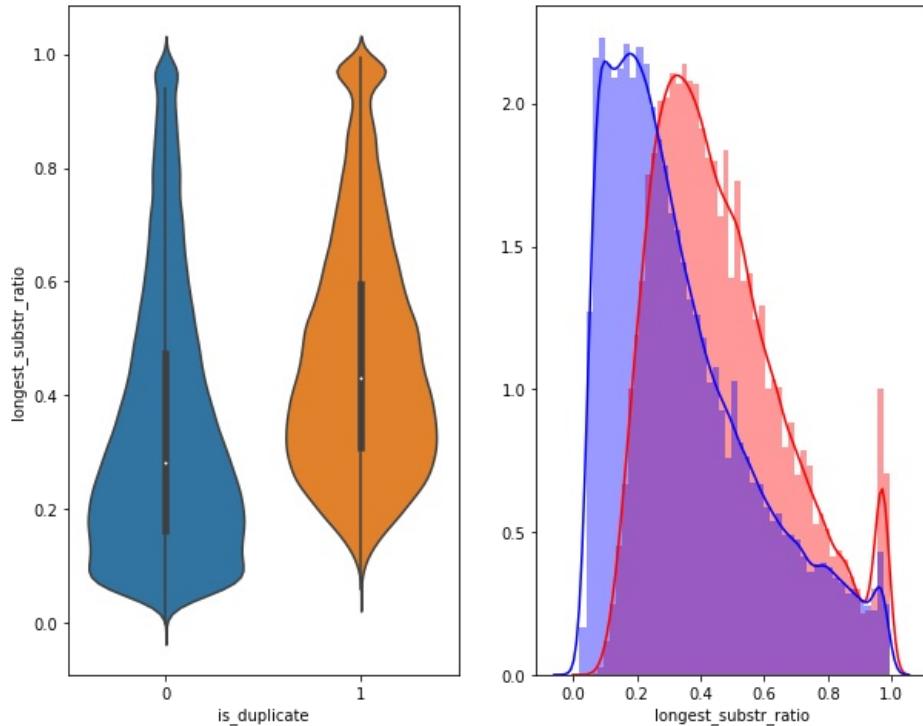
#### 8.4. Distribution of the longest\_substr\_ratio

In [112]:

```
plt.figure(figsize=(10, 8))

plt.subplot(1,2,1)
sns.violinplot(x = 'is_duplicate', y = 'longest_substr_ratio', data = dataset[0:] , )

plt.subplot(1,2,2)
sns.distplot(dataset[dataset['is_duplicate'] == 1.0]['longest_substr_ratio'][0:] , label = "1", color = 'red')
sns.distplot(dataset[dataset['is_duplicate'] == 0.0]['longest_substr_ratio'][0:] , label = "0" , color = 'blue' )
plt.show()
```



'fuzz\_partial\_ratio' distributions are overlapping for the two classes. So there is not a concrete way to separate the two classes. However, as we see above, if the 'fuzz\_partial\_ratio' value is higher, more often than not the question tends to be duplicate.

## 9. Data Visualization

### 9.1 Using TSNE for Dimensionality reduction on the advance features

In [116]:

```
# Using TSNE for Dimensionality reduction for 15 Features(Generated after cleaning the data) to 3 dimensions

from sklearn.preprocessing import MinMaxScaler

dfp_subsampled = dataset.sample(n=10000, random_state=0)
X = MinMaxScaler().fit_transform(dfp_subsampled[['cwc_min', 'cwc_max', 'csc_min', 'csc_max', 'ctc_min', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len', 'token_set_ratio', 'token_sort_ratio', 'fuzz_ratio', 'fuzz_partial_ratio', 'longest_substr_ratio']])
y = dfp_subsampled['is_duplicate'].values
```

In [119]:

```
from MulticoreTSNE import MulticoreTSNE as TSNE
def tsne(dataset, labels, perplexity):
    '''This function is used to plot the t-sne for any input dataset using their corresponding class labels,
    using two dimensions.'''
    #TSNE for cleaned data, #10000 data points

    #Starting TSNE dataset transform
    model = TSNE(n_components=2, init='random', random_state=0, verbose=2, n_jobs=-1, angle=0.5, method='barnes_hut', perplexity=perplexity, n_iter=2000)
    tsne_data = model.fit_transform(dataset)

    #Creating a new data frame which help us in plotting the result data
    tsne_data = np.vstack((tsne_data.T, labels)).T
    tsne_df = pd.DataFrame(data=tsne_data, columns=("Dimension 1", "Dimension 2", "labels"))

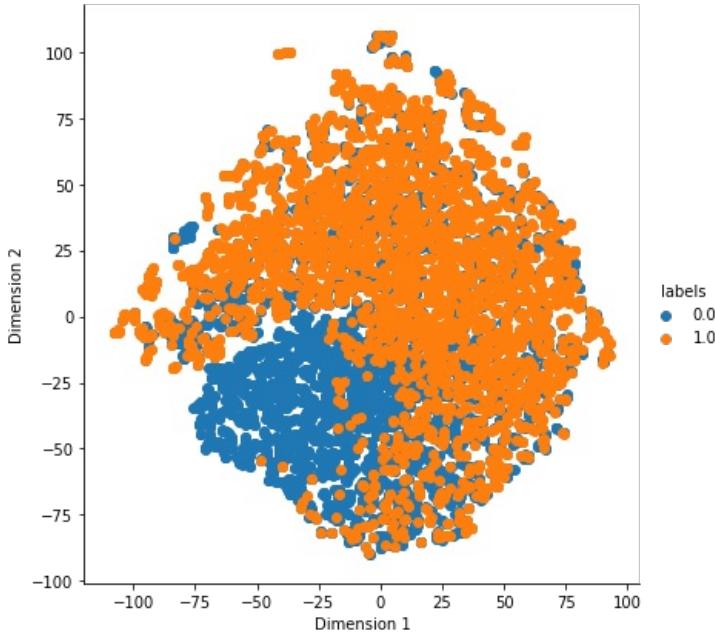
    #Info
    print("\nT-SNE Plot for perplexity = {}".format(perplexity))

    # Plotting the result of tsne
    sns.FacetGrid(tsne_df, hue="labels", height=6).map(plt.scatter, 'Dimension 1', 'Dimension 2').add_legend()
    plt.show()

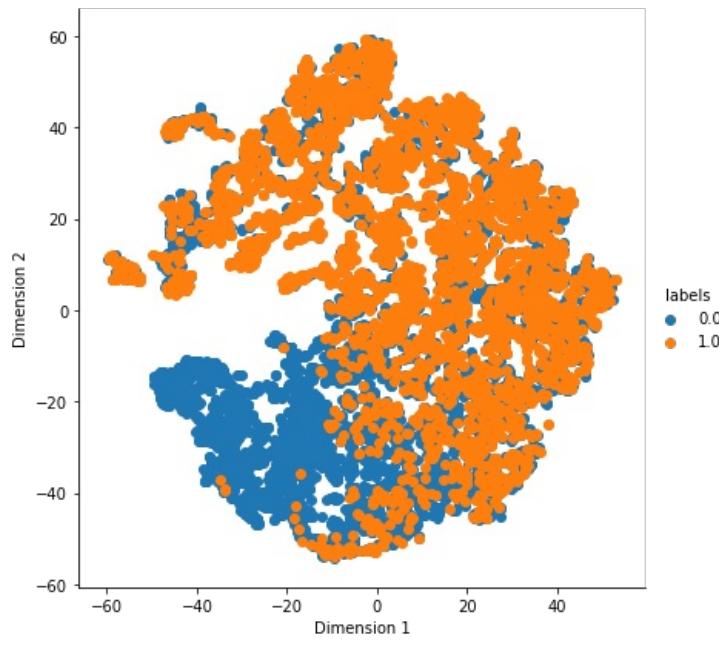
sampled_dataset=dataset.sample(n=10000, random_state=0)
X = sampled_dataset[['cwc_min', 'cwc_max', 'csc_min', 'csc_max', 'ctc_min', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len', 'token_set_ratio', 'token_sort_ratio', 'fuzz_ratio', 'fuzz_partal_ratio', 'longest_substr_ratio']]
y = sampled_dataset['is_duplicate'].values

#Plot TSNE Using various values of Perplexity
tsne(X, y, 5)
tsne(X, y, 30)
tsne(X, y, 40)
tsne(X, y, 50)
tsne(X, y, 100)
tsne(X, y, 500)
```

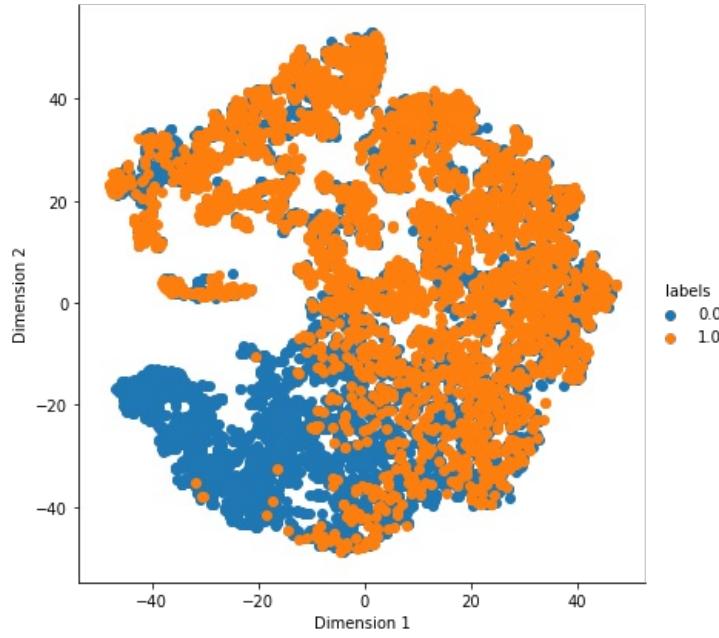
T-SNE Plot for perplexity = 5



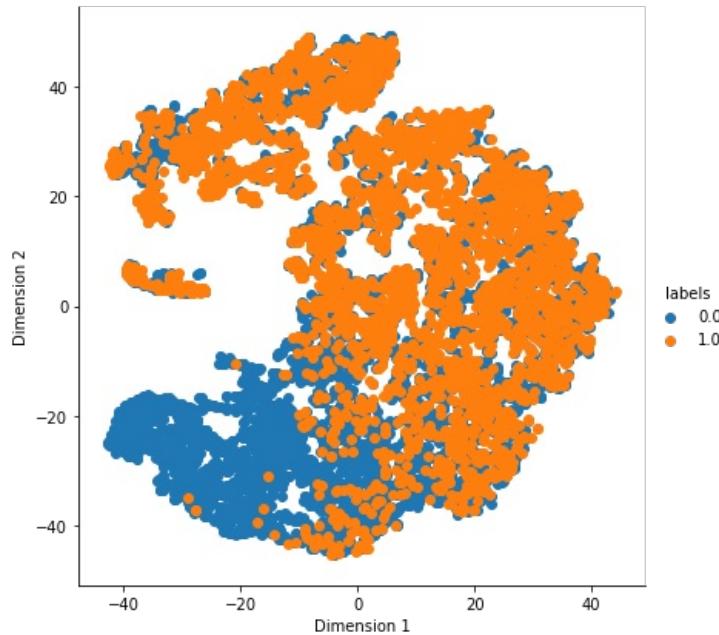
T-SNE Plot for perplexity = 30



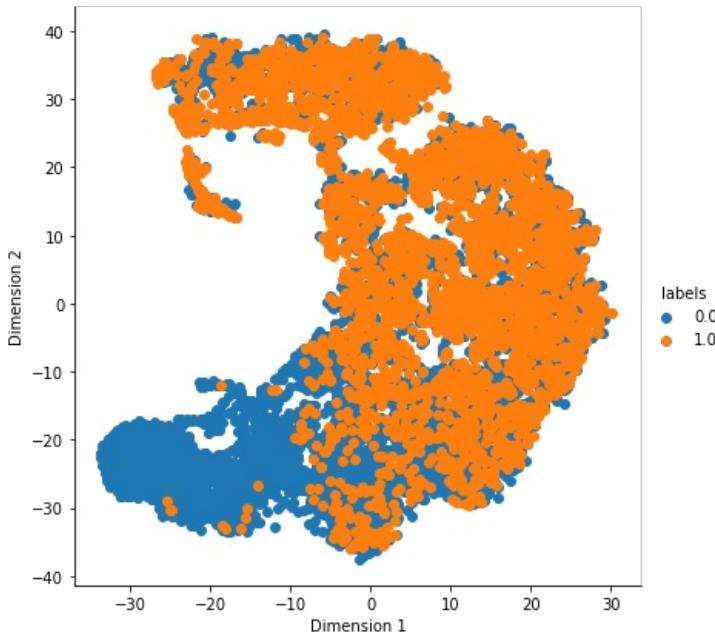
T-SNE Plot for perplexity = 40



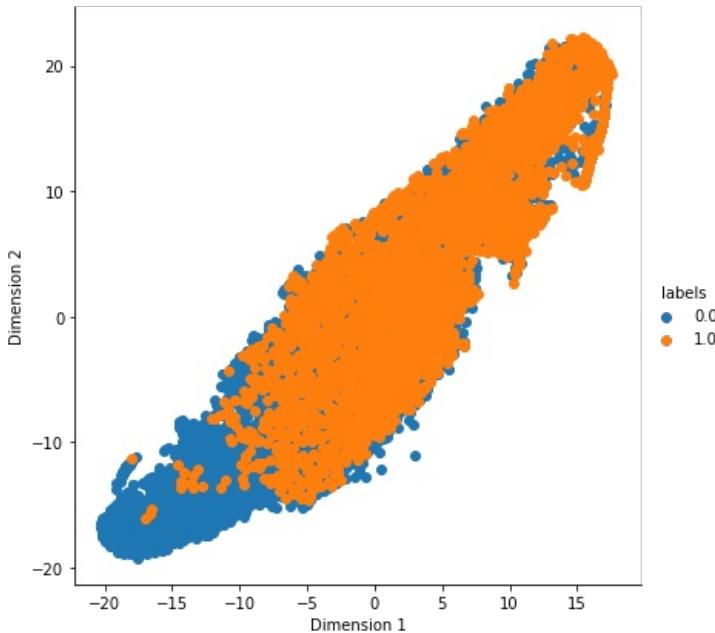
T-SNE Plot for perplexity = 50



T-SNE Plot for perplexity = 100



T-SNE Plot for perplexity = 500



As can be seen from the above plots, the features are partially separable. However, there is a significant amount of overlap. As the perplexity increases, the data becomes slightly more separated. This can be explained by the fact that as the perplexity increases the number of neighbourhood distances that are preserved also increases.

## 9.2 Using TSNE (2D) for Dimentionality reduction on the advance features

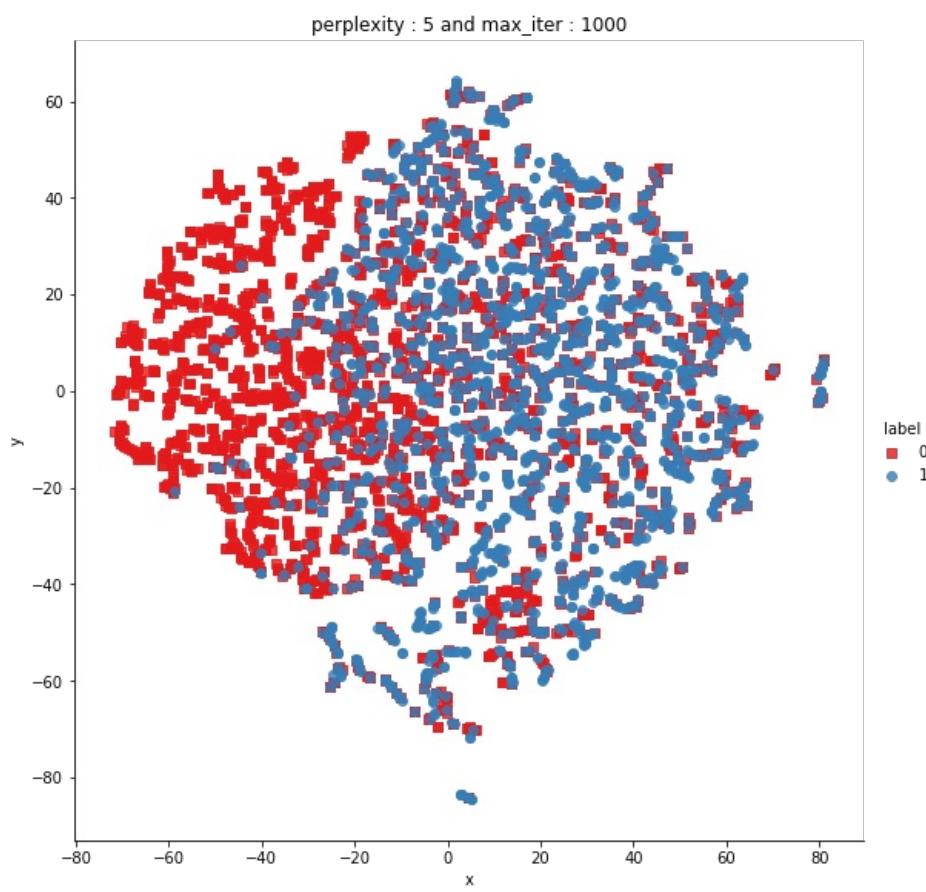
In [24]:

```
def tsne_2d_lmplot(p):
    print("T-SNE with perplexity = {}".format(p))
    tsne2d = TSNE(n_components=2, perplexity=p, init='random',
                   random_state=101, method='barnes_hut',
                   n_iter=1000, verbose=2, angle=0.5, n_jobs=-1).fit_transform(X)
    dataset = pd.DataFrame({'x':tsne2d[:,0], 'y':tsne2d[:,1] , 'label':y})
    # draw the plot in appropriate place in the grid
    sns.lmplot(data=dataset, x='x', y='y', hue='label', fit_reg=False, height=8, palette="Set1", markers=['s', 'o'])
    plt.title("perplexity : {} and max_iter : {}".format(p, 1000))
    plt.show()
```

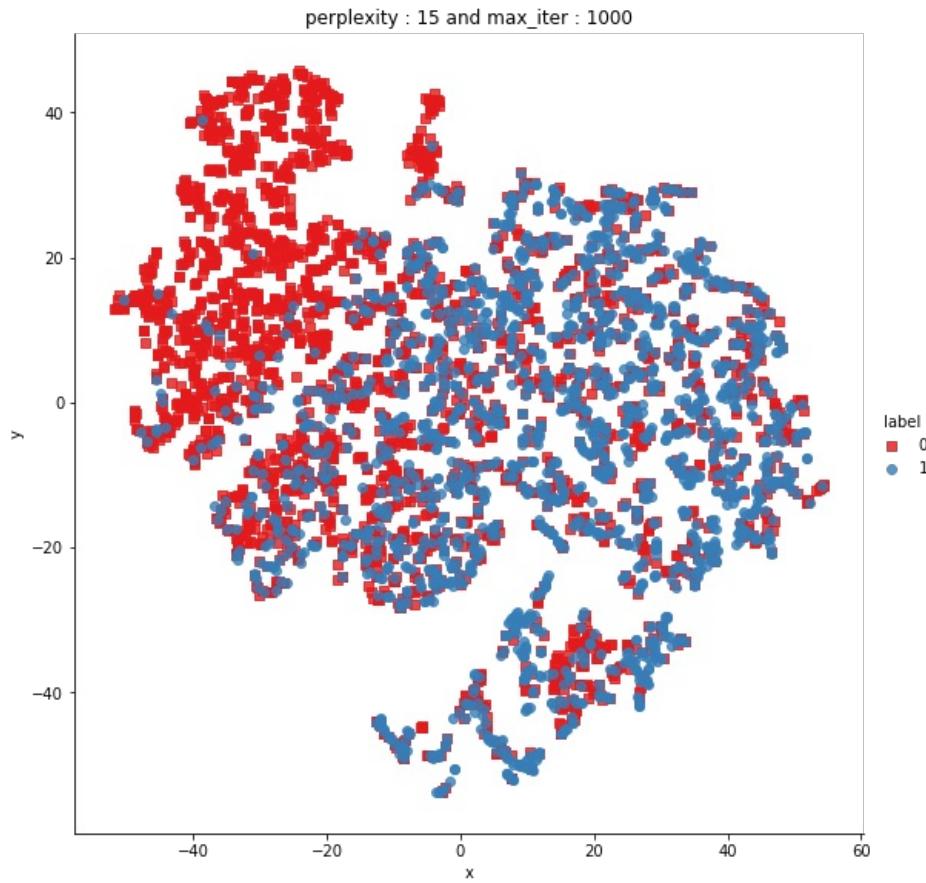
In [25]:

```
tsne_2d_lmplot(5)
tsne_2d_lmplot(15)
tsne_2d_lmplot(30)
tsne_2d_lmplot(50)
tsne_2d_lmplot(100)
tsne_2d_lmplot(250)
```

T-SNE with perplexity = 5

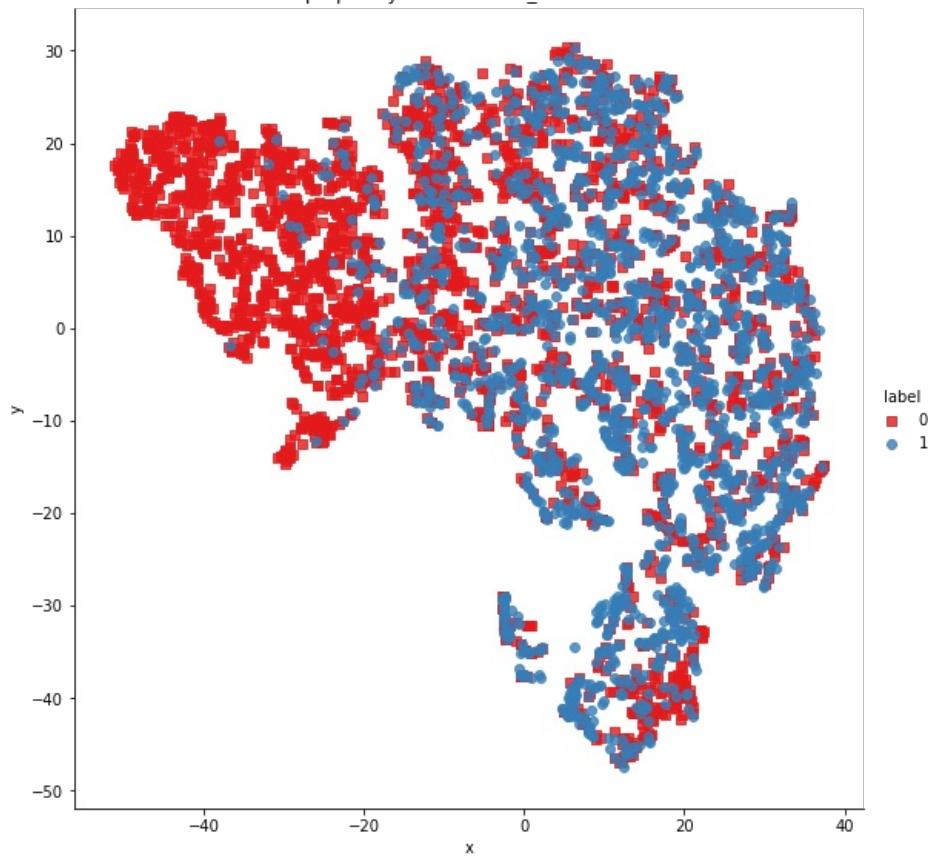


T-SNE with perplexity = 15

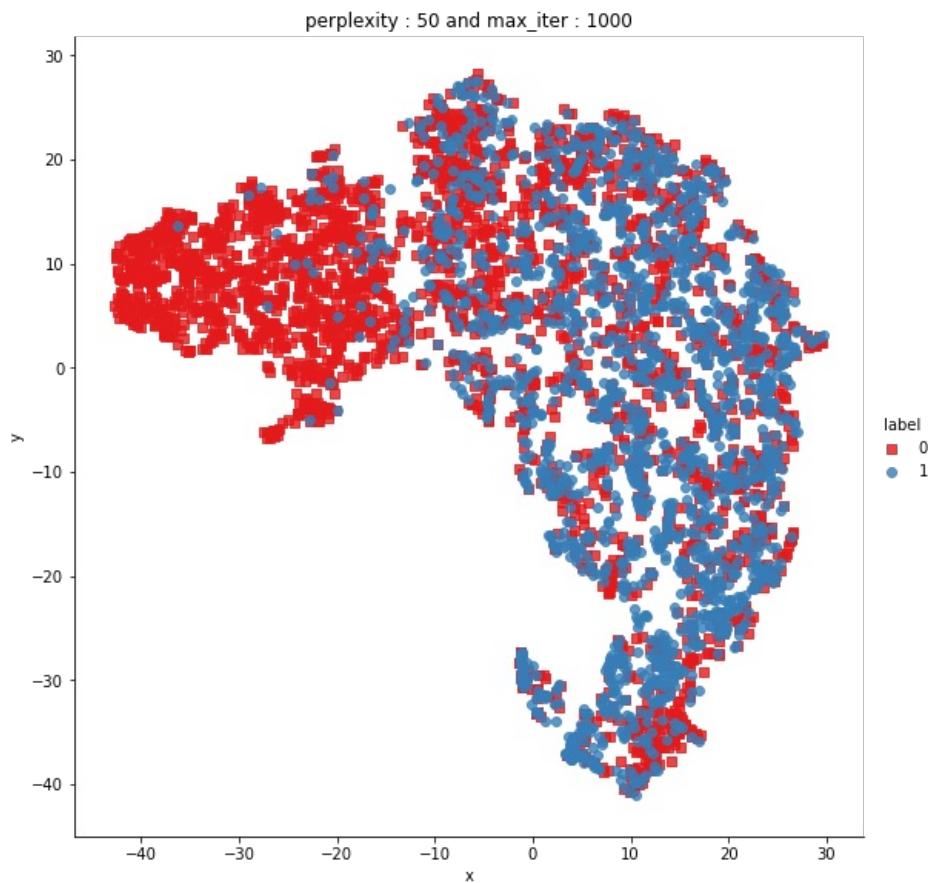


T-SNE with perplexity = 30

perplexity : 30 and max\_iter : 1000

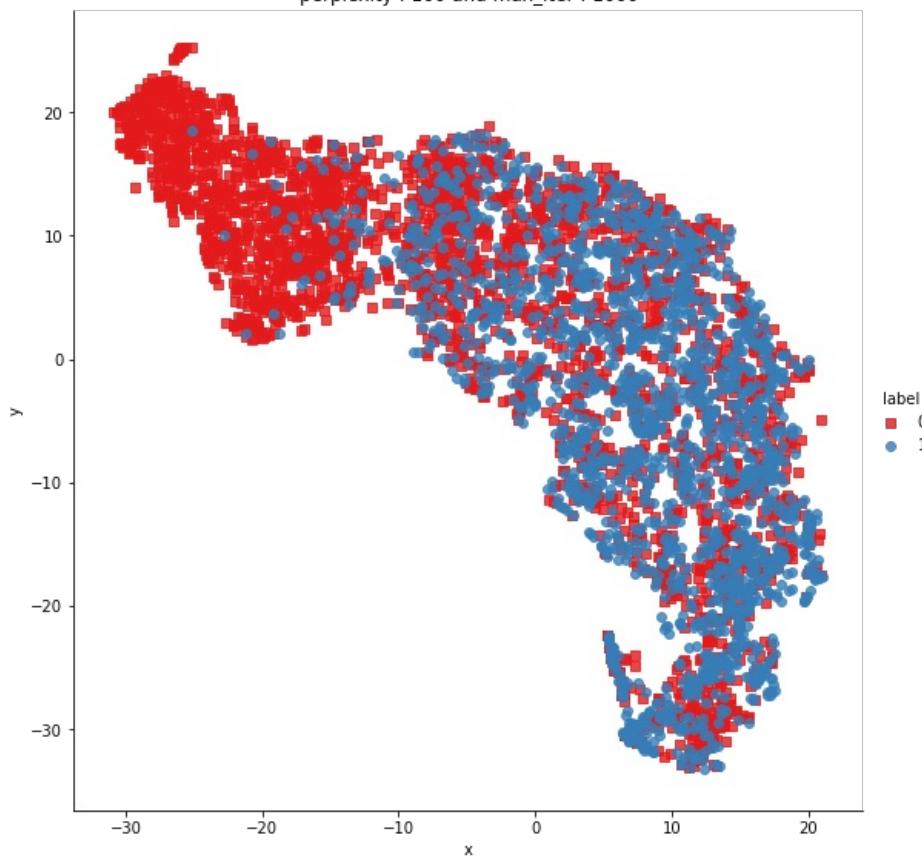


T-SNE with perplexity = 50

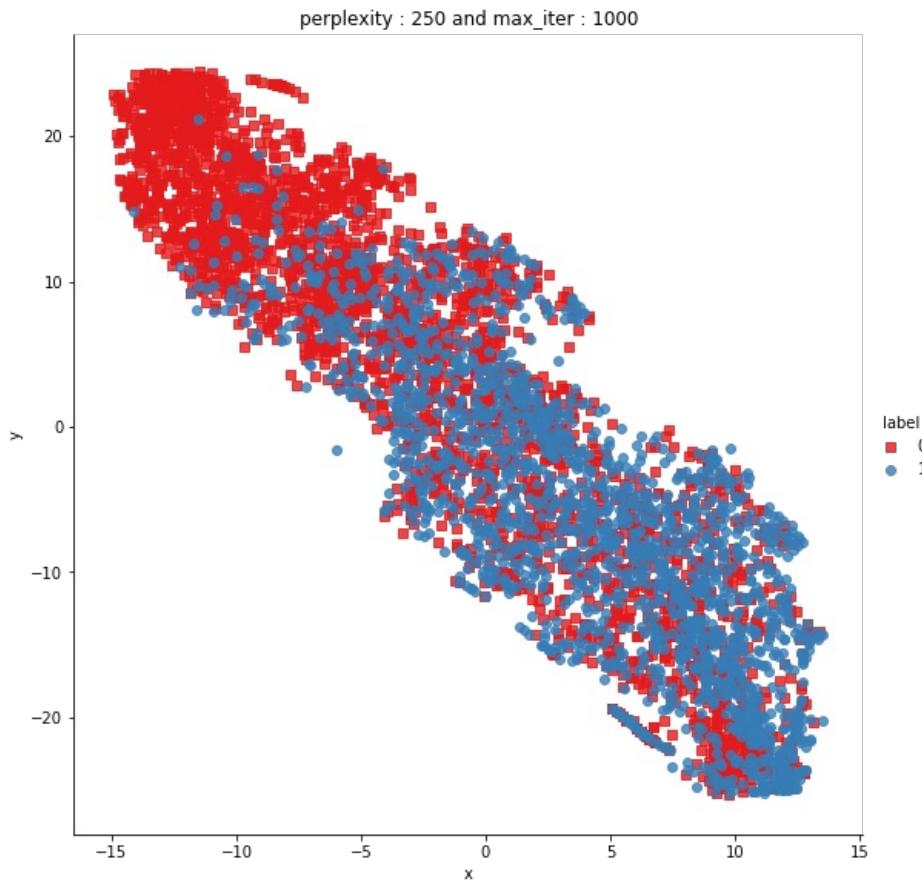


T-SNE with perplexity = 100

perplexity : 100 and max\_iter : 1000



T-SNE with perplexity = 250



As can be seen from the above plots, the features are partially separable. However, there is a significant amount of overlap. As the perplexity increases, the data becomes slightly more separated. This can be explained by the fact that as the perplexity increases the number of neighbourhood distances that are preserved also increases.

### 9.3 Using TSNE (3D) for Dimensionality reduction on the advance features

In [9]:

```
sampled_dataset=dataset.sample(n=10000, random_state=0)
X = sampled_dataset[['cwc_min', 'cwc_max', 'csc_min', 'csc_max', 'ctc_min', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len', 'token_set_ratio', 'token_sort_ratio', 'fuzz_ratio', 'fuzz_partial_ratio', 'longest_substr_ratio']]
y = sampled_dataset['is_duplicate'].values

from MulticoreTSNE import MulticoreTSNE as TSNE
tsne3d = TSNE(
    n_components=3,
    init='random', # pca
    random_state=101,
    method='barnes_hut',
    n_iter=1000,
    angle=0.5,n_jobs=-1).fit_transform(X)
```

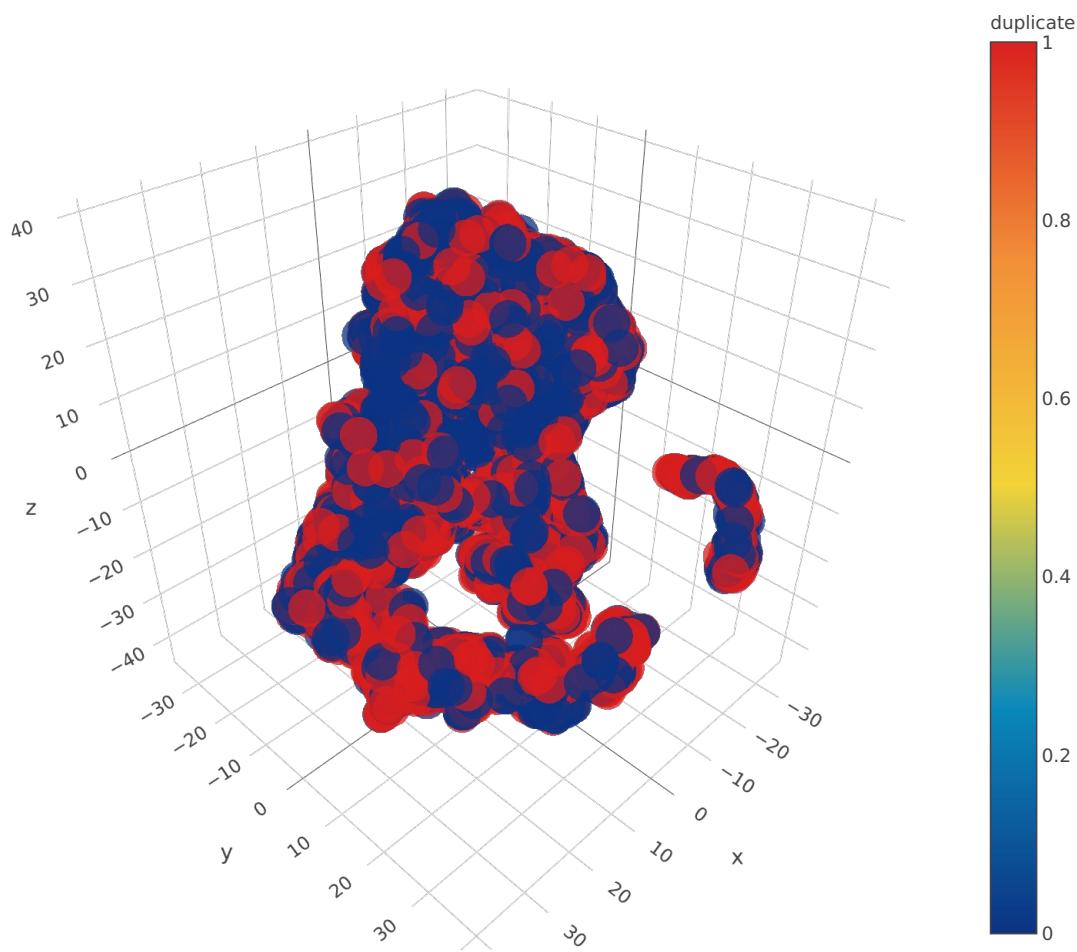
In [11]:

```
import plotly.offline as offline
offline.init_notebook_mode()

trace1 = go.Scatter3d(
    x=tsne3d[:,0],
    y=tsne3d[:,1],
    z=tsne3d[:,2],
    mode='markers',
    marker=dict(
        sizemode='diameter',
        color = y,
        colorscale = 'Portland',
        colorbar = dict(title = 'duplicate'),
        line=dict(color='rgb(40, 50, 10)'),
        opacity=0.75
    )
)

data=[trace1]
layout=dict(height=800, width=800, title='3d embedding with engineered features')
fig=dict(data=data, layout=layout)
offline.iplot(fig, filename='3DBubble', auto_play=True)
```

## 3d embedding with engineered features

**Observation:**

The above TSNE plots shows that duplicate and non duplicate questions can be well seperated partially.

## 10. Data Loading and Splitting

### 10.1. Load the feature engineered datasets

In [6]:

```
#prepro_features_train.csv (Simple Preprocessing Features)
#nlp_features_train.csv (Advance NLP Features)
if os.path.isfile('nlp_features_train.csv'):
    df_adv_feats = pd.read_csv("nlp_features_train.csv",encoding='latin-1')
else:
    print("download nlp_features_train.csv from drive or run previous notebook")

if os.path.isfile('dataset_fe_without.preprocessing_train.csv'):
    df_basic_feats = pd.read_csv("dataset_fe_without.preprocessing_train.csv",encoding='latin-1')
else:
    print("download dataset_fe_without.preprocessing_train.csv from drive or run previous notebook")
```

In [7]:

```
df_adv_feats.head(2)
```

Out[7]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>question1</b>	<b>question2</b>	<b>is_duplicate</b>	<b>cwc_min</b>	<b>cwc_max</b>	<b>csc_min</b>	<b>csc_max</b>	...	<b>ctc_max</b>	<b>last_word_eq</b>
<b>0</b>	0	1	2	what is the step by step guide to invest in sh...	what is the step by step guide to invest in sh...	0	0.999980	0.833319	0.999983	0.999983	...	0.785709	0.0
<b>1</b>	1	3	4	what is the story of kohinoor koh i noor dia...	what would happen if the indian government sto...	0	0.799984	0.399996	0.749981	0.599988	...	0.466664	0.0

2 rows × 21 columns

In [8]:

```
df_basic_feats.head(2)
```

Out[8]:

	<b>id</b>	<b>qid1</b>	<b>qid2</b>	<b>question1</b>	<b>question2</b>	<b>is_duplicate</b>	<b>freq_qid1</b>	<b>freq_qid2</b>	<b>q1len</b>	<b>q2len</b>	<b>q1_n_words</b>	<b>q2_n_words</b>	<b>wc</b>
<b>0</b>	0	1	2	What is the step by step guide to invest in sh...	What is the step by step guide to invest in sh...	0	1	1	66	57	14	12	
<b>1</b>	1	3	4	What is the story of Kohinoor (Koh-i-Noor) Dia...	What would happen if the Indian government sto...	0	4	1	51	88	8	13	

In [9]:

```
#Encoding all the data questions to string
df_adv_feats['question1'] = df_adv_feats['question1'].apply(lambda x: str(x))
df_adv_feats['question2'] = df_adv_feats['question2'].apply(lambda x: str(x))
```

In [10]:

```
#Taking the processed texts
df_ques = df_adv_feats[['question1','question2']]

#Extracting only the basic and advance features and nothing else
df_adv = df_adv_feats.iloc[0:,6:]
df_basic = df_basic_feats.iloc[0:,6:]

labels = df_adv_feats[['is_duplicate']]
```

## 10.2. Combine all the dataframes containing questions, basic and advance features + Save it for later use

In [11]:

```
#Merge into one single dataframe and save it for later use.
data_df = pd.concat([df_ques, df_basic, df_adv, labels],axis=1)
data_df.to_csv('all_features.csv', index=False)
```

## 10.3. Load and split the final dataset randomly in 70:30 ratio. (Split and then encode)

In [7]:

```
#Load the dataset. Filling the null values with ''
df = pd.read_csv('all_features.csv').fillna('')

X = df.drop(['is_duplicate'], axis=1)
y = df[['is_duplicate']]

#Split the dataset into train and test
X_train, X_test, y_train, y_test = train_test_split(X, y, stratify=y, test_size=0.3, random_state=0)
```

## 10.4 EDA using Normalised histogram of character count in questions

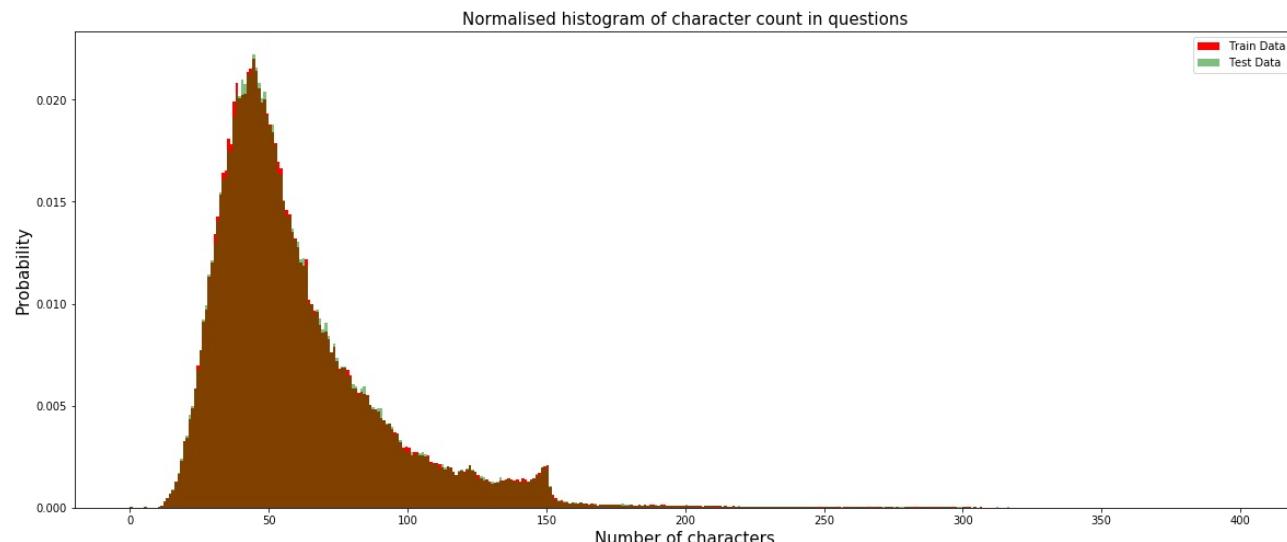
In [25]:

```
#Refer: https://www.kaggle.com/anokas/data-analysis-xgboost-starter-0-35460-lb/notebook
train_qs = pd.Series(X_train['question1'].tolist() + X_train['question2'].tolist()).astype(str)
test_qs = pd.Series(X_test['question1'].tolist() + X_test['question2'].tolist()).astype(str)

dist_train = train_qs.apply(len)
dist_test = test_qs.apply(len)
plt.figure(figsize=(20, 8))
plt.hist(dist_train, bins=400, range=[0, 400], color='red', normed=True, label='Train Data')
plt.hist(dist_test, bins=400, range=[0, 400], color='green', normed=True, alpha=0.5, label='Test Data')
plt.title('Normalised histogram of character count in questions', fontsize=15)
plt.legend()
plt.xlabel('Number of characters', fontsize=15)
plt.ylabel('Probability', fontsize=15)

print('Mean-Train {:.2f}, STD-Train {:.2f}, \nMean-Test {:.2f}, STD-Test {:.2f}, \nMax-Train {:.2f}, Max-Test {:.2f}'.format(dist_train.mean(), dist_train.std(), dist_test.mean(), dist_test.std(), dist_train.max(), dist_test.max()))
```

Mean-Train 59.99, STD-Train 32.09,  
Mean-Test 59.95, STD-Test 32.19,  
Max-Train 1173.00, Max-Test 1173.00



### Observations:

1. We can see that the length of characters of most questions are somewhere between 20 and 150. The median length of questions is somewhere around 55. This means most of the questions pair that are present are highly concentrated in the region of 50 characters.
2. By looking at the distribution of character count in both the train and test set, we can see there is almost a perfect overlap of both the distributions. However we can still see the 'red' color of the Train distribution which suggests that the two distributions are very slightly different from each other, inspite of almost a perfect overlap.
3. The mean values of train and test set are extremely close to each other, also the STD values are extremely close.
4. The maximum length of characters for the questions present in both the train and test set is just under 1200.
5. Also, if we notice carefully, there is a very sudden drop in character counts beyond the 150 mark on the X-axis. There are a very very few number of people who actually writes questions which are greater than 200 characters in length.
6. The distribution is skewed towards the left side. Or else it could have been said to exhibit all the properties of a gaussian Distribution.

