

ESOL Datasets:

Libraries required

We will use the standard data science and machine learning libraries:

```
In [1]: # Pandas and numpy for data manipulation
import pandas as pd
import numpy as np
# Matplotlib visualization
import matplotlib.pyplot as plt
# Seaborn for visualization
import seaborn as sns
#Regression
import statsmodels.api as sm
# Splitting data into training and testing
from sklearn.model_selection import train_test_split
#Desicion tree regression
from sklearn.tree import DecisionTreeRegressor
#R^2 score
from sklearn import metrics
# MLP
from sklearn.neural_network import MLPRegressor
from sklearn.ensemble import GradientBoostingRegressor
# Support vector machine
from sklearn.svm import SVR
```

```
In [2]: import warnings
warnings.simplefilter('ignore')
```

Data Cleaning and Formatting

Load in the Data and Examine

We will be loading our data into a pandas dataframe, one of the most useful data structures for data science. Think of it as a spreadsheet within Python that we can easily manipulate, clean, and visualize.

```
In [3]: # Read in data into a dataframe
df_features= pd.read_csv("delaney(esol)_global_cdf_rdkit.csv" )
df_target = pd.read_csv("delaney.csv")
```

```
In [4]: #show all of rows and columns
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)
```

```
In [5]: df_features.columns = ["x" + str(i) for i in range( 1, 202)]
```

```
In [6]: df_features.shape
```

(1128, 201)

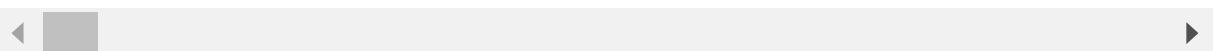
Out[6]:

In [7]: df_target.shape

Out[7]: (1128, 2)

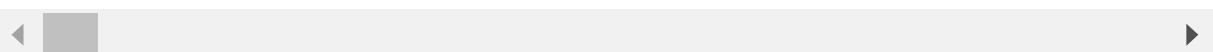
In [8]: df_features.head()

	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10
0	True	0.431154	0.304703	0.742380	0.611255	0.564015	0.695016	0.628013	0.550359	0.632004
1	True	0.831056	0.076056	0.026948	0.030340	0.020389	0.033934	0.032592	0.020369	0.029170
2	True	0.991404	0.006351	0.008175	0.017477	0.011397	0.005603	0.013714	0.008724	0.020863
3	True	0.777909	0.624374	0.145605	0.194124	0.153062	0.246362	0.287320	0.218869	0.320262
4	True	0.980154	0.001491	0.000042	0.000030	0.000139	0.000123	0.000124	0.001262	0.000142



In [9]: df_features.tail()

	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10
1123	True	0.990198	0.001454	0.001005	0.000057	0.001471	0.000289	0.000067	0.001745	0.000172
1124	True	0.997000	0.014982	0.034384	0.033802	0.038438	0.019231	0.011211	0.027564	0.008905
1125	True	0.989902	0.004690	0.013325	0.018193	0.092169	0.009287	0.009460	0.408221	0.002875
1126	True	0.934474	0.000728	0.000130	0.000639	0.000423	0.000074	0.000987	0.001024	0.002632
1127	True	0.982507	0.120117	0.151301	0.071177	0.278353	0.093338	0.034392	0.234268	0.025909



In [10]: df_features.var() == 0

x1	True
x2	False
x3	False
x4	False
x5	False
x6	False
x7	False
x8	False
x9	False
x10	False
x11	False

```
x12    False
x13    False
x14    False
x15    False
x16    False
x17    False
x18    False
x19    False
x20    False
x21    False
x22    False
x23    False
x24    False
x25    False
x26    False
x27    False
x28    False
x29    False
x30    False
x31    False
x32    False
x33    False
x34    False
x35    False
x36    False
x37    False
x38    False
x39    False
x40    False
x41    False
x42    False
x43    False
x44    False
x45    False
x46    False
x47    False
x48    False
x49    False
x50    False
x51    False
x52    False
x53    False
x54    False
x55    False
x56    False
x57    False
x58    False
x59    False
x60    False
x61    False
x62    False
x63    False
x64    False
x65    False
x66    False
x67    False
x68    False
x69    False
x70    False
x71    False
x72    False
x73    False
x74    False
x75    False
```

x76	False
x77	False
x78	False
x79	False
x80	False
x81	False
x82	False
x83	False
x84	False
x85	False
x86	False
x87	False
x88	False
x89	False
x90	False
x91	False
x92	False
x93	False
x94	False
x95	False
x96	False
x97	False
x98	False
x99	False
x100	False
x101	False
x102	False
x103	False
x104	False
x105	False
x106	False
x107	False
x108	False
x109	False
x110	False
x111	False
x112	False
x113	False
x114	False
x115	False
x116	False
x117	False
x118	False
x119	False
x120	False
x121	False
x122	False
x123	False
x124	False
x125	False
x126	False
x127	False
x128	False
x129	False
x130	False
x131	False
x132	False
x133	False
x134	False
x135	False
x136	False
x137	False
x138	False
x139	False

```
x140    False
x141    False
x142    False
x143    False
x144    False
x145    False
x146    False
x147    False
x148    False
x149    False
x150    False
x151    False
x152    False
x153    True
x154    False
x155    False
x156    False
x157    False
x158    False
x159    False
x160    False
x161    False
x162    False
x163    False
x164    False
x165    True
x166    False
x167    False
x168    False
x169    False
x170    False
x171    False
x172    False
x173    False
x174    False
x175    False
x176    False
x177    False
x178    False
x179    False
x180    False
x181    False
x182    False
x183    False
x184    False
x185    False
x186    False
x187    False
x188    False
x189    False
x190    False
x191    False
x192    False
x193    False
x194    False
x195    False
x196    False
x197    False
x198    False
x199    False
x200    False
x201    False
dtype: bool
```

In [11]: `df_features.drop(['x1', 'x62', 'x153', 'x165'], axis=1, inplace=True)`

In [12]: `df_features.head()`

Out[12]:

	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11
0	0.431154	0.304703	0.742380	0.611255	0.564015	0.695016	0.628013	0.550359	0.632004	0.526516
1	0.831056	0.076056	0.026948	0.030340	0.020389	0.033934	0.032592	0.020369	0.029170	0.015533
2	0.991404	0.006351	0.008175	0.017477	0.011397	0.005603	0.013714	0.008724	0.020863	0.010806
3	0.777909	0.624374	0.145605	0.194124	0.153062	0.246362	0.287320	0.218869	0.320262	0.224962
4	0.980154	0.001491	0.000042	0.000030	0.000139	0.000123	0.000124	0.001262	0.000142	0.000714



Data Types and Missing Values

In [13]: `# shape of dataset
print(df_features.shape)
print(df_target.shape)`

(1128, 197)
(1128, 2)

In [14]: `df_features.dtypes`

Out[14]:

x2	float64
x3	float64
x4	float64
x5	float64
x6	float64
x7	float64
x8	float64
x9	float64
x10	float64
x11	float64
x12	float64
x13	float64
x14	float64
x15	float64
x16	float64
x17	float64
x18	float64
x19	float64
x20	float64
x21	float64
x22	float64
x23	float64
x24	float64
x25	float64
x26	float64
x27	float64
x28	float64

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x29      float64
x30      float64
x31      float64
x32      float64
x33      float64
x34      float64
x35      float64
x36      float64
x37      float64
x38      float64
x39      float64
x40      float64
x41      float64
x42      float64
x43      float64
x44      float64
x45      float64
x46      float64
x47      float64
x48      float64
x49      float64
x50      float64
x51      float64
x52      float64
x53      float64
x54      float64
x55      float64
x56      float64
x57      float64
x58      float64
x59      float64
x60      float64
x61      float64
x63      float64
x64      float64
x65      float64
x66      float64
x67      float64
x68      float64
x69      float64
x70      float64
x71      float64
x72      float64
x73      float64
x74      float64
x75      float64
x76      float64
x77      float64
x78      float64
x79      float64
x80      float64
x81      float64
x82      float64
x83      float64
x84      float64
x85      float64
x86      float64
x87      float64
x88      float64
x89      float64
x90      float64
x91      float64
x92      float64
x93      float64
```

```
x94      float64
x95      float64
x96      float64
x97      float64
x98      float64
x99      float64
x100     float64
x101     float64
x102     float64
x103     float64
x104     float64
x105     float64
x106     float64
x107     float64
x108     float64
x109     float64
x110     float64
x111     float64
x112     float64
x113     float64
x114     float64
x115     float64
x116     float64
x117     float64
x118     float64
x119     float64
x120     float64
x121     float64
x122     float64
x123     float64
x124     float64
x125     float64
x126     float64
x127     float64
x128     float64
x129     float64
x130     float64
x131     float64
x132     float64
x133     float64
x134     float64
x135     float64
x136     float64
x137     float64
x138     float64
x139     float64
x140     float64
x141     float64
x142     float64
x143     float64
x144     float64
x145     float64
x146     float64
x147     float64
x148     float64
x149     float64
x150     float64
x151     float64
x152     float64
x154     float64
x155     float64
x156     float64
x157     float64
x158     float64
```

```
x159    float64  
x160    float64  
x161    float64  
x162    float64  
x163    float64  
x164    float64  
x166    float64  
x167    float64  
x168    float64  
x169    float64  
x170    float64  
x171    float64  
x172    float64  
x173    float64  
x174    float64  
x175    float64  
x176    float64  
x177    float64  
x178    float64  
x179    float64  
x180    float64  
x181    float64  
x182    float64  
x183    float64  
x184    float64  
x185    float64  
x186    float64  
x187    float64  
x188    float64  
x189    float64  
x190    float64  
x191    float64  
x192    float64  
x193    float64  
x194    float64  
x195    float64  
x196    float64  
x197    float64  
x198    float64  
x199    float64  
x200    float64  
x201    float64  
dtype: object
```

In [15]:

```
# Statistics for each column  
df_features.describe()
```

Out[15]:

	x2	x3	x4	x5	x6	x7
count	1128.000000	1128.000000	1.128000e+03	1.128000e+03	1.128000e+03	1.128000e+03
mean	0.889694	0.083724	7.958808e-02	8.069655e-02	9.053614e-02	7.143570e-02
std	0.162437	0.139682	1.524264e-01	1.559214e-01	1.615509e-01	1.386586e-01
min	0.000020	0.000577	3.875255e-15	2.722966e-11	1.025154e-07	4.102548e-13
25%	0.885889	0.001955	9.170424e-04	1.474609e-03	1.553325e-03	1.089388e-03
50%	0.956190	0.018651	8.082856e-03	1.216006e-02	1.100896e-02	8.689311e-03
75%	0.976398	0.104896	8.508828e-02	7.512524e-02	9.895865e-02	7.194793e-02
max	0.998124	0.921918	9.838740e-01	9.864555e-01	9.857171e-01	9.90139e-01

```
In [16]: # Statistics for each column  
df_target.describe()
```

Out[16]: **logSolubility**

	count	mean	std	min	25%	50%	75%	max
count	1128.000000							
mean		-3.050102						
std			2.096441					
min				-11.600000				
25%					-4.317500			
50%						-2.860000		
75%							-1.600000	
max								1.580000

```
In [17]: df_target.head()
```

Out[17]:

	smiles	logSolubility
0	OCC3OC(OCC2OC(OC(C#N)c1ccccc1)C(O)C(O)C2O)C(O)...	-0.77
1	Cc1occc1C(=O)Nc2cccc2	-3.30
2	CC(C)=CCCC(C)=CC(=O)	-2.06
3	c1ccc2c(c1)ccc3c2ccc4c5cccc5ccc43	-7.87
4	c1ccsc1	-1.33

```
In [18]: # remove smiles  
df_target = df_target.iloc[:,1]  
df_target
```

Out[18]:

0	-0.770
1	-3.300
2	-2.060
3	-7.870
4	-1.330
5	-1.500
6	-7.320
7	-5.030
8	-6.290
9	-4.420
10	1.070
11	-4.140
12	-2.680
13	-2.640
14	-7.960
15	-1.410
16	-0.470
17	-1.000
18	-3.640
19	-2.940
20	-7.430

21	-4.594
22	-4.110
23	-2.350
24	-5.470
25	-1.810
26	-1.390
27	-1.661
28	-6.900
29	-3.170
30	-3.750
31	-4.755
32	-4.805
33	-1.640
34	-5.220
35	-0.850
36	-3.504
37	-3.927
38	-4.150
39	-4.810
40	-4.880
41	-0.150
42	-1.655
43	-2.530
44	-0.630
45	-1.550
46	-3.083
47	-3.127
48	-4.760
49	-1.940
50	-3.660
51	-2.170
52	-8.057
53	-2.523
54	-8.600
55	-0.620
56	-5.050
57	-4.140
58	-6.570
59	-0.190
60	-9.150
61	-0.820
62	-3.680
63	-0.800
64	-2.810
65	-5.931
66	-4.060
67	-0.667
68	-2.680
69	-5.270
70	-3.380
71	-5.460
72	-1.960
73	-2.369
74	-2.250
75	-1.920
76	-5.886
77	-6.010
78	-1.730
79	-3.493
80	-1.995
81	-0.466
82	0.320
83	-2.770
84	-3.280

85	-3.670
86	-6.876
87	-0.800
88	-2.350
89	-5.360
90	-3.480
91	-3.460
92	-6.000
93	-1.340
94	-4.290
95	-4.070
96	-5.640
97	-7.250
98	-1.600
99	-3.270
100	-3.450
101	-5.430
102	0.390
103	-0.630
104	-4.170
105	0.580
106	-1.740
107	-1.506
108	-2.550
109	-1.230
110	-3.610
111	-4.700
112	-3.180
113	0.000
114	-5.170
115	-2.523
116	-1.450
117	-4.432
118	-5.210
119	-4.540
120	-3.030
121	-4.800
122	-5.650
123	-1.010
124	-5.510
125	-0.600
126	-2.240
127	-7.337
128	0.760
129	-4.430
130	0.360
131	-3.430
132	-2.090
133	-0.820
134	-4.260
135	-3.040
136	-2.410
137	-1.886
138	-3.550
139	-4.350
140	-2.540
141	0.450
142	-1.960
143	-1.920
144	-2.820
145	-1.947
146	1.570
147	-2.468
148	0.520

149	-1.077
150	-1.950
151	0.810
152	-1.240
153	-2.730
154	-1.870
155	-0.720
156	-1.990
157	-0.020
158	-6.620
159	-3.080
160	-2.253
161	-6.010
162	-1.300
163	-3.082
164	-3.043
165	-2.460
166	-5.280
167	-6.523
168	-0.220
169	-6.124
170	-4.570
171	-1.807
172	-4.650
173	-1.000
174	-1.130
175	-6.301
176	-1.060
177	-2.390
178	-2.580
179	-2.337
180	-3.680
181	-8.600
182	-2.925
183	-0.092
184	-5.752
185	-5.660
186	1.100
187	-4.630
188	-7.320
189	-0.720
190	-3.800
191	-1.601
192	-2.050
193	-1.960
194	-2.280
195	-5.696
196	-2.360
197	-4.240
198	-3.520
199	-1.100
200	-3.094
201	1.340
202	-0.410
203	-4.862
204	-3.408
205	0.570
206	-2.296
207	-2.160
208	-1.800
209	-1.470
210	-0.040
211	-4.360
212	-4.000

213	-1.640
214	-3.896
215	-6.560
216	0.380
217	-2.060
218	-5.736
219	-3.571
220	-8.804
221	-2.820
222	-4.400
223	-2.340
224	-1.139
225	-3.190
226	-3.658
227	-2.030
228	-1.990
229	-4.570
230	-0.440
231	-1.160
232	-4.160
233	0.060
234	-4.620
235	-3.850
236	-1.770
237	-1.300
238	-0.720
239	-0.700
240	-0.600
241	-0.850
242	-2.168
243	-4.046
244	-3.300
245	-3.785
246	-2.616
247	-3.590
248	-4.090
249	0.620
250	-2.620
251	-0.450
252	-2.230
253	0.850
254	-5.350
255	-1.220
256	-3.600
257	-1.700
258	-4.097
259	-7.020
260	-6.340
261	-6.890
262	-7.280
263	-4.678
264	-2.890
265	-3.370
266	-4.130
267	-2.370
268	-6.980
269	-0.740
270	-3.400
271	-2.780
272	-8.402
273	-2.016
274	-4.040
275	-4.550
276	1.090

277	-0.600
278	-1.480
279	-2.090
280	-1.820
281	-2.330
282	-2.766
283	-3.210
284	-4.000
285	-2.400
286	-4.620
287	-1.740
288	-5.153
289	-5.840
290	-4.400
291	-4.020
292	0.523
293	-5.282
294	-4.576
295	-2.410
296	-3.120
297	-9.160
298	-0.410
299	-8.334
300	-3.324
301	-1.290
302	-1.340
303	-6.490
304	-4.640
305	-4.194
306	-4.000
307	-2.310
308	-3.200
309	-1.290
310	-3.999
311	-2.170
312	-4.470
313	-2.680
314	-0.240
315	-3.130
316	-7.000
317	-1.488
318	-2.120
319	-7.210
320	-2.596
321	-8.230
322	-3.150
323	-2.322
324	-6.290
325	-3.536
326	-1.716
327	-1.040
328	-1.750
329	-3.220
330	-4.200
331	-3.510
332	-0.490
333	-3.760
334	-1.370
335	-4.260
336	-4.600
337	-3.420
338	-3.430
339	-3.670
340	-3.110

341	0.740
342	-0.680
343	-3.586
344	-6.005
345	-3.390
346	-2.696
347	-4.100
348	-1.600
349	-0.660
350	0.430
351	-3.770
352	-1.900
353	-4.430
354	-3.370
355	-2.390
356	0.320
357	-3.924
358	-6.570
359	-1.870
360	-4.328
361	-1.780
362	-3.260
363	-2.590
364	-3.090
365	1.100
366	-2.920
367	-0.140
368	-2.550
369	-4.770
370	-1.877
371	-1.800
372	-3.010
373	-3.780
374	-0.985
375	-4.190
376	-1.300
377	-1.920
378	-3.000
379	-2.404
380	-2.350
381	-1.840
382	-5.470
383	-2.478
384	-4.440
385	-1.210
386	-0.360
387	-1.803
388	-0.800
389	-4.730
390	-6.960
391	-3.200
392	-2.360
393	-2.740
394	-3.350
395	-0.830
396	-3.330
397	-6.390
398	-4.873
399	-2.540
400	-3.140
401	-3.810
402	-4.280
403	-0.890
404	-2.230

405	-4.630
406	-0.950
407	-3.483
408	-3.592
409	-0.880
410	-2.154
411	-3.360
412	-2.360
413	-0.740
414	-6.307
415	0.490
416	-1.960
417	-7.280
418	-3.810
419	-3.000
420	-4.420
421	-4.411
422	-5.400
423	-4.500
424	-3.952
425	-2.356
426	-2.080
427	-1.770
428	-3.083
429	-5.259
430	-4.860
431	-3.100
432	-7.278
433	-2.860
434	-5.240
435	-2.390
436	-1.340
437	-1.060
438	-2.510
439	-1.320
440	-2.370
441	-0.244
442	-2.860
443	-2.380
444	-5.050
445	-4.560
446	-0.360
447	-4.640
448	-1.600
449	-4.571
450	-7.200
451	-5.184
452	-3.930
453	-4.749
454	-0.890
455	-4.740
456	-4.735
457	-1.250
458	-8.017
459	-1.160
460	-0.600
461	-3.030
462	-2.000
463	-0.290
464	-4.150
465	-2.322
466	-3.540
467	-0.780
468	-2.800

469	-1.290
470	-0.180
471	-2.550
472	-4.690
473	-4.310
474	-2.430
475	-1.600
476	-1.950
477	-3.810
478	-3.740
479	-7.321
480	-2.730
481	-2.190
482	-8.003
483	0.522
484	-1.910
485	-0.220
486	-5.233
487	-0.400
488	-2.840
489	-1.090
490	-1.590
491	-4.740
492	-2.890
493	-3.796
494	-1.940
495	-1.989
496	-4.220
497	-8.490
498	-5.666
499	-4.630
500	-6.340
501	-4.070
502	-2.820
503	-3.480
504	-2.560
505	-0.850
506	-1.240
507	-1.110
508	-1.600
509	-3.270
510	-4.470
511	-1.981
512	-2.420
513	-1.110
514	-1.570
515	-2.150
516	0.260
517	-4.700
518	-3.590
519	-2.180
520	0.000
521	-4.110
522	-4.480
523	-0.100
524	-0.510
525	-1.630
526	-2.330
527	-1.190
528	-2.400
529	-4.710
530	-3.672
531	-5.000
532	-3.850

533	-1.990
534	-1.827
535	0.110
536	-3.090
537	-0.850
538	-2.290
539	-3.040
540	0.620
541	-3.817
542	-0.290
543	-2.850
544	-1.190
545	-2.770
546	-0.624
547	-6.570
548	-4.920
549	-4.000
550	-0.710
551	-0.120
552	-5.507
553	-2.960
554	-4.400
555	-4.081
556	-2.510
557	-6.144
558	-4.380
559	-7.800
560	-8.010
561	-3.893
562	-1.930
563	-1.660
564	-3.390
565	-2.420
566	-0.770
567	-5.560
568	-2.700
569	-3.730
570	-3.028
571	-2.390
572	-1.520
573	-2.780
574	-3.530
575	-1.370
576	-3.180
577	-1.540
578	-3.480
579	-7.110
580	-0.960
581	-0.790
582	-3.800
583	-5.839
584	-4.290
585	-1.458
586	-7.920
587	-4.210
588	-3.685
589	-2.700
590	-1.550
591	-6.291
592	-4.160
593	-4.907
594	-2.640
595	-2.210
596	-2.920

597	-2.930
598	-2.730
599	1.020
600	-1.360
601	-3.050
602	-3.180
603	-11.600
604	-3.664
605	1.580
606	-3.700
607	-3.570
608	-0.620
609	-1.360
610	-3.030
611	-5.260
612	0.380
613	-3.010
614	-1.170
615	-3.590
616	-4.890
617	-3.680
618	-2.220
619	-2.190
620	-2.030
621	-4.190
622	-4.445
623	-6.200
624	-3.955
625	-4.706
626	-0.590
627	-3.796
628	-1.460
629	-2.670
630	-1.340
631	-0.410
632	-4.679
633	-2.630
634	-3.960
635	-1.280
636	-2.084
637	-8.699
638	-1.090
639	-1.990
640	-5.293
641	-2.730
642	-2.420
643	-4.370
644	-2.900
645	-5.600
646	-5.720
647	-2.436
648	-1.560
649	-1.708
650	-6.176
651	-0.430
652	-2.338
653	-0.420
654	-5.820
655	-4.402
656	-4.047
657	-1.300
658	-1.240
659	-1.800
660	-2.831

661	-7.920
662	-1.250
663	-1.620
664	-2.670
665	-3.630
666	-3.650
667	-1.940
668	-7.680
669	-1.155
670	-3.040
671	0.280
672	-6.510
673	-1.960
674	-4.120
675	-4.800
676	-9.018
677	-3.380
678	-1.899
679	1.120
680	-1.960
681	-5.670
682	-5.890
683	0.715
684	-0.990
685	-0.854
686	-4.550
687	1.110
688	-2.676
689	-0.400
690	-0.500
691	-1.614
692	-2.670
693	-1.850
694	-4.530
695	-3.850
696	-4.160
697	-3.110
698	-2.240
699	-2.290
700	-5.540
701	-2.210
702	-4.210
703	-1.220
704	-1.660
705	-1.520
706	-0.820
707	-2.928
708	-3.171
709	-3.660
710	-3.270
711	-4.370
712	-0.390
713	-0.550
714	-2.550
715	-2.350
716	-5.071
717	-5.370
718	-9.332
719	-2.266
720	-1.750
721	-2.980
722	-3.140
723	-4.871
724	-2.610

725	-4.380
726	-1.850
727	-0.807
728	-3.730
729	-6.470
730	-3.290
731	-3.800
732	-2.100
733	-1.990
734	-5.880
735	-1.060
736	-6.590
737	-2.330
738	-3.000
739	-2.484
740	-3.499
741	-1.740
742	-2.617
743	-5.080
744	-8.176
745	-3.538
746	-3.754
747	-0.700
748	-2.300
749	-2.320
750	-4.020
751	-4.530
752	-2.220
753	-4.300
754	-3.638
755	-7.850
756	-5.270
757	-1.450
758	0.540
759	-5.140
760	-2.932
761	-2.680
762	-2.560
763	-3.310
764	-2.210
765	-2.780
766	-0.980
767	-5.240
768	-6.350
769	0.070
770	0.580
771	-4.150
772	-2.077
773	-1.170
774	-2.273
775	-5.915
776	-3.270
777	-2.130
778	-3.021
779	-2.658
780	-8.000
781	-1.520
782	-1.620
783	-5.840
784	-2.640
785	0.960
786	-1.640
787	-3.540
788	-8.400

789	-1.330
790	-2.700
791	0.009
792	-5.460
793	-1.520
794	-1.280
795	-5.400
796	0.430
797	-1.850
798	-0.910
799	-5.640
800	-0.620
801	-5.270
802	0.700
803	-2.452
804	0.651
805	0.300
806	-4.280
807	-4.160
808	-4.634
809	-3.680
810	-0.030
811	-3.010
812	-4.314
813	-7.920
814	-2.320
815	-2.000
816	-4.300
817	-4.690
818	-2.580
819	-8.600
820	-3.080
821	-3.820
822	-1.260
823	-6.080
824	-7.420
825	-2.148
826	-2.000
827	-2.570
828	-3.060
829	-0.850
830	-3.190
831	-0.090
832	-4.376
833	-5.530
834	-2.050
835	-1.640
836	-4.030
837	-2.564
838	-2.480
839	-2.820
840	0.480
841	-2.800
842	0.470
843	-0.170
844	-4.955
845	-8.040
846	-0.400
847	-2.590
848	-0.830
849	-5.382
850	-7.010
851	-4.710
852	-3.930

853	-3.100
854	-3.040
855	-7.150
856	-1.010
857	-2.390
858	-4.207
859	-3.840
860	-0.460
861	-3.590
862	-7.820
863	-4.925
864	-3.150
865	-6.726
866	-4.950
867	-6.960
868	0.510
869	-2.280
870	-4.345
871	-8.710
872	-3.364
873	-0.920
874	-3.168
875	0.640
876	-1.400
877	-4.370
878	-2.843
879	-8.940
880	-3.550
881	-1.280
882	-2.090
883	-4.880
884	-1.456
885	-3.604
886	-0.700
887	-3.210
888	-3.050
889	-1.228
890	-0.700
891	-4.080
892	-1.980
893	-6.780
894	-4.430
895	-1.110
896	-1.080
897	-2.770
898	-2.253
899	-6.317
900	-2.647
901	-6.025
902	-5.190
903	-0.660
904	-4.100
905	-3.900
906	-4.720
907	-6.250
908	-7.390
909	-0.310
910	-2.000
911	-5.210
912	-1.490
913	-2.692
914	-2.740
915	-1.030
916	-2.160

917	-4.310
918	-3.583
919	0.460
920	-4.743
921	-0.590
922	-3.931
923	-1.850
924	-4.800
925	-3.360
926	-0.490
927	-0.972
928	-3.840
929	-1.720
930	-5.230
931	-2.220
932	0.020
933	-4.660
934	-0.900
935	-1.040
936	-3.540
937	-0.670
938	-3.401
939	-4.445
940	0.260
941	-4.880
942	-2.680
943	-1.520
944	-3.690
945	-3.230
946	-3.790
947	-4.250
948	-2.580
949	-3.880
950	-3.380
951	-4.114
952	-3.224
953	0.290
954	0.380
955	-2.060
956	-2.518
957	-0.920
958	-1.600
959	-2.460
960	-4.230
961	-5.284
962	-6.140
963	-6.020
964	-4.460
965	-6.637
966	-3.240
967	-3.400
968	-5.115
969	-6.350
970	-7.390
971	-1.742
972	-2.090
973	-3.100
974	-0.120
975	-8.400
976	-1.740
977	-2.070
978	-2.050
979	-3.380
980	-1.970

981	-2.676
982	-5.680
983	1.100
984	-2.349
985	-1.830
986	-5.240
987	-2.218
988	-6.800
989	-5.060
990	-4.883
991	-0.364
992	-0.240
993	-2.490
994	-1.140
995	-4.570
996	-4.930
997	-2.878
998	0.150
999	-0.730
1000	0.150
1001	-1.920
1002	-5.190
1003	-2.180
1004	-7.800
1005	-2.540
1006	-0.280
1007	0.150
1008	-5.613
1009	-0.800
1010	-3.239
1011	-5.160
1012	-1.680
1013	-2.863
1014	-3.220
1015	-6.680
1016	-2.460
1017	-6.090
1018	-5.030
1019	-7.200
1020	-0.220
1021	-4.890
1022	-4.450
1023	-3.770
1024	-1.790
1025	0.790
1026	0.350
1027	-0.170
1028	-2.111
1029	-0.850
1030	-5.410
1031	-3.500
1032	-2.340
1033	-5.160
1034	-4.799
1035	-1.300
1036	-2.593
1037	-2.943
1038	-0.876
1039	-4.173
1040	-1.380
1041	-3.960
1042	-8.560
1043	0.610
1044	-2.120

1045	-2.581
1046	-6.860
1047	-1.440
1048	-0.960
1049	-3.190
1050	-0.742
1051	-1.470
1052	-4.554
1053	-1.340
1054	-5.850
1055	-2.110
1056	-4.286
1057	-2.210
1058	-3.760
1059	-3.180
1060	-3.900
1061	-3.246
1062	-3.630
1063	-4.230
1064	1.144
1065	-3.150
1066	-0.010
1067	-4.900
1068	-2.570
1069	-1.960
1070	-4.099
1071	-2.600
1072	-2.350
1073	0.100
1074	-4.120
1075	-2.340
1076	-1.400
1077	-1.890
1078	-3.370
1079	-3.370
1080	-2.740
1081	0.320
1082	0.940
1083	-4.590
1084	-4.800
1085	-3.350
1086	-3.590
1087	-3.390
1088	-1.060
1089	-3.240
1090	-3.460
1091	-2.540
1092	-1.620
1093	-2.982
1094	-4.240
1095	-3.620
1096	-3.120
1097	-8.172
1098	-2.920
1099	-1.170
1100	1.020
1101	-1.300
1102	-3.300
1103	-0.800
1104	-3.928
1105	-0.400
1106	-3.610
1107	-2.461
1108	-1.080

```
1109      -3.953
1110      -4.632
1111      -5.190
1112      -2.090
1113      -2.281
1114      -4.060
1115      -0.400
1116      -6.237
1117      -3.451
1118      -1.210
1119      -4.360
1120      -7.660
1121      -2.380
1122      -2.440
1123      -1.710
1124      0.106
1125      -3.091
1126      -3.180
1127      -4.522
Name: logSolubility, dtype: float64
```

```
In [19]: df_features.isnull().sum()
```

```
Out[19]: x2      0
          x3      0
          x4      0
          x5      0
          x6      0
          x7      0
          x8      0
          x9      0
          x10     0
          x11     0
          x12     0
          x13     0
          x14     0
          x15     0
          x16     0
          x17     0
          x18     0
          x19     0
          x20     0
          x21     0
          x22     0
          x23     0
          x24     0
          x25     0
          x26     0
          x27     0
          x28     0
          x29     0
          x30     0
          x31     0
          x32     0
          x33     0
          x34     0
          x35     0
          x36     0
          x37     0
          x38     0
          x39     0
          x40     0
          x41     0
```

x42	0
x43	0
x44	0
x45	0
x46	0
x47	0
x48	0
x49	0
x50	0
x51	0
x52	0
x53	0
x54	0
x55	0
x56	0
x57	0
x58	0
x59	0
x60	0
x61	0
x63	0
x64	0
x65	0
x66	0
x67	0
x68	0
x69	0
x70	0
x71	0
x72	0
x73	0
x74	0
x75	0
x76	0
x77	0
x78	0
x79	0
x80	0
x81	0
x82	0
x83	0
x84	0
x85	0
x86	0
x87	0
x88	0
x89	0
x90	0
x91	0
x92	0
x93	0
x94	0
x95	0
x96	0
x97	0
x98	0
x99	0
x100	0
x101	0
x102	0
x103	0
x104	0
x105	0
x106	0

x107	0
x108	0
x109	0
x110	0
x111	0
x112	0
x113	0
x114	0
x115	0
x116	0
x117	0
x118	0
x119	0
x120	0
x121	0
x122	0
x123	0
x124	0
x125	0
x126	0
x127	0
x128	0
x129	0
x130	0
x131	0
x132	0
x133	0
x134	0
x135	0
x136	0
x137	0
x138	0
x139	0
x140	0
x141	0
x142	0
x143	0
x144	0
x145	0
x146	0
x147	0
x148	0
x149	0
x150	0
x151	0
x152	0
x154	0
x155	0
x156	0
x157	0
x158	0
x159	0
x160	0
x161	0
x162	0
x163	0
x164	0
x166	0
x167	0
x168	0
x169	0
x170	0
x171	0
x172	0

```
x173    0
x174    0
x175    0
x176    0
x177    0
x178    0
x179    0
x180    0
x181    0
x182    0
x183    0
x184    0
x185    0
x186    0
x187    0
x188    0
x189    0
x190    0
x191    0
x192    0
x193    0
x194    0
x195    0
x196    0
x197    0
x198    0
x199    0
x200    0
x201    0
dtype: int64
```

In [20]: `#missing values?
df_target.isnull().sum()`

Out[20]: 0

- There isn't any NA

Correlations between Features

In [21]: `# Create correlation matrix
corr_matrix = df_features.corr().abs()
corr_matrix`

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x2	1.000000	0.483978	0.577466	0.627142	0.548528	0.624074	0.670966	0.540182	0.699045
x3	0.483978	1.000000	0.778571	0.719823	0.699517	0.822079	0.692492	0.640332	0.657950
x4	0.577466	0.778571	1.000000	0.955793	0.936946	0.983227	0.901714	0.859000	0.843251
x5	0.627142	0.719823	0.955793	1.000000	0.922907	0.962167	0.977267	0.877421	0.922978
x6	0.548528	0.699517	0.936946	0.922907	1.000000	0.914017	0.881189	0.950424	0.833179
x7	0.624074	0.822079	0.983227	0.962167	0.914017	1.000000	0.926145	0.844850	0.856673
x8	0.670966	0.692492	0.901714	0.977267	0.881189	0.926145	1.000000	0.861655	0.962068
x9	0.540182	0.640332	0.859000	0.877421	0.950424	0.844850	0.861655	1.000000	0.813106
									0.941

Esol Regression

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x10	0.699045	0.657950	0.843251	0.922978	0.833179	0.856673	0.962068	0.813106	1.000000
x11	0.518866	0.563624	0.759879	0.768496	0.884696	0.727665	0.764515	0.941377	0.785190
x12	0.698715	0.652860	0.772446	0.847952	0.770107	0.797511	0.914006	0.765296	0.970910
x13	0.531036	0.561095	0.702982	0.720139	0.832577	0.684288	0.744542	0.901731	0.782208
x14	0.683419	0.662997	0.728609	0.803743	0.731091	0.760553	0.878325	0.733267	0.943635
x15	0.556106	0.590981	0.689432	0.719875	0.805019	0.682394	0.757975	0.884693	0.804531
x16	0.131496	0.366753	0.508435	0.404251	0.442714	0.452761	0.343537	0.431107	0.327650
x17	0.261386	0.431698	0.580855	0.515760	0.440395	0.538190	0.486943	0.417675	0.484503
x18	0.166883	0.211746	0.339382	0.333680	0.293686	0.310386	0.329153	0.270678	0.347274
x19	0.307076	0.441551	0.552391	0.511154	0.547504	0.510376	0.483646	0.493408	0.503901
x20	0.287528	0.367913	0.472751	0.494093	0.521259	0.462925	0.485970	0.501121	0.480482
x21	0.353806	0.197330	0.308382	0.410992	0.337685	0.332422	0.458039	0.383454	0.455886
x22	0.021838	0.107378	0.056921	0.099946	0.048623	0.060887	0.121187	0.084530	0.137615
x23	0.077276	0.308804	0.339465	0.301759	0.319653	0.333436	0.241184	0.279681	0.190839
x24	0.113492	0.135567	0.160419	0.193799	0.164401	0.174216	0.159437	0.160264	0.139083
x25	0.045344	0.073144	0.064365	0.028033	0.047824	0.016189	0.063663	0.026236	0.081202
x26	0.018667	0.139856	0.210735	0.118449	0.297233	0.172828	0.058019	0.253556	0.022836
x27	0.465226	0.696663	0.890436	0.791718	0.939054	0.851124	0.733913	0.853519	0.691475
x28	0.058984	0.220487	0.133048	0.130563	0.171533	0.165101	0.162596	0.145893	0.132687
x29	0.004407	0.088685	0.053978	0.034158	0.088344	0.064205	0.043097	0.067856	0.012079
x30	0.158780	0.168763	0.132618	0.170536	0.101464	0.143923	0.187837	0.121113	0.224212
x31	0.209500	0.210949	0.075245	0.145720	0.110705	0.040475	0.160640	0.159374	0.189786
x32	0.272458	0.739859	0.524420	0.475239	0.360095	0.581623	0.434319	0.285274	0.363064
x33	0.618904	0.813698	0.992812	0.962995	0.925075	0.997159	0.922378	0.852628	0.863373
x34	0.424971	0.685163	0.848791	0.730260	0.901727	0.806705	0.668797	0.808669	0.629802
x35	NaN								
x36	0.445504	0.633482	0.938485	0.898039	0.950897	0.893836	0.833698	0.902862	0.746986
x37	0.198286	0.325177	0.601703	0.609368	0.649619	0.582535	0.563144	0.660424	0.410209
x38	0.026962	0.001319	0.215644	0.226396	0.257973	0.187315	0.185648	0.279452	0.090651
x39	0.579226	0.769640	0.964254	0.917736	0.977228	0.953079	0.877854	0.891809	0.829370
x40	0.404182	0.621029	0.756076	0.709296	0.648048	0.731552	0.668026	0.597708	0.642519
x41	0.075818	0.171289	0.224882	0.220296	0.169587	0.222318	0.190192	0.144796	0.164633
x42	0.404182	0.621029	0.756076	0.709296	0.648048	0.731552	0.668026	0.597708	0.642519
x43	0.018666	0.246210	0.344599	0.301750	0.288271	0.306878	0.222331	0.259153	0.171442
x44	0.218957	0.281265	0.357773	0.353874	0.349924	0.333096	0.339231	0.334426	0.363770
x45	0.043628	0.271384	0.371809	0.331785	0.316922	0.336027	0.249401	0.286763	0.193292

Esol Regression

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x46	0.115453	0.351886	0.504021	0.404601	0.471001	0.440870	0.340102	0.479291	0.327375
x47	0.089586	0.156164	0.210631	0.216578	0.160072	0.216147	0.193992	0.136487	0.169878
x48	0.170219	0.409008	0.335742	0.357781	0.481376	0.353958	0.383462	0.457834	0.358126
x49	0.576997	0.808606	0.934533	0.936747	0.963703	0.950212	0.906855	0.909430	0.838306
x50	0.461894	0.692880	0.886259	0.786159	0.936389	0.846734	0.728249	0.849370	0.686223
x51	0.106521	0.180366	0.228351	0.187012	0.117196	0.214104	0.181008	0.111008	0.188231
x52	0.162849	0.423077	0.536789	0.441946	0.400268	0.495257	0.358490	0.361313	0.303985
x53	0.500646	0.275078	0.343250	0.397674	0.371471	0.352276	0.467606	0.380996	0.578803
x54	0.187724	0.256257	0.277886	0.240130	0.208566	0.291039	0.223596	0.196376	0.200592
x55	0.560683	0.376412	0.495837	0.523886	0.481539	0.500648	0.582901	0.486915	0.676386
x56	0.034606	0.517240	0.201970	0.146520	0.168410	0.255745	0.132771	0.117774	0.087596
x57	0.058046	0.160855	0.014360	0.010609	0.012230	0.030553	0.017858	0.031254	0.036249
x58	0.091691	0.643896	0.208925	0.172656	0.170178	0.287878	0.172150	0.125730	0.130550
x59	0.185067	0.417723	0.563094	0.496490	0.500392	0.522133	0.409588	0.513158	0.350053
x60	0.127923	0.181022	0.240817	0.202698	0.129459	0.227789	0.199010	0.122016	0.207125
x61	0.092708	0.442262	0.559390	0.390234	0.547546	0.476292	0.289993	0.508959	0.250149
x63	0.039927	0.153782	0.427790	0.445108	0.472705	0.401096	0.392854	0.521493	0.236952
x64	0.545934	0.241166	0.385800	0.448914	0.420968	0.381814	0.520083	0.434660	0.643362
x65	0.185381	0.094771	0.208999	0.193201	0.152564	0.220823	0.193607	0.135441	0.182633
x66	0.497409	0.220641	0.410647	0.442751	0.393462	0.410111	0.494803	0.390692	0.576958
x67	0.587196	0.736601	0.990285	0.969922	0.940528	0.978593	0.928302	0.878527	0.867932
x68	0.234787	0.342523	0.490217	0.459221	0.425221	0.476263	0.395165	0.399351	0.346969
x69	0.231522	0.342497	0.398447	0.350272	0.346757	0.385679	0.323949	0.303657	0.344001
x70	0.257406	0.301899	0.388858	0.356702	0.329849	0.372643	0.352670	0.294866	0.369523
x71	0.000417	0.177673	0.217944	0.169680	0.216380	0.184055	0.112833	0.237947	0.097301
x72	0.044282	0.167499	0.114615	0.060792	0.040350	0.103065	0.027655	0.028052	0.011528
x73	0.051946	0.202359	0.326781	0.299924	0.272254	0.294569	0.233627	0.228259	0.190118
x74	0.091264	0.202204	0.289798	0.262400	0.218989	0.255798	0.246580	0.217159	0.245647
x75	0.017902	0.278268	0.272948	0.230772	0.196168	0.254902	0.170260	0.161051	0.131573
x76	0.003734	0.140947	0.161975	0.112177	0.116518	0.128365	0.055432	0.105311	0.048593
x77	0.010195	0.070289	0.045543	0.064679	0.006033	0.062877	0.066452	0.016102	0.040417
x78	0.079470	0.246242	0.169430	0.174405	0.244760	0.197957	0.207611	0.207091	0.177109
x79	0.489666	0.527613	0.522951	0.620753	0.579183	0.551717	0.661319	0.619581	0.707745
x80	0.117337	0.285826	0.342636	0.326484	0.366535	0.314469	0.272773	0.335177	0.256308
x81	0.058733	0.340206	0.375993	0.291387	0.402677	0.345764	0.229196	0.360659	0.171485
x82	0.607312	0.793772	0.597096	0.632501	0.583366	0.668137	0.700388	0.577904	0.755970

Esol Regression

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x83	0.298036	0.453615	0.676703	0.609185	0.574565	0.628115	0.547622	0.565441	0.503410
x84	0.042705	0.302865	0.174543	0.080551	0.284223	0.149236	0.039999	0.272012	0.023623
x85	0.071435	0.117130	0.150220	0.120238	0.124152	0.152073	0.095728	0.087947	0.087316
x86	0.065240	0.094170	0.050994	0.035013	0.011767	0.046459	0.004415	0.017854	0.017936
x87	0.291193	0.188241	0.284900	0.321396	0.270018	0.275288	0.348666	0.273531	0.432762
x88	0.277669	0.078793	0.375604	0.461569	0.396095	0.347731	0.490324	0.427302	0.510899
x89	0.021683	0.092835	0.221796	0.215436	0.225166	0.193738	0.133041	0.248812	0.052050
x90	0.143780	0.623089	0.316092	0.250232	0.262679	0.377782	0.236722	0.191502	0.184386
x91	NaN								
x92	0.035814	0.214038	0.121466	0.093099	0.130667	0.130793	0.062011	0.076713	0.055487
x93	0.001177	0.243713	0.187986	0.146250	0.116277	0.171878	0.074344	0.074925	0.041671
x94	0.043827	0.155906	0.170583	0.128307	0.074944	0.146014	0.071600	0.027982	0.045724
x95	0.055963	0.161881	0.139106	0.129166	0.119226	0.146040	0.085742	0.088223	0.072192
x96	0.061185	0.001167	0.009185	0.070895	0.123876	0.029406	0.116475	0.114573	0.125001
x97	0.245555	0.324357	0.547250	0.509858	0.507272	0.505947	0.450046	0.493358	0.420273
x98	0.237933	0.343584	0.527749	0.502880	0.522165	0.490485	0.453900	0.577953	0.421095
x99	0.147572	0.147373	0.219923	0.243508	0.176448	0.204084	0.249960	0.161033	0.316015
x100	0.287107	0.109167	0.352732	0.468431	0.371163	0.346672	0.506230	0.407265	0.507208
x101	0.168287	0.588874	0.276604	0.243339	0.215483	0.352213	0.237366	0.178137	0.186680
x102	0.116500	0.101177	0.028603	0.050052	0.081434	0.007397	0.075944	0.033143	0.084035
x103	0.044113	0.336533	0.002805	0.017431	0.015899	0.044751	0.003459	0.011386	0.008444
x104	NaN								
x105	0.171901	0.410262	0.511275	0.421698	0.366250	0.470641	0.364061	0.338421	0.334340
x106	NaN								
x107	0.082008	0.012336	0.015143	0.050807	0.133077	0.015964	0.086494	0.114432	0.092133
x108	NaN								
x109	NaN								
x110	NaN								
x111	NaN								
x112	NaN								
x113	NaN								
x114	0.009369	0.291583	0.284899	0.210709	0.272099	0.232357	0.139432	0.343723	0.102469
x115	0.518076	0.636319	0.807650	0.806866	0.676331	0.823889	0.786333	0.606702	0.739720
x116	NaN								
x117	0.287637	0.157781	0.282006	0.294225	0.238225	0.282859	0.332770	0.247882	0.359649
x118	0.258950	0.116251	0.244650	0.255758	0.200685	0.244706	0.292094	0.214639	0.309342

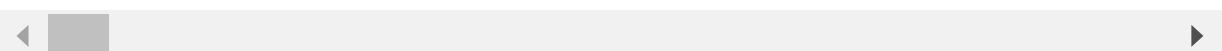
Esol Regression

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x119	0.068037	0.001581	0.044776	0.050654	0.067719	0.042875	0.057077	0.073317	0.057667
x120	NaN								
x121	0.067434	0.120168	0.006082	0.005102	0.016985	0.016823	0.025125	0.037918	0.039271
x122	0.074110	0.004494	0.041843	0.047781	0.057635	0.041724	0.051101	0.056534	0.051574
x123	0.029320	0.030378	0.022165	0.029040	0.052699	0.008792	0.016012	0.051191	0.007644
x124	NaN								
x125	NaN								
x126	0.242084	0.234111	0.418622	0.439018	0.366273	0.402543	0.428458	0.341898	0.424033
x127	0.243938	0.236676	0.420587	0.442149	0.370123	0.404372	0.430831	0.345958	0.426189
x128	0.042006	0.028206	0.025831	0.020338	0.007728	0.025934	0.023037	0.010630	0.028901
x129	0.001285	0.003557	0.000964	0.002192	0.002012	0.004834	0.004129	0.002746	0.015844
x130	0.004900	0.117460	0.044860	0.036705	0.029223	0.054684	0.025553	0.015412	0.019484
x131	0.060105	0.179775	0.130601	0.103815	0.077435	0.121892	0.044544	0.027781	0.009015
x132	0.042763	0.077068	0.065045	0.025673	0.003954	0.047088	0.011343	0.010021	0.025306
x133	0.075043	0.039739	0.026184	0.055446	0.058113	0.038159	0.069021	0.042752	0.068479
x134	0.011120	0.017930	0.016345	0.017939	0.013871	0.018013	0.021514	0.022676	0.017242
x135	0.017709	0.070844	0.055587	0.046036	0.032520	0.052187	0.027782	0.019742	0.014126
x136	0.069361	0.001735	0.027562	0.043518	0.057662	0.033270	0.049816	0.091238	0.026144
x137	0.074110	0.004494	0.041843	0.047781	0.057635	0.041724	0.051101	0.056534	0.051574
x138	0.021895	0.035702	0.034536	0.034311	0.036705	0.033826	0.033832	0.035674	0.033422
x139	0.032234	0.058489	0.042804	0.039783	0.049057	0.041351	0.034456	0.044892	0.031182
x140	0.066797	0.012087	0.025143	0.026916	0.016014	0.034740	0.024118	0.010852	0.001206
x141	0.122294	0.060687	0.152613	0.073092	0.143392	0.104028	0.052787	0.108432	0.064532
x142	0.294043	0.155915	0.297270	0.336201	0.306012	0.279889	0.359812	0.289570	0.424751
x143	0.009516	0.090841	0.111939	0.087543	0.066622	0.104426	0.049800	0.047046	0.023259
x144	NaN								
x145	0.041809	0.157389	0.100103	0.067060	0.038674	0.085598	0.018984	0.004541	0.013742
x146	0.080348	0.092557	0.036407	0.019564	0.052279	0.029412	0.027687	0.047744	0.022147
x147	NaN								
x148	0.009889	0.009412	0.012635	0.011797	0.014410	0.009593	0.010628	0.013745	0.012396
x149	0.060823	0.064344	0.035409	0.039532	0.061560	0.046104	0.037680	0.063821	0.022707
x150	0.034607	0.517235	0.201974	0.146521	0.168414	0.255747	0.132770	0.117776	0.087594
x151	0.011719	0.111957	0.042466	0.022349	0.017501	0.055634	0.021669	0.008347	0.013052
x152	0.352502	0.519785	0.310430	0.358716	0.298087	0.357186	0.416131	0.333889	0.471833
x154	0.013447	0.049582	0.069314	0.057265	0.043504	0.057706	0.030429	0.015907	0.022464
x155	0.037538	0.016782	0.015432	0.020462	0.002146	0.015257	0.013081	0.004562	0.009525

Esol Regression

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x156	0.202160	0.229148	0.414097	0.429482	0.383254	0.413372	0.396729	0.329140	0.337946
x157	0.205918	0.190534	0.348171	0.357134	0.297160	0.351576	0.308150	0.230377	0.260013
x158	0.017729	0.021509	0.027406	0.028778	0.037146	0.022568	0.030513	0.038973	0.031850
x159	0.014824	0.005792	0.002637	0.007200	0.001277	0.000925	0.002079	0.005803	0.004140
x160	0.023994	0.104836	0.109114	0.006377	0.152220	0.061942	0.042817	0.079651	0.038396
x161	0.078006	0.072812	0.069342	0.058614	0.047829	0.075356	0.050415	0.044437	0.030587
x162	0.017590	0.005279	0.003188	0.009758	0.013032	0.002946	0.010689	0.013782	0.011408
x163	0.020686	0.041793	0.019811	0.024829	0.040485	0.014348	0.028807	0.045282	0.035534
x164	0.006903	0.025877	0.077370	0.051855	0.040576	0.074131	0.046028	0.046516	0.032016
x166	NaN								
x167	0.347576	0.194142	0.303360	0.368260	0.301474	0.296231	0.425989	0.320109	0.516552
x168	0.282793	0.175892	0.280348	0.324649	0.270050	0.269443	0.369197	0.278958	0.443493
x169	NaN								
x170	0.209294	0.221749	0.247282	0.242002	0.223720	0.273032	0.228780	0.200974	0.193375
x171	0.020020	0.033473	0.046778	0.051082	0.021983	0.048801	0.016168	0.017430	0.004848
x172	NaN								
x173	0.076300	0.120366	0.155474	0.125468	0.129661	0.157696	0.100587	0.092119	0.091956
x174	0.097447	0.003225	0.015036	0.032648	0.046972	0.011097	0.052643	0.061908	0.064593
x175	0.098084	0.013909	0.035949	0.014625	0.027259	0.006182	0.036592	0.043822	0.049248
x176	0.065467	0.002611	0.023925	0.047821	0.051211	0.027789	0.052507	0.052613	0.056697
x177	NaN								
x178	0.015319	0.012674	0.003980	0.008691	0.011969	0.004931	0.012307	0.036725	0.019363
x179	0.034278	0.020154	0.011286	0.011237	0.007382	0.014398	0.019585	0.000303	0.022275
x180	0.082205	0.157867	0.122366	0.114703	0.087430	0.140820	0.087817	0.053644	0.055004
x181	0.042081	0.011562	0.043335	0.047515	0.068572	0.034817	0.034143	0.064383	0.021316
x182	0.040383	0.009954	0.041867	0.046053	0.067063	0.033329	0.032627	0.062886	0.019747
x183	0.024742	0.014396	0.023705	0.017017	0.047320	0.015670	0.000188	0.037215	0.010451
x184	0.024742	0.014396	0.023705	0.017017	0.047320	0.015670	0.000188	0.037215	0.010451
x185	0.065205	0.001444	0.017191	0.025413	0.026125	0.019025	0.035257	0.045255	0.039950
x186	0.051226	0.090157	0.123052	0.123265	0.110451	0.122815	0.092646	0.072304	0.083229
x187	0.049799	0.058596	0.049406	0.050370	0.056880	0.050251	0.051639	0.057934	0.051744
x188	NaN								
x189	0.011286	0.113047	0.022706	0.021332	0.001163	0.044129	0.015986	0.007875	0.004737
x190	NaN								
x191	0.009119	0.058539	0.018184	0.001570	0.036780	0.024684	0.010757	0.106100	0.012512
x192	0.021921	0.202391	0.126303	0.055167	0.097225	0.085064	0.022162	0.149258	0.016322

	x2	x3	x4	x5	x6	x7	x8	x9	x10
x193	0.012069	0.066038	0.046158	0.011855	0.027772	0.025540	0.000256	0.057537	0.001231
x194	0.083787	0.000947	0.016880	0.041573	0.020521	0.021560	0.066057	0.036484	0.091834
x195	NaN								
x196	0.008911	0.008478	0.024099	0.025287	0.025651	0.018630	0.025929	0.018834	0.029284
x197	NaN								
x198	0.019295	0.009291	0.020892	0.020237	0.021764	0.018950	0.018834	0.019365	0.018708
x199	0.069723	0.134590	0.029970	0.022834	0.000184	0.022974	0.046835	0.048641	0.028068
x200	0.002781	0.009775	0.037582	0.025939	0.006833	0.033280	0.015333	0.031357	0.015308
x201	0.073828	0.135196	0.112593	0.138757	0.081605	0.101711	0.125110	0.070748	0.165392



In [22]:

```
# Select upper triangle of correlation matrix
upper = corr_matrix.where(np.triu(np.ones(corr_matrix.shape), k=1).astype(np.bool))