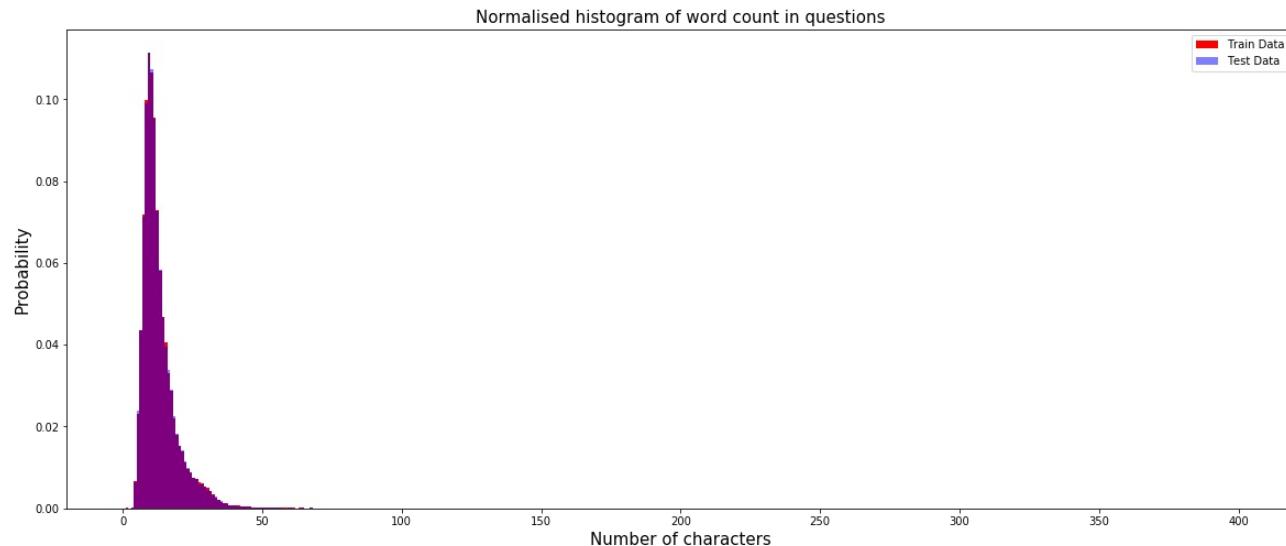
## 10.5 EDA using Normalised histogram of word count in questions

In [27]:

```
dist_train = train_qs.apply(lambda x: len(x.split(' ')))
dist_test = test_qs.apply(lambda x: len(x.split(' ')))
plt.figure(figsize=(20, 8))
plt.hist(dist_train, bins=400, range=[0, 400], color='red', normed=True, label='Train Data')
plt.hist(dist_test, bins=400, range=[0, 400], color='blue', normed=True, alpha=0.5, label='Test Data')
plt.title('Normalised histogram of word count in questions', fontsize=15)
plt.legend()
plt.xlabel('Number of characters', fontsize=15)
plt.ylabel('Probability', fontsize=15)

print('Mean-Train {:.2f}, STD-Train {:.2f}, \nMean-Test {:.2f}, STD-Test {:.2f}, \nMax-Train {:.2f}, Max-Test {:.2f}'.format(dist_train.mean(), dist_train.std(), dist_test.mean(), dist_test.std(), dist_train.max(), dist_test.max()))
```

Mean-Train 12.71, STD-Train 6.72,  
Mean-Test 12.70, STD-Test 6.77,  
Max-Train 271.00, Max-Test 271.00



## Observations:

1. Here also we notice the same thing. The distribution of word counts for both the train and test data looks very similar. They are nearly perfectly overlapping with some very slight differences.
2. Both the distributions are skewed towards the left.
3. The word count for all the questions varies roughly between 5 to 45.
4. The median word count for the questions in both train and test data are somewhere around the 13 mark. This means most users have written questions which has 10-15 words.
5. The maximum word count present in the questions of both train and test data is slightly under 300. Extremely few questions are there which goes upto a word count of 271. Most of them are present in the dense region around the 13-15 mark.

## 11. Feature importance of the handmade features using Decision Trees

### 11.1 Load the dataset containing all the hand engineered features

In [25]:

```
#Load the dataset. Filling the null values with ''
df = pd.read_csv('all_features.csv').fillna('')
X = df.drop(['is_duplicate','question1','question2'], axis=1) #This X contains only the hand engineered features
y = df[['is_duplicate']]

X.head()
```

Out[25]:

	freq_qid1	freq_qid2	q1len	q2len	q1_n_words	q2_n_words	word_Common	word_Total	word_share	freq_q1+q2	...
0	1	1	66	57	14	12	10.0	23.0	0.434783	2	...
1	4	1	51	88	8	13	4.0	20.0	0.200000	5	...
2	1	1	73	59	14	10	4.0	24.0	0.166667	2	...
3	1	1	50	65	11	9	0.0	19.0	0.000000	2	...
4	3	1	76	39	13	7	2.0	20.0	0.100000	4	...

5 rows × 26 columns

## 11.2 Utility functions needed for Decision Trees

In [76]:

```
from sklearn.tree import DecisionTreeClassifier
def get_best_param(X, y):
    tuned_parameters = {'max_depth': [1, 5, 10, 25, 50, 75, 100, 150, 250, 500, 750, 1000],
                        'min_samples_split' : [5, 10, 25, 50, 75, 150, 250, 500]}
    base_estimator = DecisionTreeClassifier(criterion='gini', random_state=0)
    rsearch_cv = RandomizedSearchCV(estimator=base_estimator, param_distributions=tuned_parameters, n_iter=30, cv=5, scoring='neg_log_loss', n_jobs=-1)
    rsearch_cv.fit(X, y)
    print("Best estimator obtained from CV data: \n", rsearch_cv.best_estimator_)
    print("Best Score : ", rsearch_cv.best_score_)
    return (rsearch_cv)

#https://scikit-learn.org/stable/modules/tree.html
def visualize_tree(model, f_names, filename):
    from sklearn import tree
    import graphviz
    dot_data = tree.export_graphviz(decision_tree=model, out_file=None, max_depth=4, filled=True, rounded=True, special_characters=True, impurity=True, feature_names=f_names, class_names=['Duplicates', 'Non Duplicates'])
    graph = graphviz.Source(dot_data)
    graph.render(filename, format='png')
    return graph

def top_features(model, n):
    '''Get the most important features for the given input vector.'''
    features=model.feature_importances_
    top_features_index = (-features).argsort()                      #Note : Putting a - sign indicates the indexes will be sorted in descending order.
    top_features = np.take(X.columns, top_features_index[:n])

    #Plot the feature importance for all the features
    x = X.columns
    y = features

    plt.figure(figsize=(15, 8))
    plt.title ("VISUALIZING FEATURE IMPORTANCES")
    plt.ylabel('Feature names')
    plt.xlabel('Feature importance score')
    sns.barplot(y,x,orient='h')
    plt.show()

    print("The top {} important features are.\n.format(n))
    print(list(top_features))
```

## 11.3 Train the Decision Tree model using the best estimator obtained from above

In [29]:

```
rsearch_cv = get_best_param(X, y)
model = rsearch_cv.best_estimator_
model.fit(X,y)

Best estimator obtained from CV data:
DecisionTreeClassifier(class_weight=None, criterion='gini', max_depth=10,
                       max_features=None, max_leaf_nodes=None,
                       min_impurity_decrease=0.0, min_impurity_split=None,
                       min_samples_leaf=1, min_samples_split=150,
                       min_weight_fraction_leaf=0.0, presort=False, random_state=0,
                       splitter='best')
Best Score : -0.3761480527652674
```

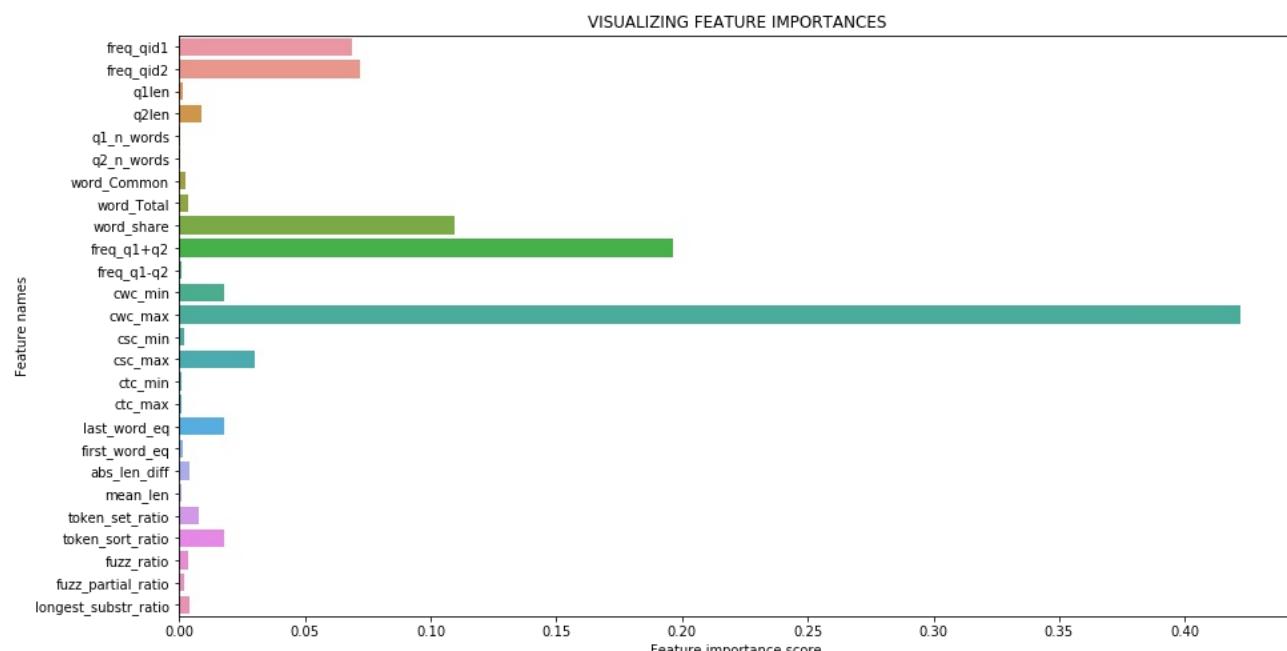
Out[29]:

```
DecisionTreeClassifier(class_weight=None, criterion='gini', max_depth=10,
                       max_features=None, max_leaf_nodes=None,
                       min_impurity_decrease=0.0, min_impurity_split=None,
                       min_samples_leaf=1, min_samples_split=150,
                       min_weight_fraction_leaf=0.0, presort=False, random_state=0,
                       splitter='best')
```

## 11.4 Get the top 15 most important features amongst all the hand engineered features

In [77]:

```
top_features(model, n=15)
```



The top 15 important features are.

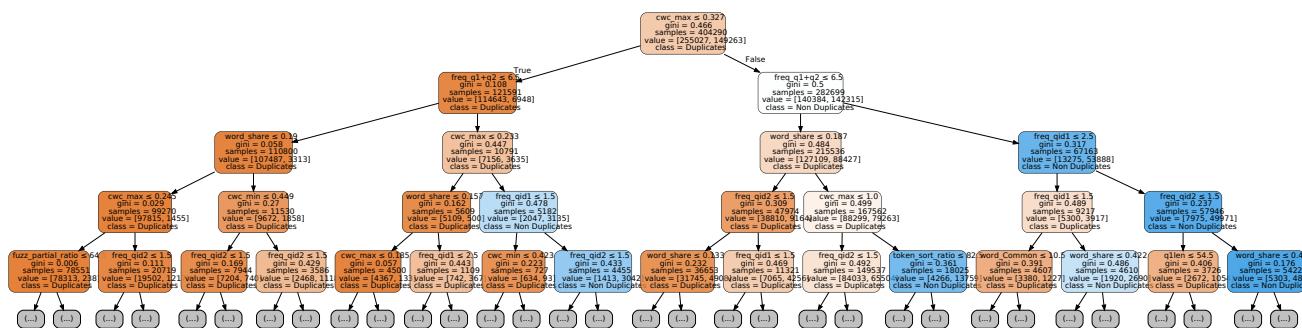
```
['cwc_max', 'freq_q1+q2', 'word_share', 'freq_qid2', 'freq_qid1', 'csc_max', 'token_sort_ratio', 'cwc_min', 'last_word_eq', 'q2len', 'token_set_ratio', 'abs_len_diff', 'longest_substr_ratio', 'fuzz_ratio', 'word_Total']
```

## 11.5 Visualize the Decision Tree using Graphviz

In [47]:

```
#Call the function above and pass a filename onto it.  
f_names=X.columns  
graph=visualize_tree(model, f_names, 'Feat_Imp.png')  
graph
```

Out[47]:



## Observation:

- As we can see, 'cwc\_max', 'freq\_q1+q2', 'word\_share', 'freq\_qid2', 'freq\_qid1', 'csc\_max', 'token\_sort\_ratio', 'cwc\_min', 'last\_word\_eq', 'q2len', 'token\_set\_ratio', 'abs\_len\_diff', 'longest\_substr\_ratio', 'fuzz\_ratio', 'word\_Total' are the top 15 most important features out of all the basic and advance features that we have extracted.
- Using just the hand engineered features and nothing else, our model gave us a log loss value of 0.37, which is pretty good as compared to some of the other models we have trained later.
- By visualizing the tree above, we can quickly say how important each of the features are, and how the tree makes its decisions to reach a particular node.
- 'word\_Common', 'fuzz\_partial\_ratio', 'csc\_min', 'q1len', 'first\_word\_eq', 'freq\_q1-q2', 'ctc\_min', 'ctc\_max', 'mean\_len', 'q1\_n\_words', 'q2\_n\_words' are our 11 list important features. However, we will keep them as of now and use them to build our models and see results do we get.

## 12. Converting the questions to weighted TFIDF Word to Vectors

### 12.1. Build the TFIDF Weighted W2V models using the train and test data (Using spacy)

In [14]:

```
from sklearn.feature_extraction.text import TfidfVectorizer

#Merge questions
questions = list(X_train['question1']) + list(X_train['question2'])

#Initializing the TF-IDF constructor
tf_idf_object = TfidfVectorizer(ngram_range=(1,1)).fit(questions)
```

- After we find TF-IDF scores, we convert each question to a weighted average of word2vec vectors by these scores.
- here we use a pre-trained GLOVE model which comes free with "Spacy". <https://spacy.io/usage/vectors-similarity> (<https://spacy.io/usage/vectors-similarity>)
- It is trained on Wikipedia and therefore, it is stronger in terms of word semantics.

In [15]:

```
#!python -m spacy download en_core_web_sm

# en_vectors_web_lg, which includes over 1 million unique vectors.
nlp = spacy.load('en_core_web_sm')

# dict key:word and value:tf-idf score
word2tfidf = dict(zip(tf_idf_object.get_feature_names(), tf_idf_object.idf_))

#This fuction will take a dataframe with two question columns. Vectorize each of the question columns seperately
#and return e merged dataframe containing word vectors of questions
def get_word_vecs(data):

    #Converting question 1 to word vectors using spacy
    vecs1 = []
    # https://github.com/noamraph/tqdm
    # tqdm is used to print the progress bar
    for qu1 in tqdm(list(data['question1'])):
        doc1 = nlp(qu1)
        # 384 is the number of dimensions of vectors
        mean_vec1 = np.zeros([len(doc1), 384])
        for word1 in doc1:
            # word2vec
            vec1 = word1.vector
            # fetch df score
            try:
                idf = word2tfidf[str(word1)]
            except:
                idf = 0
            # compute final vec
            mean_vec1 += vec1 * idf
        mean_vec1 = mean_vec1.mean(axis=0)
        vecs1.append(mean_vec1)
    data['q1_vectors'] = list(vecs1)

    #Converting question 2 to word vectors using spacy
    vecs2 = []
    for qu2 in tqdm(list(data['question2'])):
        doc2 = nlp(qu2)
        mean_vec2 = np.zeros([len(doc2), 384])
        for word2 in doc2:
            # word2vec
            vec2 = word2.vector
            # fetch df score
            try:
                idf = word2tfidf[str(word2)]
            except:
                #print word
                idf = 0
            # compute final vec
            mean_vec2 += vec2 * idf
        mean_vec2 = mean_vec2.mean(axis=0)
        vecs2.append(mean_vec2)
    data['q2_vectors'] = list(vecs2)

    df_q1 = pd.DataFrame(data.q1_vectors.values.tolist(), index= data.index)
    df_q2 = pd.DataFrame(data.q2_vectors.values.tolist(), index= data.index)

    word_vectors = pd.concat([df_q1, df_q2],axis=1)
    return word_vectors
```

In [16]:

```
#Get all the features of test and train vectors
train = get_word_vecs(X_train)
test = get_word_vecs(X_test)

100%|██████████| 283003/283003 [58:24<00:00, 80.75it/s]
100%|██████████| 283003/283003 [56:24<00:00, 83.63it/s]
100%|██████████| 121287/121287 [22:39<00:00, 89.20it/s]
100%|██████████| 121287/121287 [23:53<00:00, 79.35it/s]
```

## 12.2. Merge all the features and save it for later use

In [17]:

```
#Prepare the final X_train
feats_tr = X_train.drop(['question1','question2','q1_vectors','q2_vectors'],axis=1)
X_tr = pd.concat([feats_tr, train],axis=1)

#Prepare the final X_test
feats_tst = X_test.drop(['question1','question2','q1_vectors','q2_vectors'],axis=1)
X_tst = pd.concat([feats_tst, test],axis=1)
```

In [ ]:

```
#Fill NAN values with zero
X_tr = X_tr.fillna(0)
X_tst = X_tst.fillna(0)
```

In [18]:

```
print("Number of features in basic feature-engineering dataframe :", df_basic.shape[1])
print("Number of features in advanced feature-engineering dataframe :", df_adv.shape[1])
print("Number of features in question1 w2v  dataframe :", train.shape[1]//2)
print("Number of features in question2 w2v  dataframe :", train.shape[1]//2)
print("Number of features in final dataframe  :", X_tr.shape[1])
```

```
Number of features in basic feature-engineering dataframe : 11
Number of features in advanced feature-engineering dataframe : 15
Number of features in question1 w2v  dataframe : 384
Number of features in question2 w2v  dataframe : 384
Number of features in final dataframe  : 794
```

In [19]:

```
#Storing the final data as pickle files
import pickle
with open('X_train_TFIDF_W2V.pkl', 'wb') as file:
    pickle.dump(np.array(X_tr.values), file)

with open('X_test_TFIDF_W2V.pkl', 'wb') as file:
    pickle.dump(np.array(X_tst.values), file)

with open('y_train_TFIDF_W2V.pkl', 'wb') as file:
    pickle.dump(y_train.values, file)

with open('y_test_TFIDF_W2V.pkl', 'wb') as file:
    pickle.dump(y_test.values, file)
```

## 13. Featurizing text data with tfidf vectors

### 13.1. Load the original dataset.

In [4]:

```
#Load the dataset. Filling the null values with ''
df = pd.read_csv('all_features.csv').fillna('')

X = df.drop(['is_duplicate'], axis=1)
y = df[['is_duplicate']]

#Split the dataset into train and test
X_train, X_test, y_train, y_test = train_test_split(X, y, stratify=y, test_size=0.3, random_state=0)
```

### 13.2. Get the TF-IDF feature representations

In [12]:

```
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.feature_extraction.text import CountVectorizer

#Merge questions
questions = list(X_train['question1']) + list(X_train['question2'])

#Initializing the TF-IDF constructor
tf_idf_object = TfidfVectorizer(ngram_range=(1,1)).fit(questions)
```

### 13.3. Process and save datasets for later use

In [34]:

```
import scipy
from scipy.sparse import hstack
import pickle

def convert_tfidf(tf_idf_object, data):
    q1_vectors = tf_idf_object.transform(data['question1'])
    q2_vectors = tf_idf_object.transform(data['question2'])
    feat_vectors = data.drop(['question1', 'question2'], axis=1)

    #Combining all the feature matices into one single sparse matrix.
    data_matrix = hstack((q1_vectors, q2_vectors, feat_vectors.values)) #Combining all the 4 feature matrices to
one single sparse matrix

    print("Number of engineered features:", feat_vectors.shape[1])
    print("Number of TFIDF Features of Question 1 :", q1_vectors.shape[1])
    print("Number of TFIDF Features of Question 2 :", q2_vectors.shape[1])
    print("Number of TFIDF features in final dataframe  :", data_matrix.shape[1])
    print()

    return data_matrix
```

In [35]:

```
X_tr = convert_tfidf(tf_idf_object, X_train)
X_tst = convert_tfidf(tf_idf_object, X_test)
```

```
Number of engineered features: 26
Number of TFIDF Features of Question 1 : 73560
Number of TFIDF Features of Question 2 : 73560
Number of TFIDF features in final dataframe  : 147146
```

```
Number of engineered features: 26
Number of TFIDF Features of Question 1 : 73560
Number of TFIDF Features of Question 2 : 73560
Number of TFIDF features in final dataframe  : 147146
```

In [36]:

```
print("Shape of the train matrix: ", X_tr.shape)
print("Shape of the test matrix: ", X_tst.shape)
```

```
Shape of the train matrix: (283003, 147146)
Shape of the test matrix: (121287, 147146)
```

In [37]:

```
#Finally save the sparse matrices for later use.
with open('X_train_TFIDF.pkl', 'wb') as file:
    pickle.dump(X_tr, file)

with open('y_train_TFIDF.pkl', 'wb') as file:
    pickle.dump(y_train, file)

with open('X_test_TFIDF.pkl', 'wb') as file:
    pickle.dump(X_tst, file)

with open('y_test_TFIDF.pkl', 'wb') as file:
    pickle.dump(y_test, file)
```

### 13.4 Reading data from file and storing into sql table

In [ ]:

...

```

#Creating db file from csv
if not os.path.isfile('train.db'):
    disk_engine = create_engine('sqlite:///train.db')
    start = dt.datetime.now()
    chunksize = 180000
    j = 0
    index_start = 1
    for df in pd.read_csv('final_features.csv', names=['Unnamed: 0', 'id', 'is_duplicate', 'cwc_min', 'cwc_max', 'csc_min', 'csc_max', 'ctc_min', 'ctc_max', 'last_word_eq', 'first_word_eq', 'abs_len_diff', 'mean_len', 'token_set_ratio', 'token_sort_ratio', 'fuzz_ratio', 'fuzz_partial_ratio', 'longest_substr_ratio', 'freq_qid1', 'freq_qid2', 'qilen', 'q2len', 'q1_n_words', 'q2_n_words', 'word_Common', 'word_Total', 'word_share', 'freq_q1+q2', 'freq_q1-q2', '0_x', '1_x', '2_x', '3_x', '4_x', '5_x', '6_x', '7_x', '8_x', '9_x', '10_x', '11_x', '12_x', '13_x', '14_x', '15_x', '16_x', '17_x', '18_x', '19_x', '20_x', '21_x', '22_x', '23_x', '24_x', '25_x', '26_x', '27_x', '28_x', '29_x', '30_x', '31_x', '32_x', '33_x', '34_x', '35_x', '36_x', '37_x', '38_x', '39_x', '40_x', '41_x', '42_x', '43_x', '44_x', '45_x', '46_x', '47_x', '48_x', '49_x', '50_x', '51_x', '52_x', '53_x', '54_x', '55_x', '56_x', '57_x', '58_x', '59_x', '60_x', '61_x', '62_x', '63_x', '64_x', '65_x', '66_x', '67_x', '68_x', '69_x', '70_x', '71_x', '72_x', '73_x', '74_x', '75_x', '76_x', '77_x', '78_x', '79_x', '80_x', '81_x', '82_x', '83_x', '84_x', '85_x', '86_x', '87_x', '88_x', '89_x', '90_x', '91_x', '92_x', '93_x', '94_x', '95_x', '96_x', '97_x', '98_x', '99_x', '100_x', '101_x', '102_x', '103_x', '104_x', '105_x', '106_x', '107_x', '108_x', '109_x', '110_x', '111_x', '112_x', '113_x', '114_x', '115_x', '116_x', '117_x', '118_x', '119_x', '120_x', '121_x', '122_x', '123_x', '124_x', '125_x', '126_x', '127_x', '128_x', '129_x', '130_x', '131_x', '132_x', '133_x', '134_x', '135_x', '136_x', '137_x', '138_x', '139_x', '140_x', '141_x', '142_x', '143_x', '144_x', '145_x', '146_x', '147_x', '148_x', '149_x', '150_x', '151_x', '152_x', '153_x', '154_x', '155_x', '156_x', '157_x', '158_x', '159_x', '160_x', '161_x', '162_x', '163_x', '164_x', '165_x', '166_x', '167_x', '168_x', '169_x', '170_x', '171_x', '172_x', '173_x', '174_x', '175_x', '176_x', '177_x', '178_x', '179_x', '180_x', '181_x', '182_x', '183_x', '184_x', '185_x', '186_x', '187_x', '188_x', '189_x', '190_x', '191_x', '192_x', '193_x', '194_x', '195_x', '196_x', '197_x', '198_x', '199_x', '200_x', '201_x', '202_x', '203_x', '204_x', '205_x', '206_x', '207_x', '208_x', '209_x', '210_x', '211_x', '212_x', '213_x', '214_x', '215_x', '216_x', '217_x', '218_x', '219_x', '220_x', '221_x', '222_x', '223_x', '224_x', '225_x', '226_x', '227_x', '228_x', '229_x', '230_x', '231_x', '232_x', '233_x', '234_x', '235_x', '236_x', '237_x', '238_x', '239_x', '240_x', '241_x', '242_x', '243_x', '244_x', '245_x', '246_x', '247_x', '248_x', '249_x', '250_x', '251_x', '252_x', '253_x', '254_x', '255_x', '256_x', '257_x', '258_x', '259_x', '260_x', '261_x', '262_x', '263_x', '264_x', '265_x', '266_x', '267_x', '268_x', '269_x', '270_x', '271_x', '272_x', '273_x', '274_x', '275_x', '276_x', '277_x', '278_x', '279_x', '280_x', '281_x', '282_x', '283_x', '284_x', '285_x', '286_x', '287_x', '288_x', '289_x', '290_x', '291_x', '292_x', '293_x', '294_x', '295_x', '296_x', '297_x', '298_x', '299_x', '300_x', '301_x', '302_x', '303_x', '304_x', '305_x', '306_x', '307_x', '308_x', '309_x', '310_x', '311_x', '312_x', '313_x', '314_x', '315_x', '316_x', '317_x', '318_x', '319_x', '320_x', '321_x', '322_x', '323_x', '324_x', '325_x', '326_x', '327_x', '328_x', '329_x', '330_x', '331_x', '332_x', '333_x', '334_x', '335_x', '336_x', '337_x', '338_x', '339_x', '340_x', '341_x', '342_x', '343_x', '344_x', '345_x', '346_x', '347_x', '348_x', '349_x', '350_x', '351_x', '352_x', '353_x', '354_x', '355_x', '356_x', '357_x', '358_x', '359_x', '360_x', '361_x', '362_x', '363_x', '364_x', '365_x', '366_x', '367_x', '368_x', '369_x', '370_x', '371_x', '372_x', '373_x', '374_x', '375_x', '376_x', '377_x', '378_x', '379_x', '380_x', '381_x', '382_x', '383_x', '0_y', '1_y', '2_y', '3_y', '4_y', '5_y', '6_y', '7_y', '8_y', '9_y', '10_y', '11_y', '12_y', '13_y', '14_y', '15_y', '16_y', '17_y', '18_y', '19_y', '20_y', '21_y', '22_y', '23_y', '24_y', '25_y', '26_y', '27_y', '28_y', '29_y', '30_y', '31_y', '32_y', '33_y', '34_y', '35_y', '36_y', '37_y', '38_y', '39_y', '40_y', '41_y', '42_y', '43_y', '44_y', '45_y', '46_y', '47_y', '48_y', '49_y', '50_y', '51_y', '52_y', '53_y', '54_y', '55_y', '56_y', '57_y', '58_y', '59_y', '60_y', '61_y', '62_y', '63_y', '64_y', '65_y', '66_y', '67_y', '68_y', '69_y', '70_y', '71_y', '72_y', '73_y', '74_y', '75_y', '76_y', '77_y', '78_y', '79_y', '80_y', '81_y', '82_y', '83_y', '84_y', '85_y', '86_y', '87_y', '88_y', '89_y', '90_y', '91_y', '92_y', '93_y', '94_y', '95_y', '96_y', '97_y', '98_y', '99_y', '100_y', '101_y', '102_y', '103_y', '104_y', '105_y', '106_y', '107_y', '108_y', '109_y', '110_y', '111_y', '112_y', '113_y', '114_y', '115_y', '116_y', '117_y', '118_y', '119_y', '120_y', '121_y', '122_y', '123_y', '124_y', '125_y', '126_y', '127_y', '128_y', '129_y', '130_y', '131_y', '132_y', '133_y', '134_y', '135_y', '136_y', '137_y', '138_y', '139_y', '140_y', '141_y', '142_y', '143_y', '144_y', '145_y', '146_y', '147_y', '148_y', '149_y', '150_y', '151_y', '152_y', '153_y', '154_y', '155_y', '156_y', '157_y', '158_y', '159_y', '160_y', '161_y', '162_y', '163_y', '164_y', '165_y', '166_y', '167_y', '168_y', '169_y', '170_y', '171_y', '172_y', '173_y', '174_y', '175_y', '176_y', '177_y', '178_y', '179_y', '180_y', '181_y', '182_y', '183_y', '184_y', '185_y', '186_y', '187_y', '188_y', '189_y', '190_y', '191_y', '192_y', '193_y', '194_y', '195_y', '196_y', '197_y', '198_y', '199_y', '200_y', '201_y', '202_y', '203_y', '204_y', '205_y', '206_y', '207_y', '208_y', '209_y', '210_y', '211_y', '212_y', '213_y', '214_y', '215_y', '216_y', '217_y', '218_y', '219_y', '220_y', '221_y', '222_y', '223_y', '224_y', '225_y', '226_y', '227_y', '228_y', '229_y', '230_y', '231_y', '232_y', '233_y', '234_y', '235_y', '236_y', '237_y', '238_y', '239_y', '240_y', '241_y', '242_y', '243_y', '244_y', '245_y', '246_y', '247_y', '248_y', '249_y', '250_y', '251_y', '252_y', '253_y', '254_y', '255_y', '256_y', '257_y', '258_y', '259_y', '260_y', '261_y', '262_y', '263_y', '264_y', '265_y', '266_y', '267_y', '268_y', '269_y', '270_y', '271_y', '272_y', '273_y', '274_y', '275_y', '276_y', '277_y', '278_y', '279_y', '280_y', '281_y', '282_y', '283_y', '284_y', '285_y', '286_y', '287_y', '288_y', '289_y', '290_y', '291_y', '292_y', '293_y', '294_y', '295_y', '296_y', '297_y', '298_y', '299_y', '300_y', '301_y', '302_y', '303_y', '304_y', '305_y', '306_y', '307_y', '308_y', '309_y', '310_y', '311_y', '312_y', '313_y', '314_y', '315_y', '316_y', '317_y', '318_y', '319_y', '320_y', '321_y', '322_y', '323_y', '324_y', '325_y', '326_y', '327_y', '328_y', '329_y', '330_y', '331_y', '332_y', '333_y', '334_y', '335_y', '336_y', '337_y', '338_y', '339_y', '340_y', '341_y', '342_y', '343_y', '344_y', '345_y', '346_y', '347_y', '348_y', '349_y', '350_y', '351_y', '352_y', '353_y', '354_y', '355_y', '356_y', '357_y', '358_y', '359_y', '360_y', '361_y', '362_y', '363_y', '364_y', '365_y', '366_y', '367_y', '368_y', '369_y', '370_y', '371_y', '372_y', '373_y', '374_y', '375_y', '376_y', '377_y', '378_y', '379_y', '380_y', '381_y', '382_y', '383_y'], chunksize=chunksize, iterator=True, encoding='utf-8', ):
        df.index += index_start
        j+=1
        print('{} rows'.format(j*chunksize))
        df.to_sql('data', disk_engine, if_exists='append')
        index_start = df.index[-1] + 1

```

```
#http://www.sqlitetutorial.net/sqlite-python/create-tables/
def create_connection(db_file):
    """ create a database connection to the SQLite database
        specified by db_file
    :param db_file: database file
    :return: Connection object or None
    """

```

```
try:
    conn = sqlite3.connect(db_file)
    return conn
except Error as e:
    print(e)
```

```

return None

def checkTableExists(dbcon):
    cursr = dbcon.cursor()
    str = "select name from sqlite_master where type='table'"
    table_names = cursr.execute(str)
    print("Tables in the database:")
    tables = table_names.fetchall()
    print(tables[0][0])
    return(len(tables))

read_db = 'train.db'
conn_r = create_connection(read_db)
checkTableExists(conn_r)
conn_r.close()

# try to sample data according to the computing power you have
if os.path.isfile(read_db):
    conn_r = create_connection(read_db)
    if conn_r is not None:
        # for selecting first 1M rows
        # data = pd.read_sql_query("""SELECT * FROM data LIMIT 100001;""", conn_r)

        # for selecting random points
        data = pd.read_sql_query("SELECT * FROM data LIMIT 100001;", conn_r)
        conn_r.commit()
        conn_r.close()
...

```

## 13.5 Converting strings to numerics

In [ ]:

```

'''# after we read from sql table each entry was read it as a string
# we convert all the features into numeric before we apply any model
cols = list(data.columns)
for i in cols:
    data[i] = data[i].apply(pd.to_numeric)
    print(i)

# https://stackoverflow.com/questions/7368789/convert-all-strings-in-a-list-to-int
y_true = list(map(int, y_true.values))'''

```

## 13.6 Check the distribution of class labels in train and test data

In [20]:

```

print("Distribution of output variable in test data", "-"*10)
test_distr = Counter(DataFrame(y_test))
test_len = len(y_test)
print("Class 0: ", int(test_distr[0])/test_len, "Class 1: ", int(test_distr[1])/test_len)

```

Out[20]:

104484

In [21]:

```

with open('y_train_TFIDF_W2V.pkl', 'rb') as file:
    y_train = pickle.load(file)

with open('y_test_TFIDF_W2V.pkl', 'rb') as file:
    y_test = pickle.load(file)

```

In [33]:

```
#Effect of stratify=y_true
print("Distribution of output variable in train data", "-"*10)
non_zeros = np.count_nonzero(y_train)
train_len = len(y_train)

print("Class 0: {}%, Class 1: {}%".format(np.round((1-int(non_zeros)/train_len)*100,2), np.round(int(non_zeros)/train_len*100,2)))
print()

print("Distribution of output variable in test data", "-"*10)
non_zeros = np.count_nonzero(y_test)
test_len = len(y_test)

print("Class 0: {}%, Class 1: {}%".format(np.round((1-int(non_zeros)/test_len)*100,2), np.round(int(non_zeros)/test_len*100,2)))
print()
```

Distribution of output variable in train data -----  
Class 0: 63.08%, Class 1: 36.92%

Distribution of output variable in test data -----  
Class 0: 63.08%, Class 1: 36.92%

## Utility functions used for analysis of Machine Learning models

In [4]:

```
# This function plots the confusion matrices given y_i, y_i_hat.
def plot_confusion_matrix(test_y, predict_y):
    C = confusion_matrix(test_y, predict_y)
    # C = 9,9 matrix, each cell (i,j) represents number of points of class i are predicted class j

    A =(((C.T)/(C.sum(axis=1))).T)
    #divid each element of the confusion matrix with the sum of elements in that column

    # C = [[1, 2],
    #       [3, 4]]
    # C.T = [[1, 3],
    #       [2, 4]]
    # C.sum(axis = 1) axis=0 corresonds to columns and axis=1 corresponds to rows in two diamensional array
    # C.sum(axis = 1) = [[3, 7]
    # ((C.T)/(C.sum(axis=1))) = [[1/3, 3/7]
    #                               [2/3, 4/7]]

    # ((C.T)/(C.sum(axis=1))).T = [[1/3, 2/3]
    #                               [3/7, 4/7]]
    # sum of row elements = 1

    B =(C/C.sum(axis=0))
    #divid each element of the confusion matrix with the sum of elements in that row
    # C = [[1, 2],
    #       [3, 4]]
    # C.sum(axis = 0) axis=0 corresonds to columns and axis=1 corresponds to rows in two diamensional array
    # C.sum(axis = 0) = [[4, 6]
    # (C/C.sum(axis=0)) = [[1/4, 2/6],
    #                               [3/4, 4/6]]
    plt.figure(figsize=(20,4))

    labels = [0,1]
    # representing A in heatmap format
    cmap=sns.light_palette("blue")
    plt.subplot(1, 3, 1)
    sns.heatmap(C, annot=True, cmap=cmap, fmt=".3f", xticklabels=labels, yticklabels=labels)
    plt.xlabel('Predicted Class')
    plt.ylabel('Original Class')
    plt.title("Confusion matrix")

    plt.subplot(1, 3, 2)
    sns.heatmap(B, annot=True, cmap=cmap, fmt=".3f", xticklabels=labels, yticklabels=labels)
    plt.xlabel('Predicted Class')
    plt.ylabel('Original Class')
    plt.title("Precision matrix")

    plt.subplot(1, 3, 3)
    # representing B in heatmap format
    sns.heatmap(A, annot=True, cmap=cmap, fmt=".3f", xticklabels=labels, yticklabels=labels)
    plt.xlabel('Predicted Class')
    plt.ylabel('Original Class')
    plt.title("Recall matrix")

    plt.show()

#Utility function to record time
#I have taken this code from: https://www.kaggle.com/tilii7/hyperparameter-grid-search-with-xgboost
def timer(start_time=None):
    from datetime import datetime
    if not start_time:
        start_time = datetime.now()
        return start_time
    elif start_time:
        thour, temp_sec = divmod((datetime.now() - start_time).total_seconds(), 3600)
        tmin, tsec = divmod(temp_sec, 60)
        print('\n Time taken: %i hours %i minutes and %s seconds.' % (thour, tmin, round(tsec, 2)))
```

## Machine Learning Models using weighted TFIDF Word2Vec models

In [2]:

```
#Load the dataset.
import pickle
with open('X_train_TFIDF_W2V.pkl', 'rb') as file:
    X_train = pickle.load(file)

with open('X_test_TFIDF_W2V.pkl', 'rb') as file:
    X_test = pickle.load(file)

with open('y_train_TFIDF_W2V.pkl', 'rb') as file:
    y_train = pickle.load(file)

with open('y_test_TFIDF_W2V.pkl', 'rb') as file:
    y_test = pickle.load(file)

print("The shape of the train data matrix: ",X_train.shape)
print("The shape of the test data matrix: ",X_test.shape)
```

The shape of the train data matrix: (283003, 794)  
The shape of the test data matrix: (121287, 794)

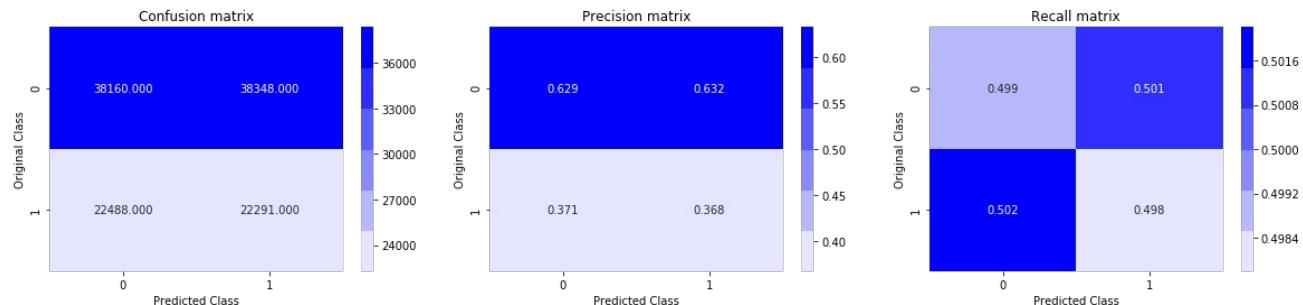
## 1. Building a random model (Finding worst-case log-loss) Using the TFIDF Mean Word Vectors.

In [37]:

```
# we need to generate 9 numbers and the sum of numbers should be 1
# one solution is to generate 9 numbers and divide each of the numbers by their sum
# ref: https://stackoverflow.com/a/18662466/4084039
# we create a output array that has exactly same size as the CV data
predicted_y = np.zeros((test_len,2))
for i in range(test_len):
    rand_probs = np.random.rand(1,2)
    predicted_y[i] = ((rand_probs/sum(sum(rand_probs)))[0])
print("Log loss on Test Data using Random Model",log_loss(y_test, predicted_y, eps=1e-15))

predicted_y =np.argmax(predicted_y, axis=1)
plot_confusion_matrix(y_test, predicted_y)
```

Log loss on Test Data using Random Model 0.8879955767938649



## 2. Logistic Regression with SGDClassifier + Hyperparameter tuning - Using the TFIDF Mean Word Vectors.

In [38]:

```
alpha = [10 ** x for x in range(-5, 2)] # hyperparam for SGD classifier.

# read more about SGDClassifier() at http://scikit-learn.org/stable/modules/generated/sklearn.linear_model.SGDClassifier.html
# -----
# default parameters
# SGDClassifier(loss='hinge', penalty='l2', alpha=0.0001, l1_ratio=0.15, fit_intercept=True, max_iter=None, tol=None,
# shuffle=True, verbose=0, epsilon=0.1, n_jobs=1, random_state=None, learning_rate='optimal', eta0=0.0, power_t=0.5,
# class_weight=None, warm_start=False, average=False, n_iter=None)

# some of methods
# fit(X, y[, coef_init, intercept_init, ...])      Fit linear model with Stochastic Gradient Descent.
# predict(X)    Predict class labels for samples in X.

#-----
# video link:
#-----


log_error_array=[]
for i in alpha:
    clf = SGDClassifier(alpha=i, penalty='l2', loss='log', random_state=42)
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of alpha = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))

fig, ax = plt.subplots()
ax.plot(alpha, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((alpha[i],np.round(txt,3)), (alpha[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("Alpha i's")
plt.ylabel("Error measure")
plt.show()

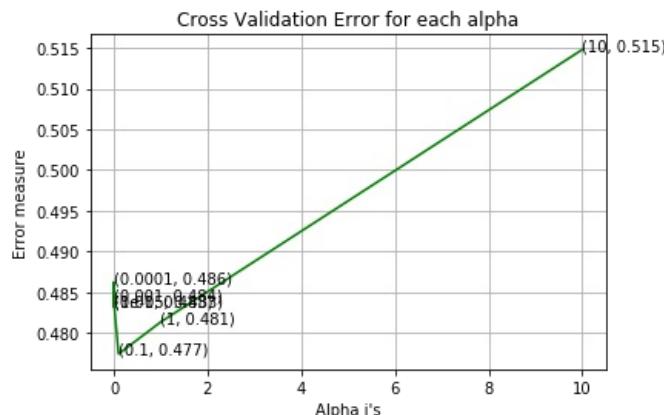
best_alpha = np.argmin(log_error_array)
clf = SGDClassifier(alpha=alpha[best_alpha], penalty='l2', loss='log', random_state=42)
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best alpha = ', alpha[best_alpha], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best alpha = ', alpha[best_alpha], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y =np.argmax(predict_y,axis=1)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of alpha = 1e-05 The log loss is: 0.48327495476142945
For values of alpha = 0.0001 The log loss is: 0.48626393147253594
For values of alpha = 0.001 The log loss is: 0.48418862118540795
For values of alpha = 0.01 The log loss is: 0.4832708333229682
For values of alpha = 0.1 The log loss is: 0.47744450107218156
For values of alpha = 1 The log loss is: 0.4813630737366242
For values of alpha = 10 The log loss is: 0.5147712417636299

```

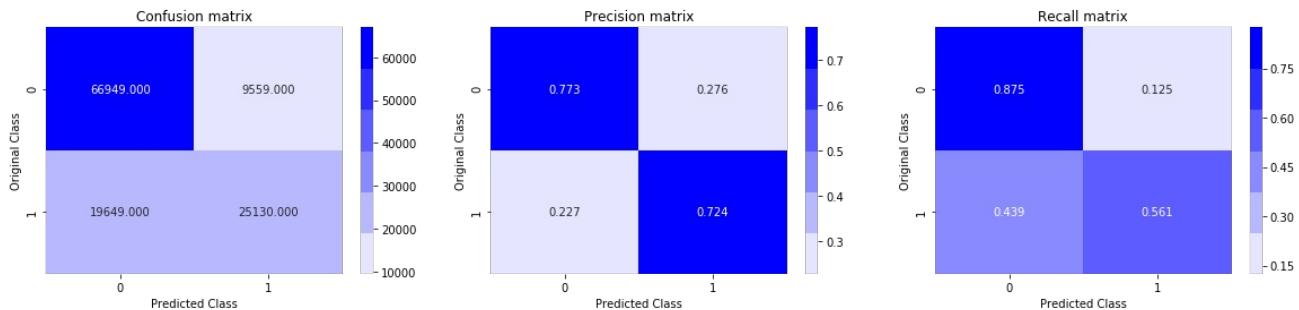


```

For values of best alpha = 0.1 The train log loss is: 0.4746598159848275
For values of best alpha = 0.1 The test log loss is: 0.47744450107218156

```

Total number of validation data points : 121287



### 3. Linear SVM with SGDClassifier + Hyperparameter tuning - Using the TFIDF Mean Word Vectors.

In [39]:

```
alpha = [10 ** x for x in range(-5, 2)] # hyperparam for SGD classifier.

log_error_array=[]
for i in alpha:
    clf = SGDClassifier(alpha=i, penalty='l1', loss='hinge', random_state=42)
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of alpha = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))

fig, ax = plt.subplots()
ax.plot(alpha, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((alpha[i],np.round(txt,3)), (alpha[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("Alpha i's")
plt.ylabel("Error measure")
plt.show()

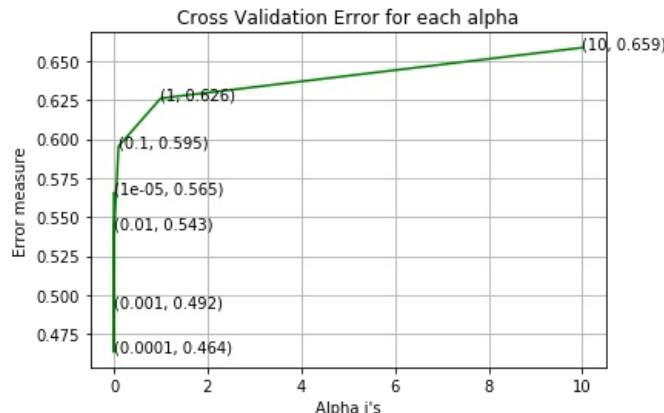
best_alpha = np.argmin(log_error_array)
clf = SGDClassifier(alpha=alpha[best_alpha], penalty='l1', loss='hinge', random_state=42)
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best alpha = ', alpha[best_alpha], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best alpha = ', alpha[best_alpha], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y =np.argmax(predict_y,axis=1)
#print("\nTotal number of validation data points :", len(predicted_y)) #121287
print("\nTotal number of validation data points : 121287")
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of alpha = 1e-05 The log loss is: 0.5654152384439007
For values of alpha = 0.0001 The log loss is: 0.4635444049581864
For values of alpha = 0.001 The log loss is: 0.49229141212348754
For values of alpha = 0.01 The log loss is: 0.5427804093672399
For values of alpha = 0.1 The log loss is: 0.5953445824533256
For values of alpha = 1 The log loss is: 0.6260587921211201
For values of alpha = 10 The log loss is: 0.6585278256347589

```

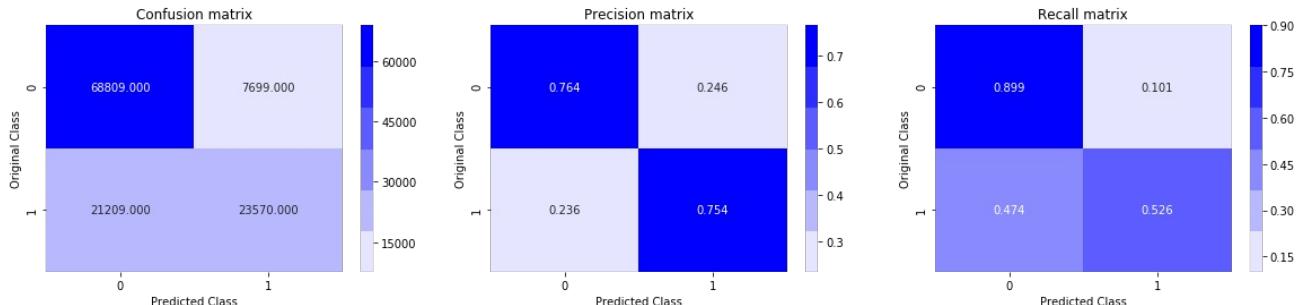


```

For values of best alpha = 0.0001 The train log loss is: 0.46134535529062326
For values of best alpha = 0.0001 The test log loss is: 0.4635444049581864

```

Total number of validation data points : 121287



## 4. XGBoost Classifier - Using the TFIDF Mean Word Vectors.

NOTE: DMatrix is a internal data structure that used by XGBoost which is optimized for both memory efficiency and training speed. You can construct DMatrix from numpy.arrays [https://xgboost.readthedocs.io/en/latest/python/python\\_api.html](https://xgboost.readthedocs.io/en/latest/python/python_api.html) ([https://xgboost.readthedocs.io/en/latest/python/python\\_api.html](https://xgboost.readthedocs.io/en/latest/python/python_api.html))

In [40]:

```

import xgboost as xgb
params = {}
params['objective'] = 'binary:logistic'
params['eval_metric'] = 'logloss'
params['eta'] = 0.02
params['max_depth'] = 4

d_train = xgb.DMatrix(X_train, label=y_train)
d_test = xgb.DMatrix(X_test, label=y_test)

watchlist = [(d_train, 'train'), (d_test, 'validation')]

bst = xgb.train(params, d_train, 600, watchlist, early_stopping_rounds=20, verbose_eval=2)

xgdmat = xgb.DMatrix(X_train,y_train)
predict_y = bst.predict(d_test)
print("\nThe test log loss is:",log_loss(y_test, predict_y, labels=[0, 1], eps=1e-15))

predicted_y =np.array(predict_y>0.5,dtype=int)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)

```

```

[22:29:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[0]      train-logloss:0.684849  validation-logloss:0.684854

```

Multiple eval metrics have been passed: 'validation-logloss' will be used for early stopping.

Will train until validation-logloss hasn't improved in 20 rounds.

```

[22:29:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:29:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pru

```



```
ned nodes, max_depth=4
[22:32:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[36]   train-logloss:0.507866 validation-logloss:0.508314
[22:32:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:32:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[38]   train-logloss:0.502314 validation-logloss:0.502772
[22:32:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:32:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[40]   train-logloss:0.497 validation-logloss:0.49749
[22:32:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:32:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[42]   train-logloss:0.491995 validation-logloss:0.492498
[22:32:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:32:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[44]   train-logloss:0.487226 validation-logloss:0.487755
[22:33:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[46]   train-logloss:0.482533 validation-logloss:0.483104
[22:33:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[48]   train-logloss:0.478173 validation-logloss:0.478773
[22:33:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[50]   train-logloss:0.474009 validation-logloss:0.474602
[22:33:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[52]   train-logloss:0.469893 validation-logloss:0.47054
[22:33:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[54]   train-logloss:0.466185 validation-logloss:0.466831
[22:33:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:33:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[56]   train-logloss:0.462574 validation-logloss:0.46324
[22:33:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[58]   train-logloss:0.458996 validation-logloss:0.459701
[22:34:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[60]   train-logloss:0.455671 validation-logloss:0.456414
[22:34:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[62]   train-logloss:0.45238 validation-logloss:0.45312
[22:34:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[64]   train-logloss:0.449336 validation-logloss:0.450103
[22:34:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[66]   train-logloss:0.446238 validation-logloss:0.447034
[22:34:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
[22:34:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=4
```





























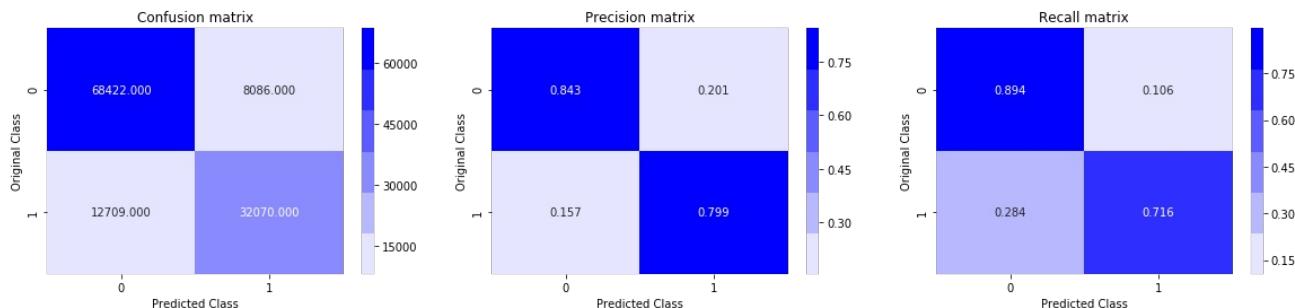




```
[599] train-logloss:0.339357 validation-logloss:0.344461
```

The test log loss is: 0.34446052206299527

Total number of validation data points : 121287



## 5. Tasks

1. Hyperparameter tune XgBoost using RandomSearch to reduce the log-loss.
2. Try out models (Logistic regression, Linear-SVM) with simple TF-IDF vectors instead of TD\_IDF weighted word2Vec.

### 5.1 Hyperparameter tune XgBoost using RandomSearch to reduce the log-loss - Using the TFIDF Mean Word Vectors.

In [7]:

```
#This blog was used as a reference: https://blog.cambridgespark.com/hyperparameter-tuning-in-xgboost-4ff9100a3b2f
import xgboost as xgb

#A parameter grid for XGBoost
params = {
    'min_child_weight': [5,6,7,8,10],
    'gamma': [0.25, 0.50, 0.75],
    'subsample': [0.6, 0.7, 0.8],
    'colsample_bytree': [0.5, 0.6, 0.7],
    'max_depth': [4, 5, 6, 7, 8],
    'n_estimators' : [50, 80, 100, 125, 150]
}

xgb = xgb.XGBClassifier(learning_rate=0.01, objective='binary:logistic', eta=0.02, silent=False, verbose=10, n_jobs=-1)
random_search = RandomizedSearchCV(xgb, param_distributions=params, n_iter=30, scoring='neg_log_loss', n_jobs=-1, cv=5, verbose=10, random_state=0)

# Here we go
start_time = timer(None) # timing starts from this point for "start_time" variable
random_search.fit(X_train, y_train)
timer(start_time) # timing ends here for "start_time" variable

print('\n Best hyperparameters:')
print(random_search.best_params_)

#Best cross validation log loss obtained from hyperparameter tuning
print("Best log loss obtained on Cross Validation data using hyperparameter tuning: ",random_search.best_score_)

#Save ranbdom search results in a datframe
results = pd.DataFrame(random_search.cv_results_)
results.to_csv('xgb-random-grid-search-results-01.csv', index=False)
```

Fitting 5 folds for each of 30 candidates, totalling 150 fits

```
[Parallel(n_jobs=-1)]: Using backend LokyBackend with 8 concurrent workers.
[Parallel(n_jobs=-1)]: Done   2 tasks      | elapsed:  4.7min
[Parallel(n_jobs=-1)]: Done   9 tasks      | elapsed: 17.5min
[Parallel(n_jobs=-1)]: Done  16 tasks      | elapsed: 24.7min
[Parallel(n_jobs=-1)]: Done  25 tasks      | elapsed: 33.6min
[Parallel(n_jobs=-1)]: Done  34 tasks      | elapsed: 46.7min
[Parallel(n_jobs=-1)]: Done  45 tasks      | elapsed: 59.4min
[Parallel(n_jobs=-1)]: Done  56 tasks      | elapsed: 76.5min
[Parallel(n_jobs=-1)]: Done  69 tasks      | elapsed: 88.4min
[Parallel(n_jobs=-1)]: Done  82 tasks      | elapsed: 103.7min
[Parallel(n_jobs=-1)]: Done  97 tasks      | elapsed: 115.7min
[Parallel(n_jobs=-1)]: Done 112 tasks      | elapsed: 136.7min
[Parallel(n_jobs=-1)]: Done 129 tasks      | elapsed: 150.7min
[Parallel(n_jobs=-1)]: Done 150 out of 150  | elapsed: 167.1min finished
```







```
[15:56:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 4 pruned nodes, max_depth=8
[15:56:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 2 pruned nodes, max_depth=8
[15:56:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 2 pruned nodes, max_depth=8
[15:56:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 2 pruned nodes, max_depth=8
[15:56:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 4 pruned nodes, max_depth=8
[15:56:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 10 pruned nodes, max_depth=8
[15:56:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 2 pruned nodes, max_depth=8
[15:56:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 2 pruned nodes, max_depth=8
[15:56:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 6 pruned nodes, max_depth=8
[15:56:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 2 pruned nodes, max_depth=8
[15:56:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 4 pruned nodes, max_depth=8
[15:56:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[15:56:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 4 pruned nodes, max_depth=8
[15:56:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 2 pruned nodes, max_depth=8
[15:56:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 2 pruned nodes, max_depth=8
[15:56:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 2 pruned nodes, max_depth=8
[15:56:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 4 pruned nodes, max_depth=8
[15:56:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 4 pruned nodes, max_depth=8
[15:57:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 4 pruned nodes, max_depth=8
[15:57:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 2 pruned nodes, max_depth=8
[15:57:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 2 pruned nodes, max_depth=8
[15:57:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[15:57:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[15:57:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[15:57:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 4 pruned nodes, max_depth=8
```

Time taken: 2 hours 50 minutes and 14.85 seconds.

Best hyperparameters:

```
{'subsample': 0.6, 'n_estimators': 150, 'min_child_weight': 8, 'max_depth': 8, 'gamma': 0.25, 'colsample_bytree': 0.7}
```

Best log loss obtained on Cross Validation data using hyperparameter tuning: -0.4107318058073521