# Find index of feature columns with correlation greater than 0.98
to_drop = [column for column in upper.columns if any(upper[column] > 0.98)]
# Drop features
df_features_corr = df_features.drop(df_features[to_drop], axis=1, inplace=False)
```

In [23]:

df_features_corr.shape

Out[23]:

(1128, 185)

In [24]:

df_features.shape

Out[24]:

(1128, 197)

In [25]:

df_features_corr

Out[25]:

	x2	x3	x4	x5	x6	x8	x9	x10	
0	0.431154	0.304703	7.423796e-01	6.112545e-01	5.640147e-01	6.280130e-01	0.550359	0.632004	5.26515
1	0.831056	0.076056	2.694790e-02	3.033956e-02	2.038923e-02	3.259183e-02	0.020369	0.029170	1.55326
2	0.991404	0.006351	8.175167e-03	1.747697e-02	1.139717e-02	1.371386e-02	0.008724	0.020863	1.08057
3	0.777909	0.624374	1.456052e-01	1.941244e-01	1.530617e-01	2.873204e-01	0.218869	0.320262	2.24961
4	0.980154	0.001491	4.236759e-05	3.042098e-05	1.386163e-04	1.235126e-04	0.001262	0.000142	7.13588
5	0.972648	0.019922	1.031599e-03	1.190764e-03	1.921994e-03	2.489973e-03	0.006258	0.002738	7.04922
6	0.960681	0.117059	6.801045e-02	2.877750e-02	1.513831e-01	2.990936e-02	0.102944	0.034615	1.66097

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
7	0.496564	0.119854	1.166625e-01	2.010683e-01	1.591707e-01	3.532134e-01	0.277907	0.606478	4.98572
8	0.593923	0.106462	1.011204e-01	5.499657e-02	2.905744e-01	1.257332e-01	0.337337	0.407736	7.85018
9	0.342913	0.594055	5.519958e-01	5.908171e-01	5.421154e-01	5.740125e-01	0.493394	0.636360	5.31346
10	0.901949	0.001531	1.528735e-04	1.855961e-04	1.375797e-04	7.787569e-04	0.000873	0.001146	4.67413
11	0.964866	0.043976	3.971215e-03	4.411520e-03	5.567100e-03	8.082131e-03	0.008465	0.009907	1.01269
12	0.909696	0.000819	1.035315e-04	2.518871e-04	1.804307e-04	5.673355e-04	0.000710	0.000388	1.43587
13	0.932175	0.050517	4.322307e-02	4.825917e-02	3.346635e-02	6.100635e-02	0.039134	0.061001	3.46574
14	0.961529	0.001823	2.432971e-02	9.896227e-02	7.283406e-02	1.942237e-01	0.139990	0.125894	7.70789
15	0.891027	0.000660	4.536850e-05	5.551705e-05	1.840147e-04	8.888110e-05	0.000511	0.000315	1.40499
16	0.958996	0.000844	3.172230e-04	7.955745e-04	5.199009e-04	1.336411e-03	0.001267	0.002073	8.89603
17	0.977175	0.008318	7.798307e-04	6.865496e-04	4.525422e-04	1.250825e-03	0.001209	0.001220	5.00366
18	0.974471	0.075477	1.429843e-01	1.913050e-01	2.794072e-01	1.341220e-01	0.392632	0.094890	4.52232
19	0.964002	0.001958	1.165062e-02	3.720362e-02	2.533234e-02	6.736380e-02	0.043507	0.057371	3.24101
20	0.956070	0.146319	6.801045e-02	2.877750e-02	1.513831e-01	2.990936e-02	0.102944	0.034671	1.62547
21	0.809148	0.118035	4.832766e-02	7.785654e-02	5.608895e-02	1.635119e-01	0.115293	0.215901	1.41877
22	0.993791	0.005296	2.024977e-02	2.954330e-02	1.278722e-01	2.164265e-02	0.506003	0.004183	8.17812
23	0.947163	0.019300	1.534290e-02	2.132361e-02	1.404432e-02	2.000188e-02	0.012524	0.012619	6.27536
24	0.994459	0.174024	3.200869e-01	1.661907e-01	1.288101e-01	1.154555e-01	0.078229	0.095254	5.65534
25	0.933046	0.000933	1.176320e-03	3.507715e-03	2.201015e-03	8.296582e-03	0.005503	0.005246	2.43064
26	0.983020	0.144029	1.447679e-02	1.376197e-02	8.880765e-03	1.076305e-02	0.006965	0.016410	8.33480
27	0.969019	0.019227	4.072701e-02	4.649038e-02	3.215187e-02	5.566289e-02	0.035505	0.058524	3.31223
28	0.929833	0.106385	8.568195e-02	4.862848e-02	1.576142e-01	5.152139e-02	0.117245	0.050542	1.74536
29	0.972665	0.002603	7.317960e-03	1.753605e-02	1.143753e-02	2.371293e-02	0.014803	0.014817	7.46387

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
30	0.962509	0.005612	3.183107e-03	9.125034e-03	5.804757e-03	1.431009e-02	0.009081	0.010456	5.12164
31	0.995116	0.009318	5.118426e-02	8.238705e-02	2.539172e-01	4.498376e-02	0.579497	0.059177	9.29336
32	0.747219	0.234031	2.290541e-01	2.064788e-01	1.639520e-01	1.566829e-01	0.109902	0.125093	7.65318
33	0.962954	0.000899	4.536850e-05	2.210407e-06	1.256861e-04	4.719473e-06	0.000305	0.000016	4.55851
34	0.891368	0.094309	1.411361e-02	2.825436e-02	1.890588e-02	4.606715e-02	0.029100	0.069696	4.01010
35	0.926325	0.000986	2.611690e-04	4.909597e-04	3.311406e-04	1.168847e-03	0.001152	0.000776	3.05940
36	0.836677	0.026599	9.601444e-03	1.416875e-02	9.154207e-03	2.229118e-02	0.013926	0.017696	9.04357
37	0.753847	0.029310	6.604476e-02	9.442347e-02	1.038714e-01	8.413103e-02	0.120957	0.065472	1.11245
38	0.928409	0.036885	2.141094e-01	2.981314e-01	4.777539e-01	3.179150e-01	0.776114	0.233332	9.08830
39	0.933046	0.000933	1.176320e-03	3.266206e-03	1.348635e-02	7.751966e-03	0.028291	0.004906	1.48976
40	0.924033	0.048591	1.067049e-02	1.213626e-02	1.401378e-02	1.878923e-02	0.017809	0.018213	1.79737
41	0.926325	0.000986	2.611690e-04	3.276777e-04	2.286781e-04	7.305038e-04	0.000836	0.000494	1.86970
42	0.878761	0.015847	8.609525e-03	6.576057e-03	4.150388e-03	1.227031e-02	0.007862	0.027732	1.47045
43	0.916966	0.003402	6.847315e-03	2.200149e-02	1.451482e-02	3.654614e-02	0.022897	0.110532	6.66839
44	0.963790	0.001114	3.172230e-04	3.971845e-04	2.724813e-04	3.801891e-04	0.000554	0.000717	2.80862
45	0.955536	0.001129	1.368473e-03	4.132940e-03	2.594088e-03	7.501250e-03	0.005032	0.007686	3.67309
46	0.957423	0.015389	6.107565e-03	5.223180e-03	1.254949e-02	5.315951e-03	0.009786	0.005771	1.32703
47	0.949894	0.118510	2.939698e-02	1.971982e-02	3.761516e-02	2.143826e-02	0.030596	0.020777	3.24254
48	0.962988	0.316124	4.341167e-01	3.803110e-01	3.263721e-01	2.570039e-01	0.192569	0.252068	1.69712
49	0.962555	0.044711	7.444013e-03	1.483512e-02	9.603303e-03	1.720958e-02	0.010827	0.026833	1.41892
50	0.948417	0.001638	1.176320e-03	3.240120e-03	2.033471e-03	6.489072e-03	0.004432	0.004119	1.87134
51	0.911179	0.048283	6.477355e-02	7.168067e-02	5.127906e-02	1.026984e-01	0.068761	0.118798	7.22521
52	0.886636	0.342696	5.117552e-02	7.512524e-02	5.395642e-02	1.236841e-01	0.084424	0.141457	8.78147

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
53	0.990009	0.070303	3.005244e-02	3.169801e-02	5.653154e-02	2.695770e-02	0.037395	0.032889	4.82218
54	0.964766	0.158626	9.775577e-02	3.487396e-02	2.263298e-01	3.355826e-02	0.145644	0.039460	2.20609
55	0.980508	0.005598	9.170424e-04	1.212804e-03	7.769430e-04	1.733936e-03	0.001532	0.002543	1.11046
56	0.984943	0.001591	3.428321e-03	1.668811e-02	1.085935e-02	1.385573e-02	0.008809	0.121178	7.38663
57	0.972208	0.041918	7.444013e-03	1.635283e-02	1.063132e-02	2.029232e-02	0.012701	0.030534	1.63212
58	0.894509	0.467977	7.552318e-02	1.171864e-01	8.763862e-02	1.640888e-01	0.115750	0.202737	1.31999
59	0.965034	0.001241	3.172230e-04	6.753493e-04	4.456129e-04	9.758798e-04	0.001016	0.001141	4.65451
60	0.972946	0.158113	1.819773e-01	4.998251e-02	4.141008e-01	4.139173e-02	0.257517	0.052781	3.91689
61	0.974383	0.001694	1.368473e-03	2.691642e-03	1.691367e-03	3.590754e-03	0.002695	0.001551	6.49797
62	0.627106	0.352374	5.813976e-01	5.436465e-01	4.921782e-01	6.053804e-01	0.526266	0.829290	7.64299
63	0.976435	0.004786	9.170424e-04	6.865496e-04	4.525422e-04	1.127651e-03	0.001124	0.001619	6.80544
64	0.689167	0.147902	1.064508e-01	7.881862e-02	5.684209e-02	7.812204e-02	0.051032	0.065269	3.73191
65	0.313561	0.453718	3.980200e-01	3.766125e-01	3.927918e-01	4.790941e-01	0.452763	0.545243	5.09895
66	0.972968	0.026046	3.657185e-02	5.320038e-02	5.753580e-02	4.978842e-02	0.045071	0.019728	1.68860
67	0.974029	0.009606	1.765717e-03	1.005699e-03	6.494259e-04	1.197825e-03	0.001172	0.001150	4.69257
68	0.996687	0.007827	1.622995e-02	1.324650e-02	2.687645e-02	1.133097e-02	0.017833	0.009896	4.37149
69	0.943909	0.053355	1.814795e-02	1.529812e-02	2.893565e-02	2.134461e-02	0.029391	0.020577	3.30205
70	0.793816	0.108467	6.328254e-02	2.964241e-02	1.989230e-02	2.584693e-02	0.016127	0.024703	1.29732
71	0.853930	0.151358	8.568195e-02	4.425785e-02	7.267985e-02	4.211055e-02	0.053952	0.038643	5.86099
72	0.923850	0.010471	6.144129e-03	1.815571e-02	1.186135e-02	2.757015e-02	0.017202	0.173525	1.10563
73	0.937484	0.098336	8.754497e-02	6.329464e-02	4.481960e-02	6.691488e-02	0.043196	0.074825	4.33504
74	0.977679	0.001955	2.529165e-03	5.470296e-03	3.442154e-03	7.647766e-03	0.005119	0.003310	1.47722
75	0.975227	0.002185	2.888926e-03	6.354638e-03	4.008086e-03	5.690259e-03	0.003957	0.010438	5.11207

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
76	0.633149	0.341944	5.301848e-01	5.285165e-01	4.763458e-01	5.617005e-01	0.480653	0.488985	3.77715
77	0.940047	0.092577	2.939698e-02	1.907278e-02	5.440780e-02	2.369182e-02	0.045930	0.026315	6.81621
78	0.736403	0.000630	3.457931e-05	3.703329e-05	4.800113e-04	1.247003e-04	0.001631	0.000093	5.06176
79	0.723865	0.191194	2.054535e-01	2.031323e-01	2.763030e-01	2.321360e-01	0.262872	0.231841	2.75856
80	0.995672	0.014939	3.531626e-02	2.609291e-02	7.949044e-02	8.698566e-03	0.237609	0.005856	6.91971
81	0.970331	0.044106	3.971215e-03	4.865726e-03	3.057578e-03	5.696053e-03	0.003960	0.005767	2.69255
82	0.962954	0.000927	4.536850e-05	3.427111e-06	4.238723e-05	6.386403e-06	0.000185	0.000023	6.67833
83	0.976435	0.004313	9.170424e-04	2.338433e-03	1.471977e-03	2.824085e-03	0.002224	0.005418	2.51696
84	0.973139	0.006851	3.183107e-03	9.125034e-03	5.804757e-03	1.441553e-02	0.009144	0.009649	4.69576
85	0.995127	0.001521	2.302637e-03	1.110318e-04	1.374076e-02	9.230209e-05	0.006435	0.000296	1.86113
86	0.547669	0.646205	7.602286e-01	7.054799e-01	6.669049e-01	6.703709e-01	0.596333	0.632252	5.26790
87	0.965034	0.001336	3.172230e-04	2.428677e-04	1.746435e-04	4.070478e-04	0.000578	0.000363	1.33322
88	0.929530	0.004876	6.847315e-03	2.028019e-02	1.332239e-02	3.127190e-02	0.019532	0.092022	5.44377
89	0.875099	0.208913	9.614464e-02	9.282757e-02	9.926657e-02	1.078750e-01	0.097893	0.094881	8.80126
90	0.984757	0.023325	6.847315e-03	2.192225e-03	6.007628e-03	2.326627e-03	0.005131	0.002798	6.02545
91	0.979738	0.033924	8.327590e-02	8.651207e-02	9.537831e-02	8.724469e-02	0.080870	0.110305	9.93730
92	0.888114	0.203313	2.500340e-02	3.935904e-02	2.690231e-02	7.421000e-02	0.048277	0.096801	5.75693
93	0.951807	0.000990	6.892438e-04	2.582973e-03	1.623793e-03	3.152706e-03	0.002427	0.003387	1.51449
94	0.969064	0.056100	7.444013e-03	1.635283e-02	1.063132e-02	2.015440e-02	0.012617	0.032949	1.77259
95	0.931727	0.118943	1.464614e-01	1.831210e-01	1.434458e-01	1.997397e-01	0.144501	0.152566	9.56004
96	0.993190	0.067387	3.005244e-02	6.939370e-03	4.047350e-02	5.225652e-03	0.021197	0.006236	3.17078
97	0.940118	0.117530	4.560379e-02	2.353861e-02	9.424818e-02	2.657481e-02	0.069934	0.030863	1.10009
98	0.880461	0.007752	1.031599e-03	1.798577e-03	1.137966e-03	4.686060e-03	0.003357	0.006272	2.94858

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
99	0.966219	0.005741	1.765717e-03	4.607160e-03	2.893696e-03	6.533601e-03	0.004458	0.011205	5.51911
100	0.420533	0.167648	3.105989e-01	4.485070e-01	3.941917e-01	5.988846e-01	0.519409	0.821821	7.54572
101	0.975956	0.079025	2.186239e-02	7.945893e-03	4.434206e-02	8.639500e-03	0.030156	0.010212	4.43551
102	0.930834	0.002704	4.099605e-03	2.099803e-03	1.324150e-03	3.595048e-03	0.002698	0.006748	3.19084
103	0.404909	0.000604	9.000310e-06	1.002345e-07	5.117172e-05	1.148305e-06	0.000369	0.000003	7.68948
104	0.962020	0.045100	6.651016e-03	1.390079e-02	8.974019e-03	2.384032e-02	0.014882	0.021551	1.11914
105	0.883589	0.000778	3.457931e-05	1.165045e-05	1.461833e-05	1.102012e-05	0.000107	0.000015	4.04568
106	0.981136	0.015934	3.617398e-03	1.677247e-03	1.063093e-03	2.045988e-03	0.001734	0.002322	1.00627
107	0.989926	0.025138	2.033744e-03	1.439553e-03	9.165750e-04	1.529411e-03	0.001397	0.002370	1.02890
108	0.891027	0.000625	4.536850e-05	2.027171e-04	1.487245e-04	2.689479e-04	0.000452	0.002251	9.72852
109	0.774488	0.164962	1.025375e-01	6.516162e-02	4.625024e-02	7.773149e-02	0.050756	0.096361	5.72800
110	0.986583	0.024590	6.847315e-03	2.327164e-03	4.526517e-02	2.407278e-03	0.025281	0.003253	5.57151
111	0.876841	0.279591	2.047979e-01	9.226030e-02	1.388656e-01	7.768102e-02	0.094923	0.077654	1.07020
112	0.848289	0.000655	1.035315e-04	5.018621e-04	3.379359e-04	1.328502e-03	0.001262	0.000878	3.49973
113	0.975940	0.004065	3.651023e-04	3.174596e-04	2.222074e-04	7.330911e-04	0.000838	0.000836	3.31639
114	0.923989	0.195453	2.135471e-02	2.871979e-02	1.923619e-02	4.521590e-02	0.028539	0.060489	3.43393
115	0.981982	0.144029	1.447679e-02	1.376197e-02	8.880765e-03	1.070586e-02	0.006931	0.017406	8.88310
116	0.968815	0.018651	1.962025e-03	2.842687e-03	1.785404e-03	5.644329e-03	0.003930	0.006159	2.89104
117	0.965794	0.106636	2.352633e-01	2.182252e-01	4.578350e-01	1.270288e-01	0.659332	0.113273	8.99056
118	0.835143	0.007706	7.947956e-03	2.268695e-02	1.499174e-02	4.363307e-02	0.027499	0.032663	1.75590
119	0.933955	0.048591	1.067049e-02	1.213626e-02	1.401378e-02	1.891979e-02	0.017923	0.017403	1.65125
120	0.965034	0.001171	3.172230e-04	1.018035e-03	6.570237e-04	1.328502e-03	0.001262	0.002126	9.14616
121	0.988917	0.001190	1.831448e-03	9.189768e-03	5.847138e-03	8.645923e-03	0.005710	0.034886	1.88591

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
122	0.988760	0.017240	7.659335e-03	1.573829e-03	2.643956e-02	1.641616e-03	0.015376	0.002519	3.12778
123	0.978033	0.015934	3.617398e-03	1.677247e-03	1.063093e-03	2.023640e-03	0.001720	0.002490	1.08530
124	0.954378	0.001587	3.896225e-03	1.374840e-02	8.871654e-03	2.778207e-02	0.017335	0.017383	8.87066
125	0.994937	0.011863	4.871622e-02	4.352318e-02	2.995767e-02	2.312200e-02	0.014438	0.017163	8.74907
126	0.974295	0.026086	3.968431e-02	7.443027e-02	5.341515e-02	5.888964e-02	0.037692	0.067779	3.88937
127	0.559558	0.535263	6.142264e-01	5.146128e-01	5.964636e-01	4.731684e-01	0.501417	0.589775	6.41228
128	0.974937	0.001871	1.226379e-04	1.270849e-04	9.889979e-05	3.685050e-04	0.000544	0.000327	1.18939
129	0.933046	0.000933	1.176320e-03	3.266206e-03	8.677498e-03	7.751966e-03	0.018715	0.004906	9.62986
130	0.980508	0.005598	9.170424e-04	2.019125e-03	1.274240e-03	2.190059e-03	0.001826	0.003684	1.65835
131	0.588724	0.279702	5.185528e-01	5.385457e-01	4.868303e-01	6.304372e-01	0.552959	0.846661	7.87145
132	0.955657	0.029475	3.365488e-02	4.371204e-02	4.920288e-02	3.794525e-02	0.069273	0.018430	5.18113
133	0.989367	0.003640	8.175167e-03	9.362344e-03	5.960204e-03	8.203697e-03	0.005448	0.002545	1.11134
134	0.927508	0.005758	3.617398e-03	1.128872e-02	7.230270e-03	1.551710e-02	0.009806	0.035835	1.94168
135	0.933824	0.007842	1.031599e-03	2.671083e-03	1.678577e-03	8.424412e-03	0.005579	0.012293	6.09997
136	0.974635	0.011747	7.100039e-03	1.398689e-02	9.031892e-03	1.189349e-02	0.007638	0.059877	3.39596
137	0.883108	0.013917	5.264579e-03	3.328886e-03	2.089002e-03	6.213186e-03	0.004268	0.016725	8.50818
138	0.978348	0.006139	9.170424e-04	4.605302e-04	7.204084e-03	8.471863e-04	0.006469	0.001106	1.36358
139	0.970331	0.042295	3.971215e-03	4.411520e-03	1.097586e-02	8.149295e-03	0.013653	0.009408	1.80371
140	0.945565	0.000899	1.035315e-04	3.325005e-04	2.317290e-04	5.706268e-04	0.000713	0.000279	9.99010
141	0.978348	0.005850	9.170424e-04	2.019125e-03	1.274240e-03	2.246673e-03	0.001862	0.003393	1.51725
142	0.980800	0.001150	1.298667e-04	6.159561e-06	5.478855e-04	1.132524e-05	0.000770	0.000023	7.42301
143	0.970331	0.042295	3.971215e-03	5.338260e-03	3.358000e-03	9.335018e-03	0.006118	0.011260	5.54850
144	0.978348	0.005559	9.170424e-04	2.338433e-03	1.471977e-03	2.824085e-03	0.002224	0.005454	2.53493

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
145	0.964866	0.047243	3.971215e-03	2.780864e-03	1.746898e-03	3.731220e-03	0.002781	0.003500	1.56896
146	0.005818	0.000597	1.574798e-06	8.729182e-08	8.228063e-07	5.245268e-07	0.000048	0.000001	2.20907
147	0.967779	0.023849	6.136138e-02	7.494022e-02	5.381227e-02	7.571634e-02	0.049336	0.133946	8.26079
148	0.966160	0.001082	1.298667e-04	2.172135e-04	1.581146e-04	2.941668e-04	0.000476	0.000362	1.32956
149	0.989926	0.025924	2.033744e-03	6.277489e-04	4.161390e-04	8.022114e-04	0.000890	0.001049	4.24763
150	0.774488	0.163957	1.025375e-01	7.470973e-02	5.363274e-02	9.168676e-02	0.060729	0.116282	7.05506
151	0.978348	0.005996	9.170424e-04	5.680992e-04	3.791369e-04	9.837970e-04	0.001022	0.001357	5.61751
152	0.918955	0.000847	5.813654e-04	1.603592e-03	1.017670e-03	3.948536e-03	0.002913	0.002531	1.10455
153	0.895013	0.000752	2.611690e-04	5.702630e-04	9.936604e-04	1.496293e-03	0.002858	0.000985	1.07771
154	0.957039	0.000816	3.457931e-05	2.003309e-05	2.194751e-05	3.846612e-05	0.000173	0.000034	9.67038
155	0.964363	0.001468	6.892438e-04	1.173390e-03	7.526780e-04	1.301647e-03	0.001244	0.000846	3.36140
156	0.915662	0.016972	3.971215e-03	7.586922e-03	4.803002e-03	1.873954e-02	0.011755	0.027250	1.44282
157	0.966160	0.001187	1.298667e-04	2.013641e-05	9.764186e-05	3.309574e-05	0.000396	0.000063	6.50305
158	0.977780	0.065212	6.136138e-02	3.055272e-02	2.789418e-01	1.484275e-02	0.315440	0.011865	5.47167
159	0.976435	0.004551	9.170424e-04	1.109727e-03	1.701295e-03	1.604463e-03	0.002434	0.002595	2.94471
160	0.987631	0.048724	3.089025e-02	3.845800e-02	4.350085e-02	1.874769e-02	0.041276	0.071630	9.34568
161	0.699841	0.486757	4.222640e-01	4.479470e-01	4.776088e-01	3.861346e-01	0.519325	0.372547	5.19305
162	0.937267	0.001125	5.813654e-04	1.303914e-03	8.330384e-04	2.971040e-03	0.002315	0.001917	8.17453
163	0.925064	0.021739	2.306954e-02	2.969109e-02	1.992697e-02	3.561337e-02	0.022298	0.025495	1.34245
164	0.862349	0.231357	1.025375e-01	1.081599e-01	8.026822e-02	9.568948e-02	0.063633	0.128531	7.88839
165	0.990247	0.004957	8.175167e-03	1.973585e-02	1.294688e-02	1.656308e-02	0.010436	0.023509	1.22962
166	0.927982	0.063856	1.814795e-02	1.529812e-02	2.893565e-02	2.120113e-02	0.029219	0.021394	3.53780
167	0.508505	0.374259	6.284687e-01	6.456437e-01	6.012088e-01	6.876846e-01	0.615468	0.609441	5.01784

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
168	0.966160	0.001151	1.298667e-04	5.759773e-05	5.076794e-05	9.376346e-05	0.000259	0.000078	2.47182
169	0.992768	0.181160	3.738917e-01	2.164732e-01	1.728327e-01	1.415393e-01	0.098089	0.164045	1.03751
170	0.986441	0.011883	4.099605e-03	1.080159e-03	1.263137e-02	1.334892e-03	0.008933	0.001893	1.59167
171	0.995979	0.009959	4.993850e-02	4.822178e-02	3.343851e-02	3.472451e-02	0.021729	0.058491	3.31016
172	0.439489	0.127482	2.598146e-01	4.449663e-01	3.906192e-01	5.944691e-01	0.514764	0.835052	7.71843
173	0.005818	0.000597	1.574798e-06	4.531822e-08	1.389158e-04	2.544121e-07	0.001499	0.000001	2.20907
174	0.727779	0.052612	1.636386e-01	1.949410e-01	1.537785e-01	2.561925e-01	0.191872	0.450118	3.40427
175	0.572642	0.358093	5.809601e-01	5.894963e-01	5.407056e-01	6.282436e-01	0.550606	0.551296	4.40251
176	0.962579	0.007577	4.265337e-03	1.055423e-02	6.744336e-03	1.045917e-02	0.006785	0.072732	4.20212
177	0.979427	0.021568	4.411048e-02	5.107683e-02	3.556993e-02	5.179393e-02	0.032905	0.065054	3.71845
178	0.978694	0.001893	4.408628e-03	1.288966e-02	8.296228e-03	2.239278e-02	0.013989	0.014942	7.53212
179	0.909379	0.056073	4.322307e-02	5.430220e-02	3.799200e-02	7.553832e-02	0.049210	0.089803	5.29908
180	0.958996	0.000793	3.172230e-04	1.620637e-03	1.028180e-03	2.760130e-03	0.002185	0.003402	1.52179
181	0.310484	0.402338	5.180845e-01	6.103777e-01	5.630720e-01	5.884725e-01	0.508473	0.600165	4.91757
182	0.915175	0.364533	9.614464e-02	1.209497e-01	9.073234e-02	1.237539e-01	0.084477	0.133672	8.24188
183	0.916168	0.001031	3.457931e-05	3.007896e-06	3.519849e-05	9.122825e-06	0.000255	0.000012	1.56801
184	0.975797	0.073197	8.327590e-02	5.584822e-02	2.456558e-01	4.452748e-02	0.400356	0.026258	6.38191
185	0.486576	0.183476	2.634587e-01	3.910647e-01	3.369251e-01	5.304845e-01	0.448746	0.796407	7.21906
186	0.974937	0.001914	1.226379e-04	9.709430e-05	7.855074e-05	2.575150e-04	0.000441	0.000223	7.83725
187	0.985694	0.012343	4.099605e-03	1.080159e-03	1.263137e-02	1.319000e-03	0.008871	0.002013	1.79588
188	0.093249	0.291678	5.945183e-01	7.847889e-01	7.557094e-01	8.709800e-01	0.832141	0.962312	9.46623
189	0.980508	0.005877	9.170424e-04	6.865496e-04	4.525422e-04	1.141677e-03	0.001133	0.001495	6.24019
190	0.975923	0.003454	1.788647e-02	4.436279e-02	3.057715e-02	6.816282e-02	0.044060	0.033808	1.82276

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
191	0.985433	0.085449	1.876111e-01	2.329429e-01	1.876003e-01	1.383932e-01	0.095660	0.137582	8.51226
192	0.963439	0.031514	3.657185e-02	4.809295e-02	3.334262e-02	3.634022e-02	0.022765	0.030855	1.65075
193	0.934474	0.000773	1.298667e-04	2.362979e-04	5.061597e-04	4.307962e-04	0.001146	0.000548	1.56497
194	0.964866	0.043976	3.971215e-03	4.717599e-03	2.963649e-03	8.476965e-03	0.005610	0.010594	5.19449
195	0.939681	0.287530	2.773068e-01	2.748481e-01	3.572154e-01	1.880177e-01	0.216372	0.394641	4.31155
196	0.935113	0.001235	2.611690e-04	5.637650e-04	3.764450e-04	1.164719e-03	0.001149	0.000773	3.04806
197	0.952813	0.001889	2.207352e-03	6.423501e-03	4.052317e-03	1.274208e-02	0.008143	0.008013	3.84205
198	0.980508	0.005598	9.170424e-04	1.109727e-03	1.701295e-03	1.623039e-03	0.002454	0.002340	2.52570
199	0.972571	0.000994	8.132571e-04	3.075376e-03	1.930530e-03	2.632740e-03	0.002105	0.006283	2.95408
200	0.927628	0.137623	6.477355e-02	4.501834e-02	5.061903e-02	4.323061e-02	0.099995	0.050088	1.90664
201	0.404909	0.000604	9.000310e-06	3.639408e-06	6.473221e-06	6.661121e-06	0.000091	0.000012	2.99287
202	0.924094	0.000823	9.000310e-06	3.639408e-06	6.473221e-06	6.661121e-06	0.000091	0.000012	2.99287
203	0.968370	0.098961	1.272431e-01	1.132634e-01	1.798432e-01	8.714246e-02	0.309112	0.032066	2.83177
204	0.997351	0.029994	9.882416e-02	1.171553e-01	1.850788e-01	6.013459e-02	0.259919	0.043498	3.91273
205	0.957039	0.000860	3.457931e-05	7.632660e-06	1.077211e-05	1.796746e-05	0.000128	0.000020	5.26615
206	0.978951	0.051453	2.254231e-03	1.555334e-03	9.879199e-04	2.472924e-03	0.002005	0.002815	1.23965
207	0.964866	0.045533	3.971215e-03	4.155617e-03	2.608386e-03	6.967361e-03	0.004716	0.008185	3.93111
208	0.975940	0.004065	3.651023e-04	2.823898e-04	1.999238e-04	6.775655e-04	0.000796	0.000747	2.93714
209	0.736403	0.000630	3.457931e-05	3.703329e-05	1.418183e-04	1.247003e-04	0.000694	0.000093	1.38426
210	0.965034	0.001272	3.172230e-04	4.315285e-04	2.940132e-04	4.233867e-04	0.000592	0.000232	8.16896
211	0.981188	0.001075	8.568211e-04	4.389176e-03	2.755821e-03	4.190641e-03	0.003059	0.033281	1.79195
212	0.988760	0.015539	7.659335e-03	2.521501e-02	1.676037e-02	1.683534e-02	0.010601	0.036629	1.98846
213	0.860507	0.005629	5.468206e-03	2.104221e-02	1.384935e-02	3.408272e-02	0.021319	0.175311	1.11853

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
214	0.983438	0.014375	2.641976e-01	4.035081e-01	3.492034e-01	4.917594e-01	0.409939	0.309587	2.16073
215	0.908568	0.041512	1.814795e-02	1.529812e-02	2.893565e-02	2.105839e-02	0.029047	0.022236	3.78634
216	0.980508	0.005598	9.170424e-04	2.019125e-03	1.274240e-03	2.230218e-03	0.001852	0.003290	1.46761
217	0.953839	0.011156	6.847315e-03	1.322849e-02	8.522976e-03	1.467640e-02	0.009301	0.032542	1.74885
218	0.915847	0.047511	9.720059e-02	9.039093e-02	3.367345e-01	7.105848e-02	0.685309	0.026080	8.95184
219	0.085752	0.836795	9.155767e-01	9.060116e-01	8.942224e-01	9.073282e-01	0.878658	0.915953	8.81281
220	0.889370	0.468265	8.508828e-02	1.213121e-01	9.103098e-02	2.014919e-01	0.145938	0.249444	1.67658
221	0.984584	0.042522	1.859322e-02	9.402688e-03	5.986653e-03	7.135612e-03	0.004815	0.009800	4.77537
222	0.964866	0.043976	3.971215e-03	4.411520e-03	1.097586e-02	8.082131e-03	0.013563	0.009907	2.04886
223	0.958263	0.047083	5.158158e-02	6.311100e-02	4.467912e-02	3.758775e-02	0.023568	0.034792	1.88042
224	0.951361	0.052336	6.651016e-03	7.081428e-03	4.476060e-03	6.656302e-03	0.004531	0.005308	2.46171
225	0.754130	0.255511	1.074802e-01	1.324204e-01	1.002356e-01	1.775189e-01	0.126466	0.223426	1.47585
226	0.967995	0.063125	1.103754e-01	1.140785e-01	2.379192e-01	7.779469e-02	0.342999	0.046327	3.95558
227	0.982807	0.001302	1.298667e-04	1.728181e-04	1.292182e-04	1.584725e-04	0.000338	0.000356	1.30566
228	0.992385	0.004957	9.432697e-03	1.973585e-02	1.294688e-02	1.481460e-02	0.009384	0.036447	1.97775
229	0.969849	0.051519	5.698940e-02	6.739819e-02	1.636974e-01	3.015058e-02	0.318103	0.022917	4.27994
230	0.819825	0.001209	3.651023e-04	9.385249e-04	6.080458e-04	4.284674e-03	0.003116	0.006990	3.31477
231	0.972376	0.018659	1.916371e-02	1.356026e-02	8.745375e-03	1.170405e-02	0.007525	0.023811	1.24668
232	0.410368	0.075568	1.618274e-01	3.184150e-01	2.667144e-01	5.135506e-01	0.431672	0.799538	7.25895
233	0.994888	0.002778	1.573158e-02	6.943137e-03	4.386823e-03	7.832177e-03	0.005228	0.009734	4.74077
234	0.914319	0.041196	1.067049e-02	1.935870e-02	1.268717e-02	2.657636e-02	0.016581	0.030016	1.60214
235	0.965084	0.023569	2.523459e-02	3.330742e-02	3.653214e-02	2.810988e-02	0.025931	0.024442	2.08257
236	0.951387	0.010844	3.183107e-03	2.506642e-03	3.587583e-03	3.245358e-03	0.004226	0.002955	3.33603

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
237	0.977421	0.001461	1.368473e-03	3.678887e-03	2.308406e-03	6.267550e-03	0.004300	0.004321	1.97080
238	0.993282	0.001892	1.005034e-03	2.606788e-03	1.638596e-03	1.438043e-03	0.001336	0.016392	8.32499
239	0.976435	0.004786	9.170424e-04	5.120691e-04	9.129470e-04	9.134555e-04	0.001668	0.001215	1.49166
240	0.869133	0.001677	3.651023e-04	8.011054e-04	5.233143e-04	3.287555e-03	0.002510	0.004870	2.24280
241	0.978348	0.005850	9.170424e-04	1.427060e-03	9.088790e-04	1.937069e-03	0.001664	0.003349	1.49602
242	0.990374	0.001869	4.063022e-04	2.075941e-05	8.687168e-04	2.408106e-05	0.000890	0.000066	9.54722
243	0.940834	0.244738	1.665067e-01	8.623056e-02	9.232723e-02	6.879462e-02	0.062142	0.066182	5.82187
244	0.966323	0.002510	7.317960e-03	2.169862e-02	1.430446e-02	3.563882e-02	0.022315	0.029530	1.57402
245	0.973318	0.031945	5.563650e-02	8.441312e-02	9.041491e-02	6.990080e-02	0.063143	0.053583	4.51843
246	0.958958	0.017098	9.866701e-03	1.064503e-02	6.804298e-03	1.143140e-02	0.007363	0.007655	3.65673
247	0.981761	0.010762	2.033744e-03	7.184662e-04	5.368699e-03	1.062337e-03	0.004957	0.001493	8.36715
248	0.769834	0.495982	2.306901e-01	2.095803e-01	2.838016e-01	2.232858e-01	0.253630	0.231098	2.75093
249	0.980508	0.005739	9.170424e-04	5.680992e-04	3.791369e-04	9.963779e-04	0.001031	0.001254	5.15715
250	0.888514	0.195411	9.614464e-02	1.181093e-01	8.839620e-02	1.208207e-01	0.082261	0.104008	6.23319
251	0.404909	0.000604	9.000310e-06	1.221009e-05	8.156377e-05	7.812571e-06	0.001327	0.000024	2.35226
252	0.980508	0.005598	9.170424e-04	1.109727e-03	3.881705e-03	1.623039e-03	0.004213	0.002340	5.90336
253	0.965034	0.001336	3.172230e-04	2.116263e-04	1.545001e-04	2.409512e-04	0.000425	0.000121	3.98860
254	0.581090	0.366548	5.662438e-01	6.790932e-01	6.377859e-01	7.086819e-01	0.638953	0.874193	8.23984
255	0.988917	0.001271	1.831448e-03	5.647802e-03	3.555431e-03	5.476657e-03	0.003830	0.021146	1.09645
256	0.968815	0.017854	1.962025e-03	3.260100e-03	2.045966e-03	7.026365e-03	0.004751	0.007718	3.68966
257	0.944655	0.005403	1.527676e-03	3.176544e-03	1.993726e-03	5.371302e-03	0.003767	0.003226	1.43659
258	0.862877	0.150727	9.196930e-02	8.157273e-02	5.900369e-02	1.031749e-01	0.069111	0.110207	6.64661
259	0.905471	0.514781	1.074802e-01	1.725829e-01	1.343127e-01	2.122396e-01	0.154804	0.263794	1.78954

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
260	0.875192	0.172512	3.048897e-01	2.435834e-01	4.878418e-01	2.133021e-01	0.746605	0.124488	8.91616
261	0.912407	0.112473	1.980099e-01	1.641649e-01	2.933404e-01	1.303683e-01	0.194780	0.124257	4.02819
262	0.847481	0.372188	3.792151e-01	1.481484e-01	2.103167e-01	1.140064e-01	0.135782	0.106378	1.33907
263	0.687811	0.326095	4.769336e-01	4.640918e-01	4.099816e-01	4.896079e-01	0.407808	0.424094	3.16178
264	0.948321	0.022199	1.690475e-02	1.732837e-02	1.957535e-02	1.247445e-02	0.012317	0.017031	1.68663
265	0.822409	0.304346	2.054535e-01	1.563658e-01	1.204092e-01	1.651604e-01	0.116600	0.176744	1.12892
266	0.591529	0.572366	8.190160e-01	7.977125e-01	7.703442e-01	7.905629e-01	0.733667	0.899446	8.58435
267	0.848289	0.000695	1.035315e-04	1.753556e-04	1.145572e-03	5.039765e-04	0.003203	0.000347	1.24764
268	0.984989	0.009323	4.099605e-03	1.080159e-03	9.474444e-02	1.319000e-03	0.049031	0.001999	1.29450
269	0.980191	0.001591	8.132571e-04	2.050398e-03	1.293583e-03	1.975379e-03	0.001689	0.007094	3.36799
270	0.921174	0.006864	2.306954e-02	5.328052e-02	5.956405e-02	8.462170e-02	0.121581	0.058536	1.18184
271	0.968408	0.007058	1.765717e-03	1.832915e-03	2.590359e-03	1.983035e-03	0.002827	0.001897	2.21997
272	0.508120	0.482215	5.539756e-01	4.872720e-01	6.986707e-01	4.573335e-01	0.599171	0.570439	8.18994
273	0.981302	0.029713	6.136138e-02	5.987277e-02	4.220895e-02	5.718735e-02	0.036536	0.075562	4.38194
274	0.974435	0.081385	8.327590e-02	6.237470e-02	1.079903e-01	2.941496e-02	0.161807	0.025410	2.93148
275	0.970331	0.042295	3.971215e-03	4.411520e-03	1.675518e-02	8.149295e-03	0.018582	0.009408	2.72968
276	0.994888	0.002778	1.573158e-02	6.943137e-03	4.386823e-03	7.832177e-03	0.005228	0.009734	4.74077
277	0.404909	0.000604	9.000310e-06	4.958730e-06	5.896144e-05	2.227399e-05	0.000401	0.000014	8.96458
278	0.934474	0.000789	1.298667e-04	1.261527e-05	7.123976e-04	3.286359e-05	0.001465	0.000049	2.39664
279	0.896877	0.125230	8.568195e-02	1.055448e-01	7.814656e-02	7.569912e-02	0.049323	0.085797	5.03911
280	0.981136	0.015724	3.617398e-03	2.168928e-03	1.366940e-03	2.692675e-03	0.002143	0.003125	1.38810
281	0.981136	0.015724	3.617398e-03	3.108351e-03	1.951122e-03	3.314325e-03	0.002526	0.004363	1.99182
282	0.983108	0.021351	4.770863e-02	5.599399e-02	3.926825e-02	4.480417e-02	0.028268	0.112861	6.82470

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
283	0.975247	0.007752	1.765717e-03	4.845308e-03	3.044623e-03	6.860813e-03	0.004652	0.006842	3.23898
284	0.933046	0.000933	1.176320e-03	3.266206e-03	4.267462e-03	7.751966e-03	0.009802	0.004906	4.74191
285	0.975287	0.014140	1.916371e-02	1.858072e-02	1.215265e-02	2.019217e-02	0.012640	0.022644	1.18069
286	0.724467	0.028059	1.496208e-02	2.714351e-02	1.811938e-02	4.606715e-02	0.029100	0.040788	2.23489
287	0.974623	0.000891	3.829357e-04	2.645919e-05	2.201960e-03	4.818955e-05	0.002650	0.000085	1.12721
288	0.879914	0.259191	1.703237e-01	2.104385e-01	1.674630e-01	1.901389e-01	0.136664	0.172797	1.10037
289	0.935410	0.191139	2.135471e-02	3.754230e-02	2.557849e-02	5.528168e-02	0.035248	0.075599	4.38432
290	0.955208	0.050711	1.600284e-01	2.015463e-01	1.595923e-01	2.208693e-01	0.161980	0.124658	7.62347
291	0.990539	0.027964	2.041570e-02	6.702524e-03	3.954204e-02	4.402278e-03	0.018872	0.005245	2.82403
292	0.997148	0.031225	1.291939e-01	1.259057e-01	1.923316e-01	6.706823e-02	0.177890	0.026428	1.68847
293	0.564956	0.185051	1.166625e-01	1.781237e-01	1.391053e-01	2.884104e-01	0.219825	0.500974	3.89480
294	0.912782	0.506008	5.332655e-01	3.770714e-01	4.699924e-01	2.599627e-01	0.451376	0.160543	3.93335
295	0.970368	0.015327	6.107565e-03	4.684535e-03	2.942699e-03	3.943220e-03	0.002909	0.003647	1.64070
296	0.918955	0.000847	5.813654e-04	1.474609e-03	2.155477e-03	3.647945e-03	0.005406	0.002342	2.37959
297	0.964682	0.199704	1.819773e-01	4.998251e-02	4.141008e-01	4.139173e-02	0.257517	0.053361	3.83019
298	0.472040	0.206063	8.225367e-01	6.813464e-01	6.402635e-01	6.943873e-01	0.622931	0.739083	6.50674
299	0.972232	0.008380	4.532825e-01	7.552266e-01	7.223962e-01	8.725718e-01	0.834151	0.778460	6.99240
300	0.888514	0.193675	9.614464e-02	1.251411e-01	9.419225e-02	1.334211e-01	0.091840	0.118832	7.22750
301	0.891027	0.000668	4.536850e-05	9.515967e-06	2.259883e-04	2.131962e-05	0.000576	0.000043	2.02645
302	0.982707	0.032829	7.100039e-03	3.504101e-03	4.792948e-03	3.136946e-03	0.015669	0.005011	2.91848
303	0.991342	0.106667	2.921932e-01	3.120811e-01	2.607172e-01	2.747248e-01	0.207874	0.273764	1.86896
304	0.959513	0.002740	1.344357e-02	3.661088e-03	6.494318e-02	6.121351e-03	0.066186	0.013196	2.04593
305	0.977181	0.126243	2.841985e-01	3.232072e-01	4.277405e-01	2.406031e-01	0.540815	0.220966	6.46380

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
306	0.984060	0.008683	2.033744e-03	7.184662e-04	5.368699e-03	1.075712e-03	0.004994	0.001411	7.31078
307	0.976043	0.000792	1.729947e-04	2.752088e-06	1.081999e-03	5.483837e-06	0.001021	0.000027	3.65438
308	0.981088	0.023325	6.847315e-03	2.192225e-03	6.007628e-03	2.301866e-03	0.005093	0.002957	6.62382
309	0.820684	0.001554	1.527676e-03	4.652811e-03	2.922604e-03	1.678239e-02	0.010569	0.021771	1.13152
310	0.480151	0.124790	2.162280e-01	3.838663e-01	3.298551e-01	5.249071e-01	0.443105	0.819410	7.51444
311	0.947163	0.019791	1.534290e-02	1.571193e-02	1.019635e-02	1.560853e-02	0.009861	0.009181	4.45017
312	0.848964	0.001252	9.170424e-04	4.692520e-03	2.947758e-03	1.178332e-02	0.007572	0.035694	1.93339
313	0.944091	0.125692	1.276697e-02	1.695640e-02	1.104206e-02	2.811941e-02	0.017546	0.029176	1.55362
314	0.981657	0.000998	4.063022e-04	1.465177e-03	9.323615e-04	6.975379e-04	0.000811	0.007308	3.47790
315	0.964516	0.012419	5.434995e-03	1.032058e-02	6.590181e-03	9.627747e-03	0.006292	0.006757	3.19544
316	0.966084	0.002933	6.889631e-02	1.920384e-01	1.512325e-01	3.429621e-01	0.268559	0.233454	1.55260
317	0.989571	0.014111	9.170424e-04	3.971845e-04	2.724813e-04	6.311399e-04	0.000760	0.000748	2.94145
318	0.972404	0.035584	2.254231e-03	1.786450e-03	1.130480e-03	2.596078e-03	0.002082	0.002986	1.32121
319	0.952591	0.146319	6.801045e-02	2.877750e-02	1.513831e-01	2.990936e-02	0.102944	0.034903	1.59530
320	0.780377	0.128901	9.196930e-02	1.136404e-01	8.473459e-02	1.370779e-01	0.094647	0.170746	1.08558
321	0.818741	0.546945	8.508828e-02	1.213121e-01	9.103098e-02	2.014919e-01	0.145938	0.249520	1.67718
322	0.720714	0.054988	3.580585e-02	3.721124e-02	2.533788e-02	4.593759e-02	0.029014	0.033303	1.79325
323	0.933941	0.077154	6.477355e-02	5.412062e-02	3.785525e-02	6.084649e-02	0.039025	0.064393	3.67710
324	0.934767	0.083527	2.939698e-02	1.907278e-02	5.440780e-02	2.384828e-02	0.046180	0.025383	6.23807
325	0.952580	0.029439	3.968431e-02	6.817743e-02	4.857029e-02	4.866123e-02	0.030817	0.083008	4.85897
326	0.919290	0.032582	5.158158e-02	5.392388e-02	8.910503e-02	4.779386e-02	0.098969	0.023371	6.93883
327	0.986852	0.001138	8.568211e-04	2.476786e-03	1.557828e-03	2.409682e-03	0.001965	0.013393	6.69180
328	0.977679	0.001955	2.529165e-03	5.470296e-03	3.442154e-03	7.647766e-03	0.005119	0.003764	1.69765

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
329	0.990671	0.077184	6.447015e-02	2.305755e-02	1.525006e-02	1.393237e-02	0.008855	0.018321	9.38899
330	0.936573	0.167676	3.404243e-01	3.323057e-01	5.846630e-01	2.425508e-01	0.840245	0.230239	9.54349
331	0.778074	0.000799	3.019828e-04	1.541052e-03	9.791172e-04	8.033394e-03	0.005347	0.009633	4.68765
332	0.926325	0.001012	2.611690e-04	3.039571e-04	2.136423e-04	4.952276e-04	0.000652	0.000269	9.61147
333	0.976385	0.009842	3.617398e-03	1.044259e-02	6.670656e-03	1.152968e-02	0.007421	0.022157	1.15327
334	0.978348	0.006139	9.170424e-04	6.212999e-04	1.063487e-03	1.049155e-03	0.001826	0.001481	1.77813
335	0.972571	0.000932	8.132571e-04	4.169089e-03	2.616882e-03	4.642047e-03	0.003330	0.022542	1.17493
336	0.947906	0.104399	8.082856e-03	1.169181e-02	7.497805e-03	2.208256e-02	0.013798	0.024900	1.30852
337	0.898087	0.145756	1.328542e-01	1.526262e-01	1.659808e-01	1.096214e-01	0.249217	0.195557	3.59979
338	0.968004	0.046877	6.136138e-02	3.996643e-02	2.734617e-02	2.596645e-02	0.016201	0.037463	2.03765
339	0.932072	0.093660	1.276697e-02	1.863979e-02	1.219318e-02	3.267946e-02	0.020425	0.036093	1.95690
340	0.537416	0.269830	4.482421e-01	5.011565e-01	4.479512e-01	6.028067e-01	0.523546	0.830572	7.65975
341	0.946982	0.004719	1.214982e-02	5.962916e-03	3.756920e-03	8.747799e-03	0.005770	0.014342	7.20612
342	0.978348	0.005850	9.170424e-04	1.212804e-03	7.769430e-04	1.714354e-03	0.001519	0.002853	1.25784
343	0.671629	0.465480	3.383424e-01	2.542965e-01	3.401169e-01	2.387384e-01	0.437098	0.294365	5.29661
344	0.528743	0.216981	6.107454e-01	7.069593e-01	6.685441e-01	7.631448e-01	0.701371	0.828614	7.63417
345	0.975229	0.020450	1.095966e-02	4.067289e-03	2.552709e-03	3.796034e-03	0.002820	0.004252	1.93679
346	0.770476	0.083682	1.046528e-01	1.248045e-01	9.391385e-02	1.983961e-01	0.143400	0.309242	2.15787
347	0.975635	0.003974	2.658825e-02	6.597766e-02	4.687691e-02	1.020129e-01	0.068257	0.052171	2.92172
348	0.941481	0.015568	9.866701e-03	1.383326e-02	8.928648e-03	1.097891e-02	0.007094	0.013708	6.86219
349	0.895013	0.000752	2.611690e-04	9.007688e-04	5.847783e-04	1.547237e-03	0.001409	0.000561	2.15027
350	0.891027	0.000660	4.536850e-05	6.529746e-05	5.630931e-05	1.018519e-04	0.000270	0.000409	1.52039
351	0.964866	0.042436	3.971215e-03	7.812795e-03	4.949465e-03	1.220669e-02	0.007824	0.017527	8.94984

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
352	0.891027	0.000691	4.536850e-05	5.916951e-07	2.089448e-03	2.849073e-06	0.002548	0.000009	9.92677
353	0.889021	0.084624	1.464614e-01	1.940697e-01	1.530137e-01	2.329707e-01	0.172129	0.216631	1.42429
354	0.998124	0.032697	1.651378e-01	1.492668e-01	2.955381e-01	7.900187e-02	0.518007	0.027529	8.02527
355	0.965093	0.004690	7.798307e-04	8.326626e-04	1.345165e-03	1.670894e-03	0.003080	0.001731	1.40445
356	0.970982	0.001199	1.035315e-04	8.466667e-05	6.995974e-05	1.268681e-04	0.000301	0.000083	2.63061
357	0.956824	0.042016	3.968431e-02	2.831246e-02	7.701343e-02	1.692368e-02	0.036154	0.014788	4.33048
358	0.950527	0.134867	3.408856e-02	6.383374e-02	4.523225e-02	7.989079e-02	0.052283	0.105208	6.31300
359	0.973606	0.001955	2.529165e-03	5.470296e-03	3.442154e-03	6.754826e-03	0.004589	0.004274	1.94780
360	0.902829	0.331836	3.291819e-01	3.247109e-01	3.399767e-01	2.022402e-01	0.186340	0.411356	3.75062
361	0.957423	0.015389	6.107565e-03	5.223180e-03	3.284727e-03	5.315951e-03	0.003734	0.005771	2.69499
362	0.984837	0.045734	1.015413e-01	1.366888e-01	1.453098e-01	1.171409e-01	0.119337	0.075112	5.86703
363	0.870945	0.001190	1.226379e-04	4.048046e-04	2.772643e-04	2.084226e-03	0.001759	0.002375	1.03122
364	0.523180	0.232678	4.482421e-01	5.116985e-01	4.588555e-01	6.227090e-01	0.544684	0.843359	7.82779
365	0.974937	0.001914	1.226379e-04	9.709430e-05	7.855074e-05	2.455857e-04	0.000430	0.000216	7.54140
366	0.975099	0.013842	3.617398e-03	1.543532e-03	2.239862e-03	1.898103e-03	0.002740	0.002258	2.59713
367	0.974362	0.001161	3.172230e-04	4.315285e-04	2.940132e-04	3.954649e-04	0.000568	0.000236	8.33213
368	0.981136	0.016356	3.617398e-03	1.543532e-03	2.239862e-03	1.919339e-03	0.002762	0.002133	2.32128
369	0.940134	0.049719	7.606744e-02	7.654886e-02	1.177944e-01	7.109407e-02	0.087413	0.062421	8.61391
370	0.882691	0.067052	7.465509e-02	9.216271e-02	1.014457e-01	6.272985e-02	0.081711	0.207630	2.68727
371	0.974029	0.009487	1.765717e-03	1.057717e-03	6.814602e-04	1.571025e-03	0.001425	0.001623	6.82562
372	0.975940	0.004065	3.651023e-04	2.823898e-04	2.777558e-03	6.775655e-04	0.003565	0.000747	5.28612
373	0.839119	0.496029	3.507511e-01	2.722888e-01	3.600377e-01	2.314923e-01	0.428835	0.289514	5.25008
374	0.911618	0.040606	7.092472e-02	5.850030e-02	4.116611e-02	4.453619e-02	0.028092	0.030565	1.63396

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
375	0.976794	0.061253	2.108050e-01	2.934598e-01	3.079757e-01	3.016182e-01	0.302713	0.182075	1.46304
376	0.984060	0.008945	2.033744e-03	7.916323e-04	2.845947e-03	1.155777e-03	0.003227	0.001547	3.76785
377	0.975060	0.001468	6.892438e-04	1.173390e-03	7.526780e-04	1.232853e-03	0.001196	0.000814	3.22367