In [5]:

```
#Best Hyperparameters are: {'subsample': 0.6, 'n_estimators': 150, 'min_child_weight': 8, 'max_depth': 8, 'gamma': 0.25, 'colsample_bytree': 0.7}
```

```
#Training the model with the best params obtained using hyperparameter tuning
```

```
import xgboost as xgb
```

```
params = {}
```

```
params['objective'] = 'binary:logistic'
```

```
params['eval_metric'] = 'logloss'
```

```
params['eta'] = 0.02
```

```
params['max_depth'] = 8
```

```
params['subsample'] = 0.6
```

```
params['n_estimators'] = 150
```

```
params['min_child_weight'] = 8
```

```
params['gamma'] = 0.25
```

```
params['colsample_bytree'] = 0.7
```

```
start_time = timer(None) # timing starts from this point for "start_time" variable
```

```
d_train = xgb.DMatrix(X_train, label=y_train)
```

```
d_test = xgb.DMatrix(X_test, label=y_test)
```

```
watchlist = [(d_train, 'train'), (d_test, 'validation')]
```

```
bst = xgb.train(params, d_train, 1200, watchlist, early_stopping_rounds=20, verbose_eval=2)
```

```
xgdmat = xgb.DMatrix(X_train,y_train)
```

```
predict_y = bst.predict(d_test)
```

```
print("\nThe train log loss is:",log_loss(y_train, bst.predict(d_train), labels=[0, 1], eps=1e-15))
```

```
print("\nThe test log loss is:",log_loss(y_test, predict_y, labels=[0, 1], eps=1e-15))
```

```
predicted_y =np.array(predict_y>0.5,dtype=int)
```

```
print("\nTotal number of validation data points :", len(predicted_y))
```

```
plot_confusion_matrix(y_test, predicted_y)
```

```
timer(start_time) # timing starts from this point for "start_time" variable
```

```
[01:02:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
```

```
[0] train-logloss:0.683345 validation-logloss:0.683435
```

```
Multiple eval metrics have been passed: 'validation-logloss' will be used for early stopping.
```

```
Will train until validation-logloss hasn't improved in 20 rounds.
```

```
[01:02:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 4 pruned nodes, max_depth=8
```

```
[01:03:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
```

```
[2] train-logloss:0.664523 validation-logloss:0.664756
```

```
[01:03:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 2 pruned nodes, max_depth=8
```

```
[01:03:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
```

```
[4] train-logloss:0.647486 validation-logloss:0.647867
```

```
[01:03:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 2 pruned nodes, max_depth=8
```

```
[01:03:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 390 extra nodes, 2 pruned nodes, max_depth=8
```

```
[6] train-logloss:0.631232 validation-logloss:0.631791
```

```
[01:03:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 0 pruned nodes, max_depth=8
```

```
[01:03:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
```

```
[8] train-logloss:0.616833 validation-logloss:0.617545
```

```
[01:03:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
```

```
[01:03:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 0 pruned nodes, max_depth=8
```

```
[10] train-logloss:0.603127 validation-logloss:0.603984
```

```
[01:03:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 386 extra nodes, 0 pruned nodes, max_depth=8
```

```
[01:03:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
```

```
[12] train-logloss:0.590274 validation-logloss:0.59131
```

```
[01:04:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 382 extra nodes, 2 pruned nodes, max_depth=8
```

```
[01:04:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 364 extra nodes, 0 pruned nodes, max_depth=8
```

```
[14] train-logloss:0.577658 validation-logloss:0.578838
```

```
[01:04:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 2 pruned nodes, max_depth=8
```

```
[01:04:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 374 extra nodes, 6 pruned nodes, max_depth=8
```

```
[16] train-logloss:0.5661 validation-logloss:0.567439
```

```
[01:04:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 0 pruned nodes, max_depth=8
```

```
uned nodes, max_depth=8
[01:04:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 0 pruned nodes, max_depth=8
[18]   train-logloss:0.555067 validation-logloss:0.556572
[01:04:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 2 pruned nodes, max_depth=8
[01:04:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 6 pruned nodes, max_depth=8
[20]   train-logloss:0.544893 validation-logloss:0.546566
[01:04:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 384 extra nodes, 0 pruned nodes, max_depth=8
[01:04:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 4 pruned nodes, max_depth=8
[22]   train-logloss:0.535018 validation-logloss:0.536842
[01:05:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 4 pruned nodes, max_depth=8
[01:05:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 4 pruned nodes, max_depth=8
[24]   train-logloss:0.525666 validation-logloss:0.527665
[01:05:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 2 pruned nodes, max_depth=8
[01:05:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
[26]   train-logloss:0.517065 validation-logloss:0.519258
[01:05:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
[01:05:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 396 extra nodes, 2 pruned nodes, max_depth=8
[28]   train-logloss:0.50872 validation-logloss:0.51109
[01:05:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 382 extra nodes, 4 pruned nodes, max_depth=8
[01:05:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 382 extra nodes, 0 pruned nodes, max_depth=8
[30]   train-logloss:0.50079 validation-logloss:0.503334
[01:05:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 406 extra nodes, 0 pruned nodes, max_depth=8
[01:05:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 0 pruned nodes, max_depth=8
[32]   train-logloss:0.493527 validation-logloss:0.496254
[01:06:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[01:06:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[34]   train-logloss:0.486391 validation-logloss:0.489259
[01:06:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 4 pruned nodes, max_depth=8
[01:06:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 2 pruned nodes, max_depth=8
[36]   train-logloss:0.479707 validation-logloss:0.482766
[01:06:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[01:06:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 374 extra nodes, 2 pruned nodes, max_depth=8
[38]   train-logloss:0.473361 validation-logloss:0.476566
[01:06:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 4 pruned nodes, max_depth=8
[01:06:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 398 extra nodes, 0 pruned nodes, max_depth=8
[40]   train-logloss:0.467706 validation-logloss:0.471092
[01:06:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 6 pruned nodes, max_depth=8
[01:06:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 4 pruned nodes, max_depth=8
[42]   train-logloss:0.462175 validation-logloss:0.465695
[01:07:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 356 extra nodes, 2 pruned nodes, max_depth=8
[01:07:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 402 extra nodes, 2 pruned nodes, max_depth=8
[44]   train-logloss:0.456522 validation-logloss:0.460223
[01:07:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 4 pruned nodes, max_depth=8
[01:07:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 2 pruned nodes, max_depth=8
[46]   train-logloss:0.451498 validation-logloss:0.455369
[01:07:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[01:07:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 6 pruned nodes, max_depth=8
[48]   train-logloss:0.446521 validation-logloss:0.45057
[01:07:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 392 extra nodes, 2 pruned nodes, max_depth=8
[01:07:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 2 pruned nodes, max_depth=8
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[50]  train-logloss:0.44176  validation-logloss:0.445979
[01:07:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[01:07:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 4 pruned nodes, max_depth=8
[52]  train-logloss:0.437234  validation-logloss:0.441626
[01:07:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 6 pruned nodes, max_depth=8
[01:08:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 382 extra nodes, 0 pruned nodes, max_depth=8
[54]  train-logloss:0.432761  validation-logloss:0.437348
[01:08:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 2 pruned nodes, max_depth=8
[01:08:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 2 pruned nodes, max_depth=8
[56]  train-logloss:0.428592  validation-logloss:0.433349
[01:08:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 4 pruned nodes, max_depth=8
[01:08:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 4 pruned nodes, max_depth=8
[58]  train-logloss:0.424532  validation-logloss:0.429463
[01:08:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 2 pruned nodes, max_depth=8
[01:08:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 2 pruned nodes, max_depth=8
[60]  train-logloss:0.42083  validation-logloss:0.425909
[01:08:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 2 pruned nodes, max_depth=8
[01:08:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 2 pruned nodes, max_depth=8
[62]  train-logloss:0.417189  validation-logloss:0.422425
[01:08:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[01:08:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 2 pruned nodes, max_depth=8
[64]  train-logloss:0.4137  validation-logloss:0.419102
[01:09:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 0 pruned nodes, max_depth=8
[01:09:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[66]  train-logloss:0.41047  validation-logloss:0.416059
[01:09:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 2 pruned nodes, max_depth=8
[01:09:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 2 pruned nodes, max_depth=8
[68]  train-logloss:0.407276  validation-logloss:0.413024
[01:09:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 384 extra nodes, 2 pruned nodes, max_depth=8
[01:09:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 2 pruned nodes, max_depth=8
[70]  train-logloss:0.404082  validation-logloss:0.409998
[01:09:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 360 extra nodes, 4 pruned nodes, max_depth=8
[01:09:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 2 pruned nodes, max_depth=8
[72]  train-logloss:0.401147  validation-logloss:0.407218
[01:09:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 4 pruned nodes, max_depth=8
[01:09:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 2 pruned nodes, max_depth=8
[74]  train-logloss:0.398351  validation-logloss:0.404601
[01:10:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 0 pruned nodes, max_depth=8
[01:10:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 2 pruned nodes, max_depth=8
[76]  train-logloss:0.395644  validation-logloss:0.40203
[01:10:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 2 pruned nodes, max_depth=8
[01:10:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 4 pruned nodes, max_depth=8
[78]  train-logloss:0.392999  validation-logloss:0.399545
[01:10:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 8 pruned nodes, max_depth=8
[01:10:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[80]  train-logloss:0.390734  validation-logloss:0.397418
[01:10:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 4 pruned nodes, max_depth=8
[01:10:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 2 pruned nodes, max_depth=8
[82]  train-logloss:0.388266  validation-logloss:0.395112
[01:10:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 2 pruned nodes, max_depth=8
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[01:10:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
[84]   train-logloss:0.385991 validation-logloss:0.392993
[01:10:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 4 pruned nodes, max_depth=8
[01:11:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 4 pruned nodes, max_depth=8
[86]   train-logloss:0.383805 validation-logloss:0.390944
[01:11:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[01:11:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 4 pruned nodes, max_depth=8
[88]   train-logloss:0.381723 validation-logloss:0.389013
[01:11:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 6 pruned nodes, max_depth=8
[01:11:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 2 pruned nodes, max_depth=8
[90]   train-logloss:0.379695 validation-logloss:0.387095
[01:11:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[01:11:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[92]   train-logloss:0.377733 validation-logloss:0.385264
[01:11:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[01:11:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 4 pruned nodes, max_depth=8
[94]   train-logloss:0.375777 validation-logloss:0.383447
[01:11:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[01:11:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[96]   train-logloss:0.373961 validation-logloss:0.381793
[01:12:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 6 pruned nodes, max_depth=8
[01:12:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 2 pruned nodes, max_depth=8
[98]   train-logloss:0.372272 validation-logloss:0.380236
[01:12:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 4 pruned nodes, max_depth=8
[01:12:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[100]   train-logloss:0.370562 validation-logloss:0.378689
[01:12:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 272 extra nodes, 0 pruned nodes, max_depth=8
[01:12:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 2 pruned nodes, max_depth=8
[102]   train-logloss:0.369024 validation-logloss:0.377241
[01:12:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 2 pruned nodes, max_depth=8
[01:12:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[104]   train-logloss:0.367319 validation-logloss:0.375713
[01:12:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[01:12:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 2 pruned nodes, max_depth=8
[106]   train-logloss:0.36582 validation-logloss:0.374337
[01:13:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 4 pruned nodes, max_depth=8
[01:13:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 8 pruned nodes, max_depth=8
[108]   train-logloss:0.36443 validation-logloss:0.373066
[01:13:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[01:13:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[110]   train-logloss:0.363128 validation-logloss:0.371903
[01:13:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[01:13:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 4 pruned nodes, max_depth=8
[112]   train-logloss:0.361697 validation-logloss:0.370661
[01:13:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 4 pruned nodes, max_depth=8
[01:13:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 2 pruned nodes, max_depth=8
[114]   train-logloss:0.360307 validation-logloss:0.3694
[01:13:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[01:13:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 4 pruned nodes, max_depth=8
[116]   train-logloss:0.359035 validation-logloss:0.368251
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[01:13:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 2 pruned nodes, max_depth=8
[01:14:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 2 pruned nodes, max_depth=8
[118]   train-logloss:0.357821 validation-logloss:0.367178
[01:14:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[01:14:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[120]   train-logloss:0.356587 validation-logloss:0.366089
[01:14:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 4 pruned nodes, max_depth=8
[01:14:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[122]   train-logloss:0.355365 validation-logloss:0.365006
[01:14:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[01:14:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 2 pruned nodes, max_depth=8
[124]   train-logloss:0.354196 validation-logloss:0.363994
[01:14:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[01:14:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[126]   train-logloss:0.353037 validation-logloss:0.363008
[01:14:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[01:14:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 2 pruned nodes, max_depth=8
[128]   train-logloss:0.352012 validation-logloss:0.362112
[01:15:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[01:15:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 2 pruned nodes, max_depth=8
[130]   train-logloss:0.351022 validation-logloss:0.361257
[01:15:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[01:15:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[132]   train-logloss:0.350043 validation-logloss:0.360419
[01:15:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 4 pruned nodes, max_depth=8
[01:15:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[134]   train-logloss:0.349044 validation-logloss:0.359551
[01:15:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 2 pruned nodes, max_depth=8
[01:15:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 2 pruned nodes, max_depth=8
[136]   train-logloss:0.348124 validation-logloss:0.358744
[01:15:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[01:15:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 8 pruned nodes, max_depth=8
[138]   train-logloss:0.347171 validation-logloss:0.357944
[01:16:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 4 pruned nodes, max_depth=8
[01:16:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[140]   train-logloss:0.346272 validation-logloss:0.357166
[01:16:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 2 pruned nodes, max_depth=8
[01:16:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[142]   train-logloss:0.345393 validation-logloss:0.35641
[01:16:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[01:16:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 4 pruned nodes, max_depth=8
[144]   train-logloss:0.344515 validation-logloss:0.355639
[01:16:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[01:16:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 4 pruned nodes, max_depth=8
[146]   train-logloss:0.343665 validation-logloss:0.354921
[01:16:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 2 pruned nodes, max_depth=8
[01:16:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 4 pruned nodes, max_depth=8
[148]   train-logloss:0.342887 validation-logloss:0.354227
[01:16:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[01:17:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[150]  train-logloss:0.342086 validation-logloss:0.353571
[01:17:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 2 pruned nodes, max_depth=8
[01:17:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 2 pruned nodes, max_depth=8
[152]  train-logloss:0.341294 validation-logloss:0.352918
[01:17:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 2 pruned nodes, max_depth=8
[01:17:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 4 pruned nodes, max_depth=8
[154]  train-logloss:0.340612 validation-logloss:0.352349
[01:17:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 4 pruned nodes, max_depth=8
[01:17:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 8 pruned nodes, max_depth=8
[156]  train-logloss:0.339933 validation-logloss:0.351764
[01:17:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 2 pruned nodes, max_depth=8
[01:17:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[158]  train-logloss:0.339265 validation-logloss:0.351212
[01:17:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 2 pruned nodes, max_depth=8
[01:17:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[160]  train-logloss:0.338663 validation-logloss:0.350715
[01:18:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 6 pruned nodes, max_depth=8
[01:18:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[162]  train-logloss:0.338042 validation-logloss:0.350225
[01:18:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 2 pruned nodes, max_depth=8
[01:18:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 4 pruned nodes, max_depth=8
[164]  train-logloss:0.33739 validation-logloss:0.349689
[01:18:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[01:18:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 4 pruned nodes, max_depth=8
[166]  train-logloss:0.336789 validation-logloss:0.349186
[01:18:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 2 pruned nodes, max_depth=8
[01:18:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 2 pruned nodes, max_depth=8
[168]  train-logloss:0.336181 validation-logloss:0.348689
[01:18:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 2 pruned nodes, max_depth=8
[01:18:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 2 pruned nodes, max_depth=8
[170]  train-logloss:0.335514 validation-logloss:0.348149
[01:18:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 2 pruned nodes, max_depth=8
[01:18:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[172]  train-logloss:0.334972 validation-logloss:0.347709
[01:19:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[01:19:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 6 pruned nodes, max_depth=8
[174]  train-logloss:0.334443 validation-logloss:0.347255
[01:19:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 2 pruned nodes, max_depth=8
[01:19:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[176]  train-logloss:0.333869 validation-logloss:0.346848
[01:19:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[01:19:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[178]  train-logloss:0.333216 validation-logloss:0.346356
[01:19:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[01:19:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[180]  train-logloss:0.332642 validation-logloss:0.345919
[01:19:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 2 pruned nodes, max_depth=8
[01:19:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 4 pruned nodes, max_depth=8
[182]  train-logloss:0.332113 validation-logloss:0.345494
[01:19:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 4 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[01:19:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 2 pruned nodes, max_depth=8
[184] train-logloss:0.33154 validation-logloss:0.345045
[01:20:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 2 pruned nodes, max_depth=8
[01:20:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 2 pruned nodes, max_depth=8
[186] train-logloss:0.331017 validation-logloss:0.344593
[01:20:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 2 pruned nodes, max_depth=8
[01:20:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[188] train-logloss:0.330442 validation-logloss:0.344118
[01:20:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 2 pruned nodes, max_depth=8
[01:20:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[190] train-logloss:0.329974 validation-logloss:0.343741
[01:20:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 2 pruned nodes, max_depth=8
[01:20:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 2 pruned nodes, max_depth=8
[192] train-logloss:0.329506 validation-logloss:0.343376
[01:20:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 2 pruned nodes, max_depth=8
[01:20:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 2 pruned nodes, max_depth=8
[194] train-logloss:0.329029 validation-logloss:0.342993
[01:20:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[01:21:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 2 pruned nodes, max_depth=8
[196] train-logloss:0.328612 validation-logloss:0.342693
[01:21:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 2 pruned nodes, max_depth=8
[01:21:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 4 pruned nodes, max_depth=8
[198] train-logloss:0.328178 validation-logloss:0.342362
[01:21:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[01:21:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 2 pruned nodes, max_depth=8
[200] train-logloss:0.32779 validation-logloss:0.342055
[01:21:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[01:21:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 4 pruned nodes, max_depth=8
[202] train-logloss:0.327383 validation-logloss:0.34173
[01:21:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[01:21:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 4 pruned nodes, max_depth=8
[204] train-logloss:0.326916 validation-logloss:0.341395
[01:21:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 2 pruned nodes, max_depth=8
[01:21:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 2 pruned nodes, max_depth=8
[206] train-logloss:0.326405 validation-logloss:0.341042
[01:21:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[01:22:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[208] train-logloss:0.325942 validation-logloss:0.340701
[01:22:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 184 extra nodes, 0 pruned nodes, max_depth=8
[01:22:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[210] train-logloss:0.325537 validation-logloss:0.340421
[01:22:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 4 pruned nodes, max_depth=8
[01:22:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[212] train-logloss:0.325193 validation-logloss:0.340158
[01:22:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[01:22:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[214] train-logloss:0.324747 validation-logloss:0.339858
[01:22:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[01:22:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 2 pruned nodes, max_depth=8
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[216]  train-logloss:0.324363 validation-logloss:0.3396
[01:22:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:22:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 4 pruned nodes, max_depth=8
[218]  train-logloss:0.323911 validation-logloss:0.339305
[01:22:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[01:23:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[220]  train-logloss:0.323494 validation-logloss:0.339024
[01:23:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[01:23:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[222]  train-logloss:0.323003 validation-logloss:0.338694
[01:23:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:23:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[224]  train-logloss:0.322618 validation-logloss:0.338452
[01:23:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[01:23:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[226]  train-logloss:0.322186 validation-logloss:0.338141
[01:23:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 2 pruned nodes, max_depth=8
[01:23:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 2 pruned nodes, max_depth=8
[228]  train-logloss:0.321731 validation-logloss:0.337834
[01:23:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 2 pruned nodes, max_depth=8
[01:23:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max_depth=8
[230]  train-logloss:0.321421 validation-logloss:0.337648
[01:23:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 4 pruned nodes, max_depth=8
[01:24:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 2 pruned nodes, max_depth=8
[232]  train-logloss:0.32105 validation-logloss:0.337398
[01:24:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[01:24:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 2 pruned nodes, max_depth=8
[234]  train-logloss:0.320622 validation-logloss:0.337109
[01:24:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[01:24:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 2 pruned nodes, max_depth=8
[236]  train-logloss:0.320301 validation-logloss:0.336899
[01:24:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[01:24:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[238]  train-logloss:0.319902 validation-logloss:0.336665
[01:24:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[01:24:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 4 pruned nodes, max_depth=8
[240]  train-logloss:0.319547 validation-logloss:0.336431
[01:24:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[01:24:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 4 pruned nodes, max_depth=8
[242]  train-logloss:0.319255 validation-logloss:0.336221
[01:24:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 4 pruned nodes, max_depth=8
[01:25:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[244]  train-logloss:0.318888 validation-logloss:0.335969
[01:25:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[01:25:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[246]  train-logloss:0.318472 validation-logloss:0.335694
[01:25:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 2 pruned nodes, max_depth=8
[01:25:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[248]  train-logloss:0.31813 validation-logloss:0.335496
[01:25:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
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[01:28:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[01:28:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[284]   train-logloss:0.312095 validation-logloss:0.332005
[01:28:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[01:28:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[286]   train-logloss:0.311704 validation-logloss:0.331811
[01:28:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
[01:28:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[288]   train-logloss:0.31114 validation-logloss:0.331665
[01:28:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[01:28:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[290]   train-logloss:0.311124 validation-logloss:0.331535
[01:28:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[01:29:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[292]   train-logloss:0.31081 validation-logloss:0.331369
[01:29:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[01:29:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 0 pruned nodes, max_depth=8
[294]   train-logloss:0.310525 validation-logloss:0.331227
[01:29:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[01:29:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[296]   train-logloss:0.3102 validation-logloss:0.33107
[01:29:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[01:29:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
[298]   train-logloss:0.309874 validation-logloss:0.330901
[01:29:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[01:29:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 404 extra nodes, 0 pruned nodes, max_depth=8
[300]   train-logloss:0.309481 validation-logloss:0.330741
[01:29:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[01:29:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[302]   train-logloss:0.309101 validation-logloss:0.330564
[01:29:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[01:30:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
[304]   train-logloss:0.308832 validation-logloss:0.330431
[01:30:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 2 pruned nodes, max_depth=8
[01:30:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[306]   train-logloss:0.308511 validation-logloss:0.330282
[01:30:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[01:30:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[308]   train-logloss:0.308163 validation-logloss:0.330115
[01:30:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[01:30:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 2 pruned nodes, max_depth=8
[310]   train-logloss:0.307899 validation-logloss:0.329999
[01:30:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[01:30:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[312]   train-logloss:0.307645 validation-logloss:0.329849
[01:30:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 2 pruned nodes, max_depth=8
[01:30:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[314]   train-logloss:0.307344 validation-logloss:0.329709
[01:30:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 0 pruned nodes, max_depth=8
[01:31:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[316]  train-logloss:0.306972 validation-logloss:0.329562
[01:31:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[01:31:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[318]  train-logloss:0.306682 validation-logloss:0.329433
[01:31:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:31:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[320]  train-logloss:0.306382 validation-logloss:0.329301
[01:31:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[01:31:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[322]  train-logloss:0.306141 validation-logloss:0.329169
[01:31:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 4 pruned nodes, max_depth=8
[01:31:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 2 pruned nodes, max_depth=8
[324]  train-logloss:0.305809 validation-logloss:0.329031
[01:31:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:31:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[326]  train-logloss:0.305513 validation-logloss:0.32891
[01:32:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[01:32:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[328]  train-logloss:0.305136 validation-logloss:0.328748
[01:32:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[01:32:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 396 extra nodes, 0 pruned nodes, max_depth=8
[330]  train-logloss:0.304722 validation-logloss:0.328592
[01:32:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[01:32:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[332]  train-logloss:0.304387 validation-logloss:0.328438
[01:32:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[01:32:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[334]  train-logloss:0.30401 validation-logloss:0.328251
[01:32:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[01:32:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[336]  train-logloss:0.303769 validation-logloss:0.328118
[01:32:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[01:32:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[338]  train-logloss:0.30342 validation-logloss:0.32799
[01:33:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[01:33:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[340]  train-logloss:0.303099 validation-logloss:0.327874
[01:33:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[01:33:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[342]  train-logloss:0.302749 validation-logloss:0.327771
[01:33:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[01:33:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[344]  train-logloss:0.302426 validation-logloss:0.327646
[01:33:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[01:33:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[346]  train-logloss:0.302107 validation-logloss:0.327528
[01:33:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[01:33:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[348]  train-logloss:0.30187 validation-logloss:0.327418
[01:33:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 2 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[01:33:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 364 extra nodes, 0 pruned nodes, max_depth=8
[350] train-logloss:0.301511 validation-logloss:0.327291
[01:34:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[01:34:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[352] train-logloss:0.301155 validation-logloss:0.327162
[01:34:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[01:34:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[354] train-logloss:0.300831 validation-logloss:0.327038
[01:34:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 0 pruned nodes, max_depth=8
[01:34:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[356] train-logloss:0.300443 validation-logloss:0.326907
[01:34:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[01:34:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 0 pruned nodes, max_depth=8
[358] train-logloss:0.300128 validation-logloss:0.326795
[01:34:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
[01:34:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 132 extra nodes, 0 pruned nodes, max_depth=8
[360] train-logloss:0.299784 validation-logloss:0.326622
[01:34:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[01:35:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[362] train-logloss:0.299451 validation-logloss:0.326488
[01:35:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max_depth=8
[01:35:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[364] train-logloss:0.299197 validation-logloss:0.326384
[01:35:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[01:35:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[366] train-logloss:0.298857 validation-logloss:0.326267
[01:35:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:35:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 2 pruned nodes, max_depth=8
[368] train-logloss:0.298644 validation-logloss:0.326154
[01:35:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[01:35:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[370] train-logloss:0.298336 validation-logloss:0.326022
[01:35:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[01:35:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[372] train-logloss:0.298078 validation-logloss:0.325932
[01:35:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[01:36:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[374] train-logloss:0.297805 validation-logloss:0.325835
[01:36:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[01:36:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 386 extra nodes, 0 pruned nodes, max_depth=8
[376] train-logloss:0.29744 validation-logloss:0.325733
[01:36:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[01:36:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[378] train-logloss:0.297199 validation-logloss:0.325642
[01:36:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[01:36:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
[380] train-logloss:0.296874 validation-logloss:0.325516
[01:36:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 2 pruned nodes, max_depth=8
[01:36:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
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[382]  train-logloss:0.296674 validation-logloss:0.325431
[01:36:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[01:36:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[384]  train-logloss:0.296366 validation-logloss:0.325284
[01:37:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[01:37:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[386]  train-logloss:0.296076 validation-logloss:0.325185
[01:37:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[01:37:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[388]  train-logloss:0.295793 validation-logloss:0.325087
[01:37:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 0 pruned nodes, max_depth=8
[01:37:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[390]  train-logloss:0.295508 validation-logloss:0.325011
[01:37:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 2 pruned nodes, max_depth=8
[01:37:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max_depth=8
[392]  train-logloss:0.295267 validation-logloss:0.324932
[01:37:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[01:37:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[394]  train-logloss:0.295035 validation-logloss:0.324844
[01:37:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[01:37:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[396]  train-logloss:0.294703 validation-logloss:0.324704
[01:38:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[01:38:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[398]  train-logloss:0.2944 validation-logloss:0.324607
[01:38:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[01:38:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[400]  train-logloss:0.294151 validation-logloss:0.324507
[01:38:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 184 extra nodes, 0 pruned nodes, max_depth=8
[01:38:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[402]  train-logloss:0.293866 validation-logloss:0.324405
[01:38:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[01:38:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[404]  train-logloss:0.293552 validation-logloss:0.324315
[01:38:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[01:38:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[406]  train-logloss:0.293227 validation-logloss:0.324224
[01:38:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[01:39:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[408]  train-logloss:0.293019 validation-logloss:0.324149
[01:39:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[01:39:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[410]  train-logloss:0.292838 validation-logloss:0.324064
[01:39:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[01:39:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[412]  train-logloss:0.292545 validation-logloss:0.323987
[01:39:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[01:39:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[414]  train-logloss:0.29234 validation-logloss:0.323921
[01:39:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
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[01:39:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[416] train-logloss:0.292072 validation-logloss:0.323807
[01:39:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[01:39:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 0 pruned nodes, max_depth=8
[418] train-logloss:0.291724 validation-logloss:0.323666
[01:39:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[01:40:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 0 pruned nodes, max_depth=8
[420] train-logloss:0.291484 validation-logloss:0.323596
[01:40:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[01:40:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[422] train-logloss:0.291152 validation-logloss:0.323493
[01:40:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max_depth=8
[01:40:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[424] train-logloss:0.290859 validation-logloss:0.323381
[01:40:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[01:40:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[426] train-logloss:0.29055 validation-logloss:0.323266
[01:40:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[01:40:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[428] train-logloss:0.290299 validation-logloss:0.323185
[01:40:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[01:40:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[430] train-logloss:0.29006 validation-logloss:0.32311
[01:41:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[01:41:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[432] train-logloss:0.289853 validation-logloss:0.323041
[01:41:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[01:41:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[434] train-logloss:0.289476 validation-logloss:0.322897
[01:41:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[01:41:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[436] train-logloss:0.289248 validation-logloss:0.322833
[01:41:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[01:41:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
[438] train-logloss:0.289 validation-logloss:0.322765
[01:41:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[01:41:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 2 pruned nodes, max_depth=8
[440] train-logloss:0.288769 validation-logloss:0.322688
[01:41:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[01:41:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[442] train-logloss:0.28845 validation-logloss:0.322575
[01:42:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[01:42:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[444] train-logloss:0.288207 validation-logloss:0.32247
[01:42:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max_depth=8
[01:42:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[446] train-logloss:0.287886 validation-logloss:0.32237
[01:42:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[01:42:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 0 pruned nodes, max_depth=8
[448] train-logloss:0.287671 validation-logloss:0.322307
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[01:42:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[01:42:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 398 extra nodes, 0 pruned nodes, max_depth=8
[450] train-logloss:0.287317 validation-logloss:0.322184
[01:42:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[01:42:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[452] train-logloss:0.286992 validation-logloss:0.322082
[01:42:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[01:43:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[454] train-logloss:0.28675 validation-logloss:0.321995
[01:43:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[01:43:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[456] train-logloss:0.286434 validation-logloss:0.321895
[01:43:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[01:43:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[458] train-logloss:0.286244 validation-logloss:0.321842
[01:43:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[01:43:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[460] train-logloss:0.285986 validation-logloss:0.321763
[01:43:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[01:43:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[462] train-logloss:0.285735 validation-logloss:0.321694
[01:43:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[01:43:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[464] train-logloss:0.285387 validation-logloss:0.321588
[01:44:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[01:44:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[466] train-logloss:0.285157 validation-logloss:0.321494
[01:44:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[01:44:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max_depth=8
[468] train-logloss:0.284799 validation-logloss:0.321396
[01:44:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 2 pruned nodes, max_depth=8
[01:44:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[470] train-logloss:0.284564 validation-logloss:0.321296
[01:44:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[01:44:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[472] train-logloss:0.28436 validation-logloss:0.321235
[01:44:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[01:44:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[474] train-logloss:0.284149 validation-logloss:0.321165
[01:44:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[01:44:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[476] train-logloss:0.283898 validation-logloss:0.321097
[01:45:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[01:45:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[478] train-logloss:0.283662 validation-logloss:0.321027
[01:45:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[01:45:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[480] train-logloss:0.28336 validation-logloss:0.320934
[01:45:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max_depth=8
[01:45:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[482]  train-logloss:0.283144 validation-logloss:0.320835
[01:45:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[01:45:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[484]  train-logloss:0.282894 validation-logloss:0.320763
[01:45:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 0 pruned nodes, max_depth=8
[01:45:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[486]  train-logloss:0.282632 validation-logloss:0.320709
[01:45:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[01:46:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[488]  train-logloss:0.28244 validation-logloss:0.320662
[01:46:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[01:46:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[490]  train-logloss:0.282112 validation-logloss:0.320526
[01:46:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[01:46:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[492]  train-logloss:0.281894 validation-logloss:0.320479
[01:46:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[01:46:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[494]  train-logloss:0.281603 validation-logloss:0.320387
[01:46:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[01:46:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[496]  train-logloss:0.281308 validation-logloss:0.320291
[01:46:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[01:46:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[498]  train-logloss:0.281044 validation-logloss:0.320222
[01:46:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[01:47:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[500]  train-logloss:0.280706 validation-logloss:0.320108
[01:47:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[01:47:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[502]  train-logloss:0.280477 validation-logloss:0.320019
[01:47:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[01:47:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[504]  train-logloss:0.280202 validation-logloss:0.319952
[01:47:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[01:47:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[506]  train-logloss:0.279957 validation-logloss:0.319906
[01:47:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[01:47:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[508]  train-logloss:0.279739 validation-logloss:0.31985
[01:47:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[01:47:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 0 pruned nodes, max_depth=8
[510]  train-logloss:0.279506 validation-logloss:0.319771
[01:48:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[01:48:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[512]  train-logloss:0.279247 validation-logloss:0.319684
[01:48:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 2 pruned nodes, max_depth=8
[01:48:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[514]  train-logloss:0.279009 validation-logloss:0.31962
[01:48:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 382 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[01:48:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[516] train-logloss:0.27867 validation-logloss:0.319548
[01:48:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[01:48:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[518] train-logloss:0.278442 validation-logloss:0.319503
[01:48:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[01:48:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[520] train-logloss:0.278217 validation-logloss:0.319435
[01:48:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[01:49:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[522] train-logloss:0.277925 validation-logloss:0.319326
[01:49:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[01:49:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[524] train-logloss:0.277716 validation-logloss:0.319264
[01:49:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[01:49:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[526] train-logloss:0.277434 validation-logloss:0.319176
[01:49:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[01:49:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 360 extra nodes, 0 pruned nodes, max_depth=8
[528] train-logloss:0.277136 validation-logloss:0.319119
[01:49:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 0 pruned nodes, max_depth=8
[01:49:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[530] train-logloss:0.276977 validation-logloss:0.31907
[01:49:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 2 pruned nodes, max_depth=8
[01:49:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[532] train-logloss:0.276732 validation-logloss:0.318999
[01:49:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 400 extra nodes, 0 pruned nodes, max_depth=8
[01:50:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[534] train-logloss:0.276419 validation-logloss:0.318939
[01:50:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[01:50:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[536] train-logloss:0.276253 validation-logloss:0.318868
[01:50:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[01:50:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
[538] train-logloss:0.276065 validation-logloss:0.318808
[01:50:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[01:50:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[540] train-logloss:0.275788 validation-logloss:0.318743
[01:50:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[01:50:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[542] train-logloss:0.275544 validation-logloss:0.318694
[01:50:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[01:50:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[544] train-logloss:0.275268 validation-logloss:0.318606
[01:51:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[01:51:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[546] train-logloss:0.275028 validation-logloss:0.318536
[01:51:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[01:51:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
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[548]  train-logloss:0.274832 validation-logloss:0.318466
[01:51:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[01:51:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[550]  train-logloss:0.274578 validation-logloss:0.3184
[01:51:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[01:51:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[552]  train-logloss:0.27436 validation-logloss:0.318332
[01:51:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[01:51:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[554]  train-logloss:0.274106 validation-logloss:0.318256
[01:51:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[01:52:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[556]  train-logloss:0.273862 validation-logloss:0.318181
[01:52:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[01:52:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[558]  train-logloss:0.273722 validation-logloss:0.318121
[01:52:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[01:52:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[560]  train-logloss:0.273426 validation-logloss:0.318037
[01:52:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[01:52:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[562]  train-logloss:0.273138 validation-logloss:0.317965
[01:52:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[01:52:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[564]  train-logloss:0.272939 validation-logloss:0.317922
[01:52:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[01:52:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[566]  train-logloss:0.272775 validation-logloss:0.317874
[01:53:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:53:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[568]  train-logloss:0.272556 validation-logloss:0.317798
[01:53:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[01:53:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[570]  train-logloss:0.272337 validation-logloss:0.317729
[01:53:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[01:53:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 0 pruned nodes, max_depth=8
[572]  train-logloss:0.272024 validation-logloss:0.317642
[01:53:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[01:53:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[574]  train-logloss:0.271771 validation-logloss:0.317582
[01:53:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[01:53:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[576]  train-logloss:0.271574 validation-logloss:0.317544
[01:54:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[01:54:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[578]  train-logloss:0.271341 validation-logloss:0.317511
[01:54:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 2 pruned nodes, max_depth=8
[01:54:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[580]  train-logloss:0.271019 validation-logloss:0.317447
[01:54:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
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[01:54:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[582] train-logloss:0.270804 validation-logloss:0.3174
[01:54:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[01:54:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[584] train-logloss:0.270599 validation-logloss:0.317359
[01:54:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 2 pruned nodes, max_depth=8
[01:54:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[586] train-logloss:0.270307 validation-logloss:0.317283
[01:54:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 272 extra nodes, 0 pruned nodes, max_depth=8
[01:55:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[588] train-logloss:0.270033 validation-logloss:0.3172
[01:55:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[01:55:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[590] train-logloss:0.26985 validation-logloss:0.317136
[01:55:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[01:55:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[592] train-logloss:0.269613 validation-logloss:0.317077
[01:55:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max_depth=8
[01:55:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[594] train-logloss:0.26942 validation-logloss:0.317016
[01:55:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max_depth=8
[01:55:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[596] train-logloss:0.269162 validation-logloss:0.316948
[01:55:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[01:56:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[598] train-logloss:0.268908 validation-logloss:0.316881
[01:56:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 402 extra nodes, 0 pruned nodes, max_depth=8
[01:56:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
[600] train-logloss:0.268634 validation-logloss:0.316801
[01:56:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 2 pruned nodes, max_depth=8
[01:56:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 0 pruned nodes, max_depth=8
[602] train-logloss:0.268508 validation-logloss:0.316759
[01:56:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[01:56:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[604] train-logloss:0.268288 validation-logloss:0.316668
[01:56:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 2 pruned nodes, max_depth=8
[01:56:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max_depth=8
[606] train-logloss:0.268005 validation-logloss:0.316602
[01:56:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[01:56:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[608] train-logloss:0.267806 validation-logloss:0.316549
[01:57:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[01:57:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[610] train-logloss:0.267619 validation-logloss:0.316503
[01:57:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[01:57:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 2 pruned nodes, max_depth=8
[612] train-logloss:0.267431 validation-logloss:0.316458
[01:57:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[01:57:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[614] train-logloss:0.267193 validation-logloss:0.316401
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[01:57:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[01:57:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[616]   train-logloss:0.266992 validation-logloss:0.316357
[01:57:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[01:57:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[618]   train-logloss:0.26667 validation-logloss:0.316256
[01:58:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[01:58:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[620]   train-logloss:0.266474 validation-logloss:0.316214
[01:58:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 398 extra nodes, 0 pruned nodes, max_depth=8
[01:58:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[622]   train-logloss:0.266165 validation-logloss:0.316156
[01:58:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[01:58:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[624]   train-logloss:0.26597 validation-logloss:0.316118
[01:58:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 2 pruned nodes, max_depth=8
[01:58:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[626]   train-logloss:0.265715 validation-logloss:0.316055
[01:58:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[01:59:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[628]   train-logloss:0.265466 validation-logloss:0.315992
[01:59:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[01:59:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[630]   train-logloss:0.265275 validation-logloss:0.31594
[01:59:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[01:59:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[632]   train-logloss:0.265124 validation-logloss:0.315908
[01:59:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[01:59:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 396 extra nodes, 0 pruned nodes, max_depth=8
[634]   train-logloss:0.264854 validation-logloss:0.315841
[01:59:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max_depth=8
[01:59:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[636]   train-logloss:0.264617 validation-logloss:0.315782
[01:59:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[02:00:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[638]   train-logloss:0.264407 validation-logloss:0.315712
[02:00:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[02:00:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[640]   train-logloss:0.264149 validation-logloss:0.315652
[02:00:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[02:00:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[642]   train-logloss:0.263923 validation-logloss:0.315614
[02:00:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 0 pruned nodes, max_depth=8
[02:00:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[644]   train-logloss:0.263661 validation-logloss:0.315555
[02:00:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[02:00:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[646]   train-logloss:0.263425 validation-logloss:0.315497
[02:00:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
[02:00:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max\_depth=8  
[648] train-logloss:0.263201 validation-logloss:0.315439  
[02:01:04] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max\_depth=8  
[02:01:11] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max\_depth=8  
[650] train-logloss:0.26294 validation-logloss:0.315361  
[02:01:17] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 0 pruned nodes, max\_depth=8  
[02:01:22] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 2 pruned nodes, max\_depth=8  
[652] train-logloss:0.262692 validation-logloss:0.315289  
[02:01:27] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 132 extra nodes, 0 pruned nodes, max\_depth=8  
[02:01:32] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max\_depth=8  
[654] train-logloss:0.26252 validation-logloss:0.315262  
[02:01:38] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max\_depth=8  
[02:01:43] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max\_depth=8  
[656] train-logloss:0.262381 validation-logloss:0.315236  
[02:01:48] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 344 extra nodes, 0 pruned nodes, max\_depth=8  
[02:01:53] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max\_depth=8  
[658] train-logloss:0.262157 validation-logloss:0.31515  
[02:01:58] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:03] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max\_depth=8  
[660] train-logloss:0.261988 validation-logloss:0.315116  
[02:02:09] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:14] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max\_depth=8  
[662] train-logloss:0.261807 validation-logloss:0.315077  
[02:02:19] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:25] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max\_depth=8  
[664] train-logloss:0.261592 validation-logloss:0.315029  
[02:02:30] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:36] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max\_depth=8  
[666] train-logloss:0.261442 validation-logloss:0.315007  
[02:02:42] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 344 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:47] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max\_depth=8  
[668] train-logloss:0.261204 validation-logloss:0.314953  
[02:02:53] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max\_depth=8  
[02:02:58] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max\_depth=8  
[670] train-logloss:0.260949 validation-logloss:0.3149  
[02:03:04] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max\_depth=8  
[02:03:10] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max\_depth=8  
[672] train-logloss:0.260717 validation-logloss:0.314836  
[02:03:18] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max\_depth=8  
[02:03:24] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 0 pruned nodes, max\_depth=8  
[674] train-logloss:0.260399 validation-logloss:0.314744  
[02:03:31] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max\_depth=8  
[02:03:36] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max\_depth=8  
[676] train-logloss:0.260205 validation-logloss:0.314704  
[02:03:42] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max\_depth=8  
[02:03:47] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max\_depth=8  
[678] train-logloss:0.259997 validation-logloss:0.314648  
[02:03:53] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max\_depth=8  
[02:03:59] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max\_depth=8  
[680] train-logloss:0.259742 validation-logloss:0.314588  
[02:04:05] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max\_depth=8

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uned nodes, max_depth=8
[02:04:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[682] train-logloss:0.259568 validation-logloss:0.314534
[02:04:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[02:04:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[684] train-logloss:0.259446 validation-logloss:0.314503
[02:04:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[02:04:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 184 extra nodes, 0 pruned nodes, max_depth=8
[686] train-logloss:0.259307 validation-logloss:0.314472
[02:04:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[02:04:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[688] train-logloss:0.259077 validation-logloss:0.314432
[02:04:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[02:04:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[690] train-logloss:0.258819 validation-logloss:0.314378
[02:05:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 360 extra nodes, 0 pruned nodes, max_depth=8
[02:05:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 2 pruned nodes, max_depth=8
[692] train-logloss:0.258617 validation-logloss:0.314336
[02:05:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 2 pruned nodes, max_depth=8
[02:05:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[694] train-logloss:0.258374 validation-logloss:0.314285
[02:05:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[02:05:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[696] train-logloss:0.258118 validation-logloss:0.314219
[02:05:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[02:05:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[698] train-logloss:0.257909 validation-logloss:0.314176
[02:05:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[02:05:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[700] train-logloss:0.257691 validation-logloss:0.314127
[02:05:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[02:06:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[702] train-logloss:0.257476 validation-logloss:0.314069
[02:06:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[02:06:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 360 extra nodes, 0 pruned nodes, max_depth=8
[704] train-logloss:0.257263 validation-logloss:0.314029
[02:06:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[02:06:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[706] train-logloss:0.257038 validation-logloss:0.313949
[02:06:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[02:06:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[708] train-logloss:0.256858 validation-logloss:0.313898
[02:06:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[02:06:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[710] train-logloss:0.256598 validation-logloss:0.31384
[02:06:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[02:07:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[712] train-logloss:0.256431 validation-logloss:0.31381
[02:07:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[02:07:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
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[714]  train-logloss:0.256216 validation-logloss:0.313767
[02:07:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[02:07:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[716]  train-logloss:0.255992 validation-logloss:0.313717
[02:07:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[02:07:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 2 pruned nodes, max_depth=8
[718]  train-logloss:0.255813 validation-logloss:0.313684
[02:07:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[02:07:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[720]  train-logloss:0.255611 validation-logloss:0.313652
[02:07:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[02:08:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 356 extra nodes, 0 pruned nodes, max_depth=8
[722]  train-logloss:0.255345 validation-logloss:0.313587
[02:08:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[02:08:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[724]  train-logloss:0.255196 validation-logloss:0.313557
[02:08:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[02:08:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[726]  train-logloss:0.255028 validation-logloss:0.313512
[02:08:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[02:08:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[728]  train-logloss:0.254818 validation-logloss:0.313444
[02:08:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[02:08:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[730]  train-logloss:0.254666 validation-logloss:0.313409
[02:08:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[02:08:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 2 pruned nodes, max_depth=8
[732]  train-logloss:0.254468 validation-logloss:0.313381
[02:09:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[02:09:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[734]  train-logloss:0.2542 validation-logloss:0.313331
[02:09:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[02:09:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[736]  train-logloss:0.254021 validation-logloss:0.31329
[02:09:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[02:09:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max_depth=8
[738]  train-logloss:0.25385 validation-logloss:0.313248
[02:09:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[02:09:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[740]  train-logloss:0.25367 validation-logloss:0.313215
[02:09:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[02:09:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 2 pruned nodes, max_depth=8
[742]  train-logloss:0.253531 validation-logloss:0.313178
[02:09:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[02:10:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[744]  train-logloss:0.253349 validation-logloss:0.313137
[02:10:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[02:10:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[746]  train-logloss:0.253132 validation-logloss:0.313096
[02:10:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
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[02:10:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[748] train-logloss:0.252956 validation-logloss:0.313066
[02:10:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[02:10:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[750] train-logloss:0.252814 validation-logloss:0.313036
[02:10:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max_depth=8
[02:10:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[752] train-logloss:0.25257 validation-logloss:0.312979
[02:10:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[02:11:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max_depth=8
[754] train-logloss:0.252336 validation-logloss:0.312923
[02:11:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[02:11:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[756] train-logloss:0.252129 validation-logloss:0.312884
[02:11:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[02:11:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max_depth=8
[758] train-logloss:0.251971 validation-logloss:0.31284
[02:11:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[02:11:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[760] train-logloss:0.251809 validation-logloss:0.3128
[02:11:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[02:11:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 356 extra nodes, 0 pruned nodes, max_depth=8
[762] train-logloss:0.251568 validation-logloss:0.312748
[02:11:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max_depth=8
[02:11:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[764] train-logloss:0.251369 validation-logloss:0.31271
[02:12:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 2 pruned nodes, max_depth=8
[02:12:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[766] train-logloss:0.251181 validation-logloss:0.312675
[02:12:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[02:12:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[768] train-logloss:0.250979 validation-logloss:0.312637
[02:12:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[02:12:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[770] train-logloss:0.250791 validation-logloss:0.312606
[02:12:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[02:12:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 0 pruned nodes, max_depth=8
[772] train-logloss:0.250605 validation-logloss:0.312588
[02:12:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 0 pruned nodes, max_depth=8
[02:12:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[774] train-logloss:0.250359 validation-logloss:0.312529
[02:13:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[02:13:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[776] train-logloss:0.250159 validation-logloss:0.312485
[02:13:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[02:13:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[778] train-logloss:0.249911 validation-logloss:0.312425
[02:13:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 2 pruned nodes, max_depth=8
[02:13:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[780] train-logloss:0.2497 validation-logloss:0.312383
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[02:13:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[02:13:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 356 extra nodes, 0 pruned nodes, max_depth=8
[782] train-logloss:0.249485 validation-logloss:0.31234
[02:13:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[02:13:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max_depth=8
[784] train-logloss:0.249353 validation-logloss:0.312326
[02:14:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[02:14:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[786] train-logloss:0.249144 validation-logloss:0.3123
[02:14:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[02:14:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[788] train-logloss:0.248975 validation-logloss:0.312261
[02:14:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[02:14:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[790] train-logloss:0.248806 validation-logloss:0.312218
[02:14:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[02:14:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[792] train-logloss:0.248668 validation-logloss:0.312183
[02:14:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 0 pruned nodes, max_depth=8
[02:14:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[794] train-logloss:0.24844 validation-logloss:0.312128
[02:14:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[02:15:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 0 pruned nodes, max_depth=8
[796] train-logloss:0.248209 validation-logloss:0.312083
[02:15:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[02:15:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[798] train-logloss:0.247992 validation-logloss:0.312039
[02:15:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 272 extra nodes, 0 pruned nodes, max_depth=8
[02:15:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[800] train-logloss:0.247799 validation-logloss:0.311998
[02:15:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[02:15:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[802] train-logloss:0.247555 validation-logloss:0.31196
[02:15:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 0 pruned nodes, max_depth=8
[02:15:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max_depth=8
[804] train-logloss:0.247437 validation-logloss:0.311936
[02:15:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[02:16:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 374 extra nodes, 0 pruned nodes, max_depth=8
[806] train-logloss:0.247188 validation-logloss:0.311899
[02:16:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[02:16:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 0 pruned nodes, max_depth=8
[808] train-logloss:0.247062 validation-logloss:0.31187
[02:16:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max_depth=8
[02:16:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[810] train-logloss:0.246872 validation-logloss:0.311823
[02:16:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max_depth=8
[02:16:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[812] train-logloss:0.246653 validation-logloss:0.311762
[02:16:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 0 pruned nodes, max_depth=8
[02:16:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[814]  train-logloss:0.246396 validation-logloss:0.311707
[02:16:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[02:17:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max_depth=8
[816]  train-logloss:0.246165 validation-logloss:0.311655
[02:17:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[02:17:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[818]  train-logloss:0.245992 validation-logloss:0.311612
[02:17:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[02:17:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 410 extra nodes, 0 pruned nodes, max_depth=8
[820]  train-logloss:0.245731 validation-logloss:0.311568
[02:17:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[02:17:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[822]  train-logloss:0.245522 validation-logloss:0.311522
[02:17:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 4 pruned nodes, max_depth=8
[02:17:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[824]  train-logloss:0.245394 validation-logloss:0.31148
[02:17:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[02:17:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[826]  train-logloss:0.245199 validation-logloss:0.311434
[02:18:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 2 pruned nodes, max_depth=8
[02:18:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[828]  train-logloss:0.244988 validation-logloss:0.311377
[02:18:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[02:18:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[830]  train-logloss:0.244826 validation-logloss:0.311326
[02:18:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[02:18:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max_depth=8
[832]  train-logloss:0.244651 validation-logloss:0.311288
[02:18:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[02:18:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 2 pruned nodes, max_depth=8
[834]  train-logloss:0.244513 validation-logloss:0.311264
[02:18:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[02:18:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
[836]  train-logloss:0.244275 validation-logloss:0.311211
[02:19:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[02:19:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[838]  train-logloss:0.244096 validation-logloss:0.311173
[02:19:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[02:19:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 2 pruned nodes, max_depth=8
[840]  train-logloss:0.243947 validation-logloss:0.311152
[02:19:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[02:19:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 376 extra nodes, 0 pruned nodes, max_depth=8
[842]  train-logloss:0.24374 validation-logloss:0.3111
[02:19:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[02:19:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[844]  train-logloss:0.243545 validation-logloss:0.311064
[02:19:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[02:19:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[846]  train-logloss:0.243402 validation-logloss:0.31102
[02:20:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[02:20:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[848] train-logloss:0.243216 validation-logloss:0.310987
[02:20:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[02:20:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 2 pruned nodes, max_depth=8
[850] train-logloss:0.243024 validation-logloss:0.310929
[02:20:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[02:20:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[852] train-logloss:0.242907 validation-logloss:0.310898
[02:20:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[02:20:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[854] train-logloss:0.242794 validation-logloss:0.310865
[02:20:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[02:20:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 0 pruned nodes, max_depth=8
[856] train-logloss:0.242675 validation-logloss:0.310828
[02:21:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[02:21:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[858] train-logloss:0.242484 validation-logloss:0.31079
[02:21:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[02:21:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[860] train-logloss:0.242242 validation-logloss:0.310739
[02:21:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[02:21:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[862] train-logloss:0.242102 validation-logloss:0.310717
[02:21:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[02:21:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[864] train-logloss:0.241944 validation-logloss:0.310689
[02:21:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[02:21:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[866] train-logloss:0.241754 validation-logloss:0.310652
[02:22:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[02:22:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[868] train-logloss:0.241547 validation-logloss:0.31062
[02:22:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[02:22:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 0 pruned nodes, max_depth=8
[870] train-logloss:0.241371 validation-logloss:0.31058
[02:22:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[02:22:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[872] train-logloss:0.241157 validation-logloss:0.310527
[02:22:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[02:22:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[874] train-logloss:0.240872 validation-logloss:0.310487
[02:22:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[02:22:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 0 pruned nodes, max_depth=8
[876] train-logloss:0.240738 validation-logloss:0.310428
[02:23:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[02:23:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[878] train-logloss:0.240635 validation-logloss:0.310405
[02:23:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 402 extra nodes, 0 pruned nodes, max_depth=8
[02:23:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
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[880]  train-logloss:0.240406 validation-logloss:0.310371
[02:23:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[02:23:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max_depth=8
[882]  train-logloss:0.24027 validation-logloss:0.310336
[02:23:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[02:23:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[884]  train-logloss:0.24015 validation-logloss:0.310299
[02:23:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[02:23:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[886]  train-logloss:0.239909 validation-logloss:0.310235
[02:24:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[02:24:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 314 extra nodes, 0 pruned nodes, max_depth=8
[888]  train-logloss:0.239733 validation-logloss:0.310199
[02:24:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[02:24:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 0 pruned nodes, max_depth=8
[890]  train-logloss:0.239617 validation-logloss:0.310168
[02:24:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max_depth=8
[02:24:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[892]  train-logloss:0.239476 validation-logloss:0.310139
[02:24:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[02:24:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 0 pruned nodes, max_depth=8
[894]  train-logloss:0.239291 validation-logloss:0.310084
[02:24:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[02:24:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 0 pruned nodes, max_depth=8
[896]  train-logloss:0.239193 validation-logloss:0.31006
[02:24:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 2 pruned nodes, max_depth=8
[02:25:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[898]  train-logloss:0.238962 validation-logloss:0.310007
[02:25:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[02:25:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[900]  train-logloss:0.238736 validation-logloss:0.30997
[02:25:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[02:25:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 302 extra nodes, 0 pruned nodes, max_depth=8
[902]  train-logloss:0.23856 validation-logloss:0.309934
[02:25:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[02:25:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[904]  train-logloss:0.238368 validation-logloss:0.309907
[02:25:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[02:25:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 0 pruned nodes, max_depth=8
[906]  train-logloss:0.238168 validation-logloss:0.309864
[02:26:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[02:26:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[908]  train-logloss:0.237996 validation-logloss:0.309824
[02:26:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 2 pruned nodes, max_depth=8
[02:26:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[910]  train-logloss:0.237812 validation-logloss:0.30978
[02:26:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[02:26:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 2 pruned nodes, max_depth=8
[912]  train-logloss:0.237594 validation-logloss:0.309744
[02:26:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
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[02:26:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[914] train-logloss:0.237385 validation-logloss:0.309695
[02:26:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[02:27:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[916] train-logloss:0.23716 validation-logloss:0.309637
[02:27:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 4 pruned nodes, max_depth=8
[02:27:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[918] train-logloss:0.237 validation-logloss:0.309597
[02:27:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[02:27:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[920] train-logloss:0.236849 validation-logloss:0.309564
[02:27:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[02:27:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 2 pruned nodes, max_depth=8
[922] train-logloss:0.23668 validation-logloss:0.309536
[02:27:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[02:27:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[924] train-logloss:0.236532 validation-logloss:0.309494
[02:27:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[02:27:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 0 pruned nodes, max_depth=8
[926] train-logloss:0.23629 validation-logloss:0.309435
[02:28:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[02:28:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[928] train-logloss:0.236094 validation-logloss:0.309395
[02:28:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[02:28:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[930] train-logloss:0.235911 validation-logloss:0.309348
[02:28:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[02:28:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[932] train-logloss:0.235763 validation-logloss:0.309313
[02:28:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 0 pruned nodes, max_depth=8
[02:28:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[934] train-logloss:0.235574 validation-logloss:0.309279
[02:28:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 0 pruned nodes, max_depth=8
[02:28:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[936] train-logloss:0.235469 validation-logloss:0.309245
[02:28:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[02:29:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
[938] train-logloss:0.235276 validation-logloss:0.309189
[02:29:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[02:29:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[940] train-logloss:0.23506 validation-logloss:0.309135
[02:29:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[02:29:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[942] train-logloss:0.234904 validation-logloss:0.309099
[02:29:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[02:29:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max_depth=8
[944] train-logloss:0.234764 validation-logloss:0.309083
[02:29:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[02:29:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[946] train-logloss:0.234557 validation-logloss:0.309049
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[02:29:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 0 pruned nodes, max_depth=8
[02:30:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[948] train-logloss:0.234355 validation-logloss:0.309022
[02:30:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 2 pruned nodes, max_depth=8
[02:30:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[950] train-logloss:0.234145 validation-logloss:0.308966
[02:30:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max_depth=8
[02:30:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 0 pruned nodes, max_depth=8
[952] train-logloss:0.233959 validation-logloss:0.308932
[02:30:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 0 pruned nodes, max_depth=8
[02:30:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 378 extra nodes, 0 pruned nodes, max_depth=8
[954] train-logloss:0.233688 validation-logloss:0.308882
[02:30:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[02:30:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[956] train-logloss:0.233514 validation-logloss:0.308844
[02:30:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 2 pruned nodes, max_depth=8
[02:31:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[958] train-logloss:0.233323 validation-logloss:0.308804
[02:31:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[02:31:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[960] train-logloss:0.233135 validation-logloss:0.308773
[02:31:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[02:31:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[962] train-logloss:0.23293 validation-logloss:0.308732
[02:31:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 390 extra nodes, 0 pruned nodes, max_depth=8
[02:31:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[964] train-logloss:0.232752 validation-logloss:0.308693
[02:31:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[02:31:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[966] train-logloss:0.232616 validation-logloss:0.308667
[02:31:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max_depth=8
[02:31:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[968] train-logloss:0.232437 validation-logloss:0.308617
[02:32:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[02:32:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[970] train-logloss:0.232278 validation-logloss:0.308593
[02:32:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[02:32:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[972] train-logloss:0.232032 validation-logloss:0.308527
[02:32:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[02:32:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[974] train-logloss:0.231867 validation-logloss:0.308506
[02:32:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[02:32:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[976] train-logloss:0.231736 validation-logloss:0.308472
[02:32:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[02:32:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[978] train-logloss:0.231535 validation-logloss:0.308435
[02:32:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 2 pruned nodes, max_depth=8
[02:33:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[980]  train-logloss:0.231342 validation-logloss:0.3084
[02:33:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max_depth=8
[02:33:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[982]  train-logloss:0.231239 validation-logloss:0.308371
[02:33:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[02:33:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[984]  train-logloss:0.231104 validation-logloss:0.308331
[02:33:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[02:33:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[986]  train-logloss:0.230983 validation-logloss:0.308314
[02:33:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 0 pruned nodes, max_depth=8
[02:33:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[988]  train-logloss:0.230839 validation-logloss:0.308278
[02:33:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 0 pruned nodes, max_depth=8
[02:33:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[990]  train-logloss:0.230635 validation-logloss:0.308238
[02:34:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 0 pruned nodes, max_depth=8
[02:34:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[992]  train-logloss:0.2304 validation-logloss:0.308184
[02:34:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
[02:34:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[994]  train-logloss:0.230262 validation-logloss:0.308156
[02:34:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[02:34:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[996]  train-logloss:0.230094 validation-logloss:0.308125
[02:34:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[02:34:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[998]  train-logloss:0.22989 validation-logloss:0.308093
[02:34:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[02:34:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[1000]  train-logloss:0.229719 validation-logloss:0.308058
[02:35:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 0 pruned nodes, max_depth=8
[02:35:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[1002]  train-logloss:0.229555 validation-logloss:0.308025
[02:35:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[02:35:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1004]  train-logloss:0.229462 validation-logloss:0.308007
[02:35:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[02:35:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[1006]  train-logloss:0.229354 validation-logloss:0.307988
[02:35:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 0 pruned nodes, max_depth=8
[02:35:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 0 pruned nodes, max_depth=8
[1008]  train-logloss:0.229181 validation-logloss:0.307956
[02:35:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 0 pruned nodes, max_depth=8
[02:35:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[1010]  train-logloss:0.229085 validation-logloss:0.307936
[02:35:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 0 pruned nodes, max_depth=8
[02:35:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 230 extra nodes, 0 pruned nodes, max_depth=8
[1012]  train-logloss:0.228929 validation-logloss:0.307884
[02:36:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[02:36:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[1014] train-logloss:0.228769 validation-logloss:0.307848
[02:36:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[02:36:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[1016] train-logloss:0.228651 validation-logloss:0.307819
[02:36:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[02:36:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 2 pruned nodes, max_depth=8
[1018] train-logloss:0.228485 validation-logloss:0.307786
[02:36:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[02:36:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 0 pruned nodes, max_depth=8
[1020] train-logloss:0.228281 validation-logloss:0.307748
[02:36:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[02:36:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[1022] train-logloss:0.228088 validation-logloss:0.307716
[02:36:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[02:37:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[1024] train-logloss:0.227863 validation-logloss:0.307648
[02:37:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[02:37:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[1026] train-logloss:0.227699 validation-logloss:0.307616
[02:37:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[02:37:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[1028] train-logloss:0.227549 validation-logloss:0.307592
[02:37:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[02:37:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[1030] train-logloss:0.227434 validation-logloss:0.307575
[02:37:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[02:37:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[1032] train-logloss:0.227244 validation-logloss:0.307532
[02:37:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[02:37:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 380 extra nodes, 0 pruned nodes, max_depth=8
[1034] train-logloss:0.227 validation-logloss:0.307493
[02:38:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
[02:38:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[1036] train-logloss:0.226837 validation-logloss:0.307465
[02:38:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[02:38:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[1038] train-logloss:0.226699 validation-logloss:0.307437
[02:38:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[02:38:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 2 pruned nodes, max_depth=8
[1040] train-logloss:0.226559 validation-logloss:0.307419
[02:38:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[02:38:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[1042] train-logloss:0.226426 validation-logloss:0.3074
[02:38:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[02:38:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[1044] train-logloss:0.226272 validation-logloss:0.307371
[02:38:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max_depth=8
[02:38:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 0 pruned nodes, max_depth=8
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[1046] train-logloss:0.226019 validation-logloss:0.307317
[02:39:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max_depth=8
[02:39:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 178 extra nodes, 0 pruned nodes, max_depth=8
[1048] train-logloss:0.225886 validation-logloss:0.307271
[02:39:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 0 pruned nodes, max_depth=8
[02:39:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[1050] train-logloss:0.225741 validation-logloss:0.307231
[02:39:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[02:39:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 326 extra nodes, 0 pruned nodes, max_depth=8
[1052] train-logloss:0.225538 validation-logloss:0.307179
[02:39:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[02:39:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max_depth=8
[1054] train-logloss:0.225406 validation-logloss:0.307147
[02:39:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[02:39:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[1056] train-logloss:0.225254 validation-logloss:0.307111
[02:39:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[02:40:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max_depth=8
[1058] train-logloss:0.225052 validation-logloss:0.307082
[02:40:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 0 pruned nodes, max_depth=8
[02:40:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[1060] train-logloss:0.224488 validation-logloss:0.307049
[02:40:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 0 pruned nodes, max_depth=8
[02:40:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max_depth=8
[1062] train-logloss:0.224673 validation-logloss:0.307006
[02:40:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[02:40:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[1064] train-logloss:0.224594 validation-logloss:0.306984
[02:40:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[02:40:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[1066] train-logloss:0.224412 validation-logloss:0.30695
[02:40:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[02:40:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 286 extra nodes, 0 pruned nodes, max_depth=8
[1068] train-logloss:0.224232 validation-logloss:0.306904
[02:41:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[02:41:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[1070] train-logloss:0.224033 validation-logloss:0.306864
[02:41:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 0 pruned nodes, max_depth=8
[02:41:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[1072] train-logloss:0.223824 validation-logloss:0.306838
[02:41:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[02:41:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[1074] train-logloss:0.223681 validation-logloss:0.306809
[02:41:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[02:41:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[1076] train-logloss:0.223618 validation-logloss:0.306798
[02:41:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[02:41:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[1078] train-logloss:0.223461 validation-logloss:0.306764
[02:41:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
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[02:41:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 0 pruned nodes, max_depth=8
[1080] train-logloss:0.223289 validation-logloss:0.306727
[02:42:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[02:42:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[1082] train-logloss:0.223137 validation-logloss:0.306705
[02:42:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max_depth=8
[02:42:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[1084] train-logloss:0.22299 validation-logloss:0.306666
[02:42:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 0 pruned nodes, max_depth=8
[02:42:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 0 pruned nodes, max_depth=8
[1086] train-logloss:0.222792 validation-logloss:0.306629
[02:42:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[02:42:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[1088] train-logloss:0.222633 validation-logloss:0.306602
[02:42:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 0 pruned nodes, max_depth=8
[02:42:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[1090] train-logloss:0.222507 validation-logloss:0.306583
[02:43:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[02:43:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 0 pruned nodes, max_depth=8
[1092] train-logloss:0.22237 validation-logloss:0.306555
[02:43:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 2 pruned nodes, max_depth=8
[02:43:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max_depth=8
[1094] train-logloss:0.222255 validation-logloss:0.306539
[02:43:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 282 extra nodes, 0 pruned nodes, max_depth=8
[02:43:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[1096] train-logloss:0.222114 validation-logloss:0.306516
[02:43:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[02:43:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[1098] train-logloss:0.221948 validation-logloss:0.306493
[02:43:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[02:43:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 0 pruned nodes, max_depth=8
[1100] train-logloss:0.221812 validation-logloss:0.306479
[02:43:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[02:44:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 2 pruned nodes, max_depth=8
[1102] train-logloss:0.221686 validation-logloss:0.306434
[02:44:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[02:44:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[1104] train-logloss:0.221522 validation-logloss:0.306399
[02:44:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 308 extra nodes, 0 pruned nodes, max_depth=8
[02:44:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[1106] train-logloss:0.221305 validation-logloss:0.306356
[02:44:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[02:44:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[1108] train-logloss:0.221202 validation-logloss:0.306337
[02:44:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[02:44:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[1110] train-logloss:0.221048 validation-logloss:0.306301
[02:44:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[02:44:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 0 pruned nodes, max_depth=8
[1112] train-logloss:0.220856 validation-logloss:0.306263
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[02:44:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[02:45:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[1114] train-logloss:0.220697 validation-logloss:0.306241
[02:45:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 2 pruned nodes, max_depth=8
[02:45:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[1116] train-logloss:0.220524 validation-logloss:0.306212
[02:45:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max_depth=8
[02:45:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 372 extra nodes, 0 pruned nodes, max_depth=8
[1118] train-logloss:0.220318 validation-logloss:0.306168
[02:45:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 0 pruned nodes, max_depth=8
[02:45:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[1120] train-logloss:0.220202 validation-logloss:0.306138
[02:45:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 2 pruned nodes, max_depth=8
[02:45:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[1122] train-logloss:0.219999 validation-logloss:0.306095
[02:45:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[02:45:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[1124] train-logloss:0.21987 validation-logloss:0.306073
[02:46:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 0 pruned nodes, max_depth=8
[02:46:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[1126] train-logloss:0.219711 validation-logloss:0.306028
[02:46:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[02:46:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[1128] train-logloss:0.219591 validation-logloss:0.305998
[02:46:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[02:46:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max_depth=8
[1130] train-logloss:0.219458 validation-logloss:0.30597
[02:46:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 0 pruned nodes, max_depth=8
[02:46:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max_depth=8
[1132] train-logloss:0.219309 validation-logloss:0.30595
[02:46:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[02:46:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[1134] train-logloss:0.219177 validation-logloss:0.30593
[02:46:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[02:46:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 2 pruned nodes, max_depth=8
[1136] train-logloss:0.219057 validation-logloss:0.305903
[02:47:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 400 extra nodes, 0 pruned nodes, max_depth=8
[02:47:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[1138] train-logloss:0.218807 validation-logloss:0.305875
[02:47:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[02:47:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 0 pruned nodes, max_depth=8
[1140] train-logloss:0.218703 validation-logloss:0.305857
[02:47:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[02:47:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 0 pruned nodes, max_depth=8
[1142] train-logloss:0.218539 validation-logloss:0.305832
[02:47:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[02:47:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 0 pruned nodes, max_depth=8
[1144] train-logloss:0.218358 validation-logloss:0.30581
[02:47:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 0 pruned nodes, max_depth=8
[02:47:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max\_depth=8  
[1146] train-logloss:0.218173 validation-logloss:0.30578  
[02:47:57] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:02] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max\_depth=8  
[1148] train-logloss:0.218018 validation-logloss:0.305755  
[02:48:08] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:13] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max\_depth=8  
[1150] train-logloss:0.217894 validation-logloss:0.305724  
[02:48:18] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:23] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max\_depth=8  
[1152] train-logloss:0.217702 validation-logloss:0.305669  
[02:48:29] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:34] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 2 pruned nodes, max\_depth=8  
[1154] train-logloss:0.217569 validation-logloss:0.30565  
[02:48:39] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:45] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max\_depth=8  
[1156] train-logloss:0.217418 validation-logloss:0.305615  
[02:48:50] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 0 pruned nodes, max\_depth=8  
[02:48:55] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 0 pruned nodes, max\_depth=8  
[1158] train-logloss:0.217235 validation-logloss:0.305576  
[02:49:00] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:06] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max\_depth=8  
[1160] train-logloss:0.217098 validation-logloss:0.305552  
[02:49:11] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:16] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 0 pruned nodes, max\_depth=8  
[1162] train-logloss:0.21689 validation-logloss:0.305502  
[02:49:21] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:26] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 0 pruned nodes, max\_depth=8  
[1164] train-logloss:0.216754 validation-logloss:0.305477  
[02:49:32] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:37] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 0 pruned nodes, max\_depth=8  
[1166] train-logloss:0.216553 validation-logloss:0.305435  
[02:49:42] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:47] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max\_depth=8  
[1168] train-logloss:0.216479 validation-logloss:0.305418  
[02:49:53] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 0 pruned nodes, max\_depth=8  
[02:49:57] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max\_depth=8  
[1170] train-logloss:0.216384 validation-logloss:0.305394  
[02:50:03] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max\_depth=8  
[02:50:08] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max\_depth=8  
[1172] train-logloss:0.216259 validation-logloss:0.305369  
[02:50:13] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 244 extra nodes, 0 pruned nodes, max\_depth=8  
[02:50:18] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 0 pruned nodes, max\_depth=8  
[1174] train-logloss:0.216118 validation-logloss:0.305343  
[02:50:24] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max\_depth=8  
[02:50:29] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 270 extra nodes, 0 pruned nodes, max\_depth=8  
[1176] train-logloss:0.215926 validation-logloss:0.305317  
[02:50:34] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 292 extra nodes, 0 pruned nodes, max\_depth=8  
[02:50:39] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 2 pruned nodes, max\_depth=8  
[1178] train-logloss:0.215765 validation-logloss:0.305302  
[02:50:44] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 2 pruned nodes, max\_depth=8

```

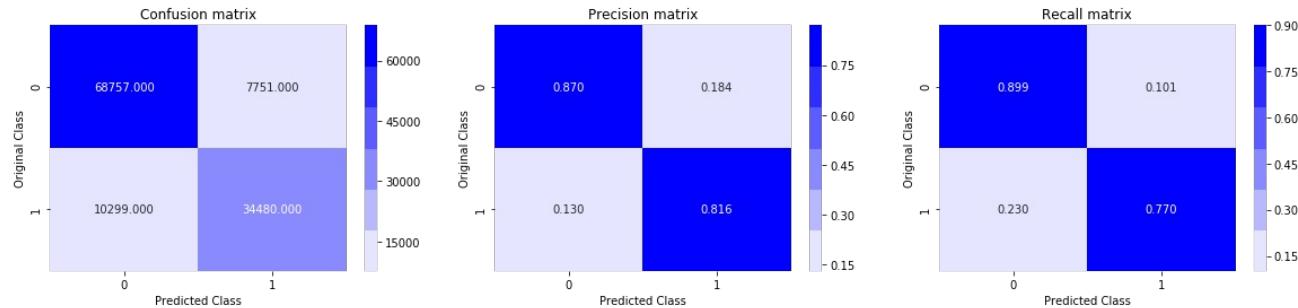
uned nodes, max_depth=8
[02:50:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[1180] train-logloss:0.215685 validation-logloss:0.305296
[02:50:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 190 extra nodes, 0 pruned nodes, max_depth=8
[02:50:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 0 pruned nodes, max_depth=8
[1182] train-logloss:0.215567 validation-logloss:0.305268
[02:51:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 416 extra nodes, 0 pruned nodes, max_depth=8
[02:51:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 216 extra nodes, 0 pruned nodes, max_depth=8
[1184] train-logloss:0.215359 validation-logloss:0.305237
[02:51:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[02:51:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 0 pruned nodes, max_depth=8
[1186] train-logloss:0.215178 validation-logloss:0.305204
[02:51:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 0 pruned nodes, max_depth=8
[02:51:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[1188] train-logloss:0.215011 validation-logloss:0.30518
[02:51:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[02:51:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 0 pruned nodes, max_depth=8
[1190] train-logloss:0.214896 validation-logloss:0.305153
[02:51:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 0 pruned nodes, max_depth=8
[02:51:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[1192] train-logloss:0.214698 validation-logloss:0.305117
[02:51:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[02:52:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[1194] train-logloss:0.214554 validation-logloss:0.305088
[02:52:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 272 extra nodes, 0 pruned nodes, max_depth=8
[02:52:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
[1196] train-logloss:0.214386 validation-logloss:0.305058
[02:52:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 354 extra nodes, 0 pruned nodes, max_depth=8
[02:52:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 2 pruned nodes, max_depth=8
[1198] train-logloss:0.214206 validation-logloss:0.305025
[02:52:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[1199] train-logloss:0.214168 validation-logloss:0.305022

```

The train log loss is: 0.2141675616008727

The test log loss is: 0.3050223329163729

Total number of validation data points : 121287



Time taken: 1 hours 49 minutes and 58.73 seconds.

## 5.2 Logistic Regression - Using TF\*IDF representations

In [2]:

```
#Load the TFIDF sparse matrices.
import pickle
with open('X_train_TFIDF.pkl', 'rb') as file:
    X_train = pickle.load(file)

with open('X_test_TFIDF.pkl', 'rb') as file:
    X_test = pickle.load(file)

with open('y_train_TFIDF.pkl', 'rb') as file:
    y_train = pickle.load(file)

with open('y_test_TFIDF.pkl', 'rb') as file:
    y_test = pickle.load(file)

print("Dimensions of train and test data:")
print("X_train:", X_train.shape, "y_train :", y_train.shape)
print("X_test:", X_test.shape, "y_test : ", y_test.shape)
```

Dimensions of train and test data:

```
X_train: (283003, 147146) y_train : (283003, 1)
X_test: (121287, 147146) y_test : (121287, 1)
```

In [7]:

```
C_vals = np.logspace(-5,5,20) # hyperparam for LR classifier.

st=dt.now()
log_error_array=[]
for i in C_vals:
    clf = LogisticRegression(penalty='l2', C=i, multi_class='ovr', solver='lbfgs', random_state=0, n_jobs=-1) #Time taken by 'libgbs' is about two minutes. For other's it's roughly about one hour.
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of C = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
)

print("Time taken to perform Hyperparameter tuning: ",dt.now()-st)

fig, ax = plt.subplots()
ax.plot(C_vals, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((C_vals[i],np.round(txt,3)), (C_vals[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("C values")
plt.ylabel("Error measure")
plt.show()

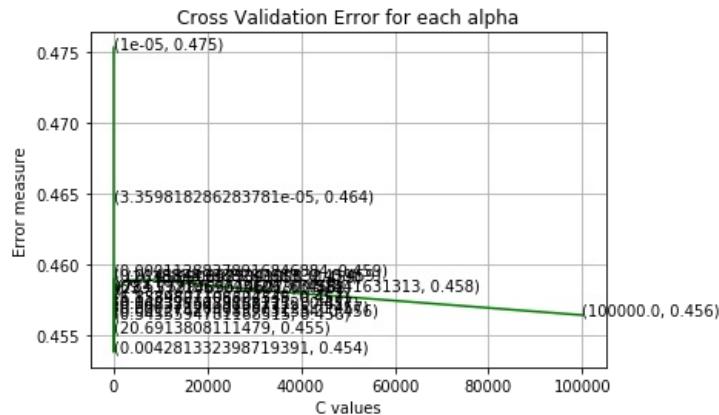
#Train the model with the best value of Hyperparameter.
best_C = np.argmin(log_error_array)
clf = LogisticRegression(penalty='l2', multi_class='ovr', solver='lbfgs', random_state=0, n_jobs=-1) #Time taken by 'libgbs' is about two minutes. For other's it's roughly about one hour.
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best C = ', C_vals[best_C], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best C = ', C_vals[best_C], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y = np.argmax(predict_y, axis=1)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of C = 1e-05 The log loss is: 0.47528403382160284
For values of C = 3.359818286283781e-05 The log loss is: 0.4644363494339062
For values of C = 0.00011288378916846884 The log loss is: 0.45931194417210164
For values of C = 0.000379269019073225 The log loss is: 0.456615472088504
For values of C = 0.0012742749857031334 The log loss is: 0.45649148888554986
For values of C = 0.004281332398719391 The log loss is: 0.4538116062128731
For values of C = 0.01438449888287663 The log loss is: 0.45892678391137126
For values of C = 0.04832930238571752 The log loss is: 0.4570264193148789
For values of C = 0.1623776739188721 The log loss is: 0.4569916226796212
For values of C = 0.5455594781168515 The log loss is: 0.45618122344254236
For values of C = 1.8329807108324339 The log loss is: 0.4574346870498099
For values of C = 6.1584821106602545 The log loss is: 0.4574377184537728
For values of C = 20.6913808111479 The log loss is: 0.45522199536188085
For values of C = 69.51927961775606 The log loss is: 0.45820248133533686
For values of C = 233.57214690901213 The log loss is: 0.45810412391518923
For values of C = 784.7599703514607 The log loss is: 0.4582166907620846
For values of C = 2636.6508987303555 The log loss is: 0.4588611288010935
For values of C = 8858.667904100832 The log loss is: 0.45890048927350463
For values of C = 29763.51441631313 The log loss is: 0.4582001061774342
For values of C = 100000.0 The log loss is: 0.4564129835238805
Time taken to perform Hyperparameter tuning: 0:17:03.145760

```

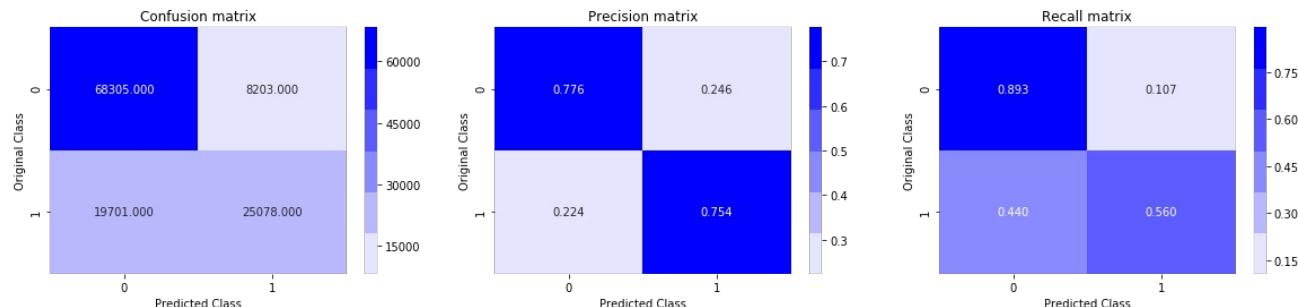


```

For values of best C = 0.004281332398719391 The train log loss is: 0.45633899698512154
For values of best C = 0.004281332398719391 The test log loss is: 0.4575878242313523

```

Total number of validation data points : 121287



### 5.3 Logistic Regression with SGDClassifier with 'l1' penalty + Hyperparameter tuning - Using TF\*IDF representations

In [8]:

```
alpha = np.logspace(-5,2,20) # hyperparam for SGD classifier.

st=dt.now()
log_error_array=[]
for i in alpha:
    clf = SGDClassifier(alpha=i, penalty='l1', loss='log', random_state=42, n_jobs=-1)
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of alpha = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))

print("Time taken to perform Hyperparameter tuning: ",dt.now()-st)

fig, ax = plt.subplots()
ax.plot(alpha, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((alpha[i],np.round(txt,3)), (alpha[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("Alpha i's")
plt.ylabel("Error measure")
plt.show()

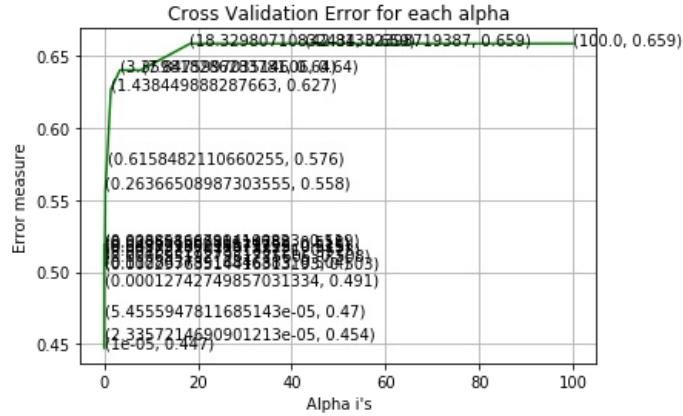
#Train the model with the best value of Hyperparameter.
best_alpha = np.argmin(log_error_array)
clf = SGDClassifier(alpha=alpha[best_alpha], penalty='l1', loss='log', random_state=42, n_jobs=-1)
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best alpha = ', alpha[best_alpha], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best alpha = ', alpha[best_alpha], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y = np.argmax(predict_y,axis=1)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of alpha = 1e-05 The log loss is: 0.4472563936768041
For values of alpha = 2.3357214690901213e-05 The log loss is: 0.4540199150700537
For values of alpha = 5.4555947811685143e-05 The log loss is: 0.46982209323704993
For values of alpha = 0.00012742749857031334 The log loss is: 0.49121241464130233
For values of alpha = 0.00029763514416313193 The log loss is: 0.5034242656262481
For values of alpha = 0.0006951927961775605 The log loss is: 0.5079872451813526
For values of alpha = 0.001623776739188721 The log loss is: 0.5125149594032578
For values of alpha = 0.00379269019073225 The log loss is: 0.5151456905730273
For values of alpha = 0.008858667904100823 The log loss is: 0.5187190576830818
For values of alpha = 0.02069138081114788 The log loss is: 0.5184687789598725
For values of alpha = 0.04832930238571752 The log loss is: 0.5154287333431915
For values of alpha = 0.11288378916846883 The log loss is: 0.5042136955853856
For values of alpha = 0.26366508987303555 The log loss is: 0.5582419784787872
For values of alpha = 0.6158482110660255 The log loss is: 0.5762756988245391
For values of alpha = 1.438449888287663 The log loss is: 0.6266895471828056
For values of alpha = 3.359818286283781 The log loss is: 0.6401385863925173
For values of alpha = 7.847599703514606 The log loss is: 0.6401385864195007
For values of alpha = 18.32980710832434 The log loss is: 0.6585278256322462
For values of alpha = 42.81332398719387 The log loss is: 0.6585278256322722
For values of alpha = 100.0 The log loss is: 0.6585278256322554
Time taken to perform Hyperparameter tuning: 0:02:35.954674

```

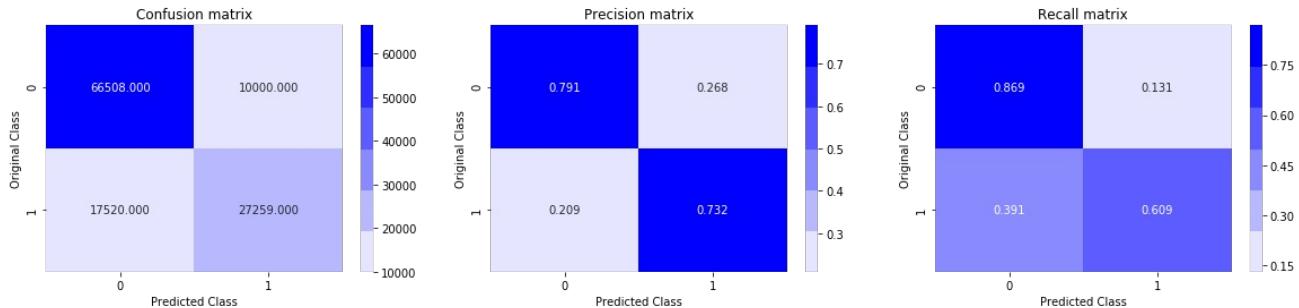


```

For values of best alpha = 1e-05 The train log loss is: 0.4467274605019805
For values of best alpha = 1e-05 The test log loss is: 0.4472563936768041

```

Total number of validation data points : 121287



## 5.4 Logistic Regression with SGDClassifier with 'l2' penalty + Hyperparameter tuning - TFIDF Model

In [9]:

```
alpha = np.logspace(-5,2,20) # hyperparam for SGD classifier.

st=dt.now()
log_error_array=[]
for i in alpha:
    clf = SGDClassifier(alpha=i, penalty='l2', loss='log', random_state=42, n_jobs=-1)
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of alpha = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))

print("Time taken to perform Hyperparameter tuning: ",dt.now()-st)

fig, ax = plt.subplots()
ax.plot(alpha, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((alpha[i],np.round(txt,3)), (alpha[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("Alpha i's")
plt.ylabel("Error measure")
plt.show()

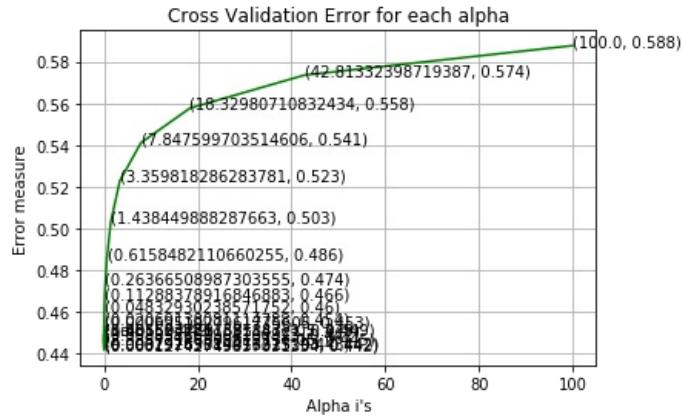
#Train the model with the best value of Hyperparameter.
best_alpha = np.argmin(log_error_array)
clf = SGDClassifier(alpha=alpha[best_alpha], penalty='l2', loss='log', random_state=42, n_jobs=-1)
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best alpha = ', alpha[best_alpha], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best alpha = ', alpha[best_alpha], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y = np.argmax(predict_y,axis=1)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of alpha = 1e-05 The log loss is: 0.4491094225030333
For values of alpha = 2.3357214690901213e-05 The log loss is: 0.44478545447717116
For values of alpha = 5.4555947811685143e-05 The log loss is: 0.44904211826785223
For values of alpha = 0.00012742749857031334 The log loss is: 0.44160521688522875
For values of alpha = 0.00029763514416313193 The log loss is: 0.442342712602639
For values of alpha = 0.0006951927961775605 The log loss is: 0.45313415877648444
For values of alpha = 0.001623776739188721 The log loss is: 0.44899765132927977
For values of alpha = 0.00379269019073225 The log loss is: 0.4428405571050513
For values of alpha = 0.008858667904100823 The log loss is: 0.4468233764433642
For values of alpha = 0.02069138081114788 The log loss is: 0.4542724871352879
For values of alpha = 0.04832930238571752 The log loss is: 0.4602968597862595
For values of alpha = 0.11288378916846883 The log loss is: 0.46583986852154025
For values of alpha = 0.26366508987303555 The log loss is: 0.47357156474654966
For values of alpha = 0.6158482110660255 The log loss is: 0.4857452635241397
For values of alpha = 1.438449888287663 The log loss is: 0.5030830037309035
For values of alpha = 3.359818286283781 The log loss is: 0.5227546352560705
For values of alpha = 7.847599703514606 The log loss is: 0.5409810100615793
For values of alpha = 18.32980710832434 The log loss is: 0.5576591393271704
For values of alpha = 42.81332398719387 The log loss is: 0.5735500008315688
For values of alpha = 100.0 The log loss is: 0.5876745527402667
Time taken to perform Hyperparameter tuning: 0:01:57.173749

```

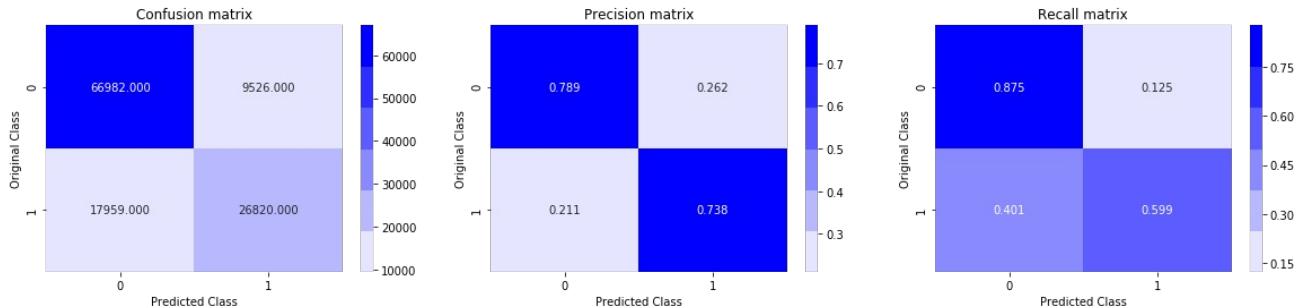


```

For values of best alpha = 0.00012742749857031334 The train log loss is: 0.44052774756664115
For values of best alpha = 0.00012742749857031334 The test log loss is: 0.44160521688522875

```

Total number of validation data points : 121287



## 5.5 Linear SVM with SGDClassifier + Hyperparameter tuning - TFIDF Model

In [10]:

```
alpha = np.logspace(-5,2,20) # hyperparam for SGD classifier.

st=dt.now()
log_error_array=[]
for i in alpha:
    clf = SGDClassifier(alpha=i, penalty='l1', loss='hinge', random_state=42, n_jobs=-1)
    clf.fit(X_train, y_train)
    sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
    sig_clf.fit(X_train, y_train)
    predict_y = sig_clf.predict_proba(X_test)
    log_error_array.append(log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
    print('For values of alpha = ', i, "The log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))

print("Time taken to perform Hyperparameter tuning: ",dt.now()-st)

fig, ax = plt.subplots()
ax.plot(alpha, log_error_array,c='g')
for i, txt in enumerate(np.round(log_error_array,3)):
    ax.annotate((alpha[i],np.round(txt,3)), (alpha[i],log_error_array[i]))
plt.grid()
plt.title("Cross Validation Error for each alpha")
plt.xlabel("Alpha i's")
plt.ylabel("Error measure")
plt.show()

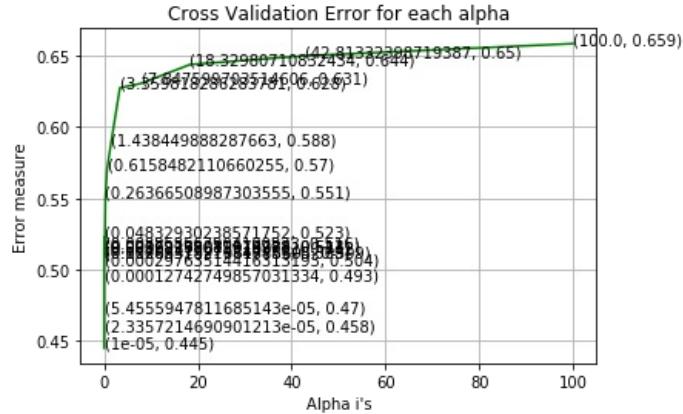
#Train the model with the best value of Hyperparameter.
best_alpha = np.argmin(log_error_array)
clf = SGDClassifier(alpha=alpha[best_alpha], penalty='l1', loss='hinge', random_state=42, n_jobs=-1)
clf.fit(X_train, y_train)
sig_clf = CalibratedClassifierCV(clf, method="sigmoid")
sig_clf.fit(X_train, y_train)

predict_y = sig_clf.predict_proba(X_train)
print('For values of best alpha = ', alpha[best_alpha], "The train log loss is:",log_loss(y_train, predict_y, labels=clf.classes_, eps=1e-15))
predict_y = sig_clf.predict_proba(X_test)
print('For values of best alpha = ', alpha[best_alpha], "The test log loss is:",log_loss(y_test, predict_y, labels=clf.classes_, eps=1e-15))
predicted_y = np.argmax(predict_y,axis=1)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
```

```

For values of alpha = 1e-05 The log loss is: 0.4452036947557074
For values of alpha = 2.3357214690901213e-05 The log loss is: 0.45769286594278324
For values of alpha = 5.4555947811685143e-05 The log loss is: 0.4698467995052274
For values of alpha = 0.00012742749857031334 The log loss is: 0.49282169088990857
For values of alpha = 0.00029763514416313193 The log loss is: 0.5036116028254444
For values of alpha = 0.0006951927961775605 The log loss is: 0.5086210807287471
For values of alpha = 0.001623776739188721 The log loss is: 0.5123922234669638
For values of alpha = 0.00379269019073225 The log loss is: 0.5138938157099444
For values of alpha = 0.008858667904100823 The log loss is: 0.5159681124981125
For values of alpha = 0.02069138081114788 The log loss is: 0.5134916335972257
For values of alpha = 0.04832930238571752 The log loss is: 0.5228351373414909
For values of alpha = 0.11288378916846883 The log loss is: 0.5087319087144415
For values of alpha = 0.26366508987303555 The log loss is: 0.550752223163785
For values of alpha = 0.6158482110660255 The log loss is: 0.5701330041495757
For values of alpha = 1.438449888287663 The log loss is: 0.588167860581596
For values of alpha = 3.359818286283781 The log loss is: 0.6275405397900342
For values of alpha = 7.847599703514606 The log loss is: 0.6306000836773942
For values of alpha = 18.32980710832434 The log loss is: 0.6438845562875387
For values of alpha = 42.81332398719387 The log loss is: 0.6499782042458937
For values of alpha = 100.0 The log loss is: 0.6585278256322648
Time taken to perform Hyperparameter tuning: 0:02:15.842383

```

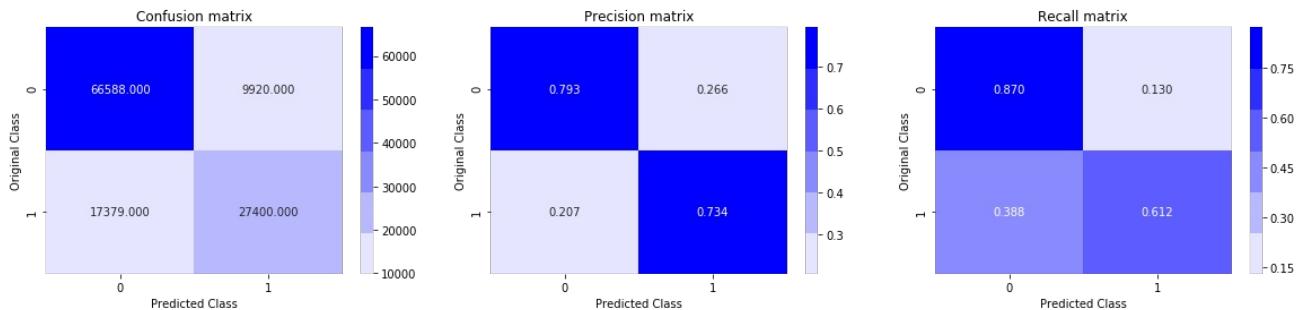


```

For values of best alpha = 1e-05 The train log loss is: 0.4448767889294988
For values of best alpha = 1e-05 The test log loss is: 0.4452036947557074

```

Total number of validation data points : 121287



## 5.6 XGBoost Classifier - Using the TFIDF Scores.

In [6]:

```
#Here we are building an Xgboost model based on the hyperparameters we had obtained from the random search in the
previous section above. Note that due to the computational constraints, I have not done grid search
#seperately on TFIDF data. Let's just use the parameters obtained in section 4.5 as an estimation.
#
#Training the model with the best params obtained using hyperparameter tuning
import xgboost as xgb
params = {}
params['objective'] = 'binary:logistic'
params['eval_metric'] = 'logloss'
params['eta'] = 0.02
params['max_depth'] = 8
params['subsample'] = 0.6
params['n_estimators'] = 150
params['min_child_weight'] = 8
params['gamma'] = 0.25
params['colsample_bytree'] = 0.7

start_time = timer(None) # timing starts from this point for "start_time" variable
d_train = xgb.DMatrix(X_train, label=y_train)
d_test = xgb.DMatrix(X_test, label=y_test)

watchlist = [(d_train, 'train'), (d_test, 'validation')]
bst = xgb.train(params, d_train, 3000, watchlist, early_stopping_rounds=20, verbose_eval=2)

xgdmat = xgb.DMatrix(X_train,y_train)
predict_y = bst.predict(d_test)
print("\nThe test log loss is:",log_loss(y_test, predict_y, labels=[0, 1], eps=1e-15))

predicted_y =np.array(predict_y>0.5,dtype=int)
print("\nTotal number of validation data points :", len(predicted_y))
plot_confusion_matrix(y_test, predicted_y)
timer(start_time)
```

```
[10:35:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[0]      train-logloss:0.683177 validation-logloss:0.683219
Multiple eval metrics have been passed: 'validation-logloss' will be used for early stopping.
```