378	0.962223	0.028808	1.690475e-02	1.241879e-02	2.424929e-02	1.325433e-02	0.019537	0.010579	1.88032
379	0.886690	0.299982	9.614464e-02	7.433357e-02	5.333988e-02	7.422110e-02	0.048285	0.071805	4.14339
380	0.977302	0.002256	4.408628e-03	1.015034e-02	6.477996e-03	1.470088e-02	0.009316	0.006622	3.12659
381	0.760553	0.020289	7.465509e-02	3.060567e-02	7.882672e-02	3.856101e-02	0.069015	0.061441	2.81688
382	0.792795	0.205787	2.398545e-01	3.504998e-01	2.974047e-01	2.554245e-01	0.191214	0.303412	2.10972
383	0.970205	0.025685	5.563650e-02	9.521978e-02	6.983202e-02	6.122477e-02	0.039284	0.080160	4.67589
384	0.944825	0.001206	1.176320e-03	3.999837e-03	2.510220e-03	8.299653e-03	0.005505	0.005248	2.43160
385	0.976435	0.004551	9.170424e-04	1.427060e-03	9.088790e-04	1.937069e-03	0.001664	0.003325	1.48432
386	0.977186	0.003077	1.528735e-04	7.533488e-05	2.468051e-04	1.551699e-04	0.001278	0.000191	1.13738
387	0.940094	0.012365	5.434995e-03	5.774457e-03	3.636356e-03	5.802789e-03	0.004024	0.003628	1.63133
388	0.965074	0.001021	6.892438e-04	1.943098e-03	1.227237e-03	3.735237e-03	0.002783	0.002927	1.29288
389	0.942538	0.153265	2.135471e-02	2.635530e-02	1.756294e-02	4.298214e-02	0.027073	0.051633	2.88888
390	0.923989	0.191139	2.135471e-02	3.754230e-02	2.557849e-02	5.498394e-02	0.035047	0.078723	4.58376
391	0.984060	0.007930	2.033744e-03	5.929526e-03	3.735547e-03	5.557229e-03	0.003878	0.010338	5.05925
392	0.967434	0.038489	3.968431e-02	5.970894e-02	4.208433e-02	3.401067e-02	0.021273	0.041348	2.26827
393	0.960592	0.001482	4.408628e-03	1.410071e-02	9.108434e-03	2.569952e-02	0.016035	0.023467	1.22721
394	0.816009	0.136912	1.491409e-01	1.974529e-01	1.559861e-01	1.669736e-01	0.118040	0.232807	1.54762
395	0.975060	0.001427	6.892438e-04	1.695771e-03	1.074520e-03	2.843916e-03	0.002237	0.001828	7.76318
396	0.986583	0.024590	6.847315e-03	2.327164e-03	2.210959e-02	2.407278e-03	0.013843	0.003253	2.68015
397	0.925538	0.065116	1.814795e-02	1.529812e-02	2.893565e-02	2.120113e-02	0.029219	0.021646	3.44810

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
398	0.428880	0.268083	1.527110e-01	1.561780e-01	1.697493e-01	1.532969e-01	0.185729	0.124652	1.80668
399	0.970331	0.043809	3.971215e-03	4.155617e-03	2.608386e-03	7.027073e-03	0.004751	0.007720	3.69020
400	0.802296	0.056516	3.886741e-02	4.574989e-02	5.141186e-02	4.927619e-02	0.075440	0.037427	7.49455
401	0.934799	0.177418	4.676541e-02	3.332638e-02	6.056647e-02	2.907267e-02	0.141434	0.024657	2.28561
402	0.991106	0.012006	1.344357e-02	2.411135e-03	3.345013e-02	2.156352e-03	0.017987	0.003380	3.44400
403	0.404909	0.000625	9.000310e-06	1.002345e-07	2.126362e-04	1.148305e-06	0.000911	0.000003	6.50915
404	0.979797	0.022083	3.089025e-02	3.507024e-02	2.378655e-02	3.100234e-02	0.019361	0.037915	2.06437
405	0.311090	0.253950	4.860391e-01	6.129550e-01	5.658439e-01	7.044442e-01	0.634188	0.864801	8.11332
406	0.920001	0.012365	5.434995e-03	5.144164e-03	3.234457e-03	6.595556e-03	0.004495	0.005940	2.78007
407	0.961244	0.035162	2.755953e-02	3.250291e-02	3.568118e-02	2.055110e-02	0.019341	0.032336	2.99435
408	0.956824	0.041377	3.968431e-02	2.831246e-02	4.916615e-02	1.692368e-02	0.024041	0.014788	2.49315
409	0.838526	0.001349	7.798307e-04	2.230795e-03	1.405259e-03	8.899963e-03	0.005860	0.012758	6.34979
410	0.969579	0.154092	2.461981e-01	1.269926e-01	2.462113e-01	9.263258e-02	0.349879	0.109597	5.08831
411	0.977030	0.024856	6.136138e-02	7.494022e-02	8.293352e-02	7.987202e-02	0.074015	0.096532	8.71181
412	0.971783	0.059698	1.916371e-02	7.622218e-03	1.759574e-02	4.008502e-03	0.041341	0.004869	1.00526
413	0.975099	0.013472	3.617398e-03	1.677247e-03	1.063093e-03	2.023640e-03	0.001720	0.002471	1.07629
414	0.772688	0.086581	8.443513e-02	4.347008e-02	2.556534e-01	8.821751e-02	0.271539	0.284415	7.14105
415	0.800607	0.000743	4.236759e-05	1.040662e-04	8.332488e-05	6.435957e-04	0.000770	0.000799	3.15943
416	0.981136	0.016043	3.617398e-03	1.953386e-03	1.233596e-03	2.301977e-03	0.001897	0.002714	1.19123
417	0.952098	0.088904	4.560379e-02	2.353861e-02	9.424818e-02	2.691777e-02	0.070631	0.028865	9.69625
418	0.766260	0.184456	2.480363e-01	2.813300e-01	2.318986e-01	3.419912e-01	0.267676	0.291397	2.01133
419	0.986516	0.033123	1.859322e-02	9.402688e-03	5.986653e-03	7.196464e-03	0.004851	0.009006	4.35905
420	0.448508	0.154474	2.598146e-01	4.341150e-01	3.797047e-01	5.760008e-01	0.495460	0.820725	7.53149

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
421	0.978582	0.027415	7.606744e-02	1.220829e-01	1.299971e-01	1.105022e-01	0.100321	0.044859	3.78827
422	0.836249	0.046449	9.980168e-02	4.466286e-02	2.042562e-01	5.509134e-02	0.217364	0.081247	6.21381
423	0.981761	0.010762	2.033744e-03	7.184662e-04	3.360100e-02	1.062337e-03	0.020525	0.001493	5.32131
424	0.863134	0.245873	1.259726e-01	9.395367e-02	1.004508e-01	1.104472e-01	0.100270	0.110854	1.02489
425	0.979738	0.033189	8.327590e-02	8.651207e-02	6.290072e-02	8.724469e-02	0.057529	0.110305	6.65317
426	0.977271	0.014764	6.847315e-03	1.398689e-02	9.031892e-03	1.366005e-02	0.008692	0.028782	1.53090
427	0.936544	0.002910	4.388220e-04	1.541656e-04	1.119070e-03	2.861273e-04	0.003429	0.000450	7.92831
428	0.910979	0.509356	2.334454e-01	1.219127e-01	9.152597e-02	1.148140e-01	0.077749	0.139029	8.61267
429	0.801278	0.186970	2.375063e-01	5.025453e-02	5.539875e-01	7.599388e-02	0.462312	0.382740	9.22578
430	0.995266	0.008830	6.727095e-02	9.300747e-02	2.680435e-01	7.166218e-02	0.333480	0.023177	3.23993
431	0.752965	0.000746	1.226379e-04	6.015725e-04	3.999114e-04	3.802928e-03	0.002824	0.005082	2.34860
432	0.964157	0.114921	2.079187e-01	3.950611e-02	5.176366e-01	3.138009e-02	0.323405	0.062051	5.88740
433	0.969378	0.027247	1.690475e-02	2.529052e-02	2.804248e-02	1.652014e-02	0.015837	0.026477	2.56583
434	0.719027	0.277040	1.166625e-01	1.642595e-01	1.271534e-01	2.513624e-01	0.187737	0.438218	3.29269
435	0.942168	0.001064	2.207352e-03	6.882102e-03	4.347466e-03	1.578357e-02	0.009966	0.009906	4.83113
436	0.848289	0.000695	1.035315e-04	3.114060e-04	6.717257e-04	5.254272e-04	0.003420	0.000136	3.67041
437	0.736403	0.000638	3.457931e-05	5.271909e-06	1.757683e-04	2.343529e-05	0.000801	0.000020	1.74454
438	0.981657	0.000998	4.063022e-04	9.703377e-04	1.523640e-03	9.448073e-04	0.001705	0.004618	1.31061
439	0.736403	0.000660	3.457931e-05	5.271909e-06	5.717767e-04	2.343529e-05	0.001860	0.000020	6.07708
440	0.975099	0.013568	3.617398e-03	1.953386e-03	1.233596e-03	2.277425e-03	0.001882	0.002913	1.28654
441	0.816078	0.043588	3.252447e-01	1.875176e-01	1.472783e-01	2.139069e-01	0.156186	0.267500	1.81897
442	0.887164	0.207981	1.259726e-01	1.595584e-01	1.231314e-01	1.777978e-01	0.126690	0.123524	7.54615
443	0.975940	0.004065	3.651023e-04	2.823898e-04	5.781183e-04	6.775655e-04	0.001381	0.000747	9.72740

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
444	0.950284	0.001383	2.207352e-03	7.716118e-03	4.886748e-03	1.578867e-02	0.009969	0.009909	4.83280
445	0.976435	0.004786	9.170424e-04	4.605302e-04	1.379631e-02	8.471863e-04	0.010525	0.001096	2.64144
446	0.986852	0.001138	8.568211e-04	2.476786e-03	1.557828e-03	2.940210e-03	0.002296	0.005947	2.78370
447	0.877390	0.006738	4.824762e-03	1.354845e-02	8.737449e-03	2.627236e-02	0.016391	0.020077	1.03658
448	0.933710	0.011427	6.847315e-03	2.526190e-03	1.588511e-03	2.570354e-03	0.002066	0.003281	1.46294
449	0.667371	0.484179	4.181896e-01	3.289813e-01	3.443380e-01	3.316091e-01	0.309902	0.284356	2.61063
450	0.908043	0.074770	8.568195e-02	5.311703e-02	1.677496e-01	6.269286e-02	0.147949	0.068227	2.43706
451	0.390867	0.167648	3.105989e-01	4.720710e-01	4.181065e-01	5.964097e-01	0.516804	0.815445	7.46314
452	0.970331	0.042295	3.971215e-03	4.411520e-03	5.567100e-03	8.149295e-03	0.008524	0.009408	9.20714
453	0.888514	0.191477	9.614464e-02	1.324421e-01	1.002537e-01	1.468397e-01	0.102201	0.134973	8.33171
454	0.951807	0.000990	6.892438e-04	1.943098e-03	1.227237e-03	3.510519e-03	0.002646	0.003927	1.77738
455	0.787423	0.001302	7.798307e-04	3.999837e-03	2.510220e-03	1.412067e-02	0.008968	0.019973	1.03081
456	0.882030	0.108373	8.006610e-02	1.014058e-01	7.480138e-02	1.028783e-01	0.068893	0.074176	4.29373
457	0.981761	0.011072	2.033744e-03	7.916323e-04	2.845947e-03	1.141613e-03	0.003201	0.001646	4.17855
458	0.508120	0.482215	5.539756e-01	4.872720e-01	5.711387e-01	4.573335e-01	0.486365	0.570439	6.24345
459	0.972648	0.019922	1.031599e-03	1.190764e-03	7.633743e-04	2.489973e-03	0.002016	0.002738	1.20302
460	0.895013	0.000752	2.611690e-04	6.312515e-04	4.183093e-04	1.644996e-03	0.001473	0.001079	4.38158
461	0.957620	0.007782	5.434995e-03	1.389673e-02	8.971295e-03	1.900624e-02	0.011917	0.010184	4.97783
462	0.978348	0.005996	9.170424e-04	4.605302e-04	3.121499e-04	8.471863e-04	0.000923	0.001106	4.49751
463	0.925519	0.001194	1.035315e-04	3.224391e-05	1.300255e-04	8.046892e-05	0.000569	0.000062	9.90711
464	0.949607	0.009059	6.337639e-03	1.798466e-02	1.174425e-02	1.765817e-02	0.011098	0.093822	5.56150
465	0.933941	0.077154	6.477355e-02	5.412062e-02	3.785525e-02	6.084649e-02	0.039025	0.064393	3.67710
466	0.980508	0.005877	9.170424e-04	4.605302e-04	7.204084e-03	8.583543e-04	0.006516	0.001033	1.10478

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
467	0.972648	0.019806	1.031599e-03	1.133574e-03	7.281653e-04	2.384665e-03	0.001949	0.002792	1.22847
468	0.883945	0.061323	4.676541e-02	6.539689e-02	4.643083e-02	5.506641e-02	0.035103	0.113561	6.87177
469	0.984060	0.008333	2.033744e-03	3.469892e-03	2.177309e-03	3.608013e-03	0.002706	0.006363	2.99461
470	0.974623	0.000869	3.829357e-04	9.922736e-04	6.411572e-04	1.104363e-03	0.001107	0.003875	1.75162
471	0.883420	0.032726	1.649263e-02	2.080783e-02	1.368711e-02	3.193825e-02	0.019954	0.029692	1.58342
472	0.972458	0.003454	1.788647e-02	4.436279e-02	3.057715e-02	6.320560e-02	0.040640	0.039603	2.16443
473	0.975512	0.083713	8.327590e-02	4.385652e-02	1.148485e-01	2.096315e-02	0.168847	0.015642	3.05517
474	0.934474	0.000773	1.298667e-04	2.362979e-04	1.376372e-03	3.502254e-04	0.002649	0.001456	2.73665
475	0.404909	0.000604	9.000310e-06	3.757463e-06	3.998725e-04	1.771904e-05	0.001426	0.000010	1.12751
476	0.979122	0.062733	8.716617e-02	1.311189e-01	9.915191e-02	5.612416e-02	0.035817	0.091340	5.39928
477	0.918955	0.000847	5.813654e-04	1.474609e-03	4.767987e-03	3.647945e-03	0.010826	0.002342	5.29977
478	0.946137	0.000819	3.172230e-04	1.620637e-03	1.028180e-03	2.583802e-03	0.002075	0.005711	2.66466
479	0.836786	0.330693	5.949474e-01	3.799316e-01	3.961552e-01	2.868944e-01	0.266996	0.499153	4.59605
480	0.984865	0.064619	1.403756e-01	1.933694e-01	2.045050e-01	1.511940e-01	0.153462	0.137776	1.09428
481	0.969541	0.021312	6.107565e-03	2.310075e-03	1.454394e-03	2.102301e-03	0.001770	0.001986	8.49600
482	0.543956	0.743293	8.298051e-01	7.480620e-01	7.595606e-01	7.033683e-01	0.676278	0.687647	6.49538
483	0.977186	0.002950	1.528735e-04	6.907873e-05	5.900394e-05	1.381170e-04	0.000315	0.000182	6.24588
484	0.891027	0.000660	4.536850e-05	5.916951e-07	4.640531e-03	2.849073e-06	0.004733	0.000009	3.65883
485	0.997784	0.007274	1.841640e-02	6.484154e-03	4.200652e-02	2.434562e-03	0.044762	0.002739	3.32311
486	0.870147	0.265647	1.980099e-01	1.595478e-01	3.795642e-01	1.315523e-01	0.664947	0.070757	8.64078
487	0.965093	0.004690	7.798307e-04	9.148502e-04	5.934570e-04	1.833140e-03	0.001597	0.001834	7.79278
488	0.739734	0.458493	1.771678e-01	1.940007e-01	1.529531e-01	2.794071e-01	0.211950	0.313540	2.19354
489	0.976435	0.004786	9.170424e-04	5.120691e-04	2.271001e-03	9.134555e-04	0.002926	0.001215	4.01893

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
490	0.891027	0.000660	4.536850e-05	5.551705e-05	5.936389e-04	8.888110e-05	0.001052	0.000315	8.87095
491	0.987462	0.001380	1.916680e-03	9.600078e-03	6.116158e-03	7.145328e-03	0.004821	0.087986	5.18100
492	0.987430	0.043289	4.300056e-02	1.165586e-02	7.473917e-03	8.014663e-03	0.005336	0.009700	4.72268
493	0.866093	0.329642	2.123745e-01	1.806832e-01	1.413263e-01	1.733914e-01	0.123158	0.177035	1.13103
494	0.404909	0.000577	9.000310e-06	2.956714e-05	2.968671e-05	1.023025e-04	0.000271	0.000100	3.25443
495	0.876850	0.032086	2.939698e-02	3.359061e-02	2.271935e-02	4.870036e-02	0.030843	0.056110	3.16327
496	0.933426	0.198201	2.135471e-02	2.635530e-02	1.756294e-02	4.012560e-02	0.025210	0.047404	2.63205
497	0.766927	0.466961	8.508828e-02	1.213121e-01	9.103098e-02	2.007825e-01	0.145356	0.255336	1.72277
498	0.945560	0.121565	1.694047e-01	7.619958e-02	2.777690e-01	7.395448e-02	0.196715	0.093722	4.88218
499	0.940242	0.051866	4.914217e-03	1.037098e-02	6.623417e-03	2.553976e-02	0.015935	0.038865	2.12064
500	0.875192	0.172512	3.048897e-01	2.435834e-01	4.878418e-01	2.133021e-01	0.746605	0.124488	8.91616
501	0.976435	0.004670	9.170424e-04	4.605302e-04	8.893812e-03	8.471863e-04	0.007551	0.001096	1.68634
502	0.952117	0.206104	4.929508e-02	2.572494e-02	4.523771e-02	2.063086e-02	0.028532	0.024803	3.87467
503	0.914319	0.042810	1.067049e-02	1.281425e-02	8.245815e-03	1.955469e-02	0.012251	0.019222	9.88920
504	0.802296	0.054548	3.886741e-02	5.430220e-02	3.799200e-02	6.795757e-02	0.043918	0.060554	3.43796
505	0.909696	0.000868	1.035315e-04	1.448404e-04	1.107542e-04	2.069839e-04	0.000391	0.000070	2.16527
506	0.916168	0.000938	3.457931e-05	3.629946e-05	3.492571e-05	8.187215e-05	0.000243	0.000052	1.55705
507	0.962020	0.050431	6.651016e-03	7.081428e-03	4.476060e-03	6.713890e-03	0.004565	0.004986	2.30085
508	0.986162	0.001647	3.013108e-03	9.530059e-03	6.070201e-03	1.267154e-02	0.008101	0.020410	1.05519
509	0.976435	0.004670	9.170424e-04	4.605302e-04	1.959433e-03	8.471863e-04	0.002662	0.001096	3.42969
510	0.803582	0.280049	3.138588e-01	2.709225e-01	2.222598e-01	2.603350e-01	0.195431	0.248113	1.66618
511	0.957387	0.256978	3.324947e-01	2.452095e-01	3.354596e-01	1.633152e-01	0.483041	0.143021	4.94837
512	0.971374	0.034129	2.254231e-03	4.272724e-03	2.682272e-03	7.026365e-03	0.004751	0.010346	5.06348

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
513	0.951361	0.052336	6.651016e-03	7.081428e-03	4.476060e-03	6.753417e-03	0.004589	0.005087	2.35139
514	0.847939	0.042300	3.886741e-02	4.334034e-02	2.982292e-02	4.600972e-02	0.029062	0.030773	1.64601
515	0.896182	0.010307	1.690475e-02	2.332084e-02	1.543379e-02	2.544601e-02	0.015877	0.040399	2.21176
516	0.924094	0.000860	9.000310e-06	2.054421e-06	4.468060e-06	4.490929e-06	0.000081	0.000008	1.83790
517	0.525601	0.140380	2.081874e-01	2.215259e-01	1.773458e-01	2.215260e-01	0.162528	0.109375	6.59094
518	0.917093	0.215059	1.636386e-01	1.494087e-01	1.625646e-01	9.897064e-02	0.151430	0.104066	2.00933
519	0.981657	0.001024	4.063022e-04	3.052887e-05	2.322488e-03	4.481457e-05	0.002331	0.000119	2.42402
520	0.848289	0.000695	1.035315e-04	1.994671e-04	1.466136e-04	5.669732e-04	0.000710	0.000388	1.43491
521	0.633280	0.039112	5.457467e-02	8.955470e-02	6.531394e-02	1.378345e-01	0.095230	0.162241	1.02463
522	0.981563	0.006188	2.033744e-03	7.184662e-04	5.368699e-03	1.049095e-03	0.004921	0.001604	9.64184
523	0.973040	0.004433	3.651023e-04	2.213775e-04	1.608049e-04	4.402099e-04	0.000606	0.000463	1.74086
524	0.946137	0.000871	3.172230e-04	7.955745e-04	5.199009e-04	1.237920e-03	0.001200	0.003293	1.46901
525	0.925465	0.021881	3.971215e-03	3.695970e-03	2.319134e-03	5.590495e-03	0.003897	0.006248	2.93616
526	0.962954	0.000843	4.536850e-05	9.777298e-05	7.901681e-05	8.309220e-05	0.000245	0.000579	2.22249
527	0.974503	0.006040	7.798307e-04	7.249990e-04	4.763150e-04	1.384857e-03	0.001300	0.001387	5.75168
528	0.990597	0.001625	3.829357e-04	7.688672e-04	5.034138e-04	4.831530e-04	0.000642	0.001501	6.27100
529	0.733031	0.254607	5.950944e-01	6.589295e-01	6.774642e-01	5.608340e-01	0.580405	0.619499	6.89419
530	0.865702	0.159514	4.832766e-02	5.213500e-02	3.636293e-02	5.757158e-02	0.036797	0.059421	3.36770
531	0.890210	0.055443	8.082856e-03	1.474494e-02	9.542444e-03	3.048164e-02	0.019032	0.041800	2.29524
532	0.819825	0.001135	3.651023e-04	1.870192e-03	1.182191e-03	6.918350e-03	0.004686	0.014882	7.49942
533	0.977093	0.065967	2.834165e-02	1.327549e-02	1.591915e-02	9.720643e-03	0.031934	0.011632	5.85569
534	0.969265	0.014695	6.107565e-03	5.113393e-03	3.214888e-03	4.539039e-03	0.003269	0.004319	1.96987
535	0.845776	0.001054	1.528735e-04	4.909597e-04	3.311406e-04	1.603309e-03	0.001446	0.002760	1.21316

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
536	0.808436	0.096980	8.414106e-02	1.266483e-01	9.543994e-02	1.587778e-01	0.111552	0.351650	2.51620
537	0.832048	0.065590	1.549030e-01	1.075569e-01	7.977841e-02	1.249868e-01	0.085411	0.131082	8.06351
538	0.736403	0.000630	3.457931e-05	3.703329e-05	9.790354e-04	1.247003e-04	0.002824	0.000093	1.06137
539	0.969044	0.026480	3.657185e-02	6.098064e-02	6.788419e-02	4.308090e-02	0.081568	0.032767	4.70090
540	0.736403	0.000630	3.457931e-05	4.415786e-05	4.087856e-05	1.456829e-04	0.000324	0.000108	3.50992
541	0.481049	0.190588	3.266727e-01	4.685215e-01	4.144888e-01	5.884327e-01	0.508431	0.830520	7.65906
542	0.946137	0.000871	3.172230e-04	7.955745e-04	5.199009e-04	1.428947e-03	0.001330	0.001808	7.67333
543	0.865781	0.077581	3.886741e-02	3.777727e-02	2.574938e-02	4.976451e-02	0.031550	0.044560	2.46062
544	0.981761	0.010353	2.033744e-03	3.469892e-03	2.177309e-03	3.572880e-03	0.002684	0.006966	3.30252
545	0.978033	0.016356	3.617398e-03	1.543532e-03	2.239862e-03	1.898103e-03	0.002740	0.002276	2.61557
546	0.958631	0.119025	3.202009e-02	3.919847e-02	2.678507e-02	3.411695e-02	0.021341	0.040990	2.24694
547	0.945658	0.117530	4.560379e-02	2.353861e-02	9.424818e-02	2.657481e-02	0.069934	0.030671	1.12444
548	0.997906	0.005562	6.290581e-03	6.240846e-04	2.742772e-02	4.023221e-04	0.011531	0.000485	3.42366
549	0.972128	0.034475	5.698940e-02	9.763898e-02	1.073199e-01	5.723188e-02	0.103405	0.108598	1.35039
550	0.965074	0.001021	6.892438e-04	1.943098e-03	1.227237e-03	3.320257e-03	0.002530	0.004210	1.91627
551	0.964866	0.045838	3.971215e-03	4.865726e-03	3.057578e-03	5.730745e-03	0.003981	0.005710	2.66402
552	0.283859	0.346712	3.358158e-01	4.672774e-01	4.132221e-01	5.969963e-01	0.517421	0.831565	7.67273
553	0.848289	0.000695	1.035315e-04	1.753556e-04	2.127681e-03	5.039765e-04	0.005347	0.000347	2.34843
554	0.964866	0.043976	3.971215e-03	4.411520e-03	1.097586e-02	8.082131e-03	0.013563	0.009907	2.04886
555	0.001509	0.865978	9.838740e-01	9.864555e-01	9.857171e-01	9.901394e-01	0.988462	0.994231	9.92038
556	0.973245	0.008731	3.766889e-03	1.677885e-03	1.063487e-03	2.397691e-03	0.001958	0.003010	1.33271
557	0.928549	0.072141	3.490119e-01	4.484175e-01	3.941014e-01	5.094593e-01	0.427571	0.340038	2.41667
558	0.947906	0.104399	8.082856e-03	1.169181e-02	1.415359e-02	2.208256e-02	0.032120	0.024900	5.29424

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
559	0.948704	0.146319	6.801045e-02	2.877750e-02	1.513831e-01	2.990936e-02	0.102944	0.034882	1.59472
560	0.954647	0.137580	9.775577e-02	3.487396e-02	2.263298e-01	3.355826e-02	0.145644	0.039523	2.16472
561	0.871881	0.460334	2.592300e-01	2.373762e-01	1.916033e-01	2.506458e-01	0.187125	0.265903	1.80627
562	0.852384	0.044727	3.886741e-02	4.054717e-02	2.777114e-02	5.640614e-02	0.036008	0.054309	3.05260
563	0.981166	0.027978	2.523459e-02	2.300316e-02	1.521213e-02	1.462301e-02	0.009269	0.010546	5.16928
564	0.976309	0.003000	1.165062e-02	2.858375e-02	1.913959e-02	4.335607e-02	0.027318	0.020863	1.08054
565	0.895013	0.000771	2.611690e-04	5.911204e-04	2.621805e-03	7.735615e-04	0.019733	0.000154	3.63778
566	0.933046	0.000964	1.176320e-03	3.349462e-03	2.101881e-03	4.245739e-03	0.003092	0.000979	3.94009
567	0.984989	0.009323	4.099605e-03	1.080159e-03	1.263137e-02	1.319000e-03	0.008871	0.001999	1.78833
568	0.908568	0.041512	1.814795e-02	2.045106e-02	1.344042e-02	2.623678e-02	0.016369	0.030496	1.62995
569	0.937267	0.001055	5.813654e-04	1.870192e-03	1.182191e-03	3.950239e-03	0.002914	0.002532	1.10506
570	0.971708	0.041199	3.657185e-02	6.609850e-02	4.696979e-02	7.159839e-02	0.046450	0.048394	2.69198
571	0.977030	0.024274	6.136138e-02	7.494022e-02	5.381227e-02	7.987202e-02	0.052270	0.096532	5.73927
572	0.980508	0.005877	9.170424e-04	6.212999e-04	1.063487e-03	1.062397e-03	0.001841	0.001362	1.54621
573	0.971682	0.008545	1.765717e-03	1.832915e-03	2.590359e-03	1.983035e-03	0.002827	0.001913	2.23619
574	0.992380	0.004312	1.965321e-02	4.523327e-02	5.085199e-02	5.274521e-02	0.080086	0.023325	4.81782
575	0.937267	0.001159	5.813654e-04	8.833831e-04	5.740616e-04	1.475417e-03	0.001361	0.000802	3.16988
576	0.536455	0.269830	4.482421e-01	4.880780e-01	4.344873e-01	5.836903e-01	0.503472	0.815705	7.46650
577	0.891027	0.000691	4.536850e-05	5.916951e-07	8.280958e-04	2.849073e-06	0.001315	0.000009	1.79972
578	0.562618	0.175449	2.129067e-01	3.075402e-01	2.564305e-01	4.386057e-01	0.358036	0.733896	6.44395
579	0.720194	0.126591	5.769870e-02	8.128196e-02	5.877509e-02	1.164687e-01	0.078988	0.102059	6.10396
580	0.975400	0.008812	1.765717e-03	1.190764e-03	7.633743e-04	1.795260e-03	0.001572	0.002137	9.19811
581	0.005818	0.000597	1.574798e-06	4.531822e-08	5.009485e-05	2.544121e-07	0.000648	0.000001	2.20907

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
582	0.912689	0.506136	3.913908e-01	2.028074e-01	2.864106e-01	1.443898e-01	0.468330	0.163791	6.59009
583	0.866708	0.510196	3.221123e-01	2.618923e-01	2.755001e-01	2.639706e-01	0.245074	0.290046	2.66335
584	0.951361	0.046860	6.651016e-03	1.390079e-02	8.974019e-03	2.368390e-02	0.014785	0.022916	1.19609
585	0.986302	0.016899	2.033744e-03	1.657067e-03	1.050646e-03	1.626256e-03	0.001461	0.002473	1.07727
586	0.962364	0.117059	6.801045e-02	2.877750e-02	1.513831e-01	3.028512e-02	0.103870	0.033292	1.41060
587	0.846827	0.094980	3.886741e-02	3.285317e-02	7.885032e-02	3.999005e-02	0.067984	0.032822	7.15770
588	0.877235	0.627927	5.222651e-01	4.236390e-01	3.692174e-01	3.834346e-01	0.305805	0.443402	3.34115
589	0.980508	0.005877	9.170424e-04	4.605302e-04	2.115778e-03	8.583543e-04	0.002818	0.001033	3.16587
590	0.981761	0.011072	2.033744e-03	7.916323e-04	2.845947e-03	1.141613e-03	0.003201	0.001636	4.39061
591	0.355653	0.356889	4.349389e-01	4.113065e-01	4.983901e-01	3.977921e-01	0.429128	0.525267	5.84510
592	0.805630	0.458073	2.743366e-01	1.948828e-01	2.106497e-01	1.666000e-01	0.279788	0.162542	3.82085
593	0.773773	0.295126	3.674450e-01	3.329668e-01	2.805699e-01	3.396196e-01	0.265524	0.287639	1.98078
594	0.800607	0.000701	4.236759e-05	1.876683e-04	1.389319e-04	1.572731e-03	0.001426	0.002439	1.06146
595	0.980508	0.005598	9.170424e-04	1.427060e-03	9.088790e-04	1.958652e-03	0.001678	0.002964	1.31060
596	0.957457	0.011165	5.434995e-03	9.015357e-03	5.732992e-03	9.256858e-03	0.006072	0.007633	3.64547
597	0.952794	0.093010	1.907153e-01	2.239141e-01	1.794844e-01	1.263370e-01	0.086436	0.282889	1.94233
598	0.964639	0.000899	1.298667e-04	3.325005e-04	2.317290e-04	4.151800e-04	0.000585	0.001226	5.03005
599	0.975940	0.004268	3.651023e-04	2.541701e-04	1.818938e-04	5.286359e-04	0.000679	0.000547	2.08812
600	0.005818	0.000577	1.574798e-06	2.611740e-06	5.207793e-06	1.999959e-05	0.000133	0.000001	2.20907
601	0.980508	0.005739	9.170424e-04	4.605302e-04	1.959433e-03	8.583543e-04	0.002683	0.001033	2.92418
602	0.968088	0.027573	2.254231e-03	1.868436e-03	6.320449e-03	3.261297e-03	0.011773	0.003716	3.09094
603	0.976187	0.220351	2.970508e-01	6.953653e-02	6.041173e-01	5.110442e-02	0.395900	0.066367	5.37873
604	0.942291	0.266555	3.408856e-02	3.363874e-02	2.275399e-02	3.599170e-02	0.022541	0.038341	2.08958

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
605	0.962954	0.000927	4.536850e-05	1.559367e-05	1.815155e-05	1.933654e-05	0.000132	0.000066	2.04575
606	0.970331	0.040798	3.971215e-03	7.812795e-03	4.949465e-03	1.229973e-02	0.007880	0.016141	8.18740
607	0.857636	0.151799	1.464614e-01	2.098340e-01	1.669264e-01	2.166831e-01	0.158492	0.151289	9.47008
608	0.990198	0.001276	1.005034e-03	2.953321e-03	1.854366e-03	1.988539e-03	0.001697	0.023142	1.20883
609	0.977421	0.001508	1.368473e-03	2.691642e-03	1.691367e-03	3.590754e-03	0.002695	0.001481	6.17718
610	0.953049	0.061784	1.310171e-02	1.342424e-02	8.654147e-03	1.654969e-02	0.010428	0.023945	1.25431
611	0.944091	0.120356	1.276697e-02	2.045106e-02	1.344042e-02	3.748403e-02	0.023501	0.042668	2.34714
612	0.978348	0.005850	9.170424e-04	2.019125e-03	1.274240e-03	2.206278e-03	0.001836	0.003796	1.71316
613	0.948491	0.001182	3.896225e-03	1.242594e-02	7.986540e-03	2.777413e-02	0.017330	0.017378	8.86793
614	0.404909	0.000604	9.000310e-06	1.002345e-07	6.684269e-04	1.148305e-06	0.002096	0.000003	7.30347
615	0.627106	0.350369	5.813976e-01	5.908855e-01	5.421885e-01	6.458528e-01	0.569579	0.856129	7.99727
616	0.961679	0.041670	7.444013e-03	1.635283e-02	1.063132e-02	2.001720e-02	0.012533	0.035196	1.90413
617	0.995905	0.005480	3.438440e-02	7.952872e-02	8.787135e-02	6.369344e-02	0.094569	0.110341	1.92833
618	0.994937	0.012597	4.871622e-02	1.151046e-02	7.377365e-03	5.799872e-03	0.004022	0.003915	1.77161
619	0.978033	0.016043	3.617398e-03	1.953386e-03	1.233596e-03	2.277425e-03	0.001882	0.002935	1.29696
620	0.848289	0.000695	1.035315e-04	1.753556e-04	4.068402e-04	5.039765e-04	0.001444	0.000347	4.25543
621	0.969542	0.053847	2.998317e-01	1.043348e-01	4.053606e-01	7.345887e-02	0.241994	0.070684	6.87695
622	0.852415	0.479083	3.260393e-01	2.525534e-01	2.053937e-01	2.410536e-01	0.178961	0.267145	1.81615
623	0.894509	0.473876	7.552318e-02	9.630462e-02	7.070083e-02	1.426964e-01	0.098985	0.170324	1.08254
624	0.515859	0.145847	1.166625e-01	1.926387e-01	1.517586e-01	3.314862e-01	0.258164	0.570749	4.60489
625	0.888514	0.193675	9.614464e-02	1.251411e-01	1.367332e-01	1.334211e-01	0.124246	0.118832	1.04897
626	0.840615	0.000836	1.605253e-05	2.843172e-05	2.878738e-05	1.396985e-04	0.000317	0.000478	1.80471
627	0.851128	0.299145	1.613716e-01	1.222250e-01	9.178352e-02	1.335499e-01	0.091938	0.129362	7.94537

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
628	0.977421	0.001596	1.368473e-03	2.372573e-03	3.422784e-03	2.843916e-03	0.003827	0.000968	1.14159
629	0.985694	0.012746	4.099605e-03	1.181064e-03	7.353940e-03	1.413096e-03	0.005892	0.002194	1.03595
630	0.974383	0.001694	1.368473e-03	2.691642e-03	1.691367e-03	3.105195e-03	0.002398	0.001996	8.53907
631	0.975940	0.004065	3.651023e-04	3.927070e-04	2.696693e-04	8.472365e-04	0.000923	0.001024	4.13698
632	0.972040	0.041670	7.444013e-03	1.635283e-02	1.063132e-02	2.029232e-02	0.012701	0.030534	1.63212
633	0.961982	0.232211	7.634064e-02	2.859063e-02	7.947994e-02	2.214638e-02	0.229557	0.033910	4.21883
634	0.947939	0.066086	4.914217e-03	8.350379e-03	5.298959e-03	1.830847e-02	0.011493	0.026007	1.37166
635	0.973023	0.002256	4.408628e-03	1.015034e-02	6.477996e-03	1.470088e-02	0.009316	0.006855	3.24594
636	0.969044	0.026480	3.657185e-02	6.098064e-02	4.305252e-02	4.308090e-02	0.027137	0.032767	1.76195
637	0.862879	0.622444	8.508828e-02	1.213121e-01	9.103098e-02	2.007825e-01	0.145356	0.255259	1.72216
638	0.404909	0.000604	9.000310e-06	3.757463e-06	1.727653e-04	1.771904e-05	0.000792	0.000010	3.88179
639	0.969467	0.001358	2.611690e-04	7.688672e-04	5.034138e-04	1.218303e-03	0.001186	0.000368	1.35382
640	0.001385	0.848668	9.816193e-01	9.856948e-01	9.848805e-01	9.898712e-01	0.988116	0.994106	9.91863
641	0.966160	0.001024	1.298667e-04	3.623481e-04	2.505700e-04	4.343693e-04	0.000601	0.000780	3.07590
642	0.970331	0.043809	3.971215e-03	4.155617e-03	2.608386e-03	7.027073e-03	0.004751	0.007789	3.72595
643	0.912356	0.008768	1.962025e-03	5.434177e-03	3.419125e-03	1.599580e-02	0.010094	0.021061	1.09167
644	0.771483	0.413912	2.829874e-01	2.363057e-01	1.906356e-01	2.725039e-01	0.205945	0.299105	2.07432
645	0.981563	0.006188	2.033744e-03	7.184662e-04	3.360100e-02	1.049095e-03	0.020398	0.001604	6.26997
646	0.977780	0.064042	6.136138e-02	3.055272e-02	1.703269e-01	1.484275e-02	0.222035	0.011865	4.17171
647	0.989793	0.019925	2.033744e-03	1.439553e-03	2.247490e-03	1.529411e-03	0.002452	0.002456	2.64544
648	0.972907	0.019248	9.866701e-03	1.218386e-02	7.825167e-03	1.113983e-02	0.007189	0.010034	4.89864
649	0.980749	0.026085	4.411048e-02	3.984326e-02	2.725611e-02	3.426527e-02	0.021435	0.063964	3.65034
650	0.929248	0.217307	2.500340e-02	3.935904e-02	2.690231e-02	7.384020e-02	0.048018	0.100129	5.97627

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
651	0.970706	0.001097	1.368473e-03	3.952563e-03	2.480457e-03	4.057279e-03	0.002978	0.001221	5.01041
652	0.822775	0.057663	4.676541e-02	5.555387e-02	6.001751e-02	5.343907e-02	0.048331	0.132188	1.18771
653	0.933046	0.000964	1.176320e-03	2.558269e-03	1.608441e-03	4.463225e-03	0.003223	0.002042	8.75317
654	0.992113	0.047642	3.272149e-02	5.514374e-03	5.410649e-02	4.014406e-03	0.026216	0.005637	4.66552
655	0.410368	0.075568	1.618274e-01	3.184150e-01	2.667144e-01	5.135506e-01	0.431672	0.799538	7.25895
656	0.886536	0.092649	1.303670e-01	6.399869e-02	1.005813e-01	7.203408e-02	0.104290	0.102420	1.28804
657	0.968815	0.018651	1.962025e-03	2.842687e-03	1.785404e-03	5.729541e-03	0.003980	0.005859	2.73927
658	0.982774	0.027863	1.859322e-02	9.828242e-03	6.266048e-03	6.900275e-03	0.004676	0.007822	3.74329
659	0.756873	0.254646	2.054535e-01	1.450041e-01	1.107825e-01	1.391742e-01	0.096262	0.163449	1.03326
660	0.970782	0.068402	4.491669e-03	2.658944e-03	3.566063e-03	4.051263e-03	0.004826	0.005421	5.77934
661	0.964776	0.190287	1.356584e-01	4.191377e-02	3.160422e-01	3.731797e-02	0.197364	0.045957	3.00612
662	0.966985	0.010998	4.099605e-03	1.033786e-03	6.667233e-04	1.088200e-03	0.001096	0.001523	6.36932
663	0.848289	0.000709	1.035315e-04	4.592933e-05	4.870131e-04	1.508508e-04	0.001649	0.000111	5.13908
664	0.978348	0.006139	9.170424e-04	4.605302e-04	2.115778e-03	8.471863e-04	0.002796	0.001106	3.74959
665	0.976435	0.004786	9.170424e-04	4.605302e-04	4.388252e-03	8.471863e-04	0.004550	0.001096	8.08682
666	0.974623	0.000816	3.829357e-04	1.962953e-03	1.239510e-03	2.057351e-03	0.001741	0.009850	4.80181
667	0.883589	0.000728	3.457931e-05	6.047901e-05	5.285068e-05	1.458054e-04	0.000324	0.000096	3.10446
668	0.958963	0.178839	9.775577e-02	3.487396e-02	2.263298e-01	3.335441e-02	0.145063	0.040832	2.29118
669	0.984858	0.011823	9.170424e-04	4.765677e-04	3.221633e-04	6.791683e-04	0.000797	0.000799	3.15956
670	0.995127	0.001660	2.302637e-03	1.110318e-04	1.875953e-03	9.230209e-05	0.001462	0.000296	7.03597
671	0.916168	0.000988	3.457931e-05	2.557423e-05	2.650013e-05	6.479344e-05	0.000218	0.000041	1.21408
672	0.922683	0.108323	8.568195e-02	5.311703e-02	1.677496e-01	6.302101e-02	0.148538	0.066032	2.34565
673	0.980017	0.018044	6.107565e-03	4.684535e-03	2.942699e-03	3.981219e-03	0.002932	0.003455	1.54707

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
674	0.475033	0.101406	1.618274e-01	3.000672e-01	2.493990e-01	4.684617e-01	0.386997	0.757513	6.73206
675	0.804130	0.130398	9.188939e-02	7.631525e-02	1.174772e-01	7.933650e-02	0.096805	0.248760	2.98040
676	0.856346	0.730339	1.328368e-01	1.831739e-01	1.434918e-01	2.990504e-01	0.229194	0.388103	2.83571
677	0.989203	0.082200	8.716617e-02	5.707258e-02	4.008396e-02	4.644771e-02	0.029351	0.055266	3.11136
678	0.903456	0.026637	1.993536e-02	2.646327e-02	1.763907e-02	2.556193e-02	0.015949	0.031453	1.68548
679	0.958996	0.000873	3.172230e-04	1.268905e-04	9.876933e-05	2.509457e-04	0.000435	0.000321	1.16544
680	0.975247	0.008364	1.765717e-03	1.986039e-03	1.253782e-03	2.136131e-03	0.001792	0.001960	8.37172
681	0.975228	0.078527	1.103754e-01	6.501221e-02	2.688728e-01	4.559161e-02	0.364897	0.019480	4.27533
682	0.942538	0.149352	2.135471e-02	3.754230e-02	2.557849e-02	5.558063e-02	0.035450	0.070366	4.05238
683	0.952808	0.093540	1.993536e-02	2.859372e-02	1.914667e-02	2.738838e-02	0.017088	0.032606	1.75257
684	0.895013	0.000752	2.611690e-04	9.007688e-04	5.847783e-04	1.301647e-03	0.001244	0.000861	3.42544
685	0.964866	0.045838	3.971215e-03	4.865726e-03	3.057578e-03	5.645519e-03	0.003930	0.006393	3.00991
686	0.964863	0.015102	1.534290e-02	1.851202e-02	2.083761e-02	1.837736e-02	0.017451	0.007253	6.40476
687	0.984328	0.001456	3.829357e-04	7.078770e-04	4.657314e-04	3.428997e-04	0.000521	0.001031	4.17003
688	0.980455	0.020547	2.755953e-02	4.901282e-02	5.494612e-02	1.920737e-02	0.042085	0.029184	4.24940
689	0.752965	0.000577	1.574798e-06	6.456930e-08	7.218879e-07	8.547784e-07	0.000053	0.000001	2.20907
690	0.981188	0.001146	8.568211e-04	2.476786e-03	1.557828e-03	2.161298e-03	0.001808	0.022891	1.19464
691	0.976313	0.021076	2.834165e-02	2.270463e-02	1.500405e-02	2.283645e-02	0.014262	0.027463	1.45499
692	0.986441	0.012274	4.099605e-03	1.181064e-03	7.353940e-03	1.429885e-03	0.005936	0.002065	9.05167
693	0.965093	0.004690	7.798307e-04	1.273137e-03	8.140883e-04	1.644118e-03	0.001473	0.001348	5.57669
694	0.939768	0.218522	2.544753e-01	2.038108e-01	2.770943e-01	1.804030e-01	0.208235	0.211907	2.59900
695	0.523885	0.230817	4.315244e-01	4.766061e-01	4.227364e-01	6.140741e-01	0.535483	0.811745	7.41541
696	0.749917	0.156866	1.851547e-01	2.093869e-01	1.665296e-01	1.479977e-01	0.103103	0.136422	8.43191

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
697	0.968408	0.006380	1.765717e-03	4.845308e-03	3.044623e-03	6.802226e-03	0.004618	0.007610	3.63343
698	0.972571	0.000994	8.132571e-04	3.075376e-03	4.278790e-03	2.632740e-03	0.007016	0.006283	6.65406
699	0.980038	0.024616	1.095966e-02	4.067289e-03	2.552709e-03	3.796034e-03	0.002820	0.004281	1.95131
700	0.996851	0.019287	1.591432e-01	1.674110e-01	5.543027e-01	1.064500e-01	0.905716	0.020044	9.81038
701	0.979444	0.018777	3.089025e-02	3.341573e-02	2.259349e-02	3.062782e-02	0.019125	0.054681	3.07545
702	0.442603	0.373785	6.147849e-01	6.569384e-01	6.135165e-01	7.075874e-01	0.637721	0.871371	8.20173
703	0.976453	0.022041	1.095966e-02	8.195385e-03	5.198065e-03	7.375547e-03	0.004957	0.007042	3.34166
704	0.976435	0.004786	9.170424e-04	6.212999e-04	1.063487e-03	1.049155e-03	0.001826	0.001468	1.76467
705	0.987133	0.001432	1.661664e-03	5.091286e-03	3.200834e-03	5.445301e-03	0.003811	0.024147	1.26578
706	0.980154	0.001491	4.236759e-05	3.042098e-05	3.035973e-05	1.235126e-04	0.000297	0.000142	4.77319
707	0.948122	0.038399	9.519256e-02	1.458968e-01	1.588337e-01	1.007139e-01	0.165872	0.078031	1.00796
708	0.433124	0.023676	3.703489e-02	8.953803e-02	6.530069e-02	1.641862e-01	0.115827	0.370376	2.67899
709	0.973245	0.007930	3.766889e-03	1.044259e-02	6.670656e-03	9.987474e-03	0.006505	0.048604	2.70467
710	0.757909	0.248458	3.099746e-01	2.987671e-01	2.481787e-01	3.201536e-01	0.247974	0.308715	2.15351
711	0.441847	0.373785	6.147849e-01	6.462519e-01	6.018704e-01	6.921834e-01	0.620474	0.860202	8.05168
712	0.848289	0.000695	1.035315e-04	3.114060e-04	2.183695e-04	4.233867e-04	0.000592	0.000294	1.05852
713	0.980191	0.001635	8.132571e-04	1.439553e-03	9.165750e-04	1.048333e-03	0.001068	0.001898	8.08640
714	0.975940	0.004065	3.651023e-04	2.823898e-04	1.539817e-03	6.775655e-04	0.002448	0.000747	2.82445
715	0.958958	0.016661	9.866701e-03	9.566361e-03	6.094026e-03	1.050475e-02	0.006812	0.006685	3.15899
716	0.735013	0.310557	4.222640e-01	3.981459e-01	3.439035e-01	4.144888e-01	0.334999	0.358689	2.57706
717	0.354047	0.179053	3.640625e-01	5.361690e-01	4.843422e-01	6.666172e-01	0.592211	0.833703	7.70074
718	0.815323	0.686770	1.953268e-01	2.598149e-01	2.120385e-01	4.089662e-01	0.329768	0.530644	4.19141
719	0.978951	0.051453	2.254231e-03	1.555334e-03	9.879199e-04	2.472924e-03	0.002005	0.003011	1.33320

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
720	0.847092	0.000685	9.000310e-06	4.373732e-07	1.550054e-05	2.335525e-06	0.000149	0.000005	9.20570
721	0.919831	0.079051	8.006610e-02	1.097306e-01	8.154555e-02	1.055328e-01	0.070850	0.120505	7.34088
722	0.976043	0.000792	1.729947e-04	2.752088e-06	2.035984e-02	5.483837e-06	0.008927	0.000027	9.06665
723	0.878567	0.284743	2.227862e-01	2.952269e-01	2.448603e-01	2.529326e-01	0.189080	0.284139	1.95244
724	0.953479	0.025448	4.491669e-03	3.284184e-03	2.061031e-03	5.487608e-03	0.003836	0.007471	3.56190
725	0.877094	0.323324	2.054535e-01	1.515304e-01	2.144883e-01	1.607002e-01	0.187021	0.161134	2.01408
726	0.966518	0.010364	3.183107e-03	3.556020e-03	2.231304e-03	3.664698e-03	0.002740	0.002970	1.31371
727	0.989926	0.025138	2.033744e-03	1.483477e-03	9.436363e-04	1.452692e-03	0.001346	0.002195	9.46799
728	0.768323	0.273706	3.099746e-01	3.136683e-01	2.622181e-01	3.619015e-01	0.285875	0.323428	2.27615
729	0.951084	0.117530	4.560379e-02	2.353861e-02	9.424818e-02	2.674586e-02	0.070282	0.029757	1.04509
730	0.939642	0.174538	9.980168e-02	6.075241e-02	9.889423e-02	5.718066e-02	0.167494	0.070974	2.33998
731	0.961244	0.035910	2.755953e-02	2.147961e-02	3.870262e-02	1.423064e-02	0.020742	0.020393	3.27674
732	0.891044	0.001067	4.236759e-05	1.129361e-04	8.935803e-05	7.591625e-04	0.000858	0.001001	4.03806
733	0.938221	0.098892	1.881089e-01	5.489429e-02	3.843821e-02	4.160867e-02	0.026175	0.066784	3.82687
734	0.942168	0.000992	2.207352e-03	1.098976e-02	7.032240e-03	2.469562e-02	0.015411	0.015457	7.81332
735	0.980508	0.005877	9.170424e-04	5.120691e-04	9.129470e-04	9.253143e-04	0.001682	0.001139	1.31679
736	0.898921	0.467977	7.552318e-02	1.171864e-01	8.763862e-02	1.640888e-01	0.115750	0.203183	1.32331
737	0.944655	0.005403	1.527676e-03	2.883718e-03	1.810971e-03	4.532809e-03	0.003265	0.002323	1.00687
738	0.934277	0.020901	1.390052e-02	1.761189e-02	1.148934e-02	2.000188e-02	0.012524	0.009984	4.87257
739	0.992453	0.078822	3.361764e-02	3.630170e-02	3.969786e-02	2.099547e-02	0.019728	0.089941	7.88610
740	0.863822	0.363386	2.123745e-01	1.392428e-01	1.479851e-01	1.435916e-01	0.131105	0.142837	1.28278
741	0.982707	0.032255	7.100039e-03	5.301787e-03	6.905595e-03	4.420394e-03	0.019621	0.007869	3.93737
742	0.937208	0.050345	3.657185e-02	2.662336e-02	2.945571e-02	2.198523e-02	0.020589	0.017499	1.73055

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
743	0.955536	0.001055	1.368473e-03	6.936243e-03	4.382376e-03	1.151974e-02	0.007415	0.018574	9.52945
744	0.509782	0.582486	7.117779e-01	5.971817e-01	6.127578e-01	5.493356e-01	0.521714	0.657004	6.17784
745	0.842160	0.229822	2.334454e-01	2.939381e-01	2.436540e-01	2.682709e-01	0.202277	0.340220	2.41822
746	0.862578	0.242646	1.259726e-01	1.255877e-01	1.336735e-01	1.330541e-01	0.121265	0.138632	1.27675
747	0.980835	0.001125	8.132571e-04	2.337445e-03	1.471365e-03	3.024601e-03	0.002348	0.006122	2.87244
748	0.963428	0.065789	1.036422e-01	1.054505e-01	2.290908e-01	7.182387e-02	0.500622	0.032804	5.28698
749	0.908513	0.007443	6.144129e-03	1.973585e-02	1.294688e-02	3.216673e-02	0.020099	0.203540	1.32598
750	0.470403	0.101406	1.618274e-01	3.000672e-01	2.493990e-01	4.700860e-01	0.388587	0.760969	6.77470
751	0.918955	0.000793	5.813654e-04	2.987803e-03	1.875874e-03	7.122134e-03	0.004807	0.004514	2.06609
752	0.970331	0.042295	3.971215e-03	4.717599e-03	2.963649e-03	8.546713e-03	0.005651	0.010022	4.89218
753	0.878476	0.001411	9.170424e-04	4.692520e-03	2.947758e-03	1.203934e-02	0.007724	0.030295	1.61830
754	0.610476	0.506308	7.089755e-01	7.256306e-01	6.892922e-01	6.067698e-01	0.527736	0.659958	5.57836
755	0.810039	0.546630	8.508828e-02	1.358487e-01	1.030966e-01	2.374851e-01	0.175940	0.306541	2.13553
756	0.588240	0.260132	3.933258e-01	5.768874e-01	5.272793e-01	6.384679e-01	0.561598	0.869199	8.17245
757	0.964393	0.001643	1.368473e-03	3.678887e-03	2.308406e-03	5.731981e-03	0.003982	0.005464	2.53998
758	0.995466	0.005823	5.815540e-03	5.147811e-03	1.361708e-02	1.704524e-03	0.070091	0.001394	2.53930