```
Will train until validation-logloss hasn't improved in 20 rounds.
[10:35:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 358 extra nodes, 0 pruned nodes, max_depth=8
[10:35:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 2 pruned nodes, max_depth=8
[2]      train-logloss:0.664298 validation-logloss:0.664435
[10:35:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 2 pruned nodes, max_depth=8
[10:36:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 4 pruned nodes, max_depth=8
[4]      train-logloss:0.649231 validation-logloss:0.649423
[10:36:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 346 extra nodes, 2 pruned nodes, max_depth=8
[10:36:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 4 pruned nodes, max_depth=8
[6]      train-logloss:0.632876 validation-logloss:0.633178
[10:36:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 0 pruned nodes, max_depth=8
[10:36:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 6 pruned nodes, max_depth=8
[8]      train-logloss:0.618079 validation-logloss:0.618483
[10:36:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 6 pruned nodes, max_depth=8
[10:36:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 364 extra nodes, 6 pruned nodes, max_depth=8
[10]     train-logloss:0.604044 validation-logloss:0.604572
[10:36:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 2 pruned nodes, max_depth=8
[10:36:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 2 pruned nodes, max_depth=8
[12]     train-logloss:0.590651 validation-logloss:0.591326
[10:36:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 2 pruned nodes, max_depth=8
[10:36:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 2 pruned nodes, max_depth=8
[14]     train-logloss:0.578841 validation-logloss:0.579612
[10:36:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 6 pruned nodes, max_depth=8
[10:36:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 328 extra nodes, 2 pruned nodes, max_depth=8
[16]     train-logloss:0.567152 validation-logloss:0.568025
```

```
[10:36:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 356 extra nodes, 6 pruned nodes, max_depth=8
[10:36:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 2 pruned nodes, max_depth=8
[18]   train-logloss:0.556087 validation-logloss:0.55707
[10:36:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 360 extra nodes, 4 pruned nodes, max_depth=8
[10:36:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[20]   train-logloss:0.545515 validation-logloss:0.546596
[10:36:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[10:36:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 2 pruned nodes, max_depth=8
[22]   train-logloss:0.536328 validation-logloss:0.537508
[10:36:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 0 pruned nodes, max_depth=8
[10:36:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 0 pruned nodes, max_depth=8
[24]   train-logloss:0.527223 validation-logloss:0.528517
[10:36:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 0 pruned nodes, max_depth=8
[10:36:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 370 extra nodes, 6 pruned nodes, max_depth=8
[26]   train-logloss:0.519443 validation-logloss:0.520818
[10:36:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 2 pruned nodes, max_depth=8
[10:36:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 2 pruned nodes, max_depth=8
[28]   train-logloss:0.511184 validation-logloss:0.512655
[10:36:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 0 pruned nodes, max_depth=8
[10:36:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 352 extra nodes, 4 pruned nodes, max_depth=8
[30]   train-logloss:0.503232 validation-logloss:0.504804
[10:36:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 336 extra nodes, 6 pruned nodes, max_depth=8
[10:36:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 2 pruned nodes, max_depth=8
[32]   train-logloss:0.495806 validation-logloss:0.497465
[10:36:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 2 pruned nodes, max_depth=8
[10:36:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 344 extra nodes, 2 pruned nodes, max_depth=8
[34]   train-logloss:0.488825 validation-logloss:0.490582
[10:36:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 10 pruned nodes, max_depth=8
[10:36:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 388 extra nodes, 0 pruned nodes, max_depth=8
[36]   train-logloss:0.481875 validation-logloss:0.483723
[10:36:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 2 pruned nodes, max_depth=8
[10:36:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 4 pruned nodes, max_depth=8
[38]   train-logloss:0.475773 validation-logloss:0.477719
[10:36:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 368 extra nodes, 8 pruned nodes, max_depth=8
[10:36:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 2 pruned nodes, max_depth=8
[40]   train-logloss:0.469919 validation-logloss:0.471972
[10:36:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 8 pruned nodes, max_depth=8
[10:36:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 310 extra nodes, 0 pruned nodes, max_depth=8
[42]   train-logloss:0.464634 validation-logloss:0.466782
[10:36:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 4 pruned nodes, max_depth=8
[10:36:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 334 extra nodes, 0 pruned nodes, max_depth=8
[44]   train-logloss:0.459036 validation-logloss:0.46129
[10:36:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 2 pruned nodes, max_depth=8
[10:36:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 0 pruned nodes, max_depth=8
[46]   train-logloss:0.453926 validation-logloss:0.456265
[10:36:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 362 extra nodes, 0 pruned nodes, max_depth=8
[10:36:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 10 pruned nodes, max_depth=8
[48]   train-logloss:0.448975 validation-logloss:0.451422
[10:36:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[10:36:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 2 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[50]    train-logloss:0.444379 validation-logloss:0.446914
[10:37:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 2 pruned nodes, max_depth=8
[10:37:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 324 extra nodes, 4 pruned nodes, max_depth=8
[52]    train-logloss:0.439926 validation-logloss:0.442557
[10:37:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 4 pruned nodes, max_depth=8
[10:37:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 0 pruned nodes, max_depth=8
[54]    train-logloss:0.435485 validation-logloss:0.438212
[10:37:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 8 pruned nodes, max_depth=8
[10:37:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 4 pruned nodes, max_depth=8
[56]    train-logloss:0.431346 validation-logloss:0.434175
[10:37:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[10:37:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 6 pruned nodes, max_depth=8
[58]    train-logloss:0.427632 validation-logloss:0.430541
[10:37:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 344 extra nodes, 0 pruned nodes, max_depth=8
[10:37:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 4 pruned nodes, max_depth=8
[60]    train-logloss:0.424091 validation-logloss:0.427088
[10:37:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 2 pruned nodes, max_depth=8
[10:37:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 4 pruned nodes, max_depth=8
[62]    train-logloss:0.420392 validation-logloss:0.423491
[10:37:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 318 extra nodes, 4 pruned nodes, max_depth=8
[10:37:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 338 extra nodes, 4 pruned nodes, max_depth=8
[64]    train-logloss:0.416826 validation-logloss:0.420017
[10:37:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 320 extra nodes, 4 pruned nodes, max_depth=8
[10:37:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 350 extra nodes, 8 pruned nodes, max_depth=8
[66]    train-logloss:0.413472 validation-logloss:0.416763
[10:37:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 340 extra nodes, 0 pruned nodes, max_depth=8
[10:37:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 304 extra nodes, 6 pruned nodes, max_depth=8
[68]    train-logloss:0.410279 validation-logloss:0.413651
[10:37:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 348 extra nodes, 4 pruned nodes, max_depth=8
[10:37:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 342 extra nodes, 2 pruned nodes, max_depth=8
[70]    train-logloss:0.407163 validation-logloss:0.41063
[10:37:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 322 extra nodes, 2 pruned nodes, max_depth=8
[10:37:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 332 extra nodes, 4 pruned nodes, max_depth=8
[72]    train-logloss:0.404386 validation-logloss:0.407915
[10:37:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 8 pruned nodes, max_depth=8
[10:37:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 366 extra nodes, 4 pruned nodes, max_depth=8
[74]    train-logloss:0.401649 validation-logloss:0.405251
[10:37:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 300 extra nodes, 8 pruned nodes, max_depth=8
[10:37:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 0 pruned nodes, max_depth=8
[76]    train-logloss:0.399097 validation-logloss:0.402772
[10:37:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 8 pruned nodes, max_depth=8
[10:37:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 284 extra nodes, 4 pruned nodes, max_depth=8
[78]    train-logloss:0.396428 validation-logloss:0.400199
[10:37:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 306 extra nodes, 2 pruned nodes, max_depth=8
[10:37:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 252 extra nodes, 2 pruned nodes, max_depth=8
[80]    train-logloss:0.394205 validation-logloss:0.398034
[10:37:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 330 extra nodes, 4 pruned nodes, max_depth=8
[10:37:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 6 pruned nodes, max_depth=8
[82]    train-logloss:0.391788 validation-logloss:0.395716
[10:37:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 2 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[10:37:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 0 pruned nodes, max_depth=8
[84]   train-logloss:0.389535 validation-logloss:0.393549
[10:37:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 2 pruned nodes, max_depth=8
[10:37:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[86]   train-logloss:0.387349 validation-logloss:0.391437
[10:37:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 316 extra nodes, 0 pruned nodes, max_depth=8
[10:37:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 312 extra nodes, 6 pruned nodes, max_depth=8
[88]   train-logloss:0.385105 validation-logloss:0.389295
[10:37:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 6 pruned nodes, max_depth=8
[10:37:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 296 extra nodes, 2 pruned nodes, max_depth=8
[90]   train-logloss:0.383076 validation-logloss:0.387344
[10:37:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 0 pruned nodes, max_depth=8
[10:37:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 2 pruned nodes, max_depth=8
[92]   train-logloss:0.381181 validation-logloss:0.385548
[10:37:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 6 pruned nodes, max_depth=8
[10:37:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 280 extra nodes, 4 pruned nodes, max_depth=8
[94]   train-logloss:0.37934 validation-logloss:0.38379
[10:37:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 2 pruned nodes, max_depth=8
[10:37:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 2 pruned nodes, max_depth=8
[96]   train-logloss:0.377573 validation-logloss:0.382087
[10:37:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 8 pruned nodes, max_depth=8
[10:38:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 294 extra nodes, 2 pruned nodes, max_depth=8
[98]   train-logloss:0.375816 validation-logloss:0.380405
[10:38:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 4 pruned nodes, max_depth=8
[10:38:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 262 extra nodes, 4 pruned nodes, max_depth=8
[100]  train-logloss:0.374182 validation-logloss:0.37885
[10:38:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 4 pruned nodes, max_depth=8
[10:38:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 12 pruned nodes, max_depth=8
[102]  train-logloss:0.372692 validation-logloss:0.37742
[10:38:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 2 pruned nodes, max_depth=8
[10:38:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 0 pruned nodes, max_depth=8
[104]  train-logloss:0.371107 validation-logloss:0.375918
[10:38:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 4 pruned nodes, max_depth=8
[10:38:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 6 pruned nodes, max_depth=8
[106]  train-logloss:0.369753 validation-logloss:0.374628
[10:38:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[10:38:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 264 extra nodes, 0 pruned nodes, max_depth=8
[108]  train-logloss:0.36828 validation-logloss:0.373239
[10:38:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 288 extra nodes, 2 pruned nodes, max_depth=8
[10:38:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 268 extra nodes, 6 pruned nodes, max_depth=8
[110]  train-logloss:0.366876 validation-logloss:0.371919
[10:38:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 240 extra nodes, 2 pruned nodes, max_depth=8
[10:38:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 8 pruned nodes, max_depth=8
[112]  train-logloss:0.365614 validation-logloss:0.370718
[10:38:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 278 extra nodes, 2 pruned nodes, max_depth=8
[10:38:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 2 pruned nodes, max_depth=8
[114]  train-logloss:0.364289 validation-logloss:0.369473
[10:38:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 298 extra nodes, 6 pruned nodes, max_depth=8
[10:38:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 4 pruned nodes, max_depth=8
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[116]  train-logloss:0.362969 validation-logloss:0.368247
[10:38:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 258 extra nodes, 4 pruned nodes, max_depth=8
[10:38:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 4 pruned nodes, max_depth=8
[118]  train-logloss:0.361816 validation-logloss:0.367154
[10:38:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[10:38:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 220 extra nodes, 2 pruned nodes, max_depth=8
[120]  train-logloss:0.360691 validation-logloss:0.366104
[10:38:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 234 extra nodes, 4 pruned nodes, max_depth=8
[10:38:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 2 pruned nodes, max_depth=8
[122]  train-logloss:0.359504 validation-logloss:0.365003
[10:38:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 290 extra nodes, 4 pruned nodes, max_depth=8
[10:38:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 0 pruned nodes, max_depth=8
[124]  train-logloss:0.358391 validation-logloss:0.363966
[10:38:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 266 extra nodes, 10 pruned nodes, max_depth=8
[10:38:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 0 pruned nodes, max_depth=8
[126]  train-logloss:0.357228 validation-logloss:0.362898
[10:38:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 2 pruned nodes, max_depth=8
[10:38:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 272 extra nodes, 2 pruned nodes, max_depth=8
[128]  train-logloss:0.356148 validation-logloss:0.361893
[10:38:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[10:38:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[130]  train-logloss:0.355107 validation-logloss:0.360916
[10:38:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 6 pruned nodes, max_depth=8
[10:38:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 260 extra nodes, 6 pruned nodes, max_depth=8
[132]  train-logloss:0.35416 validation-logloss:0.360052
[10:38:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 212 extra nodes, 2 pruned nodes, max_depth=8
[10:38:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 4 pruned nodes, max_depth=8
[134]  train-logloss:0.353291 validation-logloss:0.359254
[10:38:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 232 extra nodes, 0 pruned nodes, max_depth=8
[10:38:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[136]  train-logloss:0.352355 validation-logloss:0.358392
[10:38:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[10:38:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[138]  train-logloss:0.35161 validation-logloss:0.357694
[10:38:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 238 extra nodes, 4 pruned nodes, max_depth=8
[10:38:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 228 extra nodes, 0 pruned nodes, max_depth=8
[140]  train-logloss:0.350715 validation-logloss:0.356874
[10:38:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 222 extra nodes, 4 pruned nodes, max_depth=8
[10:38:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 250 extra nodes, 4 pruned nodes, max_depth=8
[142]  train-logloss:0.349877 validation-logloss:0.356135
[10:38:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 6 pruned nodes, max_depth=8
[10:39:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 208 extra nodes, 2 pruned nodes, max_depth=8
[144]  train-logloss:0.349171 validation-logloss:0.355488
[10:39:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[10:39:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 4 pruned nodes, max_depth=8
[146]  train-logloss:0.348478 validation-logloss:0.354858
[10:39:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 2 pruned nodes, max_depth=8
[10:39:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 8 pruned nodes, max_depth=8
[148]  train-logloss:0.347827 validation-logloss:0.354253
[10:39:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 246 extra nodes, 4 pruned nodes, max_depth=8
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[10:39:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 2 pruned nodes, max_depth=8
[150] train-logloss:0.347078 validation-logloss:0.35357
[10:39:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 0 pruned nodes, max_depth=8
[10:39:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 184 extra nodes, 4 pruned nodes, max_depth=8
[152] train-logloss:0.346396 validation-logloss:0.352952
[10:39:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 2 pruned nodes, max_depth=8
[10:39:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 214 extra nodes, 2 pruned nodes, max_depth=8
[154] train-logloss:0.345716 validation-logloss:0.352347
[10:39:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 2 pruned nodes, max_depth=8
[10:39:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 206 extra nodes, 2 pruned nodes, max_depth=8
[156] train-logloss:0.345076 validation-logloss:0.351753
[10:39:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 242 extra nodes, 2 pruned nodes, max_depth=8
[10:39:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 4 pruned nodes, max_depth=8
[158] train-logloss:0.344399 validation-logloss:0.351157
[10:39:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 2 pruned nodes, max_depth=8
[10:39:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 182 extra nodes, 4 pruned nodes, max_depth=8
[160] train-logloss:0.343847 validation-logloss:0.350645
[10:39:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 2 pruned nodes, max_depth=8
[10:39:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[162] train-logloss:0.343304 validation-logloss:0.35015
[10:39:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 202 extra nodes, 0 pruned nodes, max_depth=8
[10:39:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[164] train-logloss:0.342787 validation-logloss:0.349665
[10:39:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 2 pruned nodes, max_depth=8
[10:39:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 2 pruned nodes, max_depth=8
[166] train-logloss:0.342225 validation-logloss:0.349162
[10:39:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 4 pruned nodes, max_depth=8
[10:39:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[168] train-logloss:0.341678 validation-logloss:0.348658
[10:39:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 8 pruned nodes, max_depth=8
[10:39:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 218 extra nodes, 8 pruned nodes, max_depth=8
[170] train-logloss:0.341076 validation-logloss:0.348109
[10:39:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 6 pruned nodes, max_depth=8
[10:39:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 4 pruned nodes, max_depth=8
[172] train-logloss:0.340633 validation-logloss:0.347694
[10:39:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 2 pruned nodes, max_depth=8
[10:39:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 2 pruned nodes, max_depth=8
[174] train-logloss:0.340129 validation-logloss:0.347251
[10:39:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 2 pruned nodes, max_depth=8
[10:39:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 132 extra nodes, 0 pruned nodes, max_depth=8
[176] train-logloss:0.339678 validation-logloss:0.346821
[10:39:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 2 pruned nodes, max_depth=8
[10:39:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 6 pruned nodes, max_depth=8
[178] train-logloss:0.339299 validation-logloss:0.346473
[10:39:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[10:39:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[180] train-logloss:0.338926 validation-logloss:0.346148
[10:39:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 6 pruned nodes, max_depth=8
[10:39:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 0 pruned nodes, max_depth=8
[182] train-logloss:0.338521 validation-logloss:0.345786
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[10:39:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 6 pruned nodes, max_depth=8
[10:39:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 4 pruned nodes, max_depth=8
[184] train-logloss:0.338162 validation-logloss:0.345467
[10:39:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 210 extra nodes, 2 pruned nodes, max_depth=8
[10:39:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max_depth=8
[186] train-logloss:0.337733 validation-logloss:0.345093
[10:39:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 4 pruned nodes, max_depth=8
[10:39:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 184 extra nodes, 2 pruned nodes, max_depth=8
[188] train-logloss:0.337371 validation-logloss:0.344776
[10:39:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 2 pruned nodes, max_depth=8
[10:39:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 4 pruned nodes, max_depth=8
[190] train-logloss:0.336979 validation-logloss:0.344419
[10:39:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[10:39:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 2 pruned nodes, max_depth=8
[192] train-logloss:0.336678 validation-logloss:0.344138
[10:39:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 2 pruned nodes, max_depth=8
[10:39:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[194] train-logloss:0.336201 validation-logloss:0.34371
[10:39:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 4 pruned nodes, max_depth=8
[10:40:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[196] train-logloss:0.335944 validation-logloss:0.343479
[10:40:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 4 pruned nodes, max_depth=8
[10:40:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 2 pruned nodes, max_depth=8
[198] train-logloss:0.335587 validation-logloss:0.34316
[10:40:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[10:40:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 2 pruned nodes, max_depth=8
[200] train-logloss:0.335287 validation-logloss:0.342891
[10:40:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 4 pruned nodes, max_depth=8
[10:40:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 2 pruned nodes, max_depth=8
[202] train-logloss:0.33498 validation-logloss:0.342618
[10:40:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[10:40:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 6 pruned nodes, max_depth=8
[204] train-logloss:0.334683 validation-logloss:0.342333
[10:40:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[10:40:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 4 pruned nodes, max_depth=8
[206] train-logloss:0.334326 validation-logloss:0.342013
[10:40:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[10:40:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max_depth=8
[208] train-logloss:0.334005 validation-logloss:0.341732
[10:40:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 6 pruned nodes, max_depth=8
[10:40:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[210] train-logloss:0.333798 validation-logloss:0.341541
[10:40:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[10:40:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max_depth=8
[212] train-logloss:0.333432 validation-logloss:0.341237
[10:40:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[10:40:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[214] train-logloss:0.333131 validation-logloss:0.340965
[10:40:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 188 extra nodes, 0 pruned nodes, max_depth=8
[10:40:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 2 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[216]  train-logloss:0.332649 validation-logloss:0.340555
[10:40:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 2 pruned nodes, max_depth=8
[10:40:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 4 pruned nodes, max_depth=8
[218]  train-logloss:0.332371 validation-logloss:0.34031
[10:40:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:40:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 2 pruned nodes, max_depth=8
[220]  train-logloss:0.332185 validation-logloss:0.340145
[10:40:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 2 pruned nodes, max_depth=8
[10:40:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[222]  train-logloss:0.331959 validation-logloss:0.339936
[10:40:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 2 pruned nodes, max_depth=8
[10:40:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 2 pruned nodes, max_depth=8
[224]  train-logloss:0.331734 validation-logloss:0.339742
[10:40:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 200 extra nodes, 0 pruned nodes, max_depth=8
[10:40:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 2 pruned nodes, max_depth=8
[226]  train-logloss:0.33142 validation-logloss:0.339472
[10:40:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[10:40:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[228]  train-logloss:0.331135 validation-logloss:0.339241
[10:40:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 2 pruned nodes, max_depth=8
[10:40:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[230]  train-logloss:0.330883 validation-logloss:0.33902
[10:40:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 2 pruned nodes, max_depth=8
[10:40:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 2 pruned nodes, max_depth=8
[232]  train-logloss:0.33057 validation-logloss:0.338742
[10:40:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[10:40:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[234]  train-logloss:0.330317 validation-logloss:0.338523
[10:40:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[10:40:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[236]  train-logloss:0.329999 validation-logloss:0.338258
[10:40:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 2 pruned nodes, max_depth=8
[10:40:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[238]  train-logloss:0.329787 validation-logloss:0.338071
[10:40:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[10:40:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[240]  train-logloss:0.329553 validation-logloss:0.337875
[10:40:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[10:40:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 2 pruned nodes, max_depth=8
[242]  train-logloss:0.32934 validation-logloss:0.337683
[10:40:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 2 pruned nodes, max_depth=8
[10:40:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 2 pruned nodes, max_depth=8
[244]  train-logloss:0.329151 validation-logloss:0.337529
[10:40:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[10:40:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 2 pruned nodes, max_depth=8
[246]  train-logloss:0.32888 validation-logloss:0.337274
[10:41:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[10:41:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max_depth=8
[248]  train-logloss:0.328605 validation-logloss:0.337043
[10:41:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[10:41:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[250] train-logloss:0.32843 validation-logloss:0.336901
[10:41:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 2 pruned nodes, max_depth=8
[10:41:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[252] train-logloss:0.328244 validation-logloss:0.336758
[10:41:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:41:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 6 pruned nodes, max_depth=8
[254] train-logloss:0.328092 validation-logloss:0.336632
[10:41:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[10:41:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max_depth=8
[256] train-logloss:0.327951 validation-logloss:0.336521
[10:41:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:41:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 4 pruned nodes, max_depth=8
[258] train-logloss:0.327778 validation-logloss:0.336377
[10:41:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[10:41:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[260] train-logloss:0.327619 validation-logloss:0.336255
[10:41:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[10:41:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[262] train-logloss:0.327463 validation-logloss:0.336125
[10:41:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:41:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[264] train-logloss:0.327296 validation-logloss:0.335976
[10:41:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:41:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 2 pruned nodes, max_depth=8
[266] train-logloss:0.327168 validation-logloss:0.335852
[10:41:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 176 extra nodes, 2 pruned nodes, max_depth=8
[10:41:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 4 pruned nodes, max_depth=8
[268] train-logloss:0.326914 validation-logloss:0.335642
[10:41:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 2 pruned nodes, max_depth=8
[10:41:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max_depth=8
[270] train-logloss:0.326722 validation-logloss:0.335483
[10:41:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 4 pruned nodes, max_depth=8
[10:41:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[272] train-logloss:0.326584 validation-logloss:0.335364
[10:41:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 2 pruned nodes, max_depth=8
[10:41:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 8 pruned nodes, max_depth=8
[274] train-logloss:0.326348 validation-logloss:0.335157
[10:41:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 156 extra nodes, 0 pruned nodes, max_depth=8
[10:41:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 2 pruned nodes, max_depth=8
[276] train-logloss:0.326182 validation-logloss:0.335042
[10:41:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:41:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[278] train-logloss:0.325986 validation-logloss:0.334882
[10:41:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:41:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[280] train-logloss:0.3258 validation-logloss:0.334721
[10:41:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:41:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 274 extra nodes, 0 pruned nodes, max_depth=8
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[282]  train-logloss:0.325514 validation-logloss:0.334482
[10:41:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 2 pruned nodes, max_depth=8
[10:41:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[284]  train-logloss:0.325351 validation-logloss:0.334339
[10:41:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:41:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[286]  train-logloss:0.325125 validation-logloss:0.334163
[10:41:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 4 pruned nodes, max_depth=8
[10:41:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[288]  train-logloss:0.324947 validation-logloss:0.334006
[10:41:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 4 pruned nodes, max_depth=8
[10:41:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 4 pruned nodes, max_depth=8
[290]  train-logloss:0.324795 validation-logloss:0.333886
[10:41:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[10:41:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[292]  train-logloss:0.324604 validation-logloss:0.333734
[10:41:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[10:41:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[294]  train-logloss:0.324463 validation-logloss:0.333613
[10:41:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:41:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[296]  train-logloss:0.324296 validation-logloss:0.333473
[10:42:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[10:42:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 2 pruned nodes, max_depth=8
[298]  train-logloss:0.324096 validation-logloss:0.333313
[10:42:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 2 pruned nodes, max_depth=8
[10:42:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max_depth=8
[300]  train-logloss:0.32395 validation-logloss:0.333191
[10:42:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 174 extra nodes, 0 pruned nodes, max_depth=8
[10:42:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 2 pruned nodes, max_depth=8
[302]  train-logloss:0.323686 validation-logloss:0.332986
[10:42:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[10:42:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[304]  train-logloss:0.323545 validation-logloss:0.332871
[10:42:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 4 pruned nodes, max_depth=8
[10:42:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[306]  train-logloss:0.323372 validation-logloss:0.332737
[10:42:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[10:42:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[308]  train-logloss:0.32315 validation-logloss:0.332555
[10:42:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 4 pruned nodes, max_depth=8
[10:42:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[310]  train-logloss:0.323056 validation-logloss:0.332467
[10:42:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:42:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 2 pruned nodes, max_depth=8
[312]  train-logloss:0.322904 validation-logloss:0.33235
[10:42:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 0 pruned nodes, max_depth=8
[10:42:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 2 pruned nodes, max_depth=8
[314]  train-logloss:0.322681 validation-logloss:0.33216
[10:42:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 2 pruned nodes, max_depth=8
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[10:42:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[316]  train-logloss:0.322565 validation-logloss:0.33207
[10:42:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 2 pruned nodes, max_depth=8
[10:42:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[318]  train-logloss:0.32247 validation-logloss:0.332
[10:42:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 2 pruned nodes, max_depth=8
[10:42:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[320]  train-logloss:0.322336 validation-logloss:0.331893
[10:42:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:42:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 2 pruned nodes, max_depth=8
[322]  train-logloss:0.322208 validation-logloss:0.331781
[10:42:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:42:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 186 extra nodes, 4 pruned nodes, max_depth=8
[324]  train-logloss:0.321969 validation-logloss:0.331584
[10:42:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 2 pruned nodes, max_depth=8
[10:42:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[326]  train-logloss:0.321751 validation-logloss:0.331405
[10:42:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 2 pruned nodes, max_depth=8
[10:42:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[328]  train-logloss:0.321638 validation-logloss:0.33132
[10:42:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:42:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[330]  train-logloss:0.321508 validation-logloss:0.331219
[10:42:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:42:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 0 pruned nodes, max_depth=8
[332]  train-logloss:0.32129 validation-logloss:0.331028
[10:42:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 180 extra nodes, 0 pruned nodes, max_depth=8
[10:42:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[334]  train-logloss:0.32106 validation-logloss:0.330848
[10:42:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 198 extra nodes, 2 pruned nodes, max_depth=8
[10:42:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[336]  train-logloss:0.320869 validation-logloss:0.330715
[10:42:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:42:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[338]  train-logloss:0.320761 validation-logloss:0.330634
[10:42:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 4 pruned nodes, max_depth=8
[10:42:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 2 pruned nodes, max_depth=8
[340]  train-logloss:0.320629 validation-logloss:0.330536
[10:42:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 2 pruned nodes, max_depth=8
[10:42:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[342]  train-logloss:0.320534 validation-logloss:0.330454
[10:42:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:43:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 4 pruned nodes, max_depth=8
[344]  train-logloss:0.32037 validation-logloss:0.330321
[10:43:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 4 pruned nodes, max_depth=8
[10:43:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[346]  train-logloss:0.320218 validation-logloss:0.330199
[10:43:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:43:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 2 pruned nodes, max_depth=8
[348]  train-logloss:0.320097 validation-logloss:0.330114
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[10:43:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:43:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 4 pruned nodes, max_depth=8
[350] train-logloss:0.320017 validation-logloss:0.330044
[10:43:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:43:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[352] train-logloss:0.319815 validation-logloss:0.329861
[10:43:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max_depth=8
[10:43:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[354] train-logloss:0.319705 validation-logloss:0.329783
[10:43:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[10:43:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[356] train-logloss:0.319528 validation-logloss:0.329642
[10:43:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 2 pruned nodes, max_depth=8
[10:43:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[358] train-logloss:0.31943 validation-logloss:0.329575
[10:43:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 2 pruned nodes, max_depth=8
[10:43:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[360] train-logloss:0.319343 validation-logloss:0.329519
[10:43:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 2 pruned nodes, max_depth=8
[10:43:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[362] train-logloss:0.319258 validation-logloss:0.329454
[10:43:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:43:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[364] train-logloss:0.319166 validation-logloss:0.329389
[10:43:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:43:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[366] train-logloss:0.319073 validation-logloss:0.329311
[10:43:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 2 pruned nodes, max_depth=8
[10:43:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[368] train-logloss:0.318972 validation-logloss:0.329238
[10:43:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[10:43:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[370] train-logloss:0.318835 validation-logloss:0.329137
[10:43:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 2 pruned nodes, max_depth=8
[10:43:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[372] train-logloss:0.318757 validation-logloss:0.329079
[10:43:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[10:43:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[374] train-logloss:0.318654 validation-logloss:0.329002
[10:43:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:43:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[376] train-logloss:0.318556 validation-logloss:0.328928
[10:43:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[10:43:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[378] train-logloss:0.318472 validation-logloss:0.328862
[10:43:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:43:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 2 pruned nodes, max_depth=8
[380] train-logloss:0.318337 validation-logloss:0.328759
[10:43:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[10:43:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max\_depth=8  
[382] train-logloss:0.318184 validation-logloss:0.328635  
[10:43:54] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max\_depth=8  
[10:43:55] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max\_depth=8  
[384] train-logloss:0.318105 validation-logloss:0.32858  
[10:43:56] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max\_depth=8  
[10:43:57] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max\_depth=8  
[386] train-logloss:0.31795 validation-logloss:0.328464  
[10:43:58] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:00] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max\_depth=8  
[388] train-logloss:0.31786 validation-logloss:0.328399  
[10:44:01] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:02] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max\_depth=8  
[390] train-logloss:0.317759 validation-logloss:0.328336  
[10:44:03] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:04] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max\_depth=8  
[392] train-logloss:0.317609 validation-logloss:0.328224  
[10:44:06] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:07] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max\_depth=8  
[394] train-logloss:0.317518 validation-logloss:0.328144  
[10:44:08] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:09] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max\_depth=8  
[396] train-logloss:0.317429 validation-logloss:0.32809  
[10:44:11] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:12] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 2 pruned nodes, max\_depth=8  
[398] train-logloss:0.317329 validation-logloss:0.328013  
[10:44:13] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:14] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 2 pruned nodes, max\_depth=8  
[400] train-logloss:0.317249 validation-logloss:0.327948  
[10:44:15] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:16] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max\_depth=8  
[402] train-logloss:0.317069 validation-logloss:0.327818  
[10:44:17] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:19] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max\_depth=8  
[404] train-logloss:0.316967 validation-logloss:0.327737  
[10:44:20] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:21] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max\_depth=8  
[406] train-logloss:0.316761 validation-logloss:0.327589  
[10:44:22] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:23] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max\_depth=8  
[408] train-logloss:0.316662 validation-logloss:0.327527  
[10:44:24] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:26] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max\_depth=8  
[410] train-logloss:0.316579 validation-logloss:0.32747  
[10:44:27] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 2 pruned nodes, max\_depth=8  
[10:44:28] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max\_depth=8  
[412] train-logloss:0.31647 validation-logloss:0.327385  
[10:44:29] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max\_depth=8  
[10:44:30] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max\_depth=8  
[414] train-logloss:0.316393 validation-logloss:0.32733  
[10:44:32] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 4 pruned nodes, max\_depth=8

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ned nodes, max_depth=8
[10:44:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 276 extra nodes, 2 pruned nodes, max_depth=8
[416] train-logloss:0.316171 validation-logloss:0.327187
[10:44:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:44:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max_depth=8
[418] train-logloss:0.316098 validation-logloss:0.327127
[10:44:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 166 extra nodes, 2 pruned nodes, max_depth=8
[10:44:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 2 pruned nodes, max_depth=8
[420] train-logloss:0.315885 validation-logloss:0.326965
[10:44:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 2 pruned nodes, max_depth=8
[10:44:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[422] train-logloss:0.315809 validation-logloss:0.326907
[10:44:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[10:44:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[424] train-logloss:0.315701 validation-logloss:0.326824
[10:44:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:44:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[426] train-logloss:0.315619 validation-logloss:0.326766
[10:44:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:44:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[428] train-logloss:0.315552 validation-logloss:0.326711
[10:44:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max_depth=8
[10:44:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[430] train-logloss:0.315484 validation-logloss:0.326663
[10:44:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 2 pruned nodes, max_depth=8
[10:44:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[432] train-logloss:0.315357 validation-logloss:0.326551
[10:44:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:44:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[434] train-logloss:0.315273 validation-logloss:0.326479
[10:44:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:44:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[436] train-logloss:0.315198 validation-logloss:0.326429
[10:44:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[10:45:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[438] train-logloss:0.315081 validation-logloss:0.326348
[10:45:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[10:45:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 2 pruned nodes, max_depth=8
[440] train-logloss:0.315012 validation-logloss:0.326303
[10:45:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:45:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 2 pruned nodes, max_depth=8
[442] train-logloss:0.314929 validation-logloss:0.326243
[10:45:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:45:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[444] train-logloss:0.314825 validation-logloss:0.326174
[10:45:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 248 extra nodes, 0 pruned nodes, max_depth=8
[10:45:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[446] train-logloss:0.314596 validation-logloss:0.326007
[10:45:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:45:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max_depth=8
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[448]  train-logloss:0.314534 validation-logloss:0.325961
[10:45:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:45:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 0 pruned nodes, max_depth=8
[450]  train-logloss:0.314456 validation-logloss:0.325911
[10:45:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[10:45:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[452]  train-logloss:0.31435 validation-logloss:0.32583
[10:45:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[10:45:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[454]  train-logloss:0.314174 validation-logloss:0.325699
[10:45:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[10:45:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[456]  train-logloss:0.314075 validation-logloss:0.325624
[10:45:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 2 pruned nodes, max_depth=8
[10:45:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[458]  train-logloss:0.313897 validation-logloss:0.325493
[10:45:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[10:45:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 2 pruned nodes, max_depth=8
[460]  train-logloss:0.313803 validation-logloss:0.325421
[10:45:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:45:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[462]  train-logloss:0.31373 validation-logloss:0.325363
[10:45:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:45:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[464]  train-logloss:0.313671 validation-logloss:0.325316
[10:45:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:45:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[466]  train-logloss:0.31361 validation-logloss:0.325262
[10:45:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[10:45:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 2 pruned nodes, max_depth=8
[468]  train-logloss:0.313501 validation-logloss:0.325184
[10:45:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[10:45:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[470]  train-logloss:0.313403 validation-logloss:0.325107
[10:45:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[10:45:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[472]  train-logloss:0.313296 validation-logloss:0.325035
[10:45:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[10:45:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[474]  train-logloss:0.313186 validation-logloss:0.324953
[10:45:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 2 pruned nodes, max_depth=8
[10:45:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[476]  train-logloss:0.313039 validation-logloss:0.324828
[10:45:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:45:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 2 pruned nodes, max_depth=8
[478]  train-logloss:0.312981 validation-logloss:0.324787
[10:45:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:45:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 4 pruned nodes, max_depth=8
[480]  train-logloss:0.312894 validation-logloss:0.324723
[10:45:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
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[10:45:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[482]  train-logloss:0.312817 validation-logloss:0.324673
[10:45:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:45:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[484]  train-logloss:0.312715 validation-logloss:0.324596
[10:45:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[10:45:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[486]  train-logloss:0.312609 validation-logloss:0.32453
[10:46:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:46:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[488]  train-logloss:0.312532 validation-logloss:0.324479
[10:46:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 2 pruned nodes, max_depth=8
[10:46:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[490]  train-logloss:0.312443 validation-logloss:0.324416
[10:46:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:46:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[492]  train-logloss:0.312382 validation-logloss:0.324377
[10:46:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[10:46:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[494]  train-logloss:0.31227 validation-logloss:0.324305
[10:46:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[10:46:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[496]  train-logloss:0.312132 validation-logloss:0.324191
[10:46:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:46:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[498]  train-logloss:0.312075 validation-logloss:0.324146
[10:46:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:46:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[500]  train-logloss:0.311955 validation-logloss:0.324068
[10:46:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:46:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[502]  train-logloss:0.3119 validation-logloss:0.324023
[10:46:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[10:46:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[504]  train-logloss:0.311817 validation-logloss:0.323972
[10:46:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:46:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[506]  train-logloss:0.311728 validation-logloss:0.323904
[10:46:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[10:46:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[508]  train-logloss:0.311652 validation-logloss:0.32385
[10:46:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 0 pruned nodes, max_depth=8
[10:46:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[510]  train-logloss:0.311537 validation-logloss:0.323772
[10:46:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 2 pruned nodes, max_depth=8
[10:46:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[512]  train-logloss:0.31147 validation-logloss:0.323722
[10:46:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:46:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[514]  train-logloss:0.3114 validation-logloss:0.32368
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[10:46:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:46:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 2 pruned nodes, max_depth=8
[516]  train-logloss:0.311289 validation-logloss:0.323588
[10:46:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 2 pruned nodes, max_depth=8
[10:46:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[518]  train-logloss:0.311212 validation-logloss:0.323531
[10:46:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 2 pruned nodes, max_depth=8
[10:46:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 132 extra nodes, 0 pruned nodes, max_depth=8
[520]  train-logloss:0.311087 validation-logloss:0.323443
[10:46:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 2 pruned nodes, max_depth=8
[10:46:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[522]  train-logloss:0.310986 validation-logloss:0.323373
[10:46:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[10:46:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[524]  train-logloss:0.310884 validation-logloss:0.323295
[10:46:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:46:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[526]  train-logloss:0.310788 validation-logloss:0.323217
[10:46:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:46:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[528]  train-logloss:0.310715 validation-logloss:0.323164
[10:46:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:46:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 4 pruned nodes, max_depth=8
[530]  train-logloss:0.310626 validation-logloss:0.323101
[10:46:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:46:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[532]  train-logloss:0.310523 validation-logloss:0.323039
[10:46:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:46:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[534]  train-logloss:0.31046 validation-logloss:0.323001
[10:46:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[10:46:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[536]  train-logloss:0.310323 validation-logloss:0.322915
[10:47:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[10:47:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[538]  train-logloss:0.310256 validation-logloss:0.322871
[10:47:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:47:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[540]  train-logloss:0.310212 validation-logloss:0.32284
[10:47:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[10:47:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[542]  train-logloss:0.310115 validation-logloss:0.322784
[10:47:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:47:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[544]  train-logloss:0.310055 validation-logloss:0.322739
[10:47:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:47:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 2 pruned nodes, max_depth=8
[546]  train-logloss:0.310002 validation-logloss:0.322703
[10:47:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:47:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 110 extra nodes, 2 pr
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uned nodes, max_depth=8
[548]  train-logloss:0.309931 validation-logloss:0.322652
[10:47:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[10:47:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[550]  train-logloss:0.309863 validation-logloss:0.322603
[10:47:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 2 pruned nodes, max_depth=8
[10:47:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[552]  train-logloss:0.309786 validation-logloss:0.322552
[10:47:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max_depth=8
[10:47:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 2 pruned nodes, max_depth=8
[554]  train-logloss:0.309725 validation-logloss:0.322507
[10:47:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[10:47:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[556]  train-logloss:0.309603 validation-logloss:0.322421
[10:47:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:47:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[558]  train-logloss:0.309503 validation-logloss:0.322344
[10:47:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:47:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[560]  train-logloss:0.30946 validation-logloss:0.322308
[10:47:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:47:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[562]  train-logloss:0.309378 validation-logloss:0.322252
[10:47:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[10:47:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[564]  train-logloss:0.309264 validation-logloss:0.322173
[10:47:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:47:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[566]  train-logloss:0.309204 validation-logloss:0.322132
[10:47:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:47:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[568]  train-logloss:0.309144 validation-logloss:0.322093
[10:47:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 2 pruned nodes, max_depth=8
[10:47:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[570]  train-logloss:0.309066 validation-logloss:0.322051
[10:47:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:47:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[572]  train-logloss:0.309003 validation-logloss:0.322025
[10:47:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 4 pruned nodes, max_depth=8
[10:47:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[574]  train-logloss:0.308939 validation-logloss:0.321993
[10:47:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:47:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[576]  train-logloss:0.308895 validation-logloss:0.321962
[10:47:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:47:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[578]  train-logloss:0.308767 validation-logloss:0.321861
[10:47:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:47:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[580]  train-logloss:0.308711 validation-logloss:0.321817
[10:47:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 2 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[10:47:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[582] train-logloss:0.308665 validation-logloss:0.321786
[10:47:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:47:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[584] train-logloss:0.308608 validation-logloss:0.321743
[10:47:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[10:47:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[586] train-logloss:0.308537 validation-logloss:0.321685
[10:47:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 4 pruned nodes, max_depth=8
[10:47:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[588] train-logloss:0.308407 validation-logloss:0.321598
[10:47:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[10:48:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 2 pruned nodes, max_depth=8
[590] train-logloss:0.308316 validation-logloss:0.321535
[10:48:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:48:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[592] train-logloss:0.30823 validation-logloss:0.321482
[10:48:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:48:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[594] train-logloss:0.308179 validation-logloss:0.321442
[10:48:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:48:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[596] train-logloss:0.308114 validation-logloss:0.321397
[10:48:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:48:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[598] train-logloss:0.308047 validation-logloss:0.321354
[10:48:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 236 extra nodes, 0 pruned nodes, max_depth=8
[10:48:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[600] train-logloss:0.3079 validation-logloss:0.321247
[10:48:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[10:48:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[602] train-logloss:0.307808 validation-logloss:0.321185
[10:48:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:48:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 2 pruned nodes, max_depth=8
[604] train-logloss:0.307745 validation-logloss:0.321151
[10:48:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:48:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 2 pruned nodes, max_depth=8
[606] train-logloss:0.307686 validation-logloss:0.321111
[10:48:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 2 pruned nodes, max_depth=8
[10:48:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[608] train-logloss:0.307637 validation-logloss:0.321079
[10:48:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[10:48:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[610] train-logloss:0.307565 validation-logloss:0.321033
[10:48:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:48:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[612] train-logloss:0.307512 validation-logloss:0.320995
[10:48:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:48:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
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[614]  train-logloss:0.307457 validation-logloss:0.320958
[10:48:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[10:48:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[616]  train-logloss:0.307387 validation-logloss:0.32091
[10:48:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 2 pruned nodes, max_depth=8
[10:48:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[618]  train-logloss:0.307318 validation-logloss:0.320867
[10:48:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:48:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[620]  train-logloss:0.307266 validation-logloss:0.320836
[10:48:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[10:48:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[622]  train-logloss:0.307207 validation-logloss:0.320794
[10:48:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[10:48:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[624]  train-logloss:0.307142 validation-logloss:0.320754
[10:48:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 108 extra nodes, 0 pruned nodes, max_depth=8
[10:48:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 2 pruned nodes, max_depth=8
[626]  train-logloss:0.307041 validation-logloss:0.320691
[10:48:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:48:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[628]  train-logloss:0.306977 validation-logloss:0.320651
[10:48:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:48:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max_depth=8
[630]  train-logloss:0.306815 validation-logloss:0.320538
[10:48:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[10:48:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[632]  train-logloss:0.306719 validation-logloss:0.320462
[10:48:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:48:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 0 pruned nodes, max_depth=8
[634]  train-logloss:0.306648 validation-logloss:0.320413
[10:48:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 2 pruned nodes, max_depth=8
[10:48:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[636]  train-logloss:0.306563 validation-logloss:0.320366
[10:48:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:48:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[638]  train-logloss:0.306474 validation-logloss:0.320299
[10:48:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[10:48:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[640]  train-logloss:0.306414 validation-logloss:0.320258
[10:49:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[10:49:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 2 pruned nodes, max_depth=8
[642]  train-logloss:0.306339 validation-logloss:0.320201
[10:49:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 2 pruned nodes, max_depth=8
[10:49:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[644]  train-logloss:0.306249 validation-logloss:0.320129
[10:49:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:49:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[646]  train-logloss:0.306196 validation-logloss:0.320091
[10:49:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
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[10:49:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[648] train-logloss:0.306148 validation-logloss:0.320061
[10:49:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max_depth=8
[10:49:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[650] train-logloss:0.306105 validation-logloss:0.32003
[10:49:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:49:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[652] train-logloss:0.306052 validation-logloss:0.319996
[10:49:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 164 extra nodes, 2 pruned nodes, max_depth=8
[10:49:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[654] train-logloss:0.305865 validation-logloss:0.319868
[10:49:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:49:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[656] train-logloss:0.305791 validation-logloss:0.319815
[10:49:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:49:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[658] train-logloss:0.305731 validation-logloss:0.319772
[10:49:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:49:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[660] train-logloss:0.305676 validation-logloss:0.319729
[10:49:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[10:49:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[662] train-logloss:0.305611 validation-logloss:0.31969
[10:49:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:49:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[664] train-logloss:0.305557 validation-logloss:0.319661
[10:49:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:49:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[666] train-logloss:0.305491 validation-logloss:0.319622
[10:49:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:49:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 168 extra nodes, 0 pruned nodes, max_depth=8
[668] train-logloss:0.305352 validation-logloss:0.319544
[10:49:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:49:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[670] train-logloss:0.305227 validation-logloss:0.319442
[10:49:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[10:49:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[672] train-logloss:0.305157 validation-logloss:0.319398
[10:49:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:49:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[674] train-logloss:0.305103 validation-logloss:0.319367
[10:49:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:49:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[676] train-logloss:0.305061 validation-logloss:0.319343
[10:49:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 2 pruned nodes, max_depth=8
[10:49:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[678] train-logloss:0.304983 validation-logloss:0.319285
[10:49:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:49:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[680] train-logloss:0.304923 validation-logloss:0.319247
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[10:49:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:49:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[682]  train-logloss:0.304852 validation-logloss:0.319194
[10:49:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:49:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[684]  train-logloss:0.304773 validation-logloss:0.31914
[10:49:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:49:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max_depth=8
[686]  train-logloss:0.304721 validation-logloss:0.319103
[10:49:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:49:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[688]  train-logloss:0.304631 validation-logloss:0.319033
[10:49:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:49:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[690]  train-logloss:0.304581 validation-logloss:0.319008
[10:50:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 2 pruned nodes, max_depth=8
[10:50:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[692]  train-logloss:0.304491 validation-logloss:0.318941
[10:50:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:50:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[694]  train-logloss:0.30445 validation-logloss:0.318917
[10:50:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[10:50:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[696]  train-logloss:0.304347 validation-logloss:0.318842
[10:50:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:50:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 2 pruned nodes, max_depth=8
[698]  train-logloss:0.30428 validation-logloss:0.3188
[10:50:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:50:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 116 extra nodes, 0 pruned nodes, max_depth=8
[700]  train-logloss:0.304184 validation-logloss:0.318739
[10:50:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:50:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[702]  train-logloss:0.30414 validation-logloss:0.318711
[10:50:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[10:50:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[704]  train-logloss:0.304079 validation-logloss:0.318662
[10:50:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:50:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[706]  train-logloss:0.304034 validation-logloss:0.318631
[10:50:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[10:50:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[708]  train-logloss:0.30396 validation-logloss:0.31859
[10:50:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:50:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[710]  train-logloss:0.303912 validation-logloss:0.318561
[10:50:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:50:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[712]  train-logloss:0.303871 validation-logloss:0.318539
[10:50:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:50:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[714]  train-logloss:0.303829 validation-logloss:0.318508
[10:50:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 2 pruned nodes, max_depth=8
[10:50:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 0 pruned nodes, max_depth=8
[716]  train-logloss:0.303747 validation-logloss:0.31845
[10:50:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 160 extra nodes, 0 pruned nodes, max_depth=8
[10:50:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[718]  train-logloss:0.303643 validation-logloss:0.318382
[10:50:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:50:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[720]  train-logloss:0.303592 validation-logloss:0.318352
[10:50:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:50:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[722]  train-logloss:0.303551 validation-logloss:0.318327
[10:50:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:50:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[724]  train-logloss:0.303494 validation-logloss:0.318298
[10:50:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:50:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[726]  train-logloss:0.303415 validation-logloss:0.318234
[10:50:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[10:50:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 2 pruned nodes, max_depth=8
[728]  train-logloss:0.303328 validation-logloss:0.318186
[10:50:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 0 pruned nodes, max_depth=8
[10:50:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[730]  train-logloss:0.303219 validation-logloss:0.318119
[10:50:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:50:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 226 extra nodes, 2 pruned nodes, max_depth=8
[732]  train-logloss:0.30306 validation-logloss:0.318008
[10:50:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[10:50:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[734]  train-logloss:0.302983 validation-logloss:0.317964
[10:50:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:50:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[736]  train-logloss:0.302914 validation-logloss:0.317925
[10:50:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:50:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[738]  train-logloss:0.302862 validation-logloss:0.317888
[10:50:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[10:50:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[740]  train-logloss:0.30277 validation-logloss:0.317835
[10:50:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:50:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[742]  train-logloss:0.30273 validation-logloss:0.317816
[10:51:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[10:51:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[744]  train-logloss:0.302681 validation-logloss:0.317791
[10:51:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:51:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[746]  train-logloss:0.302626 validation-logloss:0.317756
[10:51:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 2 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[10:51:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[748] train-logloss:0.302568 validation-logloss:0.317721
[10:51:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:51:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 0 pruned nodes, max_depth=8
[750] train-logloss:0.302473 validation-logloss:0.317661
[10:51:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:51:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[752] train-logloss:0.302431 validation-logloss:0.317635
[10:51:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:51:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[754] train-logloss:0.302395 validation-logloss:0.317612
[10:51:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:51:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[756] train-logloss:0.302302 validation-logloss:0.317546
[10:51:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:51:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[758] train-logloss:0.302253 validation-logloss:0.317525
[10:51:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:51:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[760] train-logloss:0.302214 validation-logloss:0.317504
[10:51:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 2 pruned nodes, max_depth=8
[10:51:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[762] train-logloss:0.302129 validation-logloss:0.317452
[10:51:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[10:51:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[764] train-logloss:0.302096 validation-logloss:0.317429
[10:51:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:51:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[766] train-logloss:0.302047 validation-logloss:0.317393
[10:51:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:51:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[768] train-logloss:0.302007 validation-logloss:0.317364
[10:51:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 2 pruned nodes, max_depth=8
[10:51:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[770] train-logloss:0.301861 validation-logloss:0.317259
[10:51:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[10:51:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[772] train-logloss:0.301817 validation-logloss:0.317232
[10:51:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[10:51:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[774] train-logloss:0.30172 validation-logloss:0.317158
[10:51:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:51:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 4 pruned nodes, max_depth=8
[776] train-logloss:0.301675 validation-logloss:0.317124
[10:51:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:51:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[778] train-logloss:0.301636 validation-logloss:0.317092
[10:51:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:51:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
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[780]  train-logloss:0.301573 validation-logloss:0.317049
[10:51:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 4 pruned nodes, max_depth=8
[10:51:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[782]  train-logloss:0.301533 validation-logloss:0.31703
[10:51:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:51:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[784]  train-logloss:0.301438 validation-logloss:0.316959
[10:51:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:51:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[786]  train-logloss:0.301402 validation-logloss:0.316931
[10:51:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:51:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[788]  train-logloss:0.301355 validation-logloss:0.316906
[10:51:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:51:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[790]  train-logloss:0.301297 validation-logloss:0.316861
[10:51:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:51:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[792]  train-logloss:0.30123 validation-logloss:0.316817
[10:51:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[10:51:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[794]  train-logloss:0.301159 validation-logloss:0.316772
[10:51:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:52:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[796]  train-logloss:0.3011 validation-logloss:0.31674
[10:52:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:52:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[798]  train-logloss:0.301047 validation-logloss:0.316703
[10:52:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:52:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[800]  train-logloss:0.30094 validation-logloss:0.316636
[10:52:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 2 pruned nodes, max_depth=8
[10:52:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[802]  train-logloss:0.300906 validation-logloss:0.316612
[10:52:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:52:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[804]  train-logloss:0.300866 validation-logloss:0.316584
[10:52:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:52:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 224 extra nodes, 0 pruned nodes, max_depth=8
[806]  train-logloss:0.300753 validation-logloss:0.316523
[10:52:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 2 pruned nodes, max_depth=8
[10:52:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[808]  train-logloss:0.30072 validation-logloss:0.316504
[10:52:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 2 pruned nodes, max_depth=8
[10:52:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[810]  train-logloss:0.300673 validation-logloss:0.316476
[10:52:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 2 pruned nodes, max_depth=8
[10:52:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[812]  train-logloss:0.300622 validation-logloss:0.316453
[10:52:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
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[10:52:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[814]   train-logloss:0.300581 validation-logloss:0.316427
[10:52:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:52:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[816]   train-logloss:0.30053 validation-logloss:0.316389
[10:52:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[10:52:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[818]   train-logloss:0.300448 validation-logloss:0.316334
[10:52:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:52:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[820]   train-logloss:0.300414 validation-logloss:0.316308
[10:52:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:52:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[822]   train-logloss:0.300365 validation-logloss:0.316279
[10:52:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 118 extra nodes, 0 pruned nodes, max_depth=8
[10:52:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[824]   train-logloss:0.300269 validation-logloss:0.316207
[10:52:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:52:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[826]   train-logloss:0.300233 validation-logloss:0.316185
[10:52:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 172 extra nodes, 2 pruned nodes, max_depth=8
[10:52:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[828]   train-logloss:0.300133 validation-logloss:0.316135
[10:52:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 0 pruned nodes, max_depth=8
[10:52:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 2 pruned nodes, max_depth=8
[830]   train-logloss:0.299976 validation-logloss:0.316043
[10:52:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:52:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[832]   train-logloss:0.299938 validation-logloss:0.31602
[10:52:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:52:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[834]   train-logloss:0.299907 validation-logloss:0.315997
[10:52:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 2 pruned nodes, max_depth=8
[10:52:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[836]   train-logloss:0.299837 validation-logloss:0.315948
[10:52:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:52:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[838]   train-logloss:0.299797 validation-logloss:0.315924
[10:52:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:52:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[840]   train-logloss:0.299736 validation-logloss:0.315879
[10:52:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:52:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[842]   train-logloss:0.299704 validation-logloss:0.315856
[10:52:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[10:52:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[844]   train-logloss:0.299665 validation-logloss:0.315834
[10:52:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:52:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[846]   train-logloss:0.299616 validation-logloss:0.315803
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[10:52:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[10:53:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[848]  train-logloss:0.299586 validation-logloss:0.315791
[10:53:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:53:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[850]  train-logloss:0.299547 validation-logloss:0.315765
[10:53:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:53:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[852]  train-logloss:0.299498 validation-logloss:0.315733
[10:53:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:53:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 2 pruned nodes, max_depth=8
[854]  train-logloss:0.299399 validation-logloss:0.315672
[10:53:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 2 pruned nodes, max_depth=8
[10:53:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[856]  train-logloss:0.299343 validation-logloss:0.315652
[10:53:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:53:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[858]  train-logloss:0.299298 validation-logloss:0.31563
[10:53:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:53:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[860]  train-logloss:0.299259 validation-logloss:0.315607
[10:53:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[10:53:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[862]  train-logloss:0.299224 validation-logloss:0.315585
[10:53:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[10:53:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[864]  train-logloss:0.29914 validation-logloss:0.315544
[10:53:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:53:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[866]  train-logloss:0.299088 validation-logloss:0.315518
[10:53:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:53:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[868]  train-logloss:0.299014 validation-logloss:0.315471
[10:53:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[10:53:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[870]  train-logloss:0.298933 validation-logloss:0.31542
[10:53:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 2 pruned nodes, max_depth=8
[10:53:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[872]  train-logloss:0.298858 validation-logloss:0.31537
[10:53:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:53:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[874]  train-logloss:0.298813 validation-logloss:0.315338
[10:53:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:53:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[876]  train-logloss:0.298767 validation-logloss:0.315304
[10:53:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:53:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[878]  train-logloss:0.298731 validation-logloss:0.315285
[10:53:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:53:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[880]  train-logloss:0.298688 validation-logloss:0.315258
[10:53:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:53:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[882]  train-logloss:0.298658 validation-logloss:0.315243
[10:53:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:53:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[884]  train-logloss:0.298614 validation-logloss:0.315218
[10:53:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 2 pruned nodes, max_depth=8
[10:53:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[886]  train-logloss:0.298576 validation-logloss:0.31519
[10:53:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:53:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[888]  train-logloss:0.298541 validation-logloss:0.315164
[10:53:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[10:53:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[890]  train-logloss:0.298496 validation-logloss:0.315143
[10:53:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:53:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[892]  train-logloss:0.298391 validation-logloss:0.315063
[10:53:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:53:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[894]  train-logloss:0.298354 validation-logloss:0.315041
[10:53:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:53:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[896]  train-logloss:0.298311 validation-logloss:0.315016
[10:53:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:53:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[898]  train-logloss:0.298249 validation-logloss:0.314975
[10:53:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:53:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[900]  train-logloss:0.298181 validation-logloss:0.314933
[10:53:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[10:54:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[902]  train-logloss:0.298141 validation-logloss:0.314912
[10:54:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:54:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[904]  train-logloss:0.298103 validation-logloss:0.314888
[10:54:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:54:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[906]  train-logloss:0.298049 validation-logloss:0.314854
[10:54:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:54:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[908]  train-logloss:0.298002 validation-logloss:0.314827
[10:54:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:54:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[910]  train-logloss:0.29796 validation-logloss:0.314803
[10:54:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:54:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[912]  train-logloss:0.2979 validation-logloss:0.314757
[10:54:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[10:54:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[914] train-logloss:0.297874 validation-logloss:0.31474
[10:54:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[10:54:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 2 pruned nodes, max_depth=8
[916] train-logloss:0.297839 validation-logloss:0.314713
[10:54:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:54:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[918] train-logloss:0.297806 validation-logloss:0.314697
[10:54:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:54:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[920] train-logloss:0.297747 validation-logloss:0.314664
[10:54:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:54:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[922] train-logloss:0.297711 validation-logloss:0.314641
[10:54:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:54:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[924] train-logloss:0.297642 validation-logloss:0.314601
[10:54:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:54:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 2 pruned nodes, max_depth=8
[926] train-logloss:0.297587 validation-logloss:0.314559
[10:54:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:54:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[928] train-logloss:0.297544 validation-logloss:0.31453
[10:54:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:54:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 254 extra nodes, 0 pruned nodes, max_depth=8
[930] train-logloss:0.297401 validation-logloss:0.314445
[10:54:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:54:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[932] train-logloss:0.297364 validation-logloss:0.314429
[10:54:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:54:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[934] train-logloss:0.297327 validation-logloss:0.314413
[10:54:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:54:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[936] train-logloss:0.297276 validation-logloss:0.314384
[10:54:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:54:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[938] train-logloss:0.297205 validation-logloss:0.314339
[10:54:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:54:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[940] train-logloss:0.297171 validation-logloss:0.314319
[10:54:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[10:54:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[942] train-logloss:0.297106 validation-logloss:0.314282
[10:54:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:54:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[944] train-logloss:0.297076 validation-logloss:0.314264
[10:54:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 0 pruned nodes, max_depth=8
[10:54:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
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[946]  train-logloss:0.296996 validation-logloss:0.314217
[10:54:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[10:54:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[948]  train-logloss:0.296916 validation-logloss:0.314169
[10:54:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:54:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[950]  train-logloss:0.296879 validation-logloss:0.314155
[10:54:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[10:54:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[952]  train-logloss:0.296784 validation-logloss:0.314093
[10:54:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:54:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[954]  train-logloss:0.29675 validation-logloss:0.314075
[10:55:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:55:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[956]  train-logloss:0.296713 validation-logloss:0.314051
[10:55:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:55:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 2 pruned nodes, max_depth=8
[958]  train-logloss:0.296664 validation-logloss:0.314023
[10:55:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:55:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[960]  train-logloss:0.296633 validation-logloss:0.314006
[10:55:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:55:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[962]  train-logloss:0.296577 validation-logloss:0.313972
[10:55:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[10:55:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[964]  train-logloss:0.296529 validation-logloss:0.313947
[10:55:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:55:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[966]  train-logloss:0.296487 validation-logloss:0.313928
[10:55:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:55:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[968]  train-logloss:0.296458 validation-logloss:0.313911
[10:55:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:55:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[970]  train-logloss:0.296422 validation-logloss:0.313883
[10:55:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 0 pruned nodes, max_depth=8
[10:55:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[972]  train-logloss:0.296321 validation-logloss:0.313826
[10:55:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[10:55:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[974]  train-logloss:0.296282 validation-logloss:0.313811
[10:55:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:55:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[976]  train-logloss:0.296249 validation-logloss:0.313798
[10:55:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:55:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[978]  train-logloss:0.29619 validation-logloss:0.313767
[10:55:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
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[10:55:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[980] train-logloss:0.296158 validation-logloss:0.313748
[10:55:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 2 pruned nodes, max_depth=8
[10:55:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[982] train-logloss:0.296121 validation-logloss:0.31373
[10:55:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:55:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[984] train-logloss:0.296093 validation-logloss:0.313713
[10:55:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[10:55:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[986] train-logloss:0.296062 validation-logloss:0.3137
[10:55:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:55:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[988] train-logloss:0.296031 validation-logloss:0.31368
[10:55:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:55:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[990] train-logloss:0.295981 validation-logloss:0.313649
[10:55:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:55:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[992] train-logloss:0.295953 validation-logloss:0.313632
[10:55:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[10:55:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 2 pruned nodes, max_depth=8
[994] train-logloss:0.295923 validation-logloss:0.313619
[10:55:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:55:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[996] train-logloss:0.295887 validation-logloss:0.313595
[10:55:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:55:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[998] train-logloss:0.295861 validation-logloss:0.31358
[10:55:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:55:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1000] train-logloss:0.295818 validation-logloss:0.313559
[10:55:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:55:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1002] train-logloss:0.295766 validation-logloss:0.313526
[10:55:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:55:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[1004] train-logloss:0.295736 validation-logloss:0.313508
[10:55:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:55:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1006] train-logloss:0.295704 validation-logloss:0.313493
[10:55:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:56:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1008] train-logloss:0.295677 validation-logloss:0.313478
[10:56:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 2 pruned nodes, max_depth=8
[10:56:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1010] train-logloss:0.295642 validation-logloss:0.313457
[10:56:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:56:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[1012] train-logloss:0.295609 validation-logloss:0.313438
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ned nodes, max_depth=8
[1046] train-logloss:0.294962 validation-logloss:0.313067
[10:56:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[10:56:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[1048] train-logloss:0.2949 validation-logloss:0.313023
[10:56:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:56:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1050] train-logloss:0.294876 validation-logloss:0.313012
[10:56:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:56:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1052] train-logloss:0.294805 validation-logloss:0.31296
[10:56:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:56:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1054] train-logloss:0.294778 validation-logloss:0.312951
[10:56:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[10:56:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 2 pruned nodes, max_depth=8
[1056] train-logloss:0.294747 validation-logloss:0.312936
[10:56:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:56:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1058] train-logloss:0.294716 validation-logloss:0.31292
[10:56:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[10:56:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1060] train-logloss:0.294688 validation-logloss:0.312904
[10:57:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:57:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max_depth=8
[1062] train-logloss:0.294656 validation-logloss:0.31288
[10:57:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:57:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1064] train-logloss:0.294621 validation-logloss:0.312864
[10:57:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[10:57:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1066] train-logloss:0.294538 validation-logloss:0.312811
[10:57:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[10:57:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[1068] train-logloss:0.294507 validation-logloss:0.312796
[10:57:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[10:57:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 192 extra nodes, 2 pruned nodes, max_depth=8
[1070] train-logloss:0.294382 validation-logloss:0.312715
[10:57:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:57:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[1072] train-logloss:0.294343 validation-logloss:0.312692
[10:57:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 4 pruned nodes, max_depth=8
[10:57:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[1074] train-logloss:0.294299 validation-logloss:0.312669
[10:57:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:57:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 2 pruned nodes, max_depth=8
[1076] train-logloss:0.29422 validation-logloss:0.312619
[10:57:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[10:57:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 2 pruned nodes, max_depth=8
[1078] train-logloss:0.29415 validation-logloss:0.312571
[10:57:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[10:57:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 2 pruned nodes, max_depth=8
[1080] train-logloss:0.294076 validation-logloss:0.312526
[10:57:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[10:57:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[1082] train-logloss:0.294048 validation-logloss:0.312511
[10:57:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 4 pruned nodes, max_depth=8
[10:57:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[1084] train-logloss:0.293987 validation-logloss:0.312481
[10:57:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:57:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[1086] train-logloss:0.293935 validation-logloss:0.312454
[10:57:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:57:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[1088] train-logloss:0.293907 validation-logloss:0.312437
[10:57:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:57:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 2 pruned nodes, max_depth=8
[1090] train-logloss:0.293829 validation-logloss:0.312392
[10:57:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:57:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1092] train-logloss:0.293792 validation-logloss:0.312375
[10:57:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[10:57:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1094] train-logloss:0.293763 validation-logloss:0.312355
[10:57:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[10:57:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1096] train-logloss:0.293693 validation-logloss:0.312309
[10:57:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:57:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[1098] train-logloss:0.293625 validation-logloss:0.31226
[10:57:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:57:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 2 pruned nodes, max_depth=8
[1100] train-logloss:0.293596 validation-logloss:0.312243
[10:57:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:57:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1102] train-logloss:0.293549 validation-logloss:0.312213
[10:57:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:57:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[1104] train-logloss:0.293523 validation-logloss:0.312195
[10:57:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[10:57:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1106] train-logloss:0.293485 validation-logloss:0.312166
[10:57:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[10:57:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1108] train-logloss:0.293456 validation-logloss:0.312153
[10:57:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 162 extra nodes, 2 pruned nodes, max_depth=8
[10:57:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[1110] train-logloss:0.293337 validation-logloss:0.312084
[10:57:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[10:57:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
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[1112] train-logloss:0.293301 validation-logloss:0.312066
[10:57:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 2 pruned nodes, max_depth=8
[10:58:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1114] train-logloss:0.29326 validation-logloss:0.312045
[10:58:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:58:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[1116] train-logloss:0.293227 validation-logloss:0.312027
[10:58:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[10:58:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1118] train-logloss:0.293196 validation-logloss:0.312013
[10:58:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:58:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1120] train-logloss:0.293173 validation-logloss:0.312
[10:58:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:58:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[1122] train-logloss:0.293121 validation-logloss:0.311963
[10:58:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:58:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 4 pruned nodes, max_depth=8
[1124] train-logloss:0.293092 validation-logloss:0.311942
[10:58:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[10:58:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[1126] train-logloss:0.293056 validation-logloss:0.311926
[10:58:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[10:58:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1128] train-logloss:0.293023 validation-logloss:0.31191
[10:58:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:58:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 126 extra nodes, 0 pruned nodes, max_depth=8
[1130] train-logloss:0.29295 validation-logloss:0.311859
[10:58:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:58:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1132] train-logloss:0.292924 validation-logloss:0.311847
[10:58:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[10:58:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[1134] train-logloss:0.292862 validation-logloss:0.311809
[10:58:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
[10:58:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 2 pruned nodes, max_depth=8
[1136] train-logloss:0.292809 validation-logloss:0.311776
[10:58:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:58:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1138] train-logloss:0.292774 validation-logloss:0.311757
[10:58:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:58:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[1140] train-logloss:0.292722 validation-logloss:0.311733
[10:58:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:58:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[1142] train-logloss:0.292673 validation-logloss:0.311698
[10:58:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:58:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[1144] train-logloss:0.292645 validation-logloss:0.311683
[10:58:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
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[10:58:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[1146] train-logloss:0.292595 validation-logloss:0.311662
[10:58:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:58:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1148] train-logloss:0.292568 validation-logloss:0.311651
[10:58:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[10:58:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[1150] train-logloss:0.292527 validation-logloss:0.311628
[10:58:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:58:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[1152] train-logloss:0.292492 validation-logloss:0.31161
[10:58:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[10:58:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 0 pruned nodes, max_depth=8
[1154] train-logloss:0.292418 validation-logloss:0.311572
[10:58:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[10:58:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[1156] train-logloss:0.29239 validation-logloss:0.311559
[10:58:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[10:58:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1158] train-logloss:0.292357 validation-logloss:0.311536
[10:58:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[10:58:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[1160] train-logloss:0.292317 validation-logloss:0.311516
[10:58:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[10:58:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1162] train-logloss:0.292287 validation-logloss:0.311504
[10:58:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[10:58:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[1164] train-logloss:0.292242 validation-logloss:0.311485
[10:58:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[10:59:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1166] train-logloss:0.292215 validation-logloss:0.31147
[10:59:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[10:59:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1168] train-logloss:0.292174 validation-logloss:0.311444
[10:59:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[10:59:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[1170] train-logloss:0.292148 validation-logloss:0.311429
[10:59:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[10:59:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1172] train-logloss:0.2921 validation-logloss:0.311397
[10:59:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[10:59:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[1174] train-logloss:0.292072 validation-logloss:0.311381
[10:59:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[10:59:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[1176] train-logloss:0.292031 validation-logloss:0.311365
[10:59:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 4 pruned nodes, max_depth=8
[10:59:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[1178] train-logloss:0.292002 validation-logloss:0.311351
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ned nodes, max_depth=8
[1212] train-logloss:0.291409 validation-logloss:0.311013
[10:59:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[10:59:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[1214] train-logloss:0.29135 validation-logloss:0.310972
[10:59:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 6 pruned nodes, max_depth=8
[10:59:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1216] train-logloss:0.291306 validation-logloss:0.310944
[10:59:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 2 pruned nodes, max_depth=8
[10:59:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1218] train-logloss:0.291265 validation-logloss:0.310922
[11:00:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:00:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1220] train-logloss:0.291229 validation-logloss:0.310898
[11:00:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:00:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[1222] train-logloss:0.291201 validation-logloss:0.310877
[11:00:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:00:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[1224] train-logloss:0.291135 validation-logloss:0.310841
[11:00:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:00:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1226] train-logloss:0.291112 validation-logloss:0.310829
[11:00:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[11:00:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[1228] train-logloss:0.291062 validation-logloss:0.310807
[11:00:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[11:00:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1230] train-logloss:0.291038 validation-logloss:0.310795
[11:00:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[11:00:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1232] train-logloss:0.291003 validation-logloss:0.310775
[11:00:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 142 extra nodes, 0 pruned nodes, max_depth=8
[11:00:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max_depth=8
[1234] train-logloss:0.290946 validation-logloss:0.310743
[11:00:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max_depth=8
[11:00:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 4 pruned nodes, max_depth=8
[1236] train-logloss:0.290892 validation-logloss:0.310709
[11:00:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:00:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1238] train-logloss:0.290864 validation-logloss:0.310695
[11:00:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[11:00:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1240] train-logloss:0.290813 validation-logloss:0.310665
[11:00:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[11:00:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[1242] train-logloss:0.290777 validation-logloss:0.310641
[11:00:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:00:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1244] train-logloss:0.29075 validation-logloss:0.310626
[11:00:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max_depth=8
[11:00:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1246] train-logloss:0.290651 validation-logloss:0.310563
[11:00:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[11:00:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[1248] train-logloss:0.290617 validation-logloss:0.310539
[11:00:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:00:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1250] train-logloss:0.290591 validation-logloss:0.310529
[11:00:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:00:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1252] train-logloss:0.290566 validation-logloss:0.310502
[11:00:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:00:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1254] train-logloss:0.290541 validation-logloss:0.310506
[11:00:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:00:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1256] train-logloss:0.290505 validation-logloss:0.310487
[11:00:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:00:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1258] train-logloss:0.290478 validation-logloss:0.310472
[11:00:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:00:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1260] train-logloss:0.290455 validation-logloss:0.310463
[11:00:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:00:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1262] train-logloss:0.29042 validation-logloss:0.310443
[11:00:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:00:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max_depth=8
[1264] train-logloss:0.290393 validation-logloss:0.310424
[11:00:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:00:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[1266] train-logloss:0.290356 validation-logloss:0.310407
[11:00:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[11:00:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[1268] train-logloss:0.290324 validation-logloss:0.310392
[11:00:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max_depth=8
[11:00:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1270] train-logloss:0.290277 validation-logloss:0.31037
[11:01:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:01:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1272] train-logloss:0.290247 validation-logloss:0.310351
[11:01:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:01:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1274] train-logloss:0.29022 validation-logloss:0.310338
[11:01:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:01:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[1276] train-logloss:0.290147 validation-logloss:0.310295
[11:01:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:01:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
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[1278] train-logloss:0.290115 validation-logloss:0.310281
[11:01:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:01:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[1280] train-logloss:0.290093 validation-logloss:0.31027
[11:01:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 2 pruned nodes, max_depth=8
[11:01:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1282] train-logloss:0.290067 validation-logloss:0.310257
[11:01:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[11:01:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[1284] train-logloss:0.289982 validation-logloss:0.310202
[11:01:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:01:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[1286] train-logloss:0.289962 validation-logloss:0.310191
[11:01:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:01:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1288] train-logloss:0.289932 validation-logloss:0.31017
[11:01:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 124 extra nodes, 0 pruned nodes, max_depth=8
[11:01:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 0 pruned nodes, max_depth=8
[1290] train-logloss:0.289856 validation-logloss:0.310132
[11:01:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:01:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[1292] train-logloss:0.289824 validation-logloss:0.310116
[11:01:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:01:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1294] train-logloss:0.289803 validation-logloss:0.310108
[11:01:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[11:01:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[1296] train-logloss:0.28976 validation-logloss:0.310085
[11:01:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:01:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 2 pruned nodes, max_depth=8
[1298] train-logloss:0.289729 validation-logloss:0.310074
[11:01:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:01:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[1300] train-logloss:0.289698 validation-logloss:0.310058
[11:01:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:01:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1302] train-logloss:0.289669 validation-logloss:0.310048
[11:01:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:01:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1304] train-logloss:0.289639 validation-logloss:0.310037
[11:01:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[11:01:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[1306] train-logloss:0.289613 validation-logloss:0.31002
[11:01:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[11:01:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 2 pruned nodes, max_depth=8
[1308] train-logloss:0.28954 validation-logloss:0.309978
[11:01:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[11:01:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[1310] train-logloss:0.289456 validation-logloss:0.309936
[11:01:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
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uned nodes, max\_depth=8  
[1378] train-logloss:0.288225 validation-logloss:0.309277  
[11:03:01] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:02] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max\_depth=8  
[1380] train-logloss:0.288195 validation-logloss:0.309264  
[11:03:03] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:05] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 146 extra nodes, 2 pruned nodes, max\_depth=8  
[1382] train-logloss:0.288102 validation-logloss:0.309209  
[11:03:06] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:07] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max\_depth=8  
[1384] train-logloss:0.288064 validation-logloss:0.309188  
[11:03:08] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:09] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max\_depth=8  
[1386] train-logloss:0.288024 validation-logloss:0.309167  
[11:03:10] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:11] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max\_depth=8  
[1388] train-logloss:0.288002 validation-logloss:0.309157  
[11:03:12] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:13] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[1390] train-logloss:0.287975 validation-logloss:0.309143  
[11:03:15] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:16] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max\_depth=8  
[1392] train-logloss:0.287951 validation-logloss:0.309127  
[11:03:17] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:18] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max\_depth=8  
[1394] train-logloss:0.287923 validation-logloss:0.309111  
[11:03:19] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 2 pruned nodes, max\_depth=8  
[11:03:21] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[1396] train-logloss:0.287902 validation-logloss:0.309105  
[11:03:22] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 2 pruned nodes, max\_depth=8  
[11:03:23] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max\_depth=8  
[1398] train-logloss:0.287881 validation-logloss:0.309096  
[11:03:24] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:25] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max\_depth=8  
[1400] train-logloss:0.287841 validation-logloss:0.309065  
[11:03:26] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:28] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max\_depth=8  
[1402] train-logloss:0.287807 validation-logloss:0.30904  
[11:03:29] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:30] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max\_depth=8  
[1404] train-logloss:0.287763 validation-logloss:0.309013  
[11:03:31] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:32] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 132 extra nodes, 0 pruned nodes, max\_depth=8  
[1406] train-logloss:0.287683 validation-logloss:0.30897  
[11:03:34] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:35] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 158 extra nodes, 0 pruned nodes, max\_depth=8  
[1408] train-logloss:0.287596 validation-logloss:0.308923  
[11:03:36] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max\_depth=8  
[11:03:37] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 0 pruned nodes, max\_depth=8  
[1410] train-logloss:0.287548 validation-logloss:0.308891  
[11:03:38] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max\_depth=8