759	0.994984	0.006903	8.099216e-02	1.512658e-01	3.729653e-01	1.721105e-01	0.850279	0.075302	9.81076
760	0.901554	0.014591	4.491669e-03	3.845430e-03	2.413055e-03	7.874293e-03	0.005253	0.013371	6.68022
761	0.951396	0.308448	1.881089e-01	5.887523e-02	2.470845e-01	4.297743e-02	0.442265	0.067221	6.87550
762	0.980800	0.001067	1.298667e-04	4.691663e-04	3.175434e-04	3.843391e-04	0.000558	0.000908	3.63151
763	0.981761	0.009873	2.033744e-03	5.929526e-03	3.735547e-03	5.507677e-03	0.003848	0.011622	5.74155
764	0.984989	0.009653	4.099605e-03	1.181064e-03	7.353940e-03	1.413096e-03	0.005892	0.002179	1.03109
765	0.944091	0.123693	1.276697e-02	1.863979e-02	1.219318e-02	3.254306e-02	0.020338	0.035583	1.92685

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
766	0.987133	0.001432	1.661664e-03	5.091286e-03	3.200834e-03	6.447738e-03	0.004407	0.011867	5.87210
767	0.933046	0.000870	1.176320e-03	5.987363e-03	3.772573e-03	1.381656e-02	0.008786	0.008682	4.18953
768	0.932072	0.090853	1.276697e-02	2.045106e-02	1.344042e-02	3.726211e-02	0.023358	0.044723	2.47040
769	0.965093	0.004815	7.798307e-04	8.238762e-04	5.373645e-04	1.424597e-03	0.001327	0.001325	5.47381
770	0.883589	0.000768	3.457931e-05	2.843172e-05	2.878738e-05	8.236849e-05	0.000244	0.000056	1.70427
771	0.752965	0.000856	6.601248e-04	3.390919e-03	2.127837e-03	1.534551e-02	0.009703	0.016953	8.63331
772	0.978086	0.026301	4.072701e-02	2.750771e-02	1.837695e-02	2.574313e-02	0.016062	0.033040	1.77791
773	0.891027	0.000660	4.536850e-05	5.916951e-07	2.756139e-04	2.849073e-06	0.000648	0.000009	2.91490
774	0.984858	0.012166	9.170424e-04	3.885001e-04	8.717502e-04	5.781250e-04	0.001383	0.000671	8.57390
775	0.531590	0.191559	2.370637e-01	2.693738e-01	2.832104e-01	3.533038e-01	0.330784	0.349165	3.21459
776	0.909905	0.001984	3.651023e-04	1.460755e-03	9.296370e-04	4.123448e-03	0.003018	0.007046	3.34357
777	0.982518	0.001695	2.529165e-03	6.847977e-03	4.325470e-03	1.196614e-02	0.007681	0.009181	4.45016
778	0.952222	0.371344	1.025375e-01	1.131446e-01	8.432946e-02	8.466494e-02	0.055681	0.087694	5.16199
779	0.967779	0.023849	6.136138e-02	7.494022e-02	5.381227e-02	7.571634e-02	0.049336	0.133946	8.26079
780	0.800424	0.542040	8.508828e-02	1.213121e-01	9.103098e-02	2.014919e-01	0.145938	0.249444	1.67658
781	0.981528	0.001209	6.892438e-04	1.592868e-03	1.011058e-03	2.720758e-03	0.002160	0.002154	9.27327
782	0.918955	0.000847	5.813654e-04	2.155405e-03	1.358567e-03	3.751352e-03	0.002793	0.001702	7.18674
783	0.963325	0.002264	3.535498e-02	1.064002e-01	7.883983e-02	2.071429e-01	0.150589	0.134785	8.31871
784	0.986441	0.012274	4.099605e-03	1.181064e-03	7.353940e-03	1.429885e-03	0.005936	0.002053	9.44649
785	0.962954	0.000927	4.536850e-05	3.427111e-06	6.220066e-06	6.386403e-06	0.000090	0.000023	6.39327
786	0.925519	0.001075	1.035315e-04	1.728181e-04	1.292182e-04	3.681269e-04	0.000544	0.000257	9.15275
787	0.978348	0.005996	9.170424e-04	4.605302e-04	8.893812e-03	8.471863e-04	0.007551	0.001106	1.69466
788	0.968100	0.003794	1.217911e-01	3.061380e-01	2.551089e-01	4.929680e-01	0.411137	0.356135	2.55493

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
789	0.951387	0.010586	3.183107e-03	3.901320e-03	2.448210e-03	4.562703e-03	0.003283	0.004395	2.00737
790	0.771003	0.375732	2.096119e-01	1.442111e-01	1.101142e-01	1.720836e-01	0.122112	0.290196	2.00155
791	0.966518	0.011002	3.183107e-03	2.168928e-03	1.366940e-03	2.508593e-03	0.002027	0.002137	9.19735
792	0.889255	0.081903	7.492455e-02	2.563195e-02	1.905062e-01	4.018449e-02	0.163907	0.127867	5.63823
793	0.963779	0.001477	1.368473e-03	2.542717e-03	1.598778e-03	2.832152e-03	0.002229	0.005365	2.49030
794	0.974029	0.008851	1.765717e-03	2.301242e-03	1.448918e-03	3.041131e-03	0.002359	0.003406	1.52366
795	0.689392	0.382228	9.455237e-02	1.157047e-01	8.642383e-02	1.617511e-01	0.113899	0.155174	9.74430
796	0.994316	0.003094	8.467430e-03	1.340640e-02	1.698347e-02	1.076388e-02	0.033669	0.002094	1.94553
797	0.912799	0.009756	6.144129e-03	1.815571e-02	1.186135e-02	2.757015e-02	0.017202	0.192493	1.24405
798	0.951361	0.052336	6.651016e-03	7.081428e-03	4.476060e-03	6.656302e-03	0.004531	0.005308	2.46171
799	0.890746	0.066504	5.072926e-02	2.060721e-02	1.684709e-01	3.610450e-02	0.152805	0.113517	5.42529
800	0.984328	0.001483	3.829357e-04	3.212402e-04	2.246026e-04	3.049073e-04	0.000486	0.000941	3.77400
801	0.947906	0.104399	8.082856e-03	1.257043e-02	8.082956e-03	2.444038e-02	0.015253	0.029387	1.56581
802	0.985245	0.001244	1.585988e-03	7.101964e-04	4.671653e-04	1.048403e-03	0.001068	0.001290	5.31802
803	0.944196	0.019300	1.534290e-02	1.829471e-02	1.195657e-02	2.090119e-02	0.013073	0.015225	7.68644
804	0.997153	0.017236	3.531626e-02	3.462648e-02	4.120795e-02	1.170360e-02	0.035821	0.006753	4.74435
805	0.936544	0.002787	4.388220e-04	2.663378e-04	1.896800e-04	7.022934e-04	0.000815	0.001200	4.91413
806	0.980835	0.001055	8.132571e-04	4.169089e-03	2.616882e-03	5.050706e-03	0.003575	0.012438	6.17781
807	0.983532	0.143176	2.352633e-01	2.916845e-01	3.115707e-01	2.099880e-01	0.322347	0.167685	3.56284
808	0.888514	0.195411	9.614464e-02	1.181093e-01	1.292267e-01	1.208207e-01	0.112346	0.104008	9.18757
809	0.863016	0.168254	6.677416e-02	8.155713e-02	5.899142e-02	1.038019e-01	0.069573	0.084211	4.93654
810	0.752965	0.000795	1.226379e-04	3.801067e-04	2.617495e-04	1.822461e-03	0.001590	0.001965	8.39683
811	0.942674	0.001421	5.813654e-04	1.460755e-03	9.296370e-04	2.962354e-03	0.002310	0.001912	8.14927

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
812	0.951268	0.200023	8.568195e-02	1.154943e-01	8.625147e-02	9.313556e-02	0.061778	0.111707	6.74719
813	0.785645	0.591864	1.197072e-01	1.961052e-01	1.548011e-01	2.929920e-01	0.223851	0.398362	2.92757
814	0.953312	0.011812	5.434995e-03	6.964484e-03	4.400592e-03	8.780062e-03	0.005789	0.004749	2.18283
815	0.934474	0.000773	1.298667e-04	2.362979e-04	5.061597e-04	3.502254e-04	0.001175	0.001456	1.31112
816	0.508369	0.210055	2.027387e-01	2.809377e-01	2.315342e-01	4.148975e-01	0.335386	0.660900	5.58904
817	0.972641	0.004564	3.838644e-02	9.444291e-02	6.921056e-02	1.375025e-01	0.094974	0.087626	5.15762
818	0.918955	0.000847	5.813654e-04	2.155405e-03	3.154035e-03	3.751352e-03	0.011461	0.001702	8.75625
819	0.850741	0.273968	5.117552e-02	7.512524e-02	5.395642e-02	1.226303e-01	0.083627	0.151034	9.45207
820	0.895013	0.000752	2.611690e-04	5.702630e-04	2.441804e-03	1.496293e-03	0.006013	0.000985	2.70052
821	0.952925	0.001171	5.813654e-04	2.252952e-03	1.418988e-03	3.965692e-03	0.002923	0.002147	9.24120
822	0.976453	0.022041	1.095966e-02	8.195385e-03	5.198065e-03	7.375547e-03	0.004957	0.007042	3.34166
823	0.689907	0.001723	2.792906e-03	1.374840e-02	8.871654e-03	4.200838e-02	0.026436	0.050368	2.81185
824	0.964243	0.158626	9.775577e-02	3.487396e-02	2.263298e-01	3.335441e-02	0.145063	0.040594	2.32840
825	0.979444	0.018777	3.089025e-02	3.341573e-02	2.259349e-02	3.062782e-02	0.019125	0.054681	3.07545
826	0.976043	0.000808	1.729947e-04	2.414974e-05	9.251341e-04	2.707638e-05	0.000925	0.000136	2.75172
827	0.943412	0.025980	2.523459e-02	2.314074e-02	2.576101e-02	1.490710e-02	0.014435	0.012190	1.23022
828	0.874717	0.019963	2.053882e-02	2.026098e-02	1.330913e-02	3.763649e-02	0.023599	0.065668	3.75689
829	0.954582	0.026584	4.411048e-02	6.538359e-02	4.642062e-02	4.177542e-02	0.026284	0.165475	1.04774
830	0.976435	0.004551	9.170424e-04	1.109727e-03	3.881705e-03	1.604463e-03	0.004182	0.002595	7.10689
831	0.848289	0.000695	1.035315e-04	3.114060e-04	2.183695e-04	5.254272e-04	0.000676	0.000136	4.53857
832	0.878509	0.161711	2.150191e-01	1.480211e-01	2.101593e-01	1.217085e-01	0.144330	0.161844	2.06358
833	0.991573	0.140800	3.613326e-01	2.325432e-01	1.872401e-01	1.948314e-01	0.140486	0.159042	1.00186
834	0.985694	0.011728	4.099605e-03	8.230585e-03	5.220970e-03	6.766000e-03	0.004596	0.014978	7.55158

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
835	0.974937	0.001770	1.226379e-04	1.640288e-04	1.234425e-04	5.362139e-04	0.000685	0.000494	1.87089
836	0.976435	0.004786	9.170424e-04	4.605302e-04	7.204084e-03	8.471863e-04	0.006469	0.001096	1.35659
837	0.962584	0.039924	3.968431e-02	4.181161e-02	4.551844e-02	2.330820e-02	0.021741	0.027764	2.58491
838	0.972348	0.022678	2.523459e-02	3.126476e-02	3.437117e-02	2.997525e-02	0.032145	0.033977	2.62840
839	0.974503	0.005741	7.798307e-04	1.086711e-03	6.993128e-04	1.928338e-03	0.001658	0.001712	7.23242
840	0.848289	0.000709	1.035315e-04	1.835422e-04	1.362383e-04	9.549478e-05	0.000262	0.000096	3.07967
841	0.980508	0.005317	9.170424e-04	2.338433e-03	1.471977e-03	2.853223e-03	0.002242	0.004728	2.17251
842	0.934474	0.000773	1.298667e-04	2.667810e-04	1.899633e-04	4.758405e-04	0.000636	0.000670	2.60775
843	0.976435	0.004670	9.170424e-04	5.680992e-04	3.791369e-04	9.837970e-04	0.001022	0.001345	5.56485
844	0.495513	0.140832	1.590084e-01	2.250486e-01	1.805014e-01	3.668459e-01	0.290429	0.630459	5.24806
845	0.795925	0.268943	3.626124e-02	5.921497e-02	4.170883e-02	1.060861e-01	0.071258	0.144131	8.96795
846	0.936544	0.002834	4.388220e-04	1.835422e-04	1.362383e-04	3.836772e-04	0.000557	0.000621	2.39863
847	0.914448	0.019699	2.306954e-02	3.676111e-02	2.501104e-02	5.627763e-02	0.035921	0.049046	2.73148
848	0.984328	0.003409	2.529165e-03	2.086149e-03	6.417026e-03	1.710132e-03	0.040185	0.000828	8.74838
849	0.919069	0.323764	2.544753e-01	2.192549e-01	3.822993e-01	1.718642e-01	0.501879	0.107158	5.38544
850	0.907665	0.508502	1.074802e-01	1.725829e-01	1.343127e-01	2.122396e-01	0.154804	0.263794	1.78954
851	0.589658	0.509888	8.132585e-01	8.321666e-01	8.095487e-01	8.562396e-01	0.813646	0.926143	8.95504
852	0.982143	0.150185	8.313224e-03	3.634654e-03	2.280639e-03	4.545425e-03	0.003272	0.006327	2.97648
853	0.988760	0.017829	7.659335e-03	1.709610e-03	1.655608e-02	1.753517e-03	0.010497	0.002719	1.99326
854	0.978348	0.005996	9.170424e-04	4.605302e-04	1.959433e-03	8.471863e-04	0.002662	0.001106	3.45278
855	0.923844	0.093731	1.228215e-01	6.271334e-02	2.466503e-01	6.752361e-02	0.184449	0.081021	4.78436
856	0.963479	0.001283	6.892438e-04	1.096771e-03	7.055067e-04	1.103091e-03	0.001106	0.002758	1.21250
857	0.965093	0.004690	7.798307e-04	1.273137e-03	2.030549e-03	1.644118e-03	0.007221	0.001348	4.05498

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
858	0.893100	0.334090	2.859925e-01	2.176745e-01	1.739043e-01	1.988032e-01	0.143733	0.196770	1.27566
859	0.895013	0.000705	2.611690e-04	1.327601e-03	8.476243e-04	3.303914e-03	0.002520	0.002126	9.14616
860	0.966518	0.010844	3.183107e-03	3.108351e-03	1.951122e-03	2.851077e-03	0.002241	0.002257	9.75803
861	0.812864	0.636968	5.338859e-01	3.077834e-01	4.040937e-01	2.665806e-01	0.617327	0.332149	7.37545
862	0.951462	0.178839	9.775577e-02	3.487396e-02	2.263298e-01	3.335441e-02	0.145063	0.041070	2.25423
863	0.925285	0.119692	9.980168e-02	5.804657e-02	9.228410e-02	4.675729e-02	0.059367	0.070632	1.01293
864	0.971286	0.055199	5.698940e-02	5.582207e-02	6.030029e-02	3.746566e-02	0.034146	0.050222	4.23699
865	0.921848	0.204445	5.117552e-02	7.512524e-02	5.395642e-02	1.242132e-01	0.084825	0.137636	8.51597
866	0.917250	0.142884	1.464614e-01	1.655655e-01	1.282735e-01	1.567235e-01	0.109934	0.121758	7.42604
867	0.953069	0.115152	5.869108e-01	7.065975e-01	6.681432e-01	7.392519e-01	0.673713	0.628103	5.22205
868	0.965093	0.004690	7.798307e-04	1.567294e-03	9.952918e-04	2.871807e-03	0.002254	0.001972	8.43076
869	0.996810	0.008828	2.731677e-02	8.717673e-03	1.636821e-01	2.997790e-03	0.127762	0.002481	5.89669
870	0.920771	0.022685	5.928961e-03	9.513139e-03	6.059100e-03	1.671620e-02	0.010529	0.014627	7.36068
871	0.960835	0.107650	9.775577e-02	3.487396e-02	2.263298e-01	3.315152e-02	0.144483	0.041687	2.49751
872	0.982685	0.017459	4.300056e-02	8.546456e-02	6.207211e-02	3.323443e-02	0.020778	0.068483	3.93367
873	0.987462	0.001472	1.916680e-03	5.927458e-03	3.734223e-03	4.745324e-03	0.003392	0.037807	2.05802
874	0.873197	0.022121	3.022026e-02	3.254235e-02	2.196578e-02	6.008767e-02	0.038508	0.094813	5.62642
875	0.956310	0.005705	1.255381e-02	6.254804e-03	3.944002e-03	8.366445e-03	0.005544	0.015684	7.93698
876	0.981563	0.005927	2.033744e-03	3.469892e-03	2.177309e-03	3.538020e-03	0.002663	0.007702	3.68091
877	0.908525	0.060165	4.775760e-02	2.914540e-02	5.042286e-02	2.516858e-02	0.039408	0.013883	2.03546
878	0.957423	0.015389	6.107565e-03	5.223180e-03	6.475323e-03	5.315951e-03	0.005989	0.005771	6.12394
879	0.967382	0.190287	1.356584e-01	4.191377e-02	3.160422e-01	3.731797e-02	0.197364	0.045957	3.00612
880	0.981657	0.000938	4.063022e-04	2.084332e-03	1.314577e-03	1.766073e-03	0.001553	0.019259	9.90983

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
881	0.965093	0.004690	7.798307e-04	1.427060e-03	9.088790e-04	2.125877e-03	0.001785	0.001717	7.25534
882	0.949111	0.000932	1.035315e-04	1.129361e-04	8.935803e-05	2.029523e-04	0.000386	0.000154	5.19598
883	0.430776	0.331366	6.147849e-01	6.654444e-01	6.228146e-01	7.234048e-01	0.655608	0.880951	8.33142
884	0.988235	0.056694	3.005244e-02	1.267452e-02	8.152459e-03	8.674283e-03	0.005727	0.012742	6.34137
885	0.875285	0.304194	1.703237e-01	1.082789e-01	1.598664e-01	1.193276e-01	0.141692	0.123079	1.59493
886	0.978348	0.006139	9.170424e-04	5.120691e-04	9.129470e-04	9.134555e-04	0.001668	0.001226	1.50340
887	0.978348	0.006139	9.170424e-04	4.605302e-04	4.388252e-03	8.471863e-04	0.004550	0.001106	8.13302
888	0.966107	0.269701	7.634064e-02	2.532928e-02	7.237074e-02	1.788975e-02	0.206740	0.027800	3.85903
889	0.972466	0.013169	1.255381e-02	1.083208e-02	6.927922e-03	1.015192e-02	0.006603	0.019509	1.00492
890	0.914857	0.006390	2.792906e-03	3.389427e-03	2.126902e-03	5.358103e-03	0.003759	0.003150	1.40004
891	0.836677	0.025485	9.601444e-03	1.655373e-02	1.076792e-02	2.792612e-02	0.017425	0.026804	1.41721
892	0.968095	0.001331	2.529165e-03	7.939805e-03	5.031922e-03	1.514068e-02	0.009580	0.011067	5.44569
893	0.956443	0.430674	6.169896e-01	3.693711e-01	3.854479e-01	2.944950e-01	0.274276	0.278166	2.50715
894	0.965903	0.022806	3.968431e-02	5.583390e-02	6.031276e-02	4.142445e-02	0.037642	0.063508	5.35079
895	0.965074	0.001021	6.892438e-04	1.943098e-03	1.227237e-03	3.320257e-03	0.002530	0.004656	2.13668
896	0.979668	0.001319	1.661664e-03	5.091286e-03	3.200834e-03	5.899865e-03	0.004082	0.019309	9.93775
897	0.965093	0.004447	7.798307e-04	1.829158e-03	1.156848e-03	3.629995e-03	0.002719	0.002854	1.25828
898	0.975253	0.034442	6.136138e-02	6.724827e-02	4.785431e-02	5.515422e-02	0.035162	0.087986	5.18100
899	0.889255	0.079851	7.492455e-02	2.446245e-02	2.432498e-01	3.864031e-02	0.208410	0.122680	6.33585
900	0.982558	0.041702	8.905230e-02	7.033471e-02	1.131101e-01	6.136640e-02	0.078586	0.092809	1.56950
901	0.527409	0.382111	4.516447e-01	4.954504e-01	4.420682e-01	4.447914e-01	0.363996	0.662599	5.60834
902	0.995331	0.043624	3.151124e-01	4.878665e-01	4.342701e-01	3.791108e-01	0.301783	0.529110	4.17589
903	0.975060	0.001468	6.892438e-04	1.173390e-03	7.526780e-04	1.468216e-03	0.001356	0.000500	1.89522

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
904	0.970205	0.025685	5.563650e-02	9.521978e-02	1.047256e-01	6.122477e-02	0.109411	0.080160	1.03224
905	0.948591	0.054105	5.563650e-02	5.053222e-02	5.472166e-02	3.684913e-02	0.033602	0.036873	3.52342
906	0.965617	0.041918	7.444013e-03	1.635283e-02	1.063132e-02	2.015440e-02	0.012617	0.032128	1.72474
907	0.933127	0.083527	2.939698e-02	1.907278e-02	5.440780e-02	2.369182e-02	0.045930	0.026191	6.79190
908	0.955603	0.178839	9.775577e-02	3.487396e-02	2.263298e-01	3.335441e-02	0.145063	0.040832	2.29118
909	0.989656	0.002362	3.172230e-04	6.907873e-05	5.900394e-05	5.662761e-05	0.000205	0.000074	2.32790
910	0.993282	0.002139	1.005034e-03	4.829098e-05	1.254526e-03	3.939879e-05	0.001054	0.000108	1.04248
911	0.945911	0.056827	1.814795e-02	1.529812e-02	2.893565e-02	2.134461e-02	0.029391	0.020666	3.31426
912	0.969265	0.010070	3.183107e-03	3.556020e-03	2.231304e-03	3.552317e-03	0.002672	0.003190	1.41910
913	0.963440	0.030349	1.690475e-02	1.127272e-02	7.219667e-03	9.387864e-03	0.006150	0.009803	4.77677
914	0.976787	0.002603	7.317960e-03	1.753605e-02	1.143753e-02	2.608481e-02	0.016275	0.012163	6.03033
915	0.957423	0.015091	6.107565e-03	5.572814e-03	3.507557e-03	5.599589e-03	0.003903	0.006219	2.92155
916	0.972648	0.019557	1.031599e-03	1.336801e-03	8.532891e-04	2.954783e-03	0.002305	0.003663	1.64847
917	0.409601	0.476676	7.010352e-01	7.265455e-01	6.903117e-01	7.569183e-01	0.694121	0.913700	8.78147
918	0.976069	0.067717	4.491669e-03	2.748968e-03	1.727040e-03	3.566176e-03	0.002680	0.004427	2.02342
919	0.966160	0.001103	1.298667e-04	1.226788e-04	9.593830e-05	7.285463e-05	0.000230	0.000096	3.08691
920	0.409798	0.075568	1.618274e-01	3.184150e-01	2.667144e-01	5.112115e-01	0.429326	0.802571	7.29767
921	0.974174	0.001284	6.892438e-04	1.162208e-03	7.457936e-04	1.955430e-03	0.001676	0.001620	6.80889
922	0.277170	0.921918	8.588451e-01	8.446690e-01	8.238344e-01	8.792864e-01	0.842656	0.883716	8.36903
923	0.942168	0.001064	2.207352e-03	8.581780e-03	5.449783e-03	1.518951e-02	0.009609	0.007347	3.49806
924	0.959335	0.001751	1.625070e-02	5.134168e-02	3.576827e-02	1.066309e-01	0.071661	0.067517	3.87288
925	0.819658	0.279608	2.592300e-01	2.787019e-01	2.294591e-01	2.715901e-01	0.205152	0.223802	1.47872
926	0.981188	0.001146	8.568211e-04	2.476786e-03	1.557828e-03	2.648654e-03	0.002115	0.011151	5.49026

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
927	0.986302	0.017479	2.033744e-03	7.412909e-04	4.863819e-04	8.602899e-04	0.000933	0.001103	4.48373
928	0.976717	0.067884	2.108050e-01	3.220394e-01	2.701553e-01	3.194192e-01	0.247316	0.154577	9.70209
929	0.978159	0.001519	3.013108e-03	9.530059e-03	6.070201e-03	1.173174e-02	0.007541	0.031541	1.69056
930	0.991106	0.010192	1.344357e-02	4.506475e-02	3.109592e-02	2.709209e-02	0.016903	0.056786	3.20493
931	0.978943	0.014764	6.847315e-03	1.398689e-02	9.031892e-03	1.366005e-02	0.008692	0.029419	1.56763
932	0.968815	0.019533	1.962025e-03	1.838578e-03	1.162665e-03	2.885016e-03	0.002262	0.002551	1.11431
933	0.963428	0.067194	1.036422e-01	8.065457e-02	1.346005e-01	6.097461e-02	0.251204	0.025976	2.60781
934	0.000020	0.000577	3.875255e-15	2.722966e-11	1.025154e-07	1.635214e-11	0.000019	0.000001	2.20907
935	0.933824	0.008242	1.031599e-03	2.123778e-03	1.338988e-03	5.901522e-03	0.004083	0.007539	3.59704
936	0.965014	0.076264	1.183513e-02	9.766116e-03	6.225214e-03	1.374677e-02	0.008744	0.015165	7.65391
937	0.986470	0.001638	8.132571e-04	2.050398e-03	1.293583e-03	2.223624e-03	0.001847	0.003390	1.51586
938	0.969943	0.049230	4.491669e-03	2.708360e-03	1.701768e-03	3.375846e-03	0.002564	0.004079	1.85188
939	0.251809	0.906876	7.848038e-01	7.435271e-01	7.980116e-01	7.706721e-01	0.780763	0.748554	7.68570
940	0.962954	0.000927	4.536850e-05	7.461421e-06	1.060022e-05	7.632078e-06	0.000095	0.000028	8.02725
941	0.996985	0.017230	7.742875e-02	6.879943e-02	2.056549e-01	4.140258e-02	0.151883	0.061081	2.74806
942	0.949414	0.001034	2.611690e-04	4.048046e-04	2.772643e-04	7.309474e-04	0.000837	0.000494	1.87089
943	0.972648	0.019146	1.031599e-03	1.568012e-03	9.957349e-04	3.729936e-03	0.002780	0.004552	2.08499
944	0.488175	0.124685	1.618274e-01	2.899219e-01	2.399001e-01	4.479409e-01	0.367038	0.736723	6.47814
945	0.926325	0.000927	2.611690e-04	7.598615e-04	4.978526e-04	1.645843e-03	0.001474	0.001080	4.38396
946	0.925102	0.423203	3.291819e-01	2.193577e-01	3.004362e-01	1.533163e-01	0.329593	0.194606	4.22807
947	0.820788	0.001302	7.798307e-04	3.999837e-03	2.510220e-03	1.412067e-02	0.008968	0.019204	9.87955
948	0.965552	0.002180	4.408628e-03	1.288966e-02	8.296228e-03	2.091804e-02	0.013084	0.017940	9.17839
949	0.701454	0.387223	2.022200e-01	1.737463e-01	1.353173e-01	1.613387e-01	0.113573	0.136721	8.45263

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
950	0.937429	0.028870	2.523459e-02	2.528065e-02	2.803201e-02	2.198523e-02	0.020589	0.024729	2.40393
951	0.890925	0.236945	1.336440e-01	1.347601e-01	1.432890e-01	1.306130e-01	0.118990	0.117533	1.03807
952	0.922201	0.090709	2.694790e-02	3.033956e-02	2.038923e-02	3.282947e-02	0.020520	0.025683	1.35316
953	0.974937	0.000625	1.574798e-06	2.191668e-09	2.296717e-07	1.498512e-07	0.000038	0.000001	2.20907
954	0.978348	0.005850	9.170424e-04	2.019125e-03	1.274240e-03	2.166465e-03	0.001811	0.004329	1.97492
955	0.909326	0.001445	1.226379e-04	2.630821e-04	1.875985e-04	1.050555e-03	0.001070	0.001033	4.17926
956	0.996992	0.033196	1.651378e-01	1.598908e-01	3.105358e-01	9.460553e-02	0.563357	0.029063	7.79124
957	0.966219	0.006052	1.765717e-03	2.615489e-03	1.644005e-03	4.022380e-03	0.002957	0.004750	2.18357
958	0.934474	0.000789	1.298667e-04	6.771360e-05	6.019880e-04	1.233821e-04	0.001313	0.000241	1.76753
959	0.991169	0.002724	2.529165e-03	5.674048e-03	3.572194e-03	7.912389e-03	0.005276	0.004325	1.97269
960	0.993141	0.006107	2.982614e-02	4.570379e-02	1.717040e-01	3.673184e-02	0.574354	0.007261	8.30062
961	0.433366	0.202774	3.806864e-01	5.550549e-01	5.041764e-01	6.443893e-01	0.567995	0.858592	8.03015
962	0.940733	0.073688	2.939698e-02	1.907278e-02	5.440780e-02	2.384828e-02	0.046180	0.025218	6.40153
963	0.785913	0.220038	1.948404e-01	9.927095e-02	1.060411e-01	8.912041e-02	0.080643	0.075640	7.05636
964	0.887906	0.100356	6.328254e-02	3.225536e-02	8.216019e-02	3.253266e-02	0.059807	0.032349	7.96815
965	0.906887	0.112703	5.869108e-01	7.065975e-01	6.681432e-01	7.243452e-01	0.656677	0.726990	6.36078
966	0.483948	0.192865	3.766354e-01	4.779338e-01	4.240935e-01	6.109099e-01	0.532123	0.833485	7.69788
967	0.981563	0.005617	2.033744e-03	5.929526e-03	3.735547e-03	5.458476e-03	0.003819	0.013165	6.56881
968	0.897685	0.099411	5.640242e-01	6.846366e-01	6.438844e-01	7.520139e-01	0.688431	0.593150	4.84226
969	0.964820	0.002542	4.998923e-02	1.452839e-01	1.110184e-01	2.716368e-01	0.205193	0.180387	1.15538
970	0.960589	0.069147	4.560379e-02	2.353861e-02	9.424818e-02	2.691777e-02	0.070631	0.028501	1.01470
971	0.971312	0.011060	7.936396e-03	5.889884e-03	3.710178e-03	4.545425e-03	0.003272	0.017838	9.12155
972	0.891027	0.000660	4.536850e-05	5.551705e-05	1.182095e-03	8.888110e-05	0.001684	0.000315	2.33846

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
973	0.984584	0.023829	1.095966e-02	4.067289e-03	2.552709e-03	3.832900e-03	0.002842	0.004021	1.82354
974	0.984328	0.001380	3.829357e-04	8.485245e-04	5.525681e-04	7.552067e-04	0.000855	0.002426	1.05526
975	0.964820	0.002362	4.998923e-02	1.811811e-01	1.417589e-01	3.269655e-01	0.254090	0.221291	1.45961
976	0.860507	0.005629	5.468206e-03	2.104221e-02	1.384935e-02	3.408272e-02	0.021319	0.175311	1.11853
977	0.952326	0.147204	9.012313e-03	1.199484e-02	1.449204e-02	1.609244e-02	0.024491	0.022030	4.40994
978	0.964863	0.001892	2.529165e-03	7.173501e-03	4.535524e-03	1.144188e-02	0.007369	0.010267	5.02159
979	0.972493	0.003000	1.165062e-02	2.858375e-02	1.913959e-02	3.983470e-02	0.025021	0.024883	1.30758
980	0.976435	0.004670	9.170424e-04	4.605302e-04	3.121499e-04	8.471863e-04	0.000923	0.001096	4.45358
981	0.726928	0.153809	1.025375e-01	7.332201e-02	5.255313e-02	9.706106e-02	0.064632	0.121135	7.38371
982	0.992310	0.136628	3.613326e-01	2.325432e-01	1.872401e-01	1.948314e-01	0.140486	0.166143	1.05253
983	0.404909	0.000604	9.000310e-06	4.958730e-06	7.975824e-06	2.227399e-05	0.000139	0.000014	3.63341
984	0.886731	0.017647	1.353129e-02	1.193687e-02	7.660733e-03	2.224426e-02	0.013898	0.043655	2.40628
985	0.913518	0.043770	7.092472e-02	7.388534e-02	5.299112e-02	6.647593e-02	0.042893	0.038902	2.12283
986	0.355653	0.346800	4.349389e-01	5.259137e-01	4.736315e-01	4.913118e-01	0.409495	0.652423	5.49319
987	0.883217	0.006408	2.306954e-02	5.609116e-02	3.934167e-02	8.137827e-02	0.053339	0.109759	6.61663
988	0.797770	0.144398	3.023050e-01	6.102142e-02	6.987571e-01	8.752199e-02	0.590590	0.428205	9.57697
989	0.942168	0.001064	2.207352e-03	6.468379e-03	1.489853e-02	1.487540e-02	0.031087	0.009341	1.64341
990	0.897807	0.203652	1.851547e-01	1.917581e-01	1.509870e-01	1.785901e-01	0.127327	0.117737	7.15341
991	0.956876	0.147240	6.801045e-02	1.062540e-01	7.872127e-02	7.331557e-02	0.047651	0.101584	6.07253
992	0.958996	0.000844	3.172230e-04	7.955745e-04	5.199009e-04	1.539283e-03	0.001404	0.001196	4.89997
993	0.975099	0.013288	3.617398e-03	3.108351e-03	1.951122e-03	3.281491e-03	0.002506	0.004807	2.21145
994	0.951807	0.000990	6.892438e-04	1.943098e-03	1.227237e-03	3.115775e-03	0.002405	0.006592	3.11150
995	0.486576	0.185973	2.634587e-01	3.400774e-01	2.873790e-01	4.900897e-01	0.408285	0.746718	6.59967

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
996	0.935664	0.165273	2.544753e-01	2.038108e-01	4.293604e-01	1.804030e-01	0.317657	0.211381	4.24018
997	0.949894	0.118510	2.939698e-02	1.971982e-02	2.212408e-02	2.143826e-02	0.020113	0.020777	1.87860
998	0.981657	0.000998	4.063022e-04	1.063063e-03	6.847518e-04	1.017054e-03	0.001046	0.005535	2.57606
999	0.976435	0.004551	9.170424e-04	1.212804e-03	7.769430e-04	1.714354e-03	0.001519	0.002832	1.24768
1000	0.909696	0.000885	1.035315e-04	7.762914e-05	6.504141e-05	1.218376e-04	0.000295	0.000050	1.50742
1001	0.966219	0.006052	1.765717e-03	4.055778e-03	2.545456e-03	3.982747e-03	0.002933	0.006241	2.93279
1002	0.700906	0.002001	1.962025e-03	9.817835e-03	6.259207e-03	4.342406e-02	0.027362	0.081973	4.79237
1003	0.848289	0.000695	1.035315e-04	1.994671e-04	5.365677e-04	5.669732e-04	0.001773	0.000388	5.68706
1004	0.892443	0.552234	8.508828e-02	1.213121e-01	9.103098e-02	2.014919e-01	0.145938	0.249444	1.67658
1005	0.992035	0.001394	3.829357e-04	1.689827e-05	1.875953e-03	2.055905e-05	0.001462	0.000043	4.23200
1006	0.974362	0.001134	3.172230e-04	6.753493e-04	4.456129e-04	1.108640e-03	0.001110	0.000648	2.51506
1007	0.970831	0.001259	3.457931e-05	6.642899e-06	9.766661e-06	1.360297e-05	0.000116	0.000016	4.08135
1008	0.656127	0.386093	6.393039e-01	6.111561e-01	5.639089e-01	6.533215e-01	0.577687	0.862025	8.07609
1009	0.964363	0.001427	6.892438e-04	1.695771e-03	1.074520e-03	2.560072e-03	0.002060	0.002653	1.16229
1010	0.972128	0.034475	5.698940e-02	9.763898e-02	7.177104e-02	5.723188e-02	0.036567	0.108598	6.53900
1011	0.967149	0.001089	1.368473e-03	6.936243e-03	4.382376e-03	1.209357e-02	0.007757	0.012969	6.46326
1012	0.736403	0.000638	3.457931e-05	5.271909e-06	1.525523e-03	2.343529e-05	0.004047	0.000020	1.67328
1013	0.969382	0.027720	2.523459e-02	3.770624e-02	2.569771e-02	3.116262e-02	0.019463	0.034214	1.84656
1014	0.865767	0.047655	1.993536e-02	1.113630e-02	1.353231e-02	1.257088e-02	0.019916	0.012282	2.68127
1015	0.813006	0.268943	3.626124e-02	5.921497e-02	4.170883e-02	1.065634e-01	0.071611	0.138830	8.59880
1016	0.975247	0.008545	1.765717e-03	1.832915e-03	2.590359e-03	2.005025e-03	0.002849	0.001795	1.98390
1017	0.977780	0.065212	6.136138e-02	3.055272e-02	2.314593e-01	1.484275e-02	0.275859	0.011865	4.95448
1018	0.897081	0.192668	1.636386e-01	7.606908e-02	1.618853e-01	7.492819e-02	0.131941	0.077601	2.04726

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
1019	0.908043	0.074770	8.568195e-02	5.311703e-02	1.677496e-01	6.269286e-02	0.147949	0.068227	2.43706
1020	0.983681	0.001622	3.172230e-04	2.116263e-04	1.545001e-04	1.412222e-04	0.000319	0.000109	3.56902
1021	0.758759	0.148057	1.464614e-01	1.401167e-01	1.489004e-01	1.097625e-01	0.099637	0.111726	1.03279
1022	0.835789	0.039607	1.496208e-02	1.897169e-02	1.242107e-02	2.619435e-02	0.016343	0.018071	9.25058
1023	0.969168	0.008173	3.617398e-03	1.044259e-02	6.670656e-03	1.144127e-02	0.007369	0.023914	1.25255
1024	0.984060	0.008945	2.033744e-03	7.916323e-04	2.845947e-03	1.155777e-03	0.003227	0.001537	3.96294
1025	0.843086	0.048702	3.291819e-01	1.912357e-01	1.505295e-01	2.103019e-01	0.153199	0.273023	1.86304
1026	0.959513	0.002740	1.344357e-02	5.482860e-03	3.450167e-03	8.596173e-03	0.005681	0.020101	1.03796
1027	0.957438	0.243842	9.775577e-02	8.070182e-02	5.831925e-02	6.269542e-02	0.040290	0.083863	4.91409
1028	0.964306	0.086353	1.876111e-01	8.079066e-02	1.235328e-01	6.921797e-02	0.093413	0.066513	1.17778
1029	0.990821	0.001228	1.661664e-03	5.091286e-03	3.200834e-03	7.035249e-03	0.004756	0.006904	3.27070
1030	0.218467	0.078460	1.399586e-01	3.137402e-01	3.342881e-01	5.415211e-01	0.590184	0.835514	8.78391
1031	0.980508	0.005739	9.170424e-04	4.605302e-04	8.893812e-03	8.583543e-04	0.007605	0.001033	1.36526
1032	0.985694	0.012746	4.099605e-03	1.181064e-03	7.353940e-03	1.413096e-03	0.005892	0.002180	1.07994
1033	0.993069	0.226781	3.613326e-01	2.460018e-01	2.641908e-01	1.897658e-01	0.323761	0.165380	3.20187
1034	0.845391	0.181344	9.003896e-02	9.841189e-02	7.239173e-02	1.346343e-01	0.092770	0.134281	8.28391
1035	0.991732	0.001780	1.831448e-03	5.064415e-03	3.183753e-03	4.395151e-03	0.003182	0.014171	7.11323
1036	0.980419	0.041843	8.905230e-02	1.038015e-01	7.673568e-02	7.677016e-02	0.050078	0.164397	1.04003
1037	0.721396	0.120984	1.025375e-01	9.119578e-02	6.661945e-02	1.083333e-01	0.072922	0.153353	9.61560
1038	0.983300	0.175662	2.393673e-02	2.705348e-02	1.805575e-02	1.745465e-02	0.010975	0.030072	1.60537
1039	0.313646	0.363684	5.748098e-01	6.811636e-01	6.988733e-01	7.679550e-01	0.785031	0.903287	9.23828
1040	0.981761	0.010353	2.033744e-03	3.469892e-03	2.177309e-03	3.572880e-03	0.002684	0.006700	3.16660
1041	0.836677	0.026599	9.601444e-03	1.320269e-02	8.505695e-03	2.009847e-02	0.012583	0.014539	7.31276

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
1042	0.953166	0.137580	9.775577e-02	3.487396e-02	2.263298e-01	3.315152e-02	0.144483	0.041864	2.41169
1043	0.974029	0.009487	1.765717e-03	1.190764e-03	7.633743e-04	1.582531e-03	0.001432	0.001676	7.06745
1044	0.975940	0.004065	3.651023e-04	3.174596e-04	7.505377e-04	7.330911e-04	0.001599	0.000836	1.29650
1045	0.964783	0.023292	1.690475e-02	2.472965e-02	1.641966e-02	1.717897e-02	0.010808	0.020674	1.06997
1046	0.873873	0.075756	1.067094e-01	3.407519e-02	3.543078e-01	5.469107e-02	0.314247	0.178718	7.57314
1047	0.736403	0.000638	3.457931e-05	3.942216e-05	5.272298e-04	1.847683e-05	0.009153	0.000016	1.13338
1048	0.974029	0.009275	1.765717e-03	1.401968e-03	8.934233e-04	2.098171e-03	0.001767	0.002242	9.68611
1049	0.980508	0.005877	9.170424e-04	4.605302e-04	4.388252e-03	8.583543e-04	0.004584	0.001033	6.68911
1050	0.458237	0.289694	7.061507e-01	5.858472e-01	5.368136e-01	5.689441e-01	0.488138	0.568620	4.58257
1051	0.967149	0.001164	1.368473e-03	4.132940e-03	2.594088e-03	7.910643e-03	0.005274	0.005950	2.78512
1052	0.886852	0.243942	1.336440e-01	1.721052e-01	1.339005e-01	1.634192e-01	0.115219	0.164805	1.04295
1053	0.981563	0.006387	2.033744e-03	7.916323e-04	2.845947e-03	1.127587e-03	0.003177	0.001766	4.91217
1054	0.943411	0.191139	2.135471e-02	3.754230e-02	2.557849e-02	5.558063e-02	0.035450	0.071345	4.11428
1055	0.978925	0.001254	2.529165e-03	7.939805e-03	5.031922e-03	1.453106e-02	0.009214	0.011840	5.85750
1056	0.996521	0.012425	5.259864e-02	5.850915e-02	1.351068e-01	3.675984e-02	0.111864	0.053952	1.57207
1057	0.975940	0.003859	3.651023e-04	7.398590e-04	4.854972e-04	1.319143e-03	0.001255	0.001882	8.01486
1058	0.977619	0.015340	7.100039e-03	2.046695e-03	1.846664e-02	2.270740e-03	0.012297	0.002880	7.52658
1059	0.852928	0.001370	3.019828e-04	1.113853e-03	7.160239e-04	4.817014e-03	0.003435	0.004966	2.29082
1060	0.992242	0.005460	1.573158e-02	1.713395e-02	8.517881e-02	5.354233e-03	0.081748	0.009839	2.33296
1061	0.871913	0.313934	3.507511e-01	3.328481e-01	3.482846e-01	2.516823e-01	0.233346	0.306194	2.71762
1062	0.953102	0.001358	6.536146e-03	2.100019e-02	1.382025e-02	4.584408e-02	0.028953	0.028700	1.52613
1063	0.986852	0.001067	8.568211e-04	4.389176e-03	2.755821e-03	4.609167e-03	0.003311	0.018077	9.25388
1064	0.992939	0.015557	6.883160e-02	7.359204e-02	1.749561e-01	3.270393e-02	0.387498	0.015579	6.80387

Esol Regression

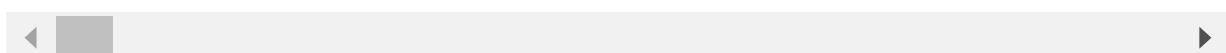
	x2	x3	x4	x5	x6	x8	x9	x10	
1065	0.988760	0.017829	7.659335e-03	1.709610e-03	1.655608e-02	1.753517e-03	0.010497	0.002735	1.92140
1066	0.909696	0.000868	1.035315e-04	1.448404e-04	1.107542e-04	3.697739e-04	0.000545	0.000258	9.19529
1067	0.547765	0.460524	7.207953e-01	7.265455e-01	6.903117e-01	7.415324e-01	0.676334	0.890498	8.46157
1068	0.736403	0.000597	3.457931e-05	1.489747e-04	1.134979e-04	4.343693e-04	0.000601	0.000301	1.08710
1069	0.975247	0.008364	1.765717e-03	1.986039e-03	1.253782e-03	2.136131e-03	0.001792	0.001960	8.37172
1070	0.650433	0.332412	5.306482e-01	5.779750e-01	5.284351e-01	6.246839e-01	0.546795	0.856058	7.99633
1071	0.990198	0.001312	1.005034e-03	5.710310e-05	5.921934e-03	6.667329e-05	0.004158	0.000172	6.09170
1072	0.974817	0.034424	5.158158e-02	5.528524e-02	3.873310e-02	5.089730e-02	0.032306	0.021388	1.10998
1073	0.934474	0.000773	1.298667e-04	2.667810e-04	1.899633e-04	3.975110e-04	0.000569	0.001561	6.53939
1074	0.941154	0.006584	3.183107e-03	8.730919e-03	5.547110e-03	1.239074e-02	0.007934	0.024529	1.28742
1075	0.404909	0.000604	9.000310e-06	1.002345e-07	2.406836e-03	1.148305e-06	0.005940	0.000003	7.78637
1076	0.970706	0.001061	1.368473e-03	4.132940e-03	2.594088e-03	7.910643e-03	0.005274	0.006255	2.93983
1077	0.964863	0.001955	2.529165e-03	5.470296e-03	3.442154e-03	7.019655e-03	0.004747	0.004394	2.00710
1078	0.988760	0.017829	7.659335e-03	1.709610e-03	1.655608e-02	1.753517e-03	0.010497	0.002719	1.99326
1079	0.944655	0.005119	1.527676e-03	3.924658e-03	2.462895e-03	7.719283e-03	0.005161	0.006306	2.96595
1080	0.995127	0.001648	2.302637e-03	1.110318e-04	7.990565e-04	9.230209e-05	0.000845	0.000296	1.60360
1081	0.970982	0.001199	1.035315e-04	8.466667e-05	6.995974e-05	1.268681e-04	0.000301	0.000083	2.63061
1082	0.991732	0.001941	1.831448e-03	3.931371e-03	2.467119e-03	1.399016e-03	0.001310	0.004611	2.11412
1083	0.984989	0.008392	4.099605e-03	1.292800e-02	8.321867e-03	9.908563e-03	0.006458	0.022456	1.17012
1084	0.416717	0.232634	3.640625e-01	4.792071e-01	4.253958e-01	6.032626e-01	0.524028	0.786689	7.09591
1085	0.919470	0.114456	1.228215e-01	1.073755e-01	1.718598e-01	9.874665e-02	0.336770	0.058208	4.24022
1086	0.846827	0.093856	3.886741e-02	3.431982e-02	2.324479e-02	4.135991e-02	0.026013	0.034446	1.86017
1087	0.993034	0.006003	1.425924e-02	1.642563e-02	5.190208e-02	1.296740e-02	0.051382	0.006406	6.62949

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
1088	0.404909	0.000604	9.000310e-06	3.757463e-06	3.922238e-05	1.771904e-05	0.000316	0.000010	4.95302
1089	0.983602	0.193872	2.139731e-01	1.209555e-01	1.322662e-01	6.544791e-02	0.138694	0.093032	2.33919
1090	0.316549	0.142062	1.443452e-01	1.851189e-01	1.451858e-01	2.498374e-01	0.186435	0.217299	1.42934
1091	0.945565	0.000899	1.035315e-04	3.325005e-04	2.317290e-04	5.706268e-04	0.000713	0.000279	9.99010
1092	0.997045	0.010967	3.531626e-02	5.598214e-02	6.248487e-02	2.339484e-02	0.057278	0.063508	9.18699
1093	0.856787	0.024887	4.322307e-02	4.987019e-02	3.466766e-02	9.117663e-02	0.060361	0.131810	8.11359
1094	0.985099	0.063853	1.627413e-01	2.698868e-01	2.213039e-01	1.590363e-01	0.111756	0.513650	4.02057
1095	0.761655	0.282520	1.795633e-01	1.133130e-01	8.446700e-02	1.241723e-01	0.084794	0.160566	1.01270
1096	0.897416	0.042920	1.649263e-02	1.916045e-02	1.255081e-02	2.783784e-02	0.017370	0.023774	1.24459
1097	0.968916	0.003964	1.564671e-01	4.217668e-01	3.673483e-01	6.172183e-01	0.538828	0.472438	3.61682
1098	0.724467	0.030071	1.496208e-02	2.045106e-02	1.344042e-02	2.921989e-02	0.018237	0.021251	1.10230
1099	0.974565	0.000879	6.892438e-04	1.943098e-03	1.227237e-03	3.535285e-03	0.002661	0.003018	1.33677
1100	0.975940	0.004268	3.651023e-04	2.541701e-04	1.818938e-04	5.159308e-04	0.000669	0.000576	2.21034
1101	0.935893	0.000793	3.457931e-05	1.727175e-06	1.150995e-04	5.959194e-06	0.000392	0.000009	4.05785
1102	0.845776	0.000992	1.528735e-04	7.598615e-04	4.978526e-04	3.193482e-03	0.002452	0.008318	4.00028
1103	0.972571	0.000994	8.132571e-04	2.337445e-03	1.471365e-03	2.753877e-03	0.002181	0.009694	4.71950
1104	0.860435	0.229131	1.025375e-01	1.147939e-01	8.567806e-02	1.064877e-01	0.071555	0.144448	8.99007
1105	0.981657	0.000998	4.063022e-04	1.063063e-03	6.847518e-04	7.937149e-04	0.000884	0.014327	7.19791
1106	0.879022	0.143563	1.576773e-01	1.596956e-01	1.693835e-01	1.200030e-01	0.109124	0.248682	2.28138
1107	0.602658	0.093423	5.457467e-02	5.774366e-02	4.059227e-02	5.697118e-02	0.036390	0.048607	2.70486
1108	0.847092	0.000655	9.000310e-06	8.032925e-06	1.117083e-05	1.869116e-05	0.000130	0.000024	6.63094
1109	0.902626	0.099074	6.328254e-02	4.052111e-02	6.726166e-02	4.519844e-02	0.057553	0.055051	8.18146
1110	0.717316	0.197688	2.184949e-01	1.907849e-01	1.501348e-01	1.754756e-01	0.124827	0.096706	5.75074

Esol Regression

	x2	x3	x4	x5	x6	x8	x9	x10	
1111	0.897448	0.100465	3.408856e-02	3.188416e-02	2.149371e-02	4.758481e-02	0.030103	0.056749	3.20260
1112	0.958345	0.001292	2.529165e-03	7.939805e-03	5.031922e-03	1.445506e-02	0.009168	0.013876	6.95329
1113	0.880273	0.155287	8.754497e-02	7.185194e-02	7.960772e-02	6.637859e-02	0.156896	0.065141	2.38583
1114	0.914857	0.005879	2.792906e-03	7.589437e-03	4.804631e-03	1.482069e-02	0.009387	0.011650	5.75613
1115	0.961653	0.005268	1.073736e-03	2.635985e-04	1.879288e-04	3.807430e-04	0.000555	0.000633	2.44891
1116	0.759207	0.288883	5.250888e-01	4.645855e-01	7.497418e-01	2.756810e-01	0.864955	0.164815	9.30251
1117	0.862438	0.447720	2.404194e-01	1.295144e-01	1.913749e-01	1.218552e-01	0.282933	0.171292	3.93522
1118	0.977204	0.001890	1.585988e-03	3.200137e-03	2.008473e-03	2.538115e-03	0.002046	0.005863	2.74110
1119	0.990198	0.001198	1.005034e-03	5.133933e-03	3.227950e-03	3.467309e-03	0.002620	0.043345	2.38768
1120	0.962940	0.214908	1.356584e-01	4.191377e-02	3.160422e-01	3.731797e-02	0.197364	0.045792	3.00109
1121	0.985054	0.019716	3.183107e-03	2.076568e-03	1.309773e-03	2.604237e-03	0.002087	0.002447	1.06512
1122	0.978033	0.015724	3.617398e-03	3.108351e-03	1.951122e-03	3.281491e-03	0.002506	0.004839	2.22763
1123	0.990198	0.001454	1.005034e-03	5.710310e-05	1.471489e-03	6.667329e-05	0.001745	0.000172	7.23232
1124	0.997000	0.014982	3.438440e-02	3.380182e-02	3.843821e-02	1.121064e-02	0.027564	0.008905	1.58326
1125	0.989902	0.004690	1.332541e-02	1.819329e-02	9.216919e-02	9.459623e-03	0.408221	0.002875	8.10526
1126	0.934474	0.000728	1.298667e-04	6.393746e-04	4.233416e-04	9.868863e-04	0.001024	0.002632	1.15271
1127	0.982507	0.120117	1.513009e-01	7.117673e-02	2.783531e-01	3.439245e-02	0.234268	0.025909	3.12073

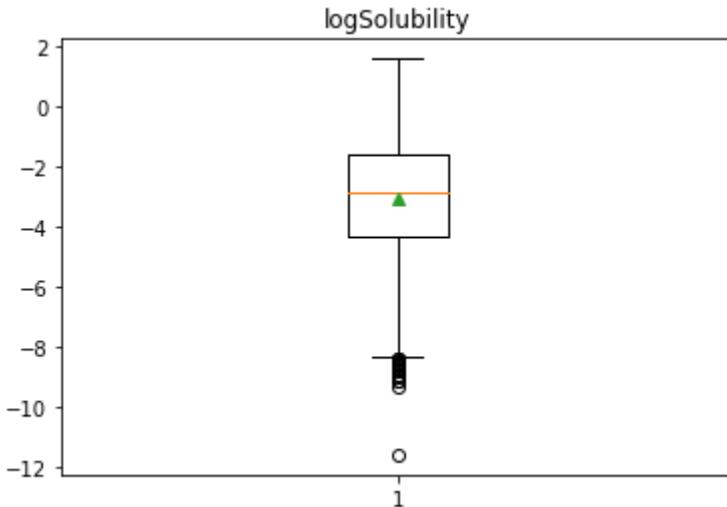


In [26]: `sum(df_features_corr.var() == 0)`

Out[26]: 0

In [27]: `#Box plot of price
plt.boxplot(df_target, showmeans = True)
plt.title('logSolubility')`

Out[27]: `Text(0.5, 1.0, 'logSolubility')`



Divide Dataset into Train and Test

In machine learning, we always need to separate our features into two sets:

- **Training set** which we provide to our model during training along with the answers so it can learn a mapping between the features and the target.
- **Testing set** which we use to evaluate the mapping learned by the model. The model has never seen the answers on the testing set, but instead, must make predictions using only the features. As we know the true answers for the test set, we can then compare the test predictions to the true test targets to get an estimate of how well our model will perform when deployed in the real world.

Splitting the data into a random training and testing set is simple using scikit-learn. We can set the random state of the split to ensure consistent results.