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ned nodes, max_depth=8
[11:03:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[1412] train-logloss:0.287519 validation-logloss:0.308877
[11:03:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:03:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1414] train-logloss:0.287499 validation-logloss:0.308865
[11:03:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:03:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[1416] train-logloss:0.287474 validation-logloss:0.308856
[11:03:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[11:03:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1418] train-logloss:0.287434 validation-logloss:0.308838
[11:03:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 2 pruned nodes, max_depth=8
[11:03:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 2 pruned nodes, max_depth=8
[1420] train-logloss:0.287371 validation-logloss:0.308813
[11:03:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:03:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1422] train-logloss:0.287337 validation-logloss:0.308787
[11:03:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:03:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1424] train-logloss:0.287311 validation-logloss:0.308778
[11:03:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:03:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[1426] train-logloss:0.287289 validation-logloss:0.308765
[11:03:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[11:03:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[1428] train-logloss:0.287215 validation-logloss:0.30873
[11:03:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:04:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[1430] train-logloss:0.287191 validation-logloss:0.308715
[11:04:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[11:04:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[1432] train-logloss:0.287164 validation-logloss:0.308701
[11:04:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 2 pruned nodes, max_depth=8
[11:04:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1434] train-logloss:0.287144 validation-logloss:0.308694
[11:04:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 2 pruned nodes, max_depth=8
[11:04:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1436] train-logloss:0.28712 validation-logloss:0.308686
[11:04:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:04:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[1438] train-logloss:0.287084 validation-logloss:0.308673
[11:04:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:04:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[1440] train-logloss:0.287027 validation-logloss:0.308642
[11:04:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:04:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1442] train-logloss:0.286999 validation-logloss:0.30862
[11:04:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:04:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
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[1444] train-logloss:0.286974 validation-logloss:0.308608
[11:04:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:04:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 98 extra nodes, 2 pruned nodes, max_depth=8
[1446] train-logloss:0.286932 validation-logloss:0.308593
[11:04:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 86 extra nodes, 0 pruned nodes, max_depth=8
[11:04:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1448] train-logloss:0.286894 validation-logloss:0.308574
[11:04:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:04:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[1450] train-logloss:0.286856 validation-logloss:0.308557
[11:04:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 2 pruned nodes, max_depth=8
[11:04:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[1452] train-logloss:0.286818 validation-logloss:0.308532
[11:04:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 154 extra nodes, 2 pruned nodes, max_depth=8
[11:04:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[1454] train-logloss:0.286727 validation-logloss:0.308471
[11:04:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:04:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 2 pruned nodes, max_depth=8
[1456] train-logloss:0.286698 validation-logloss:0.308456
[11:04:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:04:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1458] train-logloss:0.286677 validation-logloss:0.308444
[11:04:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:04:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[1460] train-logloss:0.28665 validation-logloss:0.308435
[11:04:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:04:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[1462] train-logloss:0.286623 validation-logloss:0.308421
[11:04:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[11:04:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[1464] train-logloss:0.286555 validation-logloss:0.308384
[11:04:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:04:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[1466] train-logloss:0.286524 validation-logloss:0.308366
[11:04:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:04:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[1468] train-logloss:0.286479 validation-logloss:0.308342
[11:04:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:04:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[1470] train-logloss:0.286451 validation-logloss:0.308327
[11:04:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 0 pruned nodes, max_depth=8
[11:04:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 2 pruned nodes, max_depth=8
[1472] train-logloss:0.286377 validation-logloss:0.308284
[11:04:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:04:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[1474] train-logloss:0.286358 validation-logloss:0.308272
[11:04:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:04:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1476] train-logloss:0.286321 validation-logloss:0.308255
[11:04:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
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[1610] train-logloss:0.28397 validation-logloss:0.307043
[11:07:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:07:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 2 pruned nodes, max_depth=8
[1612] train-logloss:0.283938 validation-logloss:0.307027
[11:07:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:07:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[1614] train-logloss:0.283921 validation-logloss:0.30702
[11:07:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[11:07:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 2 pruned nodes, max_depth=8
[1616] train-logloss:0.283883 validation-logloss:0.307006
[11:07:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:07:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[1618] train-logloss:0.283855 validation-logloss:0.306994
[11:07:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[11:07:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 2 pruned nodes, max_depth=8
[1620] train-logloss:0.283809 validation-logloss:0.306975
[11:07:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:07:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 2 pruned nodes, max_depth=8
[1622] train-logloss:0.283734 validation-logloss:0.306943
[11:07:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[11:07:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[1624] train-logloss:0.283669 validation-logloss:0.306902
[11:07:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:07:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1626] train-logloss:0.28365 validation-logloss:0.306893
[11:07:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max_depth=8
[11:07:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[1628] train-logloss:0.283624 validation-logloss:0.306882
[11:07:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:07:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[1630] train-logloss:0.283591 validation-logloss:0.306867
[11:07:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:07:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[1632] train-logloss:0.283567 validation-logloss:0.306849
[11:07:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:07:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[1634] train-logloss:0.283537 validation-logloss:0.306829
[11:07:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:07:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[1636] train-logloss:0.283499 validation-logloss:0.306803
[11:07:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:07:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[1638] train-logloss:0.283432 validation-logloss:0.306759
[11:08:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:08:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[1640] train-logloss:0.283407 validation-logloss:0.306748
[11:08:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:08:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[1642] train-logloss:0.283386 validation-logloss:0.306745
[11:08:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[1710] train-logloss:0.28232 validation-logloss:0.306172
[11:09:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:09:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 204 extra nodes, 0 pruned nodes, max_depth=8
[1712] train-logloss:0.282229 validation-logloss:0.30612
[11:09:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:09:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 2 pruned nodes, max_depth=8
[1714] train-logloss:0.282208 validation-logloss:0.306109
[11:09:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 104 extra nodes, 0 pruned nodes, max_depth=8
[11:09:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1716] train-logloss:0.282145 validation-logloss:0.306082
[11:09:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:09:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[1718] train-logloss:0.28212 validation-logloss:0.306066
[11:09:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:09:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[1720] train-logloss:0.282078 validation-logloss:0.306048
[11:09:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:09:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[1722] train-logloss:0.282045 validation-logloss:0.306028
[11:09:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:09:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[1724] train-logloss:0.28201 validation-logloss:0.306018
[11:09:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:09:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[1726] train-logloss:0.281973 validation-logloss:0.306002
[11:09:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:09:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1728] train-logloss:0.281949 validation-logloss:0.305995
[11:09:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:09:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1730] train-logloss:0.281931 validation-logloss:0.305987
[11:09:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:09:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[1732] train-logloss:0.281883 validation-logloss:0.305961
[11:09:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:09:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1734] train-logloss:0.281865 validation-logloss:0.305956
[11:09:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[11:09:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1736] train-logloss:0.281833 validation-logloss:0.305945
[11:09:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:09:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[1738] train-logloss:0.281807 validation-logloss:0.305932
[11:09:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:09:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[1740] train-logloss:0.281788 validation-logloss:0.305923
[11:09:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:09:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[1742] train-logloss:0.28177 validation-logloss:0.305912
[11:10:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[1876] train-logloss:0.279887 validation-logloss:0.30503
[11:12:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:12:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[1878] train-logloss:0.27985 validation-logloss:0.305008
[11:12:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:12:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[1880] train-logloss:0.279818 validation-logloss:0.304992
[11:12:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max_depth=8
[11:12:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[1882] train-logloss:0.279778 validation-logloss:0.304971
[11:12:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:12:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[1884] train-logloss:0.279751 validation-logloss:0.304959
[11:12:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:12:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 140 extra nodes, 0 pruned nodes, max_depth=8
[1886] train-logloss:0.279684 validation-logloss:0.304925
[11:12:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:12:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 2 pruned nodes, max_depth=8
[1888] train-logloss:0.279624 validation-logloss:0.304893
[11:12:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:12:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[1890] train-logloss:0.279598 validation-logloss:0.304881
[11:12:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:12:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 122 extra nodes, 0 pruned nodes, max_depth=8
[1892] train-logloss:0.279538 validation-logloss:0.304853
[11:13:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:13:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1894] train-logloss:0.279518 validation-logloss:0.304848
[11:13:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 2 pruned nodes, max_depth=8
[11:13:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[1896] train-logloss:0.279496 validation-logloss:0.304839
[11:13:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[11:13:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1898] train-logloss:0.279464 validation-logloss:0.304825
[11:13:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:13:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[1900] train-logloss:0.279442 validation-logloss:0.304815
[11:13:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 2 pruned nodes, max_depth=8
[11:13:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[1902] train-logloss:0.2794 validation-logloss:0.304785
[11:13:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:13:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 4 pruned nodes, max_depth=8
[1904] train-logloss:0.279383 validation-logloss:0.304776
[11:13:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[11:13:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[1906] train-logloss:0.279351 validation-logloss:0.304764
[11:13:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[11:13:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[1908] train-logloss:0.279294 validation-logloss:0.304736
[11:13:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
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[11:15:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:15:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 2 pruned nodes, max_depth=8
[2010] train-logloss:0.277866 validation-logloss:0.304062
[11:15:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[2012] train-logloss:0.27784 validation-logloss:0.304049
[11:15:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:15:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[2014] train-logloss:0.27782 validation-logloss:0.304044
[11:15:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:15:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2016] train-logloss:0.277804 validation-logloss:0.304037
[11:15:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2018] train-logloss:0.277789 validation-logloss:0.304031
[11:15:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 100 extra nodes, 0 pruned nodes, max_depth=8
[11:15:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2020] train-logloss:0.277715 validation-logloss:0.303982
[11:15:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:15:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 84 extra nodes, 2 pruned nodes, max_depth=8
[2022] train-logloss:0.277689 validation-logloss:0.303976
[11:15:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:15:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2024] train-logloss:0.27767 validation-logloss:0.30397
[11:15:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2026] train-logloss:0.277655 validation-logloss:0.303964
[11:15:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[11:15:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[2028] train-logloss:0.277629 validation-logloss:0.30395
[11:15:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[2030] train-logloss:0.277609 validation-logloss:0.303942
[11:15:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[2032] train-logloss:0.277587 validation-logloss:0.303934
[11:15:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[11:15:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2034] train-logloss:0.277559 validation-logloss:0.303919
[11:15:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:15:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2036] train-logloss:0.277542 validation-logloss:0.303915
[11:15:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 2 pruned nodes, max_depth=8
[11:15:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2038] train-logloss:0.27749 validation-logloss:0.303886
[11:15:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[11:15:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[2040] train-logloss:0.277446 validation-logloss:0.303861
[11:15:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:15:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 170 extra nodes, 2 pruned nodes, max_depth=8
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uned nodes, max\_depth=8  
[2042] train-logloss:0.277366 validation-logloss:0.303814  
[11:15:53] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 80 extra nodes, 0 pruned nodes, max\_depth=8  
[2044] train-logloss:0.277332 validation-logloss:0.303798  
[11:15:56] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[2046] train-logloss:0.277314 validation-logloss:0.303786  
[11:15:58] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max\_depth=8  
[2048] train-logloss:0.277299 validation-logloss:0.303778  
[11:16:01] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:01] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max\_depth=8  
[2050] train-logloss:0.277278 validation-logloss:0.303768  
[11:16:02] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:03] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max\_depth=8  
[2052] train-logloss:0.277256 validation-logloss:0.303757  
[11:16:05] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:06] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max\_depth=8  
[2054] train-logloss:0.277222 validation-logloss:0.303738  
[11:16:07] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:08] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max\_depth=8  
[2056] train-logloss:0.277204 validation-logloss:0.303732  
[11:16:09] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:10] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max\_depth=8  
[2058] train-logloss:0.277175 validation-logloss:0.303723  
[11:16:12] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:13] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max\_depth=8  
[2060] train-logloss:0.277107 validation-logloss:0.303678  
[11:16:14] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:15] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max\_depth=8  
[2062] train-logloss:0.277087 validation-logloss:0.303666  
[11:16:16] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:17] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 194 extra nodes, 0 pruned nodes, max\_depth=8  
[2064] train-logloss:0.277018 validation-logloss:0.303637  
[11:16:18] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 78 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:19] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max\_depth=8  
[2066] train-logloss:0.276988 validation-logloss:0.303628  
[11:16:21] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:22] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max\_depth=8  
[2068] train-logloss:0.276971 validation-logloss:0.303622  
[11:16:23] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:24] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max\_depth=8  
[2070] train-logloss:0.276955 validation-logloss:0.303613  
[11:16:25] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:26] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max\_depth=8  
[2072] train-logloss:0.276923 validation-logloss:0.303597  
[11:16:27] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max\_depth=8  
[11:16:29] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max\_depth=8  
[2074] train-logloss:0.276907 validation-logloss:0.303584  
[11:16:30] /workspace/src/tree/updater\_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max\_depth=8

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ned nodes, max_depth=8
[11:16:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2076] train-logloss:0.276889 validation-logloss:0.303574
[11:16:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:16:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2078] train-logloss:0.276868 validation-logloss:0.303569
[11:16:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:16:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2080] train-logloss:0.276848 validation-logloss:0.303559
[11:16:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:16:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2082] train-logloss:0.276831 validation-logloss:0.303552
[11:16:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 2 pruned nodes, max_depth=8
[11:16:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2084] train-logloss:0.276815 validation-logloss:0.303547
[11:16:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 114 extra nodes, 0 pruned nodes, max_depth=8
[11:16:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2086] train-logloss:0.276766 validation-logloss:0.303523
[11:16:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 138 extra nodes, 0 pruned nodes, max_depth=8
[11:16:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2088] train-logloss:0.276727 validation-logloss:0.303516
[11:16:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:16:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2090] train-logloss:0.276713 validation-logloss:0.303509
[11:16:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:16:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2092] train-logloss:0.276697 validation-logloss:0.303504
[11:16:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:16:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2094] train-logloss:0.276675 validation-logloss:0.3035
[11:16:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:16:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2096] train-logloss:0.276658 validation-logloss:0.303491
[11:16:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:16:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2098] train-logloss:0.276642 validation-logloss:0.303483
[11:16:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 2 pruned nodes, max_depth=8
[11:16:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2100] train-logloss:0.276617 validation-logloss:0.303468
[11:17:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[11:17:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2102] train-logloss:0.276582 validation-logloss:0.30345
[11:17:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[11:17:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2104] train-logloss:0.276559 validation-logloss:0.303433
[11:17:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[11:17:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 2 pruned nodes, max_depth=8
[2106] train-logloss:0.276543 validation-logloss:0.303422
[11:17:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:17:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
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[11:17:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[2142] train-logloss:0.276109 validation-logloss:0.303187
[11:17:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:17:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2144] train-logloss:0.276081 validation-logloss:0.303174
[11:17:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:17:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2146] train-logloss:0.276068 validation-logloss:0.303164
[11:17:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 2 pruned nodes, max_depth=8
[11:17:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 2 pruned nodes, max_depth=8
[2148] train-logloss:0.276035 validation-logloss:0.303153
[11:17:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 88 extra nodes, 0 pruned nodes, max_depth=8
[11:17:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[2150] train-logloss:0.275994 validation-logloss:0.303132
[11:17:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:17:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2152] train-logloss:0.275975 validation-logloss:0.303121
[11:18:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:18:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2154] train-logloss:0.275953 validation-logloss:0.303115
[11:18:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:18:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[2156] train-logloss:0.275937 validation-logloss:0.303111
[11:18:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[11:18:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2158] train-logloss:0.275894 validation-logloss:0.30309
[11:18:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:18:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2160] train-logloss:0.27588 validation-logloss:0.303082
[11:18:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:18:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[2162] train-logloss:0.275857 validation-logloss:0.303073
[11:18:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:18:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[2164] train-logloss:0.275832 validation-logloss:0.303062
[11:18:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:18:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2166] train-logloss:0.275816 validation-logloss:0.303056
[11:18:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:18:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2168] train-logloss:0.275796 validation-logloss:0.303047
[11:18:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:18:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2170] train-logloss:0.275777 validation-logloss:0.303039
[11:18:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 136 extra nodes, 0 pruned nodes, max_depth=8
[11:18:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2172] train-logloss:0.275719 validation-logloss:0.303011
[11:18:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:18:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2174] train-logloss:0.2757 validation-logloss:0.303008
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ned nodes, max_depth=8
[2208] train-logloss:0.275263 validation-logloss:0.302808
[11:19:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:19:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2210] train-logloss:0.275244 validation-logloss:0.302801
[11:19:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:19:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2212] train-logloss:0.275224 validation-logloss:0.30279
[11:19:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:19:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2214] train-logloss:0.275207 validation-logloss:0.302782
[11:19:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[11:19:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[2216] train-logloss:0.275168 validation-logloss:0.30276
[11:19:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:19:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[2218] train-logloss:0.275131 validation-logloss:0.30274
[11:19:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:19:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2220] train-logloss:0.275117 validation-logloss:0.302738
[11:19:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:19:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 16 extra nodes, 0 pruned nodes, max_depth=8
[2222] train-logloss:0.275106 validation-logloss:0.302732
[11:19:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:19:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2224] train-logloss:0.275088 validation-logloss:0.302722
[11:19:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[11:19:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2226] train-logloss:0.27506 validation-logloss:0.302714
[11:19:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:19:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[2228] train-logloss:0.275023 validation-logloss:0.302698
[11:19:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:19:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2230] train-logloss:0.27501 validation-logloss:0.302691
[11:19:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:19:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2232] train-logloss:0.274981 validation-logloss:0.302681
[11:19:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 2 pruned nodes, max_depth=8
[11:19:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2234] train-logloss:0.27496 validation-logloss:0.302672
[11:19:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:19:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2236] train-logloss:0.274946 validation-logloss:0.302667
[11:19:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:19:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[2238] train-logloss:0.274909 validation-logloss:0.302648
[11:19:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:19:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[2240] train-logloss:0.27488 validation-logloss:0.30264
[11:19:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[11:19:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 2 pruned nodes, max_depth=8
[2242] train-logloss:0.274864 validation-logloss:0.302635
[11:19:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 16 extra nodes, 0 pruned nodes, max_depth=8
[11:19:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2244] train-logloss:0.274853 validation-logloss:0.302628
[11:19:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[11:19:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2246] train-logloss:0.274817 validation-logloss:0.302612
[11:19:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:19:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2248] train-logloss:0.274797 validation-logloss:0.302603
[11:19:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:19:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2250] train-logloss:0.274782 validation-logloss:0.302597
[11:19:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 102 extra nodes, 2 pruned nodes, max_depth=8
[11:19:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[2252] train-logloss:0.274736 validation-logloss:0.302576
[11:19:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:19:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2254] train-logloss:0.274742 validation-logloss:0.302569
[11:19:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 0 pruned nodes, max_depth=8
[11:19:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2256] train-logloss:0.274694 validation-logloss:0.302556
[11:19:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 2 pruned nodes, max_depth=8
[11:20:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2258] train-logloss:0.274672 validation-logloss:0.30255
[11:20:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:20:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2260] train-logloss:0.274657 validation-logloss:0.302546
[11:20:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:20:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2262] train-logloss:0.27464 validation-logloss:0.302542
[11:20:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:20:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2264] train-logloss:0.274615 validation-logloss:0.302533
[11:20:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:20:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2266] train-logloss:0.274603 validation-logloss:0.302526
[11:20:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:20:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[2268] train-logloss:0.274575 validation-logloss:0.302521
[11:20:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:20:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 134 extra nodes, 0 pruned nodes, max_depth=8
[2270] train-logloss:0.274518 validation-logloss:0.302498
[11:20:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 68 extra nodes, 2 pruned nodes, max_depth=8
[11:20:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[2272] train-logloss:0.274481 validation-logloss:0.30248
[11:20:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:20:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
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[11:20:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2308] train-logloss:0.274018 validation-logloss:0.302279
[11:21:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:21:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2310] train-logloss:0.274002 validation-logloss:0.302274
[11:21:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:21:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2312] train-logloss:0.273981 validation-logloss:0.302264
[11:21:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:21:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[2314] train-logloss:0.273947 validation-logloss:0.302241
[11:21:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:21:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2316] train-logloss:0.273934 validation-logloss:0.302235
[11:21:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[11:21:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[2318] train-logloss:0.273901 validation-logloss:0.302228
[11:21:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:21:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 2 pruned nodes, max_depth=8
[2320] train-logloss:0.273881 validation-logloss:0.302219
[11:21:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:21:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2322] train-logloss:0.273866 validation-logloss:0.302215
[11:21:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:21:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2324] train-logloss:0.273848 validation-logloss:0.30221
[11:21:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[11:21:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[2326] train-logloss:0.27381 validation-logloss:0.302189
[11:21:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:21:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2328] train-logloss:0.273793 validation-logloss:0.302184
[11:21:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 52 extra nodes, 0 pruned nodes, max_depth=8
[11:21:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2330] train-logloss:0.27377 validation-logloss:0.302176
[11:21:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:21:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2332] train-logloss:0.27375 validation-logloss:0.30217
[11:21:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:21:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 92 extra nodes, 0 pruned nodes, max_depth=8
[2334] train-logloss:0.273705 validation-logloss:0.302154
[11:21:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[11:21:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[2336] train-logloss:0.273681 validation-logloss:0.302146
[11:21:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:21:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2338] train-logloss:0.273661 validation-logloss:0.302139
[11:21:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:21:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 2 pruned nodes, max_depth=8
[2340] train-logloss:0.273614 validation-logloss:0.302112
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ned nodes, max_depth=8
[11:26:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2574] train-logloss:0.270848 validation-logloss:0.300976
[11:26:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 2 pruned nodes, max_depth=8
[11:26:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 2 pruned nodes, max_depth=8
[2576] train-logloss:0.270795 validation-logloss:0.300948
[11:26:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[11:26:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2578] train-logloss:0.270718 validation-logloss:0.300898
[11:26:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:26:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2580] train-logloss:0.270702 validation-logloss:0.300891
[11:26:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:26:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2582] train-logloss:0.27069 validation-logloss:0.300885
[11:26:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:26:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2584] train-logloss:0.270677 validation-logloss:0.300879
[11:26:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[11:26:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2586] train-logloss:0.270647 validation-logloss:0.300865
[11:26:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 0 pruned nodes, max_depth=8
[11:26:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2588] train-logloss:0.270604 validation-logloss:0.300839
[11:26:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 4 pruned nodes, max_depth=8
[11:26:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2590] train-logloss:0.270589 validation-logloss:0.300836
[11:26:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 120 extra nodes, 0 pruned nodes, max_depth=8
[11:26:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2592] train-logloss:0.270553 validation-logloss:0.300825
[11:26:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[11:26:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2594] train-logloss:0.270528 validation-logloss:0.300812
[11:26:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:26:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2596] train-logloss:0.270511 validation-logloss:0.300809
[11:26:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:26:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 106 extra nodes, 2 pruned nodes, max_depth=8
[2598] train-logloss:0.27048 validation-logloss:0.300805
[11:26:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:26:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2600] train-logloss:0.270465 validation-logloss:0.300805
[11:26:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:26:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2602] train-logloss:0.270453 validation-logloss:0.300801
[11:26:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:26:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 128 extra nodes, 0 pruned nodes, max_depth=8
[2604] train-logloss:0.2704 validation-logloss:0.300786
[11:26:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:26:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 90 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[2706] train-logloss:0.269215 validation-logloss:0.30025
[11:28:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:28:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2708] train-logloss:0.269203 validation-logloss:0.300244
[11:28:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:28:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2710] train-logloss:0.269177 validation-logloss:0.30023
[11:28:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 76 extra nodes, 0 pruned nodes, max_depth=8
[11:28:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[2712] train-logloss:0.269149 validation-logloss:0.300225
[11:28:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:28:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2714] train-logloss:0.269136 validation-logloss:0.300219
[11:28:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:28:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 2 pruned nodes, max_depth=8
[2716] train-logloss:0.269121 validation-logloss:0.300214
[11:28:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[11:28:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2718] train-logloss:0.269102 validation-logloss:0.300207
[11:28:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:29:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[2720] train-logloss:0.269088 validation-logloss:0.300202
[11:29:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:29:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 70 extra nodes, 0 pruned nodes, max_depth=8
[2722] train-logloss:0.26907 validation-logloss:0.300195
[11:29:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 62 extra nodes, 0 pruned nodes, max_depth=8
[11:29:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2724] train-logloss:0.269046 validation-logloss:0.300184
[11:29:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 196 extra nodes, 2 pruned nodes, max_depth=8
[11:29:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 94 extra nodes, 0 pruned nodes, max_depth=8
[2726] train-logloss:0.268929 validation-logloss:0.300119
[11:29:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:29:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2728] train-logloss:0.268904 validation-logloss:0.300107
[11:29:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:29:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2730] train-logloss:0.268887 validation-logloss:0.300103
[11:29:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[11:29:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2732] train-logloss:0.268872 validation-logloss:0.300096
[11:29:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:29:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2734] train-logloss:0.26886 validation-logloss:0.300092
[11:29:18] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:29:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[2736] train-logloss:0.26884 validation-logloss:0.300085
[11:29:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:29:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2738] train-logloss:0.268827 validation-logloss:0.300083
[11:29:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[11:29:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2740] train-logloss:0.268811 validation-logloss:0.300078
[11:29:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:29:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[2742] train-logloss:0.268797 validation-logloss:0.300076
[11:29:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:29:28] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[2744] train-logloss:0.268779 validation-logloss:0.300068
[11:29:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 144 extra nodes, 2 pruned nodes, max_depth=8
[11:29:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2746] train-logloss:0.268733 validation-logloss:0.300049
[11:29:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:29:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2748] train-logloss:0.268714 validation-logloss:0.300038
[11:29:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:29:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[2750] train-logloss:0.2687 validation-logloss:0.300035
[11:29:36] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:29:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 2 pruned nodes, max_depth=8
[2752] train-logloss:0.268684 validation-logloss:0.300034
[11:29:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:29:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2754] train-logloss:0.268668 validation-logloss:0.300024
[11:29:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 150 extra nodes, 0 pruned nodes, max_depth=8
[11:29:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[2756] train-logloss:0.268618 validation-logloss:0.300002
[11:29:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:29:44] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2758] train-logloss:0.268603 validation-logloss:0.29999
[11:29:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:29:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[2760] train-logloss:0.268579 validation-logloss:0.299983
[11:29:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
[11:29:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 2 pruned nodes, max_depth=8
[2762] train-logloss:0.268559 validation-logloss:0.29998
[11:29:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:29:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 64 extra nodes, 0 pruned nodes, max_depth=8
[2764] train-logloss:0.268539 validation-logloss:0.299975
[11:29:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[11:29:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2766] train-logloss:0.268528 validation-logloss:0.299971
[11:29:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 112 extra nodes, 0 pruned nodes, max_depth=8
[11:29:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 46 extra nodes, 0 pruned nodes, max_depth=8
[2768] train-logloss:0.268479 validation-logloss:0.299955
[11:29:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:29:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2770] train-logloss:0.268465 validation-logloss:0.299952
[11:29:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 148 extra nodes, 0 pruned nodes, max_depth=8
[11:30:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
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ned nodes, max_depth=8
[2872] train-logloss:0.267394 validation-logloss:0.29949
[11:31:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:31:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2874] train-logloss:0.267376 validation-logloss:0.299483
[11:31:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[11:31:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 2 pruned nodes, max_depth=8
[2876] train-logloss:0.267354 validation-logloss:0.299484
[11:31:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 2 pruned nodes, max_depth=8
[11:32:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2878] train-logloss:0.267341 validation-logloss:0.299483
[11:32:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 48 extra nodes, 0 pruned nodes, max_depth=8
[11:32:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 60 extra nodes, 0 pruned nodes, max_depth=8
[2880] train-logloss:0.267317 validation-logloss:0.299474
[11:32:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:32:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2882] train-logloss:0.267303 validation-logloss:0.29947
[11:32:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:32:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2884] train-logloss:0.267294 validation-logloss:0.299465
[11:32:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:32:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[2886] train-logloss:0.267269 validation-logloss:0.299451
[11:32:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:32:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[2888] train-logloss:0.267252 validation-logloss:0.299443
[11:32:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:32:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2890] train-logloss:0.267236 validation-logloss:0.299436
[11:32:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:32:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2892] train-logloss:0.26722 validation-logloss:0.299435
[11:32:17] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:32:19] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2894] train-logloss:0.267211 validation-logloss:0.299432
[11:32:20] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:32:21] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2896] train-logloss:0.267201 validation-logloss:0.299424
[11:32:22] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:32:23] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2898] train-logloss:0.267189 validation-logloss:0.299424
[11:32:24] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:32:25] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 256 extra nodes, 0 pruned nodes, max_depth=8
[2900] train-logloss:0.267098 validation-logloss:0.299381
[11:32:26] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:32:27] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2902] train-logloss:0.267079 validation-logloss:0.299372
[11:32:29] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 74 extra nodes, 0 pruned nodes, max_depth=8
[11:32:30] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2904] train-logloss:0.267057 validation-logloss:0.299364
[11:32:31] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 54 extra nodes, 0 pruned nodes, max_depth=8
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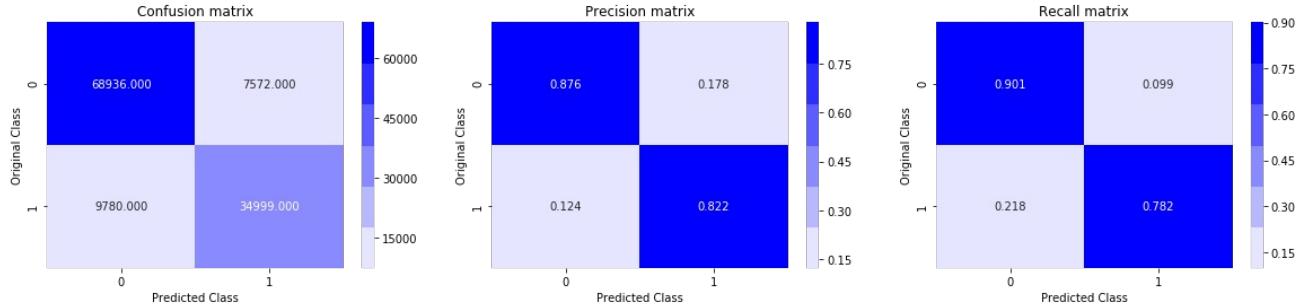
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ned nodes, max_depth=8
[11:32:32] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2906] train-logloss:0.267041 validation-logloss:0.299355
[11:32:33] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:32:34] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 82 extra nodes, 0 pruned nodes, max_depth=8
[2908] train-logloss:0.267011 validation-logloss:0.299342
[11:32:35] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:32:37] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2910] train-logloss:0.266999 validation-logloss:0.299336
[11:32:38] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:32:39] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[2912] train-logloss:0.266978 validation-logloss:0.29933
[11:32:40] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[11:32:41] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2914] train-logloss:0.266962 validation-logloss:0.299326
[11:32:42] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[11:32:43] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2916] train-logloss:0.266948 validation-logloss:0.299322
[11:32:45] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:32:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[2918] train-logloss:0.26693 validation-logloss:0.299313
[11:32:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[11:32:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2920] train-logloss:0.26691 validation-logloss:0.2993
[11:32:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 40 extra nodes, 0 pruned nodes, max_depth=8
[11:32:50] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2922] train-logloss:0.266897 validation-logloss:0.299292
[11:32:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 42 extra nodes, 0 pruned nodes, max_depth=8
[11:32:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[2924] train-logloss:0.26688 validation-logloss:0.299286
[11:32:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:32:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2926] train-logloss:0.266867 validation-logloss:0.29928
[11:32:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:32:57] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 58 extra nodes, 0 pruned nodes, max_depth=8
[2928] train-logloss:0.266843 validation-logloss:0.299266
[11:32:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[11:32:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 130 extra nodes, 0 pruned nodes, max_depth=8
[2930] train-logloss:0.266795 validation-logloss:0.299246
[11:33:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:33:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[2932] train-logloss:0.266782 validation-logloss:0.299241
[11:33:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 66 extra nodes, 0 pruned nodes, max_depth=8
[11:33:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[2934] train-logloss:0.266762 validation-logloss:0.299232
[11:33:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
[11:33:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 16 extra nodes, 0 pruned nodes, max_depth=8
[2936] train-logloss:0.266752 validation-logloss:0.299233
[11:33:07] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 38 extra nodes, 0 pruned nodes, max_depth=8
[11:33:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 0 pruned nodes, max_depth=8
```



```
[11:33:46] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2972] train-logloss:0.266416 validation-logloss:0.299115
[11:33:47] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 2 pruned nodes, max_depth=8
[11:33:48] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 34 extra nodes, 0 pruned nodes, max_depth=8
[2974] train-logloss:0.266401 validation-logloss:0.299106
[11:33:49] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:33:51] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 96 extra nodes, 2 pruned nodes, max_depth=8
[2976] train-logloss:0.266364 validation-logloss:0.299087
[11:33:52] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:33:53] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[2978] train-logloss:0.266353 validation-logloss:0.299083
[11:33:54] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:33:55] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 26 extra nodes, 0 pruned nodes, max_depth=8
[2980] train-logloss:0.266342 validation-logloss:0.29908
[11:33:56] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 44 extra nodes, 0 pruned nodes, max_depth=8
[11:33:58] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 36 extra nodes, 0 pruned nodes, max_depth=8
[2982] train-logloss:0.266324 validation-logloss:0.299078
[11:33:59] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 50 extra nodes, 0 pruned nodes, max_depth=8
[11:34:00] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 72 extra nodes, 0 pruned nodes, max_depth=8
[2984] train-logloss:0.266282 validation-logloss:0.299062
[11:34:01] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:34:02] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2986] train-logloss:0.266271 validation-logloss:0.299054
[11:34:03] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 22 extra nodes, 2 pruned nodes, max_depth=8
[11:34:04] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2988] train-logloss:0.266261 validation-logloss:0.299053
[11:34:05] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 152 extra nodes, 0 pruned nodes, max_depth=8
[11:34:06] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 56 extra nodes, 0 pruned nodes, max_depth=8
[2990] train-logloss:0.266205 validation-logloss:0.299025
[11:34:08] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[11:34:09] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 28 extra nodes, 0 pruned nodes, max_depth=8
[2992] train-logloss:0.266194 validation-logloss:0.299022
[11:34:10] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 20 extra nodes, 0 pruned nodes, max_depth=8
[11:34:11] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2994] train-logloss:0.266185 validation-logloss:0.29902
[11:34:12] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 24 extra nodes, 0 pruned nodes, max_depth=8
[11:34:13] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 18 extra nodes, 0 pruned nodes, max_depth=8
[2996] train-logloss:0.266172 validation-logloss:0.299017
[11:34:14] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 32 extra nodes, 0 pruned nodes, max_depth=8
[11:34:15] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 2 pruned nodes, max_depth=8
[2998] train-logloss:0.266158 validation-logloss:0.299011
[11:34:16] /workspace/src/tree/updater_prune.cc:74: tree pruning end, 1 roots, 30 extra nodes, 0 pruned nodes, max_depth=8
[2999] train-logloss:0.266152 validation-logloss:0.299007
```

The test log loss is: 0.299006806432742

Total number of validation data points : 121287



Time taken: 0 hours 58 minutes and 35.71 seconds.

## Comparing performance for all the models.

In [7]:

```
from IPython.core.display import display, HTML
display(HTML("<style>.container { width:100% !important; }</style>"))

from prettytable import PrettyTable

table =PrettyTable()
table.field_names = ["Model", "Vectorizer", "Log Loss", "Class 0 Precision", "Class 1 Precision", "Class 0 Recall", "Class 1 Recall"]
table.add_row(["Random Model", 'Weighted TFIDF W2V', 0.8879, 0.629, 0.368, 0.499, 0.498])
table.add_row(["SGDClassifier(loss='log')", 'Weighted TFIDF W2V', 0.4774, 0.773, 0.724, 0.875, 0.561])
table.add_row(["SGDClassifier(loss='hinge')", 'Weighted TFIDF W2V', 0.4635, 0.764, 0.754, 0.899, 0.526])
table.add_row(["XGBoost Model", 'Weighted TFIDF W2V', 0.3444, 0.843, 0.799, 0.894, 0.716])
table.add_row(["XGBoost (hyp tuned)", 'Weighted TFIDF W2V', 0.3050, 0.870, 0.816, 0.899, 0.770])

table.add_row(["Logistic Regression", 'TF-IDF ', 0.4575, 0.776, 0.754, 0.893, 0.560])
table.add_row(["SGDClassifier(loss='log',penalty='l1')", 'TF-IDF ', 0.4472, 0.791, 0.732, 0.869, 0.609])
table.add_row(["SGDClassifier(loss='log',penalty='l2')", 'TF-IDF ', 0.4416, 0.789, 0.738, 0.875, 0.599])
table.add_row(["SGDClassifier(loss='hinge',penalty='l1')", 'TF-IDF ', 0.4452, 0.793, 0.734, 0.870, 0.612])
table.add_row(["XGBoost", 'TF-IDF ', 0.299, 0.876, 0.822, 0.901, 0.782])

print(table)
```

Model		Vectorizer	Log Loss	Class 0 Precision	Class 1 Precision	Class 0 Recall	Class 1 Recall
0.368	Random Model	Weighted TFIDF W2V	0.8879	0.629	0.368	0.499	0.498
0.724	SGDClassifier(loss='log')	Weighted TFIDF W2V	0.4774	0.773	0.724	0.875	0.561
0.754	SGDClassifier(loss='hinge')	Weighted TFIDF W2V	0.4635	0.764	0.754	0.899	0.526
0.799	XGBoost Model	Weighted TFIDF W2V	0.3444	0.843	0.799	0.894	0.716
0.816	XGBoost (hyp tuned)	Weighted TFIDF W2V	0.305	0.87	0.816	0.899	0.77
0.754	Logistic Regression	TF-IDF	0.4575	0.776	0.754	0.893	0.56
0.732	SGDClassifier(loss='log',penalty='l1')	TF-IDF	0.4472	0.791	0.732	0.869	0.609
0.738	SGDClassifier(loss='log',penalty='l2')	TF-IDF	0.4416	0.789	0.738	0.875	0.599
0.734	SGDClassifier(loss='hinge',penalty='l1')	TF-IDF	0.4452	0.793	0.734	0.875	0.612
0.822	XGBoost	TF-IDF	0.299	0.876	0.822	0.901	0.782

## Conclusion:

The main objective of this Case Study is to classify a new question on Quora as either a duplicate of an existing question or not. Each day thousands of questions are asked on Quora. So there's bound to be questions that are duplicates. Imagine two people asking two differently worded questions which basically have the same meaning and hence the same answer. In this case if two questions are classified as duplicates of one another, using this flag, both the questions can be linked to the same set of answers. If they were not classified as duplicates of each other, then there would be separate answers for each of these questions. This is not the ideal scenario.

Because, ideally we would want the system to pick up duplicate questions and assign answers to a new duplicate question which has been answered for an earlier question. So having said that, the main objective of this experiment was to build an intelligent system which can classify new questions to be duplicate or not of all the existing questions.

For the given task, we are provided with a dataset which contains almost 400K sample pairs of questions. Each of these data points has a label 'is\_duplicate'. 'is\_duplicate' = 0, if the pairs of questions are not duplicate of one another. 'is\_duplicate' = 1, if the pair of questions are duplicates! The problem that we have is a binary classification problem, since, for a given pair of question have to predict either 'is\_duplicate' equal to 0 or 1. The metric that we will chose for this problem is 'log loss'. We will also use a binary confusion, precision and recall matrices to get more crisp ideas about individual classes.

Few things to keep in mind:

1. The cost of misclassification is very very high: Imagine if we wrongly tag a question to be duplicate of another question, the user might be redirected to the answer page that is not meant for the new question that he has asked. This wil absolutely hinder user experience!
2. Ideally, we would want a probability value (P) of Q1 being similar to Q2. We can now set a threshold like if  $P > 0.95$ , then we will classify the questions to be duplicate of one another. After getting the probability scores, we can experiment with different values of P. For example we can try with  $P=0.95$ . If we are satisfied with the result then it's fine. If not, we can always go ahead and increase the threshold to 0.99 in order to avoid misclassification.

Why have we chosen our metric to be 'log loss' ?

As we have discussed above, we will use our Key Performance Indicator to be 'log' loss. Minimising the Log Loss is basically equivalent to maximising the accuracy of the classifier. In order to calculate Log loss, the classifier must actually assign a probability value for each of the class labels. Ideally as the predicted class probabilities improve, the Log loss keeps on reducing. Log loss penalises the classifier very heavily if it classifies a Class 0 to be Class 1 and vice versa. For example, if for a particular observation, the classifier assigns a very small probability to the correct class then the corresponding contribution to the Log Loss will be very large. Naturally this is going to have a significant impact on the overall Log Loss for the classifier,which will then become higher. But, in other scenario if the classifier assigns a high probability value to the correct class, then the Log loss will reduce significantly. Now, imagine a scenario where the model doesn't predict probability scores. It only predicts class labels. In this case, class labels can be either 0 or 1. So we won't get a deep understanding or any interpretability about why a particular pair of question has been labeled as either 0 or 1. Chosing the KPI as Log loss gives us this freedom. We can interpret the models. We can say this two questions are 95% similar or 80% similar, instead of just bluntly classifying them as duplicates.

For deep understanding of log loss please visit: <https://datawookie.netlify.com/blog/2015/12/making-sense-of-logarithmic-loss/> (<https://datawookie.netlify.com/blog/2015/12/making-sense-of-logarithmic-loss/>)

Anyway, lets move on to EDA. A high level overview reveals that there are almost 250K question pairs that aren't duplicates and almost 150K question pairs are duplicates. Also, there are a total of 537933 unique questions out of which 111780 of questions occurs more than once. The maximum number of times any question is repeated across the entire data is 157. Thankfully, there are no duplicate pairs of questions.

Before the data cleaning stage, we have done some basic feature engineering. For more information please refer to section 3.3. On analysing our 'word\_share' feature we have seen that the two classes are partially seperable with some overlap. In general, as the 'word\_share' count increases, the probability of any pair of questions to be duplicates also increases. This suggest that 'word\_share' might be an important feature as far as this problem is concerned. The feature 'word\_Common' might not be hugely important, as there is a lot of overlap between the classes.

Also, I have used Decision Trees to determine the most important features out of all the 26 hand crafter features we have extracted from the text data.

We have removed HTML tags from each of the questions, removed all the punctuations, stopwords. We have expanded the most commonly used English contractions for each questions. We have also performed Stemming using SnowBall stemmer.

After performing data cleaning, we have extracted some advance features. The four most important amongst them are - fuzz\_ratio, fuzz\_partial\_ratio, token\_sort\_ratio, token\_set\_ratio and longest\_substring\_ratio. Go to section 3.5 for further details. On plotting the word cloud we have observed that 16110763 words are there in all the questions belonging to duplicate questions and almost 33201102 are there in the non duplicate pairs.

We have used these advance features to plot a TSNE plot. By looking at the plot, we can clearly see that the two classes can be seperated nicely, with some overlapping. This suggests that the advance features are useful in some ways.

Now that we have extracted our basic and advance features, it's time for us to featurize the text in questions. We will use two approach here - using simple TFIDF Features and using TFIDF Weighted Word2Vec representations. We will combine all the features we have obtained into one single data frame and apply Machine Learning models on top of it.

Before building our models, the first thing we need to do is to build a baseline (random) model. Why this is done? Well, we have selected our KPI to be log loss. We all know that the minimum value of log loss is 0, but the maximum value goes till infinity! So we want to determine using a random model what our worst case log loss will be. In a random model - for every data point we generate the predicted class labels randomly. This is the most dumb model we can ever build. The log loss for this model is 0.88. So using this value we will clearly get an idea what out worst case log loss should be! Now using ML models, we will try and reduce this log loss and bring it as close to 0 as possible.

The models we have used are Logistic Regression with SGDClassifier, Linear SVM with SGD Classifier, a simple Logistic Regression model and XGBoost model. Amongst all the featurizations and all the models that we have used, the XGBoost model applied on the simple TFIDF Vectorizers gave us the least value of test log loss - 0.299. The train log loss obtained using this model is 0.266. The small difference in the train and test log loss suggests that we might have a bit of overfitting (very small)

In [13]:

```
import pdfkit
pdfkit.from_file('Quora Assignment-FinalSubmission.html', 'Quora Assignment-FinalSubmission.pdf')
```

```
Loading page (1/2)
Warning: Failed to load file:///mnt/48C69C47C69C3762/AAIC/AAIC ALL Videos/41. Case Study 3: Quora question Pair Similarity Problem/data/custom.css (ignore)
Printing pages (2/2)
Done
```

Out[13]:

```
True
```