```
In [28]: x_train, x_test, y_train, y_test = train_test_split(df_features_corr, df_target, random_state = 1234)
```



```
In [29]: x_train.shape
```



```
Out[29]: (902, 185)
```



```
In [30]: x_test.shape
```



```
Out[30]: (226, 185)
```



```
In [31]: y_test.head()
```



```
Out[31]: 181    -8.60
277    -0.60
125    -0.60
937    -0.67
444    -5.05
Name: logSolubility, dtype: float64
```



```
In [32]: y_train.head()
```

```
Out[32]:
```

828	-3.060
449	-4.571
718	-9.332
841	-2.800
248	-4.090

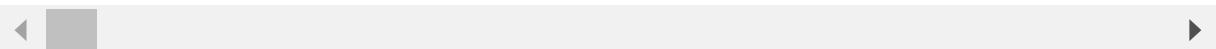
Name: logSolubility, dtype: float64

```
In [33]:
```

```
x_train.describe()
```

```
Out[33]:
```

	x2	x3	x4	x5	x6	x8	x9
count	902.000000	902.000000	9.020000e+02	9.020000e+02	9.020000e+02	9.020000e+02	902.000000
mean	0.893265	0.081020	7.836260e-02	8.019193e-02	8.983197e-02	8.518244e-02	0.097016
std	0.158980	0.137408	1.523549e-01	1.559892e-01	1.611617e-01	1.674701e-01	0.176200
min	0.000020	0.000577	3.875255e-15	2.722966e-11	1.025154e-07	1.635214e-11	0.000019
25%	0.888641	0.001989	9.170424e-04	1.461861e-03	1.471611e-03	1.977293e-03	0.002515
50%	0.957423	0.018651	8.082856e-03	1.167384e-02	1.081363e-02	1.398820e-02	0.012659
75%	0.976435	0.099046	8.006610e-02	7.440610e-02	9.424818e-02	7.146341e-02	0.099474
max	0.998124	0.906876	9.838740e-01	9.864555e-01	9.857171e-01	9.901394e-01	0.988462

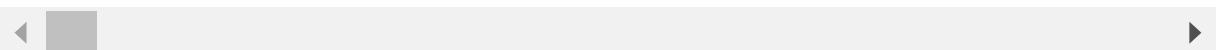


```
In [34]:
```

```
x_test.describe()
```

```
Out[34]:
```

	x2	x3	x4	x5	x6	x8	x9
count	226.000000	226.000000	226.000000	2.260000e+02	2.260000e+02	2.260000e+02	226.000000
mean	0.875442	0.094520	0.084479	8.271054e-02	9.334660e-02	8.896148e-02	0.102085
std	0.175207	0.148239	0.152952	1.559801e-01	1.634248e-01	1.681210e-01	0.181026
min	0.005818	0.000597	0.000002	8.729182e-08	8.228063e-07	5.245268e-07	0.000048
25%	0.862653	0.001876	0.001068	1.555334e-03	1.894745e-03	2.243184e-03	0.002783
50%	0.942446	0.018315	0.009734	1.379083e-02	1.261899e-02	1.795925e-02	0.014437
75%	0.975940	0.135283	0.099290	1.034109e-01	1.197555e-01	9.751187e-02	0.117680
max	0.997784	0.921918	0.858845	8.446690e-01	8.238344e-01	8.792864e-01	0.842656



principal components(PCA)

It is a way of identifying patterns in data, and expressing the data in such a way as to highlight their similarities and differences. Since patterns in data can be hard to find in data of high dimension, where the luxury of graphical representation is not available, PCA is a powerful tool for analysing data. The other main advantage of PCA is that once you have found these patterns in the data, and you compress the data, ie. by reducing the number of dimensions, without much loss of information.

```
In [35]: #choose the minimum number of principal components such that at leastx% (98% in exam
from sklearn.decomposition import PCA
pca = PCA(.98)
x_train_pca = pca.fit_transform(x_train)
# To get how many principal components was chosen
print(pca.n_components_)
```

78

```
In [36]: print(np.sum(pca.explained_variance_ratio_))
```

0.9803707825616839

```
In [37]: # Transform test set
x_test_pca = pca.transform(x_test)
```

```
In [38]: print(x_train_pca.shape)
print(x_test_pca.shape)
```

(902, 78)
(226, 78)

```
In [39]: x_train_pca_df = pd.DataFrame(x_train_pca)
```

```
In [40]: x_test_pca_df = pd.DataFrame(x_test_pca)
```

Models to Evaluate

We will compare eleven different machine learning models using the great Statsmodels and Scikit-Learn library:

- 1- Linear Regression
- 2- Ridge Regression
- 3- Lasso Regression
- 4- Decision Tree Regression
- 5- Bagging Regression
- 6- Random Forest Regression
- 7- Gradient Boosting Regression
- 8 - extreme gradient boosting
- 9- K-Nearest Neighbors Regression
- 10- Support vector machine (SVM)
- 11- ADA Boost

12- Multi Layer Perceptron (MLP)

Model 1: Linear Regression

Linear regression uses the relationship between the data-points to draw a straight line through all them. This line can be used to predict future values. In Machine Learning, predicting the future is very important.

In [41]:

```
#Add constant
x_train_pca_const = sm.add_constant(x_train_pca)
x_train_pca_const_df = pd.DataFrame(x_train_pca_const)
```

In [42]:

```
#Add constant
x_test_pca_const = sm.add_constant(x_test_pca)
x_test_pca_const_df = pd.DataFrame(x_test_pca_const)
```

In [43]:

```
x_train_pca_const_df.head()
```

Out[43]:

	0	1	2	3	4	5	6	7	8	
0	1.0	1.935355	0.438559	-1.362392	-0.997353	1.867320	0.795671	-0.990134	-0.011260	-0.5983
1	1.0	2.314752	-1.592402	1.317314	0.594390	-0.608403	-0.494702	0.444642	1.019788	-0.4250
2	1.0	-0.823054	0.679614	1.360839	1.462566	0.853656	1.240222	0.387817	0.496472	0.0752
3	1.0	-1.428580	0.514356	-0.378949	0.472191	0.527040	0.516049	0.178993	-0.168979	0.6557
4	1.0	0.374414	-0.146934	1.852581	1.155619	0.859796	-1.166958	0.683245	-0.306142	-0.2916

◀ ▶

In [44]:

```
#Regression Model
lm_pca_parameter = sm.OLS(y_train, x_train_pca_const).fit()
lm_pca_parameter.summary()
```

Out[44]:

OLS Regression Results

Dep. Variable:	logSolubility	R-squared:	0.891
Model:	OLS	Adj. R-squared:	0.881
Method:	Least Squares	F-statistic:	86.30
Date:	Sat, 19 Feb 2022	Prob (F-statistic):	0.00
Time:	14:58:17	Log-Likelihood:	-946.33
No. Observations:	902	AIC:	2051.
Df Residuals:	823	BIC:	2430.
Df Model:	78		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-3.0097	0.024	-124.973	0.000	-3.057	-2.962
x1	-0.2361	0.019	-12.619	0.000	-0.273	-0.199

Esol Regression

x2	-0.2507	0.024	-10.256	0.000	-0.299	-0.203
x3	-1.5285	0.027	-57.316	0.000	-1.581	-1.476
x4	-0.4111	0.032	-12.834	0.000	-0.474	-0.348
x5	-0.6609	0.034	-19.228	0.000	-0.728	-0.593
x6	-1.0293	0.038	-27.445	0.000	-1.103	-0.956
x7	-0.8778	0.040	-22.078	0.000	-0.956	-0.800
x8	0.1876	0.042	4.491	0.000	0.106	0.270
x9	0.0763	0.046	1.653	0.099	-0.014	0.167
x10	0.6213	0.049	12.641	0.000	0.525	0.718
x11	-0.2144	0.053	-4.017	0.000	-0.319	-0.110
x12	0.6851	0.055	12.468	0.000	0.577	0.793
x13	-0.0056	0.057	-0.098	0.922	-0.118	0.107
x14	0.0629	0.060	1.055	0.292	-0.054	0.180
x15	0.2199	0.064	3.440	0.001	0.094	0.345
x16	0.5146	0.066	7.804	0.000	0.385	0.644
x17	-0.4327	0.068	-6.373	0.000	-0.566	-0.299
x18	-0.7557	0.071	-10.701	0.000	-0.894	-0.617
x19	0.1807	0.073	2.474	0.014	0.037	0.324
x20	0.1687	0.075	2.253	0.024	0.022	0.316
x21	0.4451	0.076	5.836	0.000	0.295	0.595
x22	-0.1493	0.077	-1.942	0.052	-0.300	0.002
x23	-0.0320	0.078	-0.411	0.681	-0.185	0.121
x24	0.9644	0.085	11.389	0.000	0.798	1.131
x25	-0.2824	0.087	-3.235	0.001	-0.454	-0.111
x26	-0.5743	0.088	-6.544	0.000	-0.747	-0.402
x27	0.0102	0.091	0.112	0.911	-0.168	0.189
x28	-0.1219	0.092	-1.321	0.187	-0.303	0.059
x29	-0.2136	0.097	-2.198	0.028	-0.404	-0.023
x30	-0.3258	0.100	-3.265	0.001	-0.522	-0.130
x31	-0.5380	0.101	-5.326	0.000	-0.736	-0.340
x32	-0.4106	0.105	-3.921	0.000	-0.616	-0.205
x33	0.6538	0.108	6.081	0.000	0.443	0.865
x34	-0.1550	0.111	-1.394	0.164	-0.373	0.063
x35	-0.2945	0.112	-2.636	0.009	-0.514	-0.075
x36	1.1168	0.115	9.713	0.000	0.891	1.343
x37	-0.5594	0.116	-4.808	0.000	-0.788	-0.331
x38	0.0157	0.119	0.132	0.895	-0.218	0.250

Esol Regression

x39	0.0156	0.121	0.129	0.897	-0.221	0.253
x40	0.5155	0.124	4.151	0.000	0.272	0.759
x41	0.4795	0.128	3.750	0.000	0.228	0.730
x42	-0.7131	0.129	-5.539	0.000	-0.966	-0.460
x43	0.0282	0.135	0.209	0.835	-0.237	0.294
x44	-0.0175	0.138	-0.127	0.899	-0.288	0.253
x45	-0.2920	0.141	-2.067	0.039	-0.569	-0.015
x46	-0.2360	0.145	-1.628	0.104	-0.521	0.049
x47	0.3660	0.145	2.516	0.012	0.081	0.651
x48	-0.6729	0.149	-4.519	0.000	-0.965	-0.381
x49	0.2950	0.152	1.941	0.053	-0.003	0.593
x50	0.0748	0.155	0.484	0.629	-0.229	0.378
x51	-0.5513	0.165	-3.349	0.001	-0.874	-0.228
x52	1.3125	0.173	7.606	0.000	0.974	1.651
x53	0.5590	0.173	3.226	0.001	0.219	0.899
x54	0.2837	0.175	1.618	0.106	-0.061	0.628
x55	0.4784	0.181	2.640	0.008	0.123	0.834
x56	-0.6894	0.184	-3.741	0.000	-1.051	-0.328
x57	0.5003	0.190	2.639	0.008	0.128	0.872
x58	0.4187	0.192	2.177	0.030	0.041	0.796
x59	1.2340	0.196	6.298	0.000	0.849	1.619
x60	-0.1698	0.197	-0.860	0.390	-0.557	0.218
x61	0.6136	0.199	3.084	0.002	0.223	1.004
x62	0.4772	0.202	2.359	0.019	0.080	0.874
x63	-0.0657	0.208	-0.316	0.752	-0.474	0.343
x64	0.1707	0.211	0.809	0.419	-0.243	0.585
x65	0.5574	0.221	2.524	0.012	0.124	0.991
x66	0.3771	0.223	1.691	0.091	-0.061	0.815
x67	0.7135	0.225	3.177	0.002	0.273	1.154
x68	0.0029	0.231	0.013	0.990	-0.450	0.456
x69	0.6492	0.234	2.771	0.006	0.189	1.109
x70	-0.4817	0.236	-2.037	0.042	-0.946	-0.018
x71	1.0616	0.241	4.413	0.000	0.589	1.534
x72	-0.8877	0.244	-3.640	0.000	-1.366	-0.409
x73	-0.5274	0.253	-2.088	0.037	-1.023	-0.032
x74	-0.4685	0.254	-1.844	0.066	-0.967	0.030
x75	0.7860	0.261	3.011	0.003	0.274	1.298

Esol Regression

x76	0.1359	0.265	0.513	0.608	-0.384	0.656
x77	-0.6500	0.268	-2.425	0.016	-1.176	-0.124
x78	0.8363	0.273	3.068	0.002	0.301	1.371
Omnibus:		41.459	Durbin-Watson:		1.927	
Prob(Omnibus):		0.000	Jarque-Bera (JB):		96.026	
Skew:		-0.239	Prob(JB):		1.41e-21	
Kurtosis:		4.526	Cond. No.		14.6	

Notes:

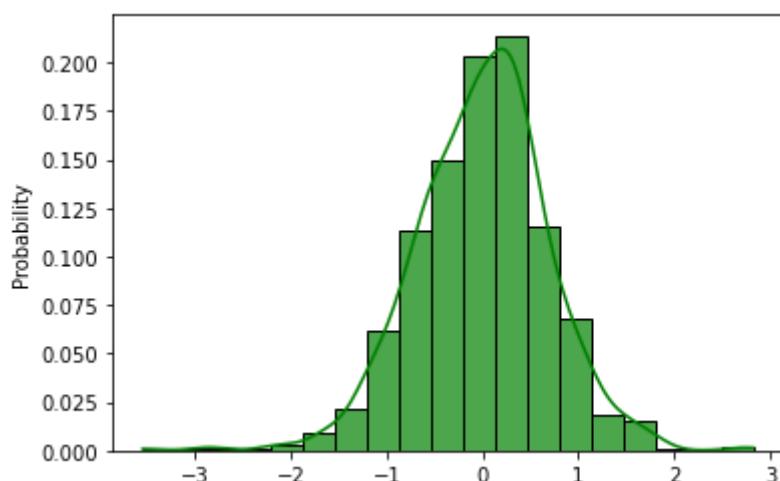
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Check Assumptions of Regression:

In [45]:

```
#Normality of residuals
#Plot histogram of residuals
sns.histplot(lm_pca_parameter.resid, stat = 'probability' ,
             kde = True, alpha = 0.7, color = 'green',
             bins = np.linspace(min(lm_pca_parameter.resid), max(lm_pca_parameter.re
```

Out[45]:

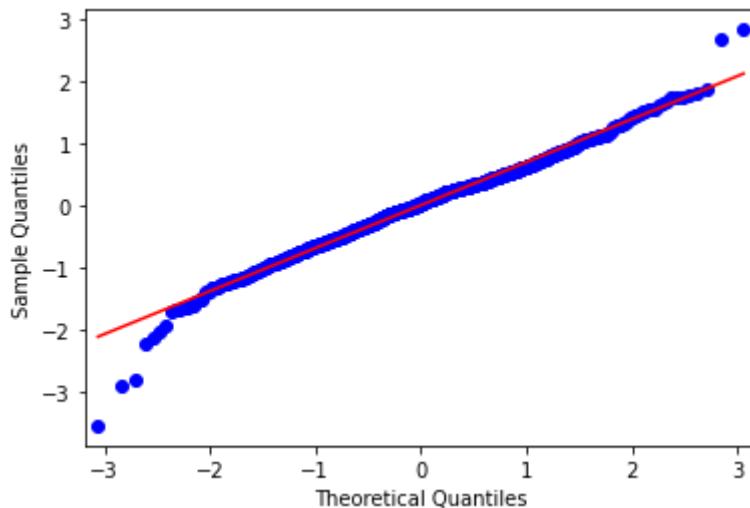


QQ-Plot :

When the quantiles of two variables are plotted against each other, then the plot obtained is known as quantile – quantile plot or qqplot. This plot provides a summary of whether the distributions of two variables are similar or not with respect to the locations.

In [46]:

```
#QQ-plot
qqplot_lm_pca_parameter = sm.qqplot(lm_pca_parameter.resid, line = 's')
plt.show()
```



- Most point of quantiles lie on or close to straight line at an angle of 45 degree from x – axis.
It indicates that two samples have similar distributions.

Test for Skewness and Kurtosis:

In [47]:

```
#Good for sample size > 25

#Jarque-Bera Test (Skewness = 0 ?)
#H0: the data is normally distributed
#p-value < 0.05 reject normality assumption

#Omnibus K-squared normality test
#The Omnibus test combines the random variables for Skewness and Kurtosis into a single test statistic.
#H0: the data is normally distributed
#p-value < 0.05 reject normality assumption

print(lm_pca_parameter.summary())
```

OLS Regression Results

Dep. Variable:	logSolubility	R-squared:	0.891			
Model:	OLS	Adj. R-squared:	0.881			
Method:	Least Squares	F-statistic:	86.30			
Date:	Sat, 19 Feb 2022	Prob (F-statistic):	0.00			
Time:	14:58:21	Log-Likelihood:	-946.33			
No. Observations:	902	AIC:	2051.			
Df Residuals:	823	BIC:	2430.			
Df Model:	78					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	-3.0097	0.024	-124.973	0.000	-3.057	-2.962
x1	-0.2361	0.019	-12.619	0.000	-0.273	-0.199
x2	-0.2507	0.024	-10.256	0.000	-0.299	-0.203
x3	-1.5285	0.027	-57.316	0.000	-1.581	-1.476
x4	-0.4111	0.032	-12.834	0.000	-0.474	-0.348
x5	-0.6609	0.034	-19.228	0.000	-0.728	-0.593
x6	-1.0293	0.038	-27.445	0.000	-1.103	-0.956
x7	-0.8778	0.040	-22.078	0.000	-0.956	-0.800
x8	0.1876	0.042	4.491	0.000	0.106	0.270
x9	0.0763	0.046	1.653	0.099	-0.014	0.167
x10	0.6213	0.049	12.641	0.000	0.525	0.718
x11	-0.2144	0.053	-4.017	0.000	-0.319	-0.110

Esol Regression

x12	0.6851	0.055	12.468	0.000	0.577	0.793
x13	-0.0056	0.057	-0.098	0.922	-0.118	0.107
x14	0.0629	0.060	1.055	0.292	-0.054	0.180
x15	0.2199	0.064	3.440	0.001	0.094	0.345
x16	0.5146	0.066	7.804	0.000	0.385	0.644
x17	-0.4327	0.068	-6.373	0.000	-0.566	-0.299
x18	-0.7557	0.071	-10.701	0.000	-0.894	-0.617
x19	0.1807	0.073	2.474	0.014	0.037	0.324
x20	0.1687	0.075	2.253	0.024	0.022	0.316
x21	0.4451	0.076	5.836	0.000	0.295	0.595
x22	-0.1493	0.077	-1.942	0.052	-0.300	0.002
x23	-0.0320	0.078	-0.411	0.681	-0.185	0.121
x24	0.9644	0.085	11.389	0.000	0.798	1.131
x25	-0.2824	0.087	-3.235	0.001	-0.454	-0.111
x26	-0.5743	0.088	-6.544	0.000	-0.747	-0.402
x27	0.0102	0.091	0.112	0.911	-0.168	0.189
x28	-0.1219	0.092	-1.321	0.187	-0.303	0.059
x29	-0.2136	0.097	-2.198	0.028	-0.404	-0.023
x30	-0.3258	0.100	-3.265	0.001	-0.522	-0.130
x31	-0.5380	0.101	-5.326	0.000	-0.736	-0.340
x32	-0.4106	0.105	-3.921	0.000	-0.616	-0.205
x33	0.6538	0.108	6.081	0.000	0.443	0.865
x34	-0.1550	0.111	-1.394	0.164	-0.373	0.063
x35	-0.2945	0.112	-2.636	0.009	-0.514	-0.075
x36	1.1168	0.115	9.713	0.000	0.891	1.343
x37	-0.5594	0.116	-4.808	0.000	-0.788	-0.331
x38	0.0157	0.119	0.132	0.895	-0.218	0.250
x39	0.0156	0.121	0.129	0.897	-0.221	0.253
x40	0.5155	0.124	4.151	0.000	0.272	0.759
x41	0.4795	0.128	3.750	0.000	0.228	0.730
x42	-0.7131	0.129	-5.539	0.000	-0.966	-0.460
x43	0.0282	0.135	0.209	0.835	-0.237	0.294
x44	-0.0175	0.138	-0.127	0.899	-0.288	0.253
x45	-0.2920	0.141	-2.067	0.039	-0.569	-0.015
x46	-0.2360	0.145	-1.628	0.104	-0.521	0.049
x47	0.3660	0.145	2.516	0.012	0.081	0.651
x48	-0.6729	0.149	-4.519	0.000	-0.965	-0.381
x49	0.2950	0.152	1.941	0.053	-0.003	0.593
x50	0.0748	0.155	0.484	0.629	-0.229	0.378
x51	-0.5513	0.165	-3.349	0.001	-0.874	-0.228
x52	1.3125	0.173	7.606	0.000	0.974	1.651
x53	0.5590	0.173	3.226	0.001	0.219	0.899
x54	0.2837	0.175	1.618	0.106	-0.061	0.628
x55	0.4784	0.181	2.640	0.008	0.123	0.834
x56	-0.6894	0.184	-3.741	0.000	-1.051	-0.328
x57	0.5003	0.190	2.639	0.008	0.128	0.872
x58	0.4187	0.192	2.177	0.030	0.041	0.796
x59	1.2340	0.196	6.298	0.000	0.849	1.619
x60	-0.1698	0.197	-0.860	0.390	-0.557	0.218
x61	0.6136	0.199	3.084	0.002	0.223	1.004
x62	0.4772	0.202	2.359	0.019	0.080	0.874
x63	-0.0657	0.208	-0.316	0.752	-0.474	0.343
x64	0.1707	0.211	0.809	0.419	-0.243	0.585
x65	0.5574	0.221	2.524	0.012	0.124	0.991
x66	0.3771	0.223	1.691	0.091	-0.061	0.815
x67	0.7135	0.225	3.177	0.002	0.273	1.154
x68	0.0029	0.231	0.013	0.990	-0.450	0.456
x69	0.6492	0.234	2.771	0.006	0.189	1.109
x70	-0.4817	0.236	-2.037	0.042	-0.946	-0.018
x71	1.0616	0.241	4.413	0.000	0.589	1.534
x72	-0.8877	0.244	-3.640	0.000	-1.366	-0.409
x73	-0.5274	0.253	-2.088	0.037	-1.023	-0.032
x74	-0.4685	0.254	-1.844	0.066	-0.967	0.030
x75	0.7860	0.261	3.011	0.003	0.274	1.298

Esol Regression

x76	0.1359	0.265	0.513	0.608	-0.384	0.656
x77	-0.6500	0.268	-2.425	0.016	-1.176	-0.124
x78	0.8363	0.273	3.068	0.002	0.301	1.371
<hr/>						
Omnibus:		41.459	Durbin-Watson:		1.927	
Prob(Omnibus):		0.000	Jarque-Bera (JB):		96.026	
Skew:		-0.239	Prob(JB):		1.41e-21	
Kurtosis:		4.526	Cond. No.		14.6	
<hr/>						

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

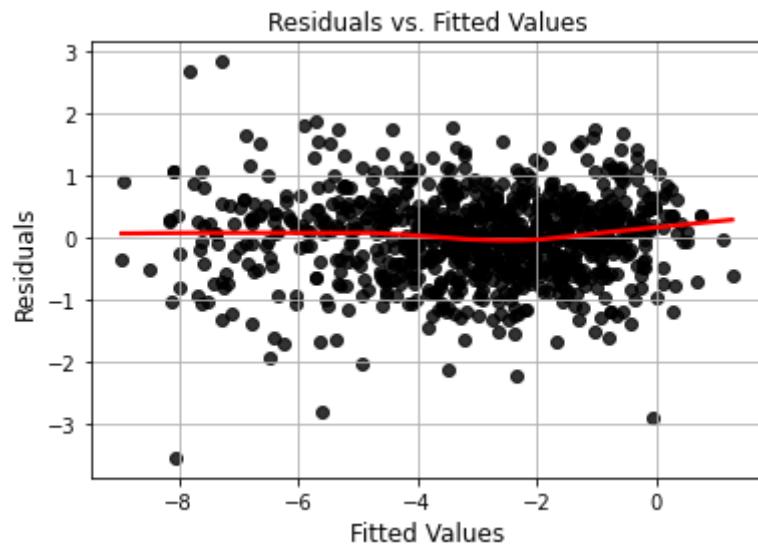
- Residuals are not Normally Distributed!

Heteroskedasticity

In statistics, heteroskedasticity (or heteroscedasticity) happens when the standard errors of a variable, monitored over a specific amount of time, are non-constant. Heteroskedasticity is a violation of the assumptions for linear regression modeling. Heteroscedaticity makes a regression model less robust. Essentially, the predicted errors vary for different ranges of the independent variable, suggesting an imperfect model.

In [48]:

```
#Residuals vs. Fitted Values
sns.regplot(x = lm_pca_parameter.fittedvalues, y = lm_pca_parameter.resid, lowess =
            scatter_kws = {"color": "black"}, line_kws = {"color": "red"})
plt.xlabel('Fitted Values', fontsize = 12)
plt.ylabel('Residuals', fontsize = 12)
plt.title('Residuals vs. Fitted Values', fontsize = 12)
plt.grid()
```



Cook's distance, an estimate of how much predicted values would change if the model were re-estimated with that point eliminated from the data.

In [49]:

```
##Check Cook's distance
sum(lm_pca_parameter.get_influence().summary_frame().cooks_d > 1)
```

0

Out[49]:

In [50]:

```
#Check Multicollinearity
#Import library for VIF
from statsmodels.stats.outliers_influence import variance_inflation_factor
def calc_vif():
    # Calculating VIF
    vif = pd.DataFrame()
    vif["variables"] = X.columns
    vif["VIF"] = [variance_inflation_factor(X.values, i) for i in range(X.shape[1])]
    return(vif)

calc_vif(x_train_pca_const_df.iloc[:, 1:])
#If VIF > 10 then multicollinearity is high
```

Out[50]:

	variables	VIF
0	1	1.0
1	2	1.0
2	3	1.0
3	4	1.0
4	5	1.0
5	6	1.0
6	7	1.0
7	8	1.0
8	9	1.0
9	10	1.0
10	11	1.0
11	12	1.0
12	13	1.0
13	14	1.0
14	15	1.0
15	16	1.0
16	17	1.0
17	18	1.0
18	19	1.0
19	20	1.0
20	21	1.0
21	22	1.0
22	23	1.0
23	24	1.0
24	25	1.0
25	26	1.0
26	27	1.0

	variables	VIF
27	28	1.0
28	29	1.0
29	30	1.0
30	31	1.0
31	32	1.0
32	33	1.0
33	34	1.0
34	35	1.0
35	36	1.0
36	37	1.0
37	38	1.0
38	39	1.0
39	40	1.0
40	41	1.0
41	42	1.0
42	43	1.0
43	44	1.0
44	45	1.0
45	46	1.0
46	47	1.0
47	48	1.0
48	49	1.0
49	50	1.0
50	51	1.0
51	52	1.0
52	53	1.0
53	54	1.0
54	55	1.0
55	56	1.0
56	57	1.0
57	58	1.0
58	59	1.0
59	60	1.0
60	61	1.0
61	62	1.0
62	63	1.0

	variables	VIF
63	64	1.0
64	65	1.0
65	66	1.0
66	67	1.0
67	68	1.0
68	69	1.0
69	70	1.0
70	71	1.0
71	72	1.0
72	73	1.0
73	74	1.0
74	75	1.0
75	76	1.0
76	77	1.0
77	78	1.0

Model 1: Prediction on Test dataset

```
In [51]: pred_lm_pca_parameter = lm_pca_parameter.predict(x_test_pca_const)
```

```
In [52]: #Absolute error
abs_err_lm_pca_parameter = abs(y_test - pred_lm_pca_parameter)
```

```
In [53]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = pd.DataFrame({'Mean of AbsErrors': abs_err_lm_pca_parameter.mean(),
                           'Median of AbsErrors' : abs_err_lm_pca_parameter.median(),
                           'SD of AbsErrors' : abs_err_lm_pca_parameter.std(),
                           'IQR of AbsErrors' : iqr(abs_err_lm_pca_parameter),
                           'Min of AbsErrors' : abs_err_lm_pca_parameter.min(),
                           'Max of AbsErrors' : abs_err_lm_pca_parameter.max(),
                           'R^2-score' : metrics.r2_score(y_test, pred_lm_pca_parameter)})

model_comp
```

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.00125	3.087932	0.876103

- R^2 indicates the proportion of data points which lie within the line created by the regression equation. A higher value of R^2 is desirable as it indicates better results.

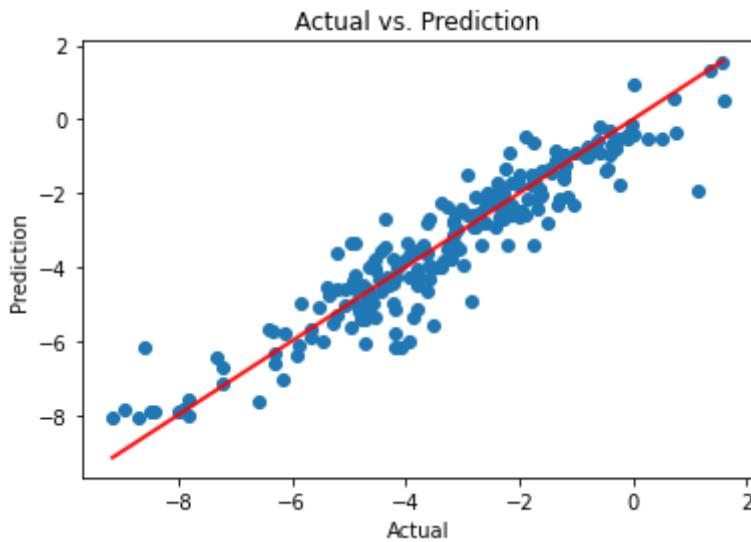
```
In [54]: #Actual vs. Prediction
```

```

plt.scatter(x = y_test, y = pred_lm_pca_parameter)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, 'k', alpha = 0.9, linewidth = 2, color = 'red')

```

Out[54]: [`<matplotlib.lines.Line2D at 0x24b1ede3040>`]

Model 2 : linear Regression for All Variables

In [55]:

```

#Add constant
x_train_const = sm.add_constant(x_train)
x_train_const_df = pd.DataFrame(x_train_const)

```

In [56]:

```

#Add constant
x_test_const = sm.add_constant(x_test)
x_test_const_df = pd.DataFrame(x_test_const)

```

In [57]:

```

#Regression Model
lm_parameter_all = sm.OLS(y_train, x_train_const).fit()
lm_parameter_all.summary()

```

Out[57]:

OLS Regression Results

Dep. Variable:	logSolubility	R-squared:	0.929
Model:	OLS	Adj. R-squared:	0.913
Method:	Least Squares	F-statistic:	59.87
Date:	Sat, 19 Feb 2022	Prob (F-statistic):	0.00
Time:	14:58:40	Log-Likelihood:	-755.13
No. Observations:	902	AIC:	1834.
Df Residuals:	740	BIC:	2613.
Df Model:	161		
Covariance Type:	nonrobust		

	coef	std err	t	P> t 	[0.025	0.975]
x2	-0.0331	0.287	-0.115	0.908	-0.596	0.530
x3	-0.3426	0.930	-0.369	0.713	-2.168	1.482
x4	-0.0143	3.876	-0.004	0.997	-7.624	7.595
x5	10.2253	4.444	2.301	0.022	1.501	18.950
x6	2.2139	4.227	0.524	0.601	-6.084	10.512
x8	-7.0536	2.860	-2.466	0.014	-12.669	-1.438
x9	2.8422	1.732	1.641	0.101	-0.558	6.242
x10	-2.0497	1.262	-1.624	0.105	-4.527	0.428
x11	1.7038	0.635	2.685	0.007	0.458	2.950
x12	0.8329	1.017	0.819	0.413	-1.163	2.829
x13	-1.5963	0.685	-2.331	0.020	-2.941	-0.252
x15	0.3938	0.651	0.605	0.545	-0.884	1.672
x16	-0.1986	0.236	-0.843	0.400	-0.661	0.264
x17	-0.7581	0.346	-2.188	0.029	-1.438	-0.078
x18	-1.1722	0.455	-2.576	0.010	-2.066	-0.279
x19	0.0769	0.252	0.306	0.760	-0.417	0.571
x20	0.0125	0.203	0.062	0.951	-0.386	0.411
x21	0.2884	0.198	1.460	0.145	-0.099	0.676
x22	0.0638	0.093	0.687	0.492	-0.118	0.246
x23	-0.0224	0.122	-0.183	0.855	-0.263	0.218
x24	0.2900	0.128	2.265	0.024	0.039	0.541
x25	-0.0894	0.161	-0.555	0.579	-0.405	0.227
x26	-0.1172	0.206	-0.568	0.570	-0.522	0.288
x27	-2.7442	1.123	-2.443	0.015	-4.949	-0.539
x28	-0.0662	0.182	-0.364	0.716	-0.423	0.291
x29	0.2862	0.194	1.474	0.141	-0.095	0.667
x30	-0.4396	0.204	-2.153	0.032	-0.840	-0.039
x31	9.823e-05	0.227	0.000	1.000	-0.445	0.446
x32	1.2011	0.666	1.802	0.072	-0.107	2.509
x35	-0.8680	0.610	-1.422	0.155	-2.066	0.330
x36	-3.1425	1.514	-2.075	0.038	-6.116	-0.169
x37	0.2356	0.615	0.383	0.702	-0.972	1.443
x38	-0.5824	0.232	-2.507	0.012	-1.038	-0.126
x39	1.8246	4.193	0.435	0.664	-6.407	10.056
x40	0.8011	0.427	1.878	0.061	-0.036	1.639
x41	1.3272	0.784	1.693	0.091	-0.212	2.866

Esol Regression

x43	0.0629	0.574	0.109	0.913	-1.064	1.190
x44	-0.2279	0.135	-1.692	0.091	-0.492	0.037
x45	0.4606	0.528	0.873	0.383	-0.576	1.497
x46	-0.3072	0.357	-0.861	0.390	-1.008	0.394
x47	1.4131	0.820	1.723	0.085	-0.197	3.023
x48	-3.9384	0.353	-11.165	0.000	-4.631	-3.246
x49	-4.8966	2.325	-2.106	0.036	-9.462	-0.331
x51	-2.1488	1.586	-1.355	0.176	-5.263	0.965
x52	2.6673	0.804	3.316	0.001	1.088	4.246
x53	-0.2114	0.277	-0.762	0.446	-0.756	0.333
x54	-0.0231	0.377	-0.061	0.951	-0.763	0.717
x55	0.4316	0.600	0.719	0.472	-0.746	1.609
x56	-2.0671	0.483	-4.281	0.000	-3.015	-1.119
x57	0.7865	0.428	1.838	0.066	-0.054	1.627
x58	1.4226	0.778	1.828	0.068	-0.106	2.951
x59	-2.4982	0.646	-3.869	0.000	-3.766	-1.231
x60	4.2184	1.740	2.424	0.016	0.803	7.634
x61	-1.6693	0.664	-2.513	0.012	-2.973	-0.365
x63	-0.1502	0.514	-0.292	0.770	-1.159	0.858
x64	0.1158	0.333	0.348	0.728	-0.538	0.769
x65	-0.1731	0.346	-0.500	0.617	-0.853	0.507
x66	-0.4033	0.326	-1.236	0.217	-1.044	0.237
x68	-0.1151	0.445	-0.258	0.796	-0.990	0.759
x69	0.4293	0.150	2.870	0.004	0.136	0.723
x70	0.0988	0.098	1.009	0.313	-0.093	0.291
x71	0.1976	0.158	1.249	0.212	-0.113	0.508
x72	-0.3135	0.161	-1.946	0.052	-0.630	0.003
x73	0.0718	0.264	0.272	0.786	-0.447	0.590
x74	0.5981	0.308	1.939	0.053	-0.007	1.203
x75	0.1274	0.180	0.708	0.479	-0.226	0.480
x76	-0.2228	0.153	-1.457	0.146	-0.523	0.077
x77	-0.0968	0.137	-0.708	0.479	-0.365	0.172
x78	-0.9480	0.266	-3.563	0.000	-1.470	-0.426
x79	-0.5768	0.306	-1.886	0.060	-1.177	0.023
x80	-0.0509	0.304	-0.167	0.867	-0.648	0.546
x81	0.1989	0.206	0.964	0.335	-0.206	0.604
x82	-0.7533	0.657	-1.147	0.252	-2.042	0.536

Esol Regression

x83	1.3815	0.480	2.880	0.004	0.440	2.323
x84	-0.4565	0.286	-1.594	0.111	-1.019	0.106
x85	2.3919	1.320	1.813	0.070	-0.199	4.982
x86	-0.0339	0.658	-0.052	0.959	-1.326	1.259
x87	0.1492	0.137	1.088	0.277	-0.120	0.419
x88	1.6953	0.502	3.375	0.001	0.709	2.681
x89	0.8336	0.378	2.208	0.028	0.092	1.575
x90	1.0044	0.764	1.315	0.189	-0.496	2.504
x91	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x92	-0.3564	0.234	-1.526	0.127	-0.815	0.102
x93	-0.8023	0.354	-2.267	0.024	-1.497	-0.107
x94	-0.1538	0.147	-1.044	0.297	-0.443	0.136
x95	-0.1320	0.323	-0.409	0.683	-0.766	0.502
x96	-0.0461	0.178	-0.259	0.796	-0.396	0.304
x97	-1.6691	0.557	-2.996	0.003	-2.763	-0.575
x98	0.4174	0.259	1.614	0.107	-0.090	0.925
x99	-0.5133	0.121	-4.250	0.000	-0.750	-0.276
x100	-2.6694	0.471	-5.672	0.000	-3.593	-1.746
x101	-0.1916	0.648	-0.296	0.768	-1.464	1.080
x102	-0.2711	0.161	-1.684	0.093	-0.587	0.045
x103	-0.1010	0.253	-0.399	0.690	-0.598	0.396
x104	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x105	-2.8232	0.544	-5.194	0.000	-3.890	-1.756
x106	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x107	0.3587	0.304	1.180	0.238	-0.238	0.955
x108	-0.3339	0.235	-1.422	0.155	-0.795	0.127
x109	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x110	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x111	-0.1429	0.100	-1.422	0.155	-0.340	0.054
x112	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x113	-0.8668	0.609	-1.422	0.155	-2.063	0.330
x114	0.1057	0.300	0.353	0.724	-0.482	0.694
x115	2.4806	0.610	4.069	0.000	1.284	3.677
x116	1.005e-14	5.22e-15	1.924	0.055	-2.05e-16	2.03e-14
x117	0.3297	0.241	1.369	0.171	-0.143	0.803
x118	-0.0244	0.187	-0.130	0.897	-0.392	0.343
x119	-0.1727	0.427	-0.405	0.686	-1.010	0.665

Esol Regression

x120	-5.091e-13	3.57e-13	-1.427	0.154	-1.21e-12	1.91e-13
x121	-0.5250	0.504	-1.042	0.298	-1.514	0.464
x122	-1.0208	0.306	-3.334	0.001	-1.622	-0.420
x123	0.1943	0.404	0.481	0.631	-0.598	0.987
x124	-0.1445	0.102	-1.422	0.155	-0.344	0.055
x125	-0.1445	0.102	-1.422	0.155	-0.344	0.055
x126	1.1338	0.599	1.894	0.059	-0.041	2.309
x128	-0.4252	0.302	-1.409	0.159	-1.018	0.167
x129	-0.4381	0.956	-0.458	0.647	-2.315	1.438
x130	-0.1464	0.475	-0.308	0.758	-1.079	0.786
x131	1.3131	0.504	2.606	0.009	0.324	2.302
x132	-0.8117	0.397	-2.044	0.041	-1.591	-0.032
x133	1.1341	0.537	2.113	0.035	0.080	2.188
x134	-0.0687	0.491	-0.140	0.889	-1.032	0.894
x135	0.1141	0.337	0.339	0.735	-0.547	0.775
x136	0.5429	0.948	0.572	0.567	-1.319	2.405
x138	-2.1505	0.760	-2.829	0.005	-3.643	-0.658
x139	0.2907	0.242	1.203	0.229	-0.184	0.765
x140	-0.6426	0.855	-0.752	0.453	-2.321	1.036
x141	-0.2436	0.203	-1.200	0.230	-0.642	0.155
x142	-0.4762	0.150	-3.166	0.002	-0.772	-0.181
x143	-0.2039	0.278	-0.733	0.464	-0.750	0.342
x144	-2.291e-12	1.61e-12	-1.422	0.155	-5.45e-12	8.72e-13
x145	-0.4181	0.243	-1.721	0.086	-0.895	0.059
x146	0.3942	0.123	3.194	0.001	0.152	0.636
x147	-0.3279	0.231	-1.422	0.155	-0.780	0.125
x148	-0.2014	0.743	-0.271	0.786	-1.660	1.258
x149	0.1847	0.356	0.519	0.604	-0.515	0.884
x151	0.3271	0.567	0.577	0.564	-0.786	1.440
x152	-0.2994	0.171	-1.752	0.080	-0.635	0.036
x154	-0.8557	0.836	-1.024	0.306	-2.496	0.785
x155	-0.4184	0.818	-0.511	0.609	-2.025	1.188
x156	-1.2152	0.266	-4.564	0.000	-1.738	-0.692
x157	0.4929	0.198	2.493	0.013	0.105	0.881
x158	-0.9561	0.458	-2.086	0.037	-1.856	-0.056
x159	-0.8501	0.640	-1.328	0.185	-2.107	0.407
x160	0.4244	0.187	2.265	0.024	0.057	0.792

Esol Regression

x161	0.4600	0.295	1.561	0.119	-0.118	1.039
x162	-1.2767	1.018	-1.254	0.210	-3.275	0.722
x163	-1.4063	0.318	-4.425	0.000	-2.030	-0.782
x164	-0.5123	0.259	-1.980	0.048	-1.020	-0.004
x166	-0.1429	0.100	-1.422	0.155	-0.340	0.054
x167	0.3560	0.323	1.103	0.270	-0.277	0.989
x168	0.1957	0.270	0.724	0.469	-0.335	0.726
x169	-4.427e-08	3.11e-08	-1.422	0.155	-1.05e-07	1.68e-08
x170	1.0474	0.442	2.368	0.018	0.179	1.916
x171	-0.1942	0.152	-1.276	0.202	-0.493	0.105
x172	7.422e-16	4.38e-16	1.695	0.091	-1.18e-16	1.6e-15
x173	-1.1067	1.130	-0.979	0.328	-3.326	1.112
x174	-0.3946	0.408	-0.967	0.334	-1.196	0.407
x175	0.0891	0.359	0.248	0.804	-0.616	0.795
x176	0.3244	0.318	1.021	0.308	-0.300	0.948
x177	-0.0079	0.006	-1.422	0.155	-0.019	0.003
x178	-0.2404	0.539	-0.446	0.655	-1.298	0.817
x179	-0.7734	0.445	-1.737	0.083	-1.647	0.101
x180	0.1556	0.122	1.273	0.203	-0.084	0.396
x181	0.1570	0.299	0.526	0.599	-0.429	0.743
x183	0.6022	0.633	0.952	0.342	-0.640	1.844
x185	0.5562	0.403	1.379	0.168	-0.235	1.348
x186	-1.5911	0.833	-1.910	0.057	-3.227	0.044
x187	-0.4980	0.424	-1.175	0.240	-1.330	0.334
x188	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x189	-0.2733	0.280	-0.975	0.330	-0.823	0.277
x190	-3.502e-08	2.46e-08	-1.422	0.155	-8.33e-08	1.33e-08
x191	0.3976	0.203	1.960	0.050	-0.001	0.796
x192	-0.0987	0.447	-0.221	0.825	-0.975	0.778
x193	0.8102	0.591	1.370	0.171	-0.351	1.971
x194	0.4217	0.272	1.548	0.122	-0.113	0.957
x195	-0.1461	0.103	-1.422	0.155	-0.348	0.056
x196	-0.4431	0.446	-0.993	0.321	-1.319	0.433
x197	-1.286e-18	9.04e-19	-1.422	0.155	-3.06e-18	4.89e-19
x198	-0.4030	0.598	-0.674	0.501	-1.577	0.771
x199	-0.2786	0.133	-2.092	0.037	-0.540	-0.017
x200	-0.1100	0.262	-0.420	0.675	-0.624	0.404

	x201	-1.3637	0.282	-4.833	0.000	-1.918	-0.810
Omnibus:	11.793	Durbin-Watson:	1.950				
Prob(Omnibus):	0.003	Jarque-Bera (JB):	17.800				
Skew:	-0.083	Prob(JB):	0.000136				
Kurtosis:	3.668	Cond. No.	1.55e+16				

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The smallest eigenvalue is 5.02e-29. This might indicate that there are strong multicollinearity problems or that the design matrix is singular.

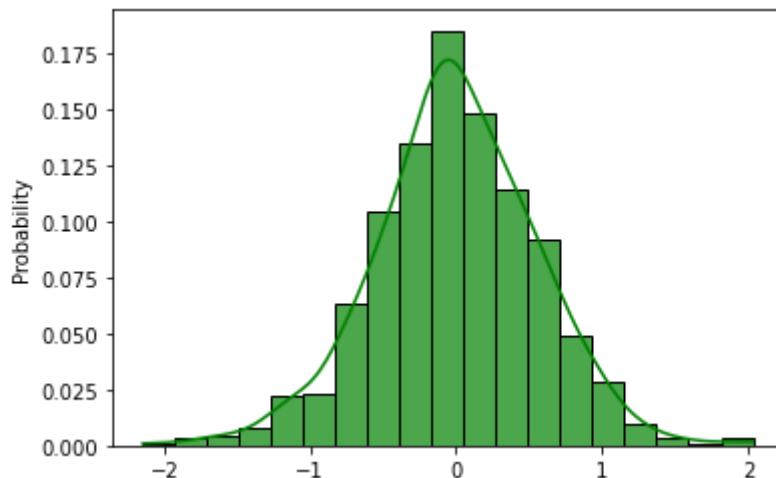
- There are strong multicollinearity problems!

In [58]:

```
#Check Assumptions of Regression
#Normality of residuals

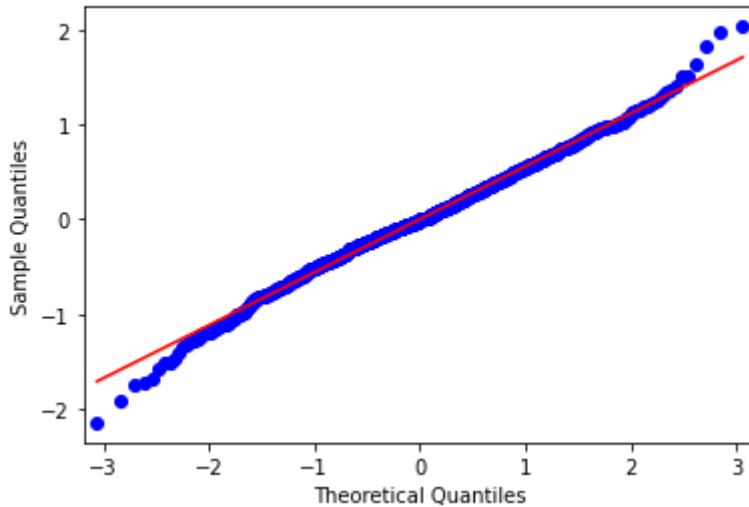
#Plot histogram of residuals
sns.histplot(lm_parameter_all.resid, stat = 'probability' ,
             kde = True, alpha = 0.7, color = 'green',
             bins = np.linspace(min(lm_parameter_all.resid), max(lm_parameter_all.re
```

Out[58]:



In [59]:

```
#QQ-plot
qqplot_lm_parameter_all = sm.qqplot(lm_parameter_all.resid, line = 's')
plt.show()
```

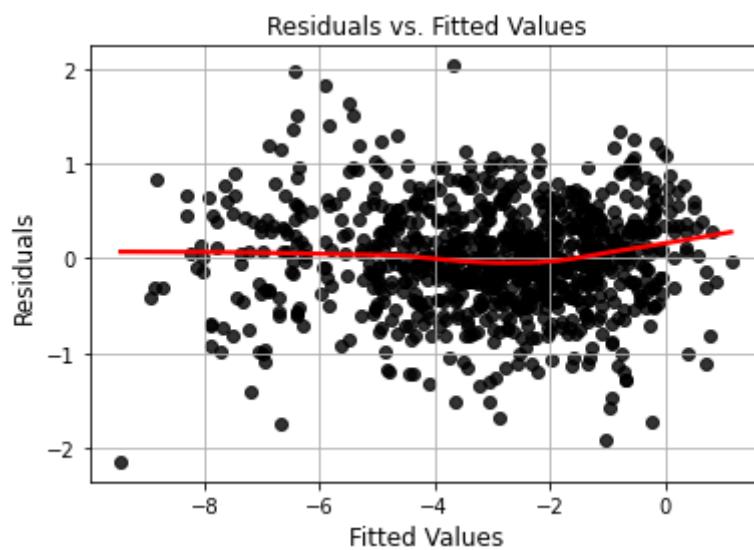


- All point of quantiles lie on or close to straight line at an angle of 45 degree from x – axis. It indicates that two samples have similar distributions. Here the points are lying nearly on the straight line.

Hetroscedasticity

In [60]:

```
#Residuals vs. Fitted Values
sns.regplot(x = lm_parameter_all.fittedvalues, y = lm_parameter_all.resid, lowess =
            scatter_kws = {"color": "black"}, line_kws = {"color": "red"})
plt.xlabel('Fitted Values', fontsize = 12)
plt.ylabel('Residuals', fontsize = 12)
plt.title('Residuals vs. Fitted Values', fontsize = 12)
plt.grid()
```



In [61]:

```
#Check Multicollinearity
#Import Library for VIF
from statsmodels.stats.outliers_influence import variance_inflation_factor
def calc_vif(X):
    # Calculating VIF
    vif = pd.DataFrame()
    vif["variables"] = X.columns
    vif["VIF"] = [variance_inflation_factor(X.values, i) for i in range(X.shape[1])]
    return(vif)

calc_vif(x_train_const_df.iloc[:, 1:])
```

Out[61]:

	variables	VIF
0	x3	38.566180
1	x4	823.257501
2	x5	1127.212479
3	x6	1092.684426
4	x8	541.063721
5	x9	215.758590
6	x10	151.187327
7	x11	49.559777
8	x12	122.977215
9	x13	71.039211
10	x15	65.340322
11	x16	17.634793
12	x17	23.474521
13	x18	3.684362
14	x19	7.189236
15	x20	4.991788
16	x21	4.449607
17	x22	3.215204
18	x23	3.579312
19	x24	3.396337
20	x25	5.453416
21	x26	13.307398
22	x27	84.662904
23	x28	10.497272
24	x29	10.812124
25	x30	8.004647
26	x31	17.066543
27	x32	21.489967
28	x35	0.024925
29	x36	163.348020
30	x37	33.846547
31	x38	5.907711
32	x39	930.403059
33	x40	12.148723
34	x41	123.279904

	variables	VIF
35	x43	103.537173
36	x44	3.557269
37	x45	81.048778
38	x46	27.871654
39	x47	136.669642
40	x48	22.417799
41	x49	243.361715
42	x51	496.998813
43	x52	59.270142
44	x53	20.335627
45	x54	23.857512
46	x55	67.660191
47	x56	36.146741
48	x57	45.379273
49	x58	57.082737
50	x59	47.899532
51	x60	584.300197
52	x61	54.261534
53	x63	25.358614
54	x64	20.331318
55	x65	22.633080
56	x66	30.683669
57	x68	23.146282
58	x69	4.797469
59	x70	3.421304
60	x71	4.726662
61	x72	6.832598
62	x73	27.085679
63	x74	16.935770
64	x75	7.985093
65	x76	4.967411
66	x77	3.197263
67	x78	13.662795
68	x79	12.890659
69	x80	6.772394
70	x81	6.425124

	variables	VIF
71	x82	41.485278
72	x83	30.434084
73	x84	18.005029
74	x85	58.700877
75	x86	31.764364
76	x87	7.766388
77	x88	52.343777
78	x89	16.773377
79	x90	58.016187
80	x91	0.001311
81	x92	12.327525
82	x93	18.143345
83	x94	10.353936
84	x95	18.390002
85	x96	16.314712
86	x97	30.637892
87	x98	11.140194
88	x99	7.408869
89	x100	48.351859
90	x101	48.631864
91	x102	7.669889
92	x103	10.247632
93	x104	0.003970
94	x105	43.993297
95	x106	0.000747
96	x107	11.854621
97	x108	0.031685
98	x109	0.002036
99	x110	0.002036
100	x111	0.014574
101	x112	0.002972
102	x113	0.002147
103	x114	8.331703
104	x115	28.634698
105	x116	0.000000
106	x117	16.711606

	variables	VIF
107	x118	8.586177
108	x119	17.341026
109	x120	0.012754
110	x121	59.856493
111	x122	4.325096
112	x123	19.180160
113	x124	0.005634
114	x125	0.006707
115	x126	41.187942
116	x128	2.359529
117	x129	1.657684
118	x130	3.981908
119	x131	34.320272
120	x132	29.647941
121	x133	31.865479
122	x134	1.258846
123	x135	1.840836
124	x136	1.649393
125	x138	6.022151
126	x139	2.112254
127	x140	1.321297
128	x141	6.170138
129	x142	3.790267
130	x143	20.143427
131	x144	0.013255
132	x145	11.839695
133	x146	3.888074
134	x147	0.000000
135	x148	1.425018
136	x149	6.780702
137	x151	2.503572
138	x152	10.814223
139	x154	1.831329
140	x155	1.317866
141	x156	9.355444
142	x157	9.478873

	variables	VIF
143	x158	3.830318
144	x159	3.210790
145	x160	15.434744
146	x161	1.786911
147	x162	1.860321
148	x163	2.365689
149	x164	8.462297
150	x166	0.003134
151	x167	11.904089
152	x168	9.547494
153	x169	0.000000
154	x170	2.551978
155	x171	2.235831
156	x172	0.000000
157	x173	56.251399
158	x174	12.678972
159	x175	11.245458
160	x176	3.412903
161	x177	0.002937
162	x178	1.575177
163	x179	2.055881
164	x180	2.352027
165	x181	12.446124
166	x183	5.008145
167	x185	2.114579
168	x186	1.628608
169	x187	6.036917
170	x188	0.000992
171	x189	5.059262
172	x190	0.017106
173	x191	2.608623
174	x192	8.227655
175	x193	1.830192
176	x194	2.678853
177	x195	0.000000
178	x196	1.800656

	variables	VIF
179	x197	0.000965
180	x198	1.873171
181	x199	3.155416
182	x200	7.533666
183	x201	9.033753

- If VIF > 10 then multicollinearity is high

In [62]:

```
#Test for Skewness and Kurtosis
#Good for sample size > 25

#Jarque-Bera Test (Skewness = 0 ?)
#H0: the data is normally distributed
#p-value < 0.05 reject normality assumption

#Omnibus K-squared normality test
#The Omnibus test combines the random variables for Skewness and Kurtosis into a sin
#H0: the data is normally distributed
#p-value < 0.05 reject normality assumption
print(lm_parameter_all.summary())
```

OLS Regression Results

Dep. Variable:	logSolubility	R-squared:	0.929			
Model:	OLS	Adj. R-squared:	0.913			
Method:	Least Squares	F-statistic:	59.87			
Date:	Sat, 19 Feb 2022	Prob (F-statistic):	0.00			
Time:	14:58:48	Log-Likelihood:	-755.13			
No. Observations:	902	AIC:	1834.			
Df Residuals:	740	BIC:	2613.			
Df Model:	161					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
x2	-0.0331	0.287	-0.115	0.908	-0.596	0.530
x3	-0.3426	0.930	-0.369	0.713	-2.168	1.482
x4	-0.0143	3.876	-0.004	0.997	-7.624	7.595
x5	10.2253	4.444	2.301	0.022	1.501	18.950
x6	2.2139	4.227	0.524	0.601	-6.084	10.512
x8	-7.0536	2.860	-2.466	0.014	-12.669	-1.438
x9	2.8422	1.732	1.641	0.101	-0.558	6.242
x10	-2.0497	1.262	-1.624	0.105	-4.527	0.428
x11	1.7038	0.635	2.685	0.007	0.458	2.950
x12	0.8329	1.017	0.819	0.413	-1.163	2.829
x13	-1.5963	0.685	-2.331	0.020	-2.941	-0.252
x15	0.3938	0.651	0.605	0.545	-0.884	1.672
x16	-0.1986	0.236	-0.843	0.400	-0.661	0.264
x17	-0.7581	0.346	-2.188	0.029	-1.438	-0.078
x18	-1.1722	0.455	-2.576	0.010	-2.066	-0.279
x19	0.0769	0.252	0.306	0.760	-0.417	0.571
x20	0.0125	0.203	0.062	0.951	-0.386	0.411
x21	0.2884	0.198	1.460	0.145	-0.099	0.676
x22	0.0638	0.093	0.687	0.492	-0.118	0.246
x23	-0.0224	0.122	-0.183	0.855	-0.263	0.218
x24	0.2900	0.128	2.265	0.024	0.039	0.541

Esol Regression

x25	-0.0894	0.161	-0.555	0.579	-0.405	0.227
x26	-0.1172	0.206	-0.568	0.570	-0.522	0.288
x27	-2.7442	1.123	-2.443	0.015	-4.949	-0.539
x28	-0.0662	0.182	-0.364	0.716	-0.423	0.291
x29	0.2862	0.194	1.474	0.141	-0.095	0.667
x30	-0.4396	0.204	-2.153	0.032	-0.840	-0.039
x31	9.823e-05	0.227	0.000	1.000	-0.445	0.446
x32	1.2011	0.666	1.802	0.072	-0.107	2.509
x35	-0.8680	0.610	-1.422	0.155	-2.066	0.330
x36	-3.1425	1.514	-2.075	0.038	-6.116	-0.169
x37	0.2356	0.615	0.383	0.702	-0.972	1.443
x38	-0.5824	0.232	-2.507	0.012	-1.038	-0.126
x39	1.8246	4.193	0.435	0.664	-6.407	10.056
x40	0.8011	0.427	1.878	0.061	-0.036	1.639
x41	1.3272	0.784	1.693	0.091	-0.212	2.866
x43	0.0629	0.574	0.109	0.913	-1.064	1.190
x44	-0.2279	0.135	-1.692	0.091	-0.492	0.037
x45	0.4606	0.528	0.873	0.383	-0.576	1.497
x46	-0.3072	0.357	-0.861	0.390	-1.008	0.394
x47	1.4131	0.820	1.723	0.085	-0.197	3.023
x48	-3.9384	0.353	-11.165	0.000	-4.631	-3.246
x49	-4.8966	2.325	-2.106	0.036	-9.462	-0.331
x51	-2.1488	1.586	-1.355	0.176	-5.263	0.965
x52	2.6673	0.804	3.316	0.001	1.088	4.246
x53	-0.2114	0.277	-0.762	0.446	-0.756	0.333
x54	-0.0231	0.377	-0.061	0.951	-0.763	0.717
x55	0.4316	0.600	0.719	0.472	-0.746	1.609
x56	-2.0671	0.483	-4.281	0.000	-3.015	-1.119
x57	0.7865	0.428	1.838	0.066	-0.054	1.627
x58	1.4226	0.778	1.828	0.068	-0.106	2.951
x59	-2.4982	0.646	-3.869	0.000	-3.766	-1.231
x60	4.2184	1.740	2.424	0.016	0.803	7.634
x61	-1.6693	0.664	-2.513	0.012	-2.973	-0.365
x63	-0.1502	0.514	-0.292	0.770	-1.159	0.858
x64	0.1158	0.333	0.348	0.728	-0.538	0.769
x65	-0.1731	0.346	-0.500	0.617	-0.853	0.507
x66	-0.4033	0.326	-1.236	0.217	-1.044	0.237
x68	-0.1151	0.445	-0.258	0.796	-0.990	0.759
x69	0.4293	0.150	2.870	0.004	0.136	0.723
x70	0.0988	0.098	1.009	0.313	-0.093	0.291
x71	0.1976	0.158	1.249	0.212	-0.113	0.508
x72	-0.3135	0.161	-1.946	0.052	-0.630	0.003
x73	0.0718	0.264	0.272	0.786	-0.447	0.590
x74	0.5981	0.308	1.939	0.053	-0.007	1.203
x75	0.1274	0.180	0.708	0.479	-0.226	0.480
x76	-0.2228	0.153	-1.457	0.146	-0.523	0.077
x77	-0.0968	0.137	-0.708	0.479	-0.365	0.172
x78	-0.9480	0.266	-3.563	0.000	-1.470	-0.426
x79	-0.5768	0.306	-1.886	0.060	-1.177	0.023
x80	-0.0509	0.304	-0.167	0.867	-0.648	0.546
x81	0.1989	0.206	0.964	0.335	-0.206	0.604
x82	-0.7533	0.657	-1.147	0.252	-2.042	0.536
x83	1.3815	0.480	2.880	0.004	0.440	2.323
x84	-0.4565	0.286	-1.594	0.111	-1.019	0.106
x85	2.3919	1.320	1.813	0.070	-0.199	4.982
x86	-0.0339	0.658	-0.052	0.959	-1.326	1.259
x87	0.1492	0.137	1.088	0.277	-0.120	0.419
x88	1.6953	0.502	3.375	0.001	0.709	2.681
x89	0.8336	0.378	2.208	0.028	0.092	1.575
x90	1.0044	0.764	1.315	0.189	-0.496	2.504
x91	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x92	-0.3564	0.234	-1.526	0.127	-0.815	0.102
x93	-0.8023	0.354	-2.267	0.024	-1.497	-0.107
x94	-0.1538	0.147	-1.044	0.297	-0.443	0.136

Esol Regression

x95	-0.1320	0.323	-0.409	0.683	-0.766	0.502
x96	-0.0461	0.178	-0.259	0.796	-0.396	0.304
x97	-1.6691	0.557	-2.996	0.003	-2.763	-0.575
x98	0.4174	0.259	1.614	0.107	-0.090	0.925
x99	-0.5133	0.121	-4.250	0.000	-0.750	-0.276
x100	-2.6694	0.471	-5.672	0.000	-3.593	-1.746
x101	-0.1916	0.648	-0.296	0.768	-1.464	1.080
x102	-0.2711	0.161	-1.684	0.093	-0.587	0.045
x103	-0.1010	0.253	-0.399	0.690	-0.598	0.396
x104	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x105	-2.8232	0.544	-5.194	0.000	-3.890	-1.756
x106	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x107	0.3587	0.304	1.180	0.238	-0.238	0.955
x108	-0.3339	0.235	-1.422	0.155	-0.795	0.127
x109	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x110	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x111	-0.1429	0.100	-1.422	0.155	-0.340	0.054
x112	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x113	-0.8668	0.609	-1.422	0.155	-2.063	0.330
x114	0.1057	0.300	0.353	0.724	-0.482	0.694
x115	2.4806	0.610	4.069	0.000	1.284	3.677
x116	1.005e-14	5.22e-15	1.924	0.055	-2.05e-16	2.03e-14
x117	0.3297	0.241	1.369	0.171	-0.143	0.803
x118	-0.0244	0.187	-0.130	0.897	-0.392	0.343
x119	-0.1727	0.427	-0.405	0.686	-1.010	0.665
x120	-5.091e-13	3.57e-13	-1.427	0.154	-1.21e-12	1.91e-13
x121	-0.5250	0.504	-1.042	0.298	-1.514	0.464
x122	-1.0208	0.306	-3.334	0.001	-1.622	-0.420
x123	0.1943	0.404	0.481	0.631	-0.598	0.987
x124	-0.1445	0.102	-1.422	0.155	-0.344	0.055
x125	-0.1445	0.102	-1.422	0.155	-0.344	0.055
x126	1.1338	0.599	1.894	0.059	-0.041	2.309
x128	-0.4252	0.302	-1.409	0.159	-1.018	0.167
x129	-0.4381	0.956	-0.458	0.647	-2.315	1.438
x130	-0.1464	0.475	-0.308	0.758	-1.079	0.786
x131	1.3131	0.504	2.606	0.009	0.324	2.302
x132	-0.8117	0.397	-2.044	0.041	-1.591	-0.032
x133	1.1341	0.537	2.113	0.035	0.080	2.188
x134	-0.0687	0.491	-0.140	0.889	-1.032	0.894
x135	0.1141	0.337	0.339	0.735	-0.547	0.775
x136	0.5429	0.948	0.572	0.567	-1.319	2.405
x138	-2.1505	0.760	-2.829	0.005	-3.643	-0.658
x139	0.2907	0.242	1.203	0.229	-0.184	0.765
x140	-0.6426	0.855	-0.752	0.453	-2.321	1.036
x141	-0.2436	0.203	-1.200	0.230	-0.642	0.155
x142	-0.4762	0.150	-3.166	0.002	-0.772	-0.181
x143	-0.2039	0.278	-0.733	0.464	-0.750	0.342
x144	-2.291e-12	1.61e-12	-1.422	0.155	-5.45e-12	8.72e-13
x145	-0.4181	0.243	-1.721	0.086	-0.895	0.059
x146	0.3942	0.123	3.194	0.001	0.152	0.636
x147	-0.3279	0.231	-1.422	0.155	-0.780	0.125
x148	-0.2014	0.743	-0.271	0.786	-1.660	1.258
x149	0.1847	0.356	0.519	0.604	-0.515	0.884
x151	0.3271	0.567	0.577	0.564	-0.786	1.440
x152	-0.2994	0.171	-1.752	0.080	-0.635	0.036
x154	-0.8557	0.836	-1.024	0.306	-2.496	0.785
x155	-0.4184	0.818	-0.511	0.609	-2.025	1.188
x156	-1.2152	0.266	-4.564	0.000	-1.738	-0.692
x157	0.4929	0.198	2.493	0.013	0.105	0.881
x158	-0.9561	0.458	-2.086	0.037	-1.856	-0.056
x159	-0.8501	0.640	-1.328	0.185	-2.107	0.407
x160	0.4244	0.187	2.265	0.024	0.057	0.792
x161	0.4600	0.295	1.561	0.119	-0.118	1.039
x162	-1.2767	1.018	-1.254	0.210	-3.275	0.722

Esol Regression

x163	-1.4063	0.318	-4.425	0.000	-2.030	-0.782
x164	-0.5123	0.259	-1.980	0.048	-1.020	-0.004
x166	-0.1429	0.100	-1.422	0.155	-0.340	0.054
x167	0.3560	0.323	1.103	0.270	-0.277	0.989
x168	0.1957	0.270	0.724	0.469	-0.335	0.726
x169	-4.427e-08	3.11e-08	-1.422	0.155	-1.05e-07	1.68e-08
x170	1.0474	0.442	2.368	0.018	0.179	1.916
x171	-0.1942	0.152	-1.276	0.202	-0.493	0.105
x172	7.422e-16	4.38e-16	1.695	0.091	-1.18e-16	1.6e-15
x173	-1.1067	1.130	-0.979	0.328	-3.326	1.112
x174	-0.3946	0.408	-0.967	0.334	-1.196	0.407
x175	0.0891	0.359	0.248	0.804	-0.616	0.795
x176	0.3244	0.318	1.021	0.308	-0.300	0.948
x177	-0.0079	0.006	-1.422	0.155	-0.019	0.003
x178	-0.2404	0.539	-0.446	0.655	-1.298	0.817
x179	-0.7734	0.445	-1.737	0.083	-1.647	0.101
x180	0.1556	0.122	1.273	0.203	-0.084	0.396
x181	0.1570	0.299	0.526	0.599	-0.429	0.743
x183	0.6022	0.633	0.952	0.342	-0.640	1.844
x185	0.5562	0.403	1.379	0.168	-0.235	1.348
x186	-1.5911	0.833	-1.910	0.057	-3.227	0.044
x187	-0.4980	0.424	-1.175	0.240	-1.330	0.334
x188	-4.602e-05	3.24e-05	-1.422	0.155	-0.000	1.75e-05
x189	-0.2733	0.280	-0.975	0.330	-0.823	0.277
x190	-3.502e-08	2.46e-08	-1.422	0.155	-8.33e-08	1.33e-08
x191	0.3976	0.203	1.960	0.050	-0.001	0.796
x192	-0.0987	0.447	-0.221	0.825	-0.975	0.778
x193	0.8102	0.591	1.370	0.171	-0.351	1.971
x194	0.4217	0.272	1.548	0.122	-0.113	0.957
x195	-0.1461	0.103	-1.422	0.155	-0.348	0.056
x196	-0.4431	0.446	-0.993	0.321	-1.319	0.433
x197	-1.286e-18	9.04e-19	-1.422	0.155	-3.06e-18	4.89e-19
x198	-0.4030	0.598	-0.674	0.501	-1.577	0.771
x199	-0.2786	0.133	-2.092	0.037	-0.540	-0.017
x200	-0.1100	0.262	-0.420	0.675	-0.624	0.404
x201	-1.3637	0.282	-4.833	0.000	-1.918	-0.810

=====

Omnibus:	11.793	Durbin-Watson:	1.950
Prob(Omnibus):	0.003	Jarque-Bera (JB):	17.800
Skew:	-0.083	Prob(JB):	0.000136
Kurtosis:	3.668	Cond. No.	1.55e+16

=====

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The smallest eigenvalue is 5.02e-29. This might indicate that there are strong multicollinearity problems or that the design matrix is singular.

Model 2 : Prediction on the Datasets

```
In [63]: pred_lm_parameter_all = lm_parameter_all.predict(x_test_const)
```

```
In [64]: #Absolute error
abs_err_lm_parameter_all = abs(y_test - pred_lm_parameter_all)
```

```
In [65]: #Absolute error mean, median, sd, IQR, max, min
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_lm_para
                                              'Median of AbsErrors' : abs_err_lm_para}))
```

```
'SD of AbsErrors' : abs_err_lm_para
'IQR of AbsErrors' : iqr(abs_err_lm_
'Min of AbsErrors' : abs_err_lm_para
'Max of AbsErrors' : abs_err_lm_para
'R^2-score' : metrics.r2_score(y_test, p
ignore_index = False)

model_comp
```

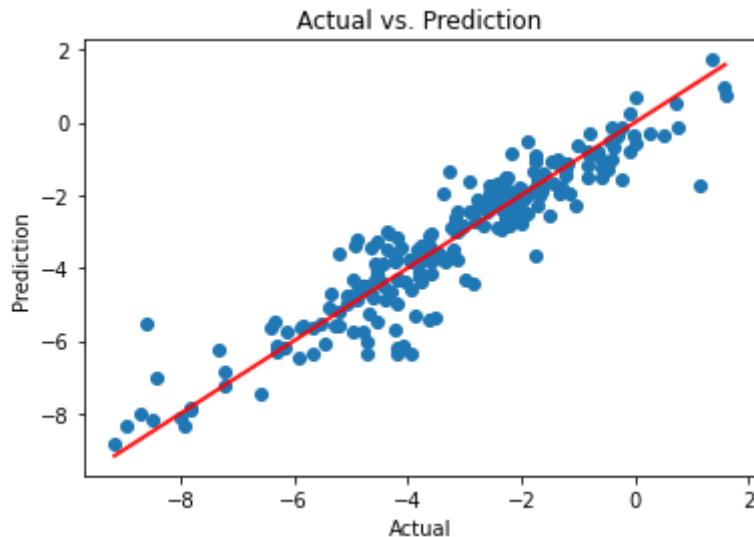
Out[65]:

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656

In [66]:

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_lm_parameter_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, 'k', alpha = 0.9, linewidth = 2, color = 'red')
```

Out[66]: [`<matplotlib.lines.Line2D at 0x24b1ebbd280>`]

Conclusion:

If select variables based on t-test results, limited number of variables will be selected.

t-test results are not reliable for predictors selection.

Model 3 : Ridge Regression

Ridge regression is a method we can use to fit a regression model when multicollinearity is present in the data. Ridge Regression:

The goal is to optimize:

$\text{SSE} + \lambda * \sum(\beta_i^2)$

$\lambda \rightarrow 0$, a tuning parameter

```
In [67]: lambda_grid = 10 ** np.linspace(5, -2, 100)
```

```
In [71]: #K-fold Cross Validation to Choose the Best Model
ridgecv_pca = RidgeCV(alphas = lambda_grid, cv = 10, normalize = True)
ridgecv_pca.fit(x_train_pca_const, y_train)
ridgecv_pca.alpha_
```

```
Out[71]: 0.026560877829466895
```

Model 3 :Prediction on the Datasets

```
In [72]: ridgepca = Ridge(alpha = ridgecv_pca.alpha_, normalize = True)
ridgepca.fit(x_train_pca_const, y_train)
pred_ridge_pca = ridgepca.predict(x_test_pca_const)
```

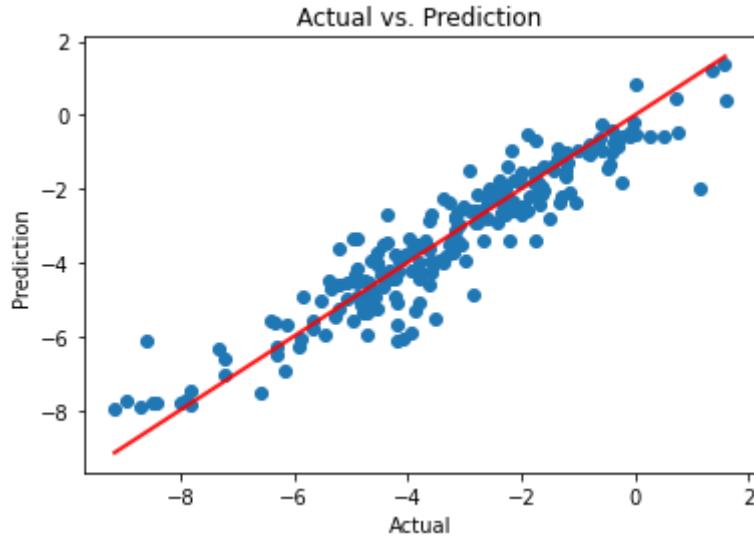
```
In [73]: #Absolute error
abs_err_ridge_pca = abs(y_test - pred_ridge_pca)
```

```
In [74]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_ridge_pca,
                                              'Median of AbsErrors': abs_err_ridge_pca,
                                              'SD of AbsErrors': abs_err_ridge_pca,
                                              'IQR of AbsErrors': iqr(abs_err_ridge_pca),
                                              'Min of AbsErrors': abs_err_ridge_pca,
                                              'Max of AbsErrors': abs_err_ridge_pca,
                                              'R^2-score': metrics.r2_score(y_test, pred_ridge_pca),
                                              ignore_index = False})
model_comp
```

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709

```
In [75]: #Actual vs. Prediction
plt.scatter(x = y_test, y = pred_ridge_pca)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[75]: [`<matplotlib.lines.Line2D at 0x24b1e63c8e0>`]

Model 4 : Ridge Regression For All variables

```
In [81]: #K-fold Cross Validation to Choose the Best Model
ridgecv = RidgeCV(alphas = lambda_grid, cv = 10, normalize = True)
ridgecv.fit(x_train_const, y_train)
ridgecv.alpha_
```

Out[81]: 5.72236765935022

Model 4 : Prediction on the Test Datasets

```
In [82]: ridgereg = Ridge(alpha = ridgecv.alpha_, normalize = True)
ridgereg.fit(x_train_const, y_train)
pred_ridge = ridgereg.predict(x_test_const)
```

```
In [83]: #Absolute error
abs_err_ridge = abs(y_test - pred_ridge)
```

```
In [84]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({ 'Mean of AbsErrors': abs_err_ridge.m
                                              'Median of AbsErrors' : abs_err_ridge.m
                                              'SD of AbsErrors' : abs_err_ridge.s
                                              'IQR of AbsErrors' : iqr(abs_err_rid
                                              'Min of AbsErrors' : abs_err_ridge.m
                                              'Max of AbsErrors' : abs_err_ridge.m
                                              'R^2-score' : metrics.r2_score(y_test, p
                                              ignore_index = False)}
```

model_comp

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656

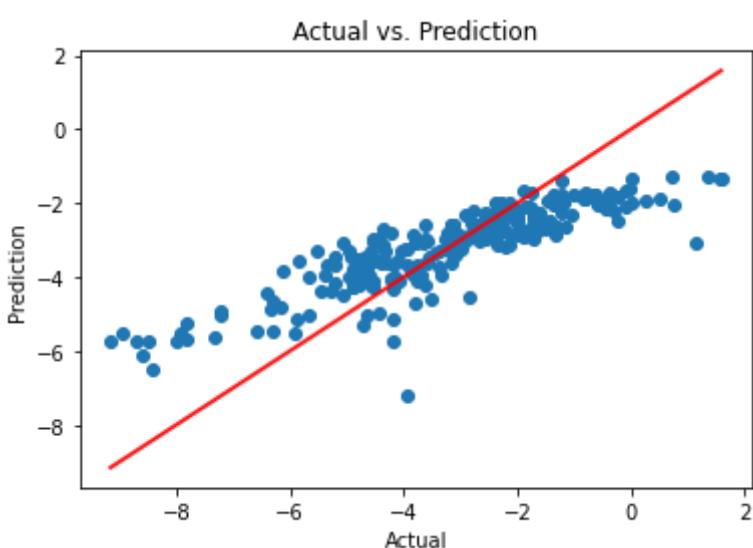
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762

In [85]:

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_ridge)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[85]:



Model 5: Lasso Regression

Lasso Regression:

The goal is to optimize:

SSE + lambda * Sum(abs(beta_i))

lambda => 0, a tuning parameter

In [86]:

```
lambda_grid = 10 ** np.linspace(1, -3, 100)
```

In [88]:

```
#K-fold Cross Validation to Choose the Best Model
lassocv_pca = LassoCV(alphas = lambda_grid, cv = 10)
lassocv_pca.fit(x_train_pca_const, y_train)
lassocv_pca.alpha_
```

Out[88]:

0.001

In [89]: #Best Model Coefs:
lassocv_pca.coef_

Out[89]: array([0. , -0.2127302 , -0.22021573, -1.49527163, -0.37119234, -0.61806126, -0.98251688, -0.82818116, 0.13552966, 0.01872273, 0.55998944, -0.14782741, 0.6165516 , -0. , 0. , 0.1401508 , 0.43239094, -0.348018 , -0.6676479 , 0.08961792, 0.0753131 , 0.34994891, -0.05343222, -0. , 0.8588354 , -0.17354758, -0.464825 , 0. , -0.00685509, -0.09239451, -0.20135175, -0.41203297, -0.28001463, 0.51968953, -0.016373 , -0.15514816, 0.97344895, -0.41431581, 0. , 0. , 0.36062075, 0.32001683, -0.55254016, 0. , -0. , -0.1158225 , -0.05520504, 0.18460929, -0.48720286, 0.10544381, 0. , -0.34598328, 1.09732877, 0.34286885, 0.06501335, 0.25242866, -0.45956176, 0.26387346, 0.17884971, 0.98961639, -0. , 0.3654832 , 0.22491794, -0. , 0. , 0.28197632, 0.09892243, 0.43342543, 0. , 0.35705392, -0.18687156, 0.76162929, -0.58358066, -0.21242231, -0.15168008, 0.46042463, 0. , -0.31577432, 0.49641095])

In [90]: lassoreg_pca = Lasso(alpha = lassocv_pca.alpha_)
lassoreg_pca.fit(x_train_pca_const, y_train)
pred_lasso_pca = lassoreg.predict(x_test_pca_const)

In [91]: #Absolute error
abs_err_lasso_pca = abs(y_test - pred_lasso_pca)

In [92]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_lasso_pca, 'Median of AbsErrors': abs_err_lasso_pca, 'SD of AbsErrors': abs_err_lasso_pca, 'IQR of AbsErrors': iqr(abs_err_lasso_pca), 'Min of AbsErrors': abs_err_lasso_pca, 'Max of AbsErrors': abs_err_lasso_pca, 'R^2-score': metrics.r2_score(y_test, pred_lasso_pca, ignore_index = False)})
model_comp

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487

In [93]: #Actual vs. Prediction
plt.scatter(x = y_test, y = pred_lasso_pca)
plt.xlabel('Actual')

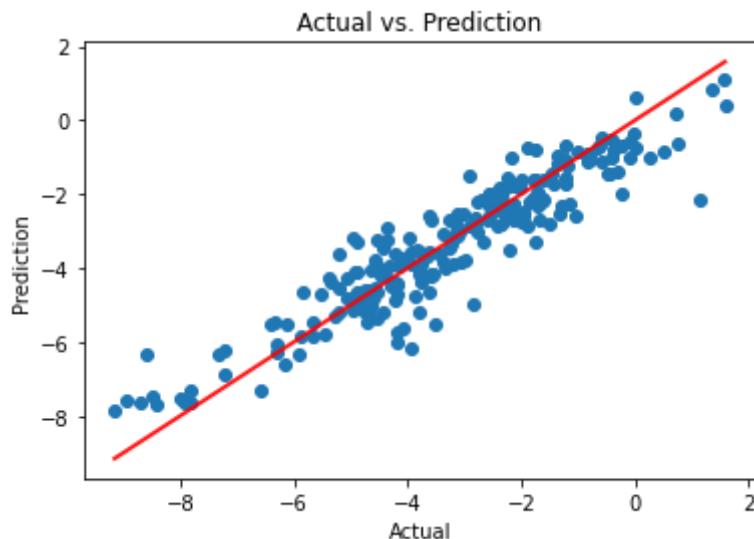
```

plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')

```

Out[93]: [`<matplotlib.lines.Line2D at 0x24b2066d250>`]



Model 6 : Lasso Reg For All variables

In [95]:

```
#K-fold Cross Validation to Choose the Best Model
lassocv = LassoCV(alphas = lambda_grid, cv = 10, normalize = True)
lassocv.fit(x_train_const, y_train)
lassocv.alpha_
```

Out[95]: 0.001

Model 6: Prediction on the Test Dataset

In [97]:

```
lassoreg = Lasso(alpha = lassocv.alpha_, normalize = True)
lassoreg.fit(x_train_const, y_train)
pred_lasso = lassoreg.predict(x_test_const)
```

In [98]:

```
#Absolute error
abs_err_lasso = abs(y_test - pred_lasso)
```

In [101...]:

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_lasso.mean,
                                              'Median of AbsErrors': abs_err_lasso.median,
                                              'SD of AbsErrors': abs_err_lasso.std(),
                                              'IQR of AbsErrors': iqr(abs_err_lasso),
                                              'Min of AbsErrors': abs_err_lasso.min,
                                              'Max of AbsErrors': abs_err_lasso.max,
                                              'R^2-score': metrics.r2_score(y_test, pred_lasso),
                                              ignore_index = False})
```

model_comp

Out[101...]

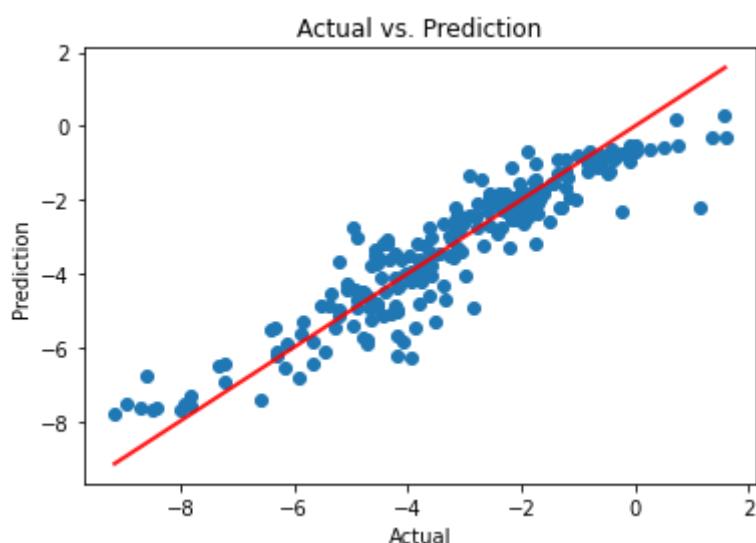
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485

In [102...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_lasso)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[102...]



Model 7: Decision Tree For All Variables:

A Decision Tree is a Flow Chart, and can help you make decisions based on previous experience.

In [103...]

```
#K-Fold Cross Validation for Choosing Hyper-parameters
#create Hyper-parameters grid
import itertools
max_depth = [5, 7, 10, 15]
min_samples_leaf = [2, 5, 10, 15]
ccp_alpha = [0.0001, 0.001, 0.01, 0.015]
grid = list(itertools.product(max_depth, min_samples_leaf, ccp_alpha))
```

```
grid = pd.DataFrame(data = grid, index = range(1, 65), columns = ['max_depth', 'min_'
grid
```

Out[103...]

	max_depth	min_samples_leaf	ccp_alpha
1	5	2	0.0001
2	5	2	0.0010
3	5	2	0.0100
4	5	2	0.0150
5	5	5	0.0001
6	5	5	0.0010
7	5	5	0.0100
8	5	5	0.0150
9	5	10	0.0001
10	5	10	0.0010
11	5	10	0.0100
12	5	10	0.0150
13	5	15	0.0001
14	5	15	0.0010
15	5	15	0.0100
16	5	15	0.0150
17	7	2	0.0001
18	7	2	0.0010
19	7	2	0.0100
20	7	2	0.0150
21	7	5	0.0001
22	7	5	0.0010
23	7	5	0.0100
24	7	5	0.0150
25	7	10	0.0001
26	7	10	0.0010
27	7	10	0.0100
28	7	10	0.0150
29	7	15	0.0001
30	7	15	0.0010
31	7	15	0.0100
32	7	15	0.0150
33	10	2	0.0001
34	10	2	0.0010

	max_depth	min_samples_leaf	ccp_alpha
35	10	2	0.0100
36	10	2	0.0150
37	10	5	0.0001
38	10	5	0.0010
39	10	5	0.0100
40	10	5	0.0150
41	10	10	0.0001
42	10	10	0.0010
43	10	10	0.0100
44	10	10	0.0150
45	10	15	0.0001
46	10	15	0.0010
47	10	15	0.0100
48	10	15	0.0150
49	15	2	0.0001
50	15	2	0.0010
51	15	2	0.0100
52	15	2	0.0150
53	15	5	0.0001
54	15	5	0.0010
55	15	5	0.0100
56	15	5	0.0150
57	15	10	0.0001
58	15	10	0.0010
59	15	10	0.0100
60	15	10	0.0150
61	15	15	0.0001
62	15	15	0.0010
63	15	15	0.0100
64	15	15	0.0150

```
In [104...]: cv_errors = pd.DataFrame(index = range(1, k + 1), columns = range(1, 65))
```

```
In [105...]: cv_errors
```

```
Out[105...]
```

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	NaN															
2	NaN															
3	NaN															
4	NaN															
5	NaN															
6	NaN															
7	NaN															
8	NaN															
9	NaN															
10	NaN															



In [106...]

```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        reg_tree_all = DecisionTreeRegressor(max_depth = grid.loc[i, 'max_depth'],
                                              min_samples_leaf = grid.loc[i, 'min_samples'],
                                              ccp_alpha = grid.loc[i, 'ccp_alpha'])
        tree_res_all = reg_tree_all.fit(x_train.iloc[folds != j, :],
                                         y_train[folds != j])
        pred_all = tree_res_all.predict(x_train.iloc[folds == j, :])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_all) ** 2).mean()
```

In [107...]

```
cv_errors.mean(axis = 0)
```

Out[107...]

1	0.769845
2	0.766413
3	0.764872
4	0.770807
5	0.752457
6	0.751305
7	0.761406
8	0.768672
9	0.737041
10	0.730839
11	0.755909
12	0.774355
13	0.749280
14	0.754593
15	0.775610
16	0.795548
17	0.787759
18	0.815292
19	0.748067
20	0.766980
21	0.787917
22	0.798582
23	0.756946
24	0.766633
25	0.745802
26	0.747731
27	0.729772
28	0.765559
29	0.749179

```
30    0.746803
31    0.746606
32    0.779601
33    0.829105
34    0.815889
35    0.747875
36    0.772275
37    0.786582
38    0.811064
39    0.754531
40    0.764566
41    0.749191
42    0.747355
43    0.735414
44    0.764077
45    0.752154
46    0.743997
47    0.733586
48    0.784722
49    0.855883
50    0.820755
51    0.741644
52    0.771122
53    0.792214
54    0.793254
55    0.755292
56    0.764566
57    0.744471
58    0.743903
59    0.734261
60    0.765230
61    0.743640
62    0.745989
63    0.742757
64    0.779409
dtype: float64
```

```
In [108...]: cv_errors.mean(axis = 0).argmin() + 1
```

```
Out[108...]: 27
```

```
In [109...]: #Best Model
grid.loc[cv_errors.mean(axis = 0).argmin() + 1,:]
```

```
Out[109...]: max_depth      7.00
min_samples_leaf  10.00
ccp_alpha        0.01
Name: 27, dtype: float64
```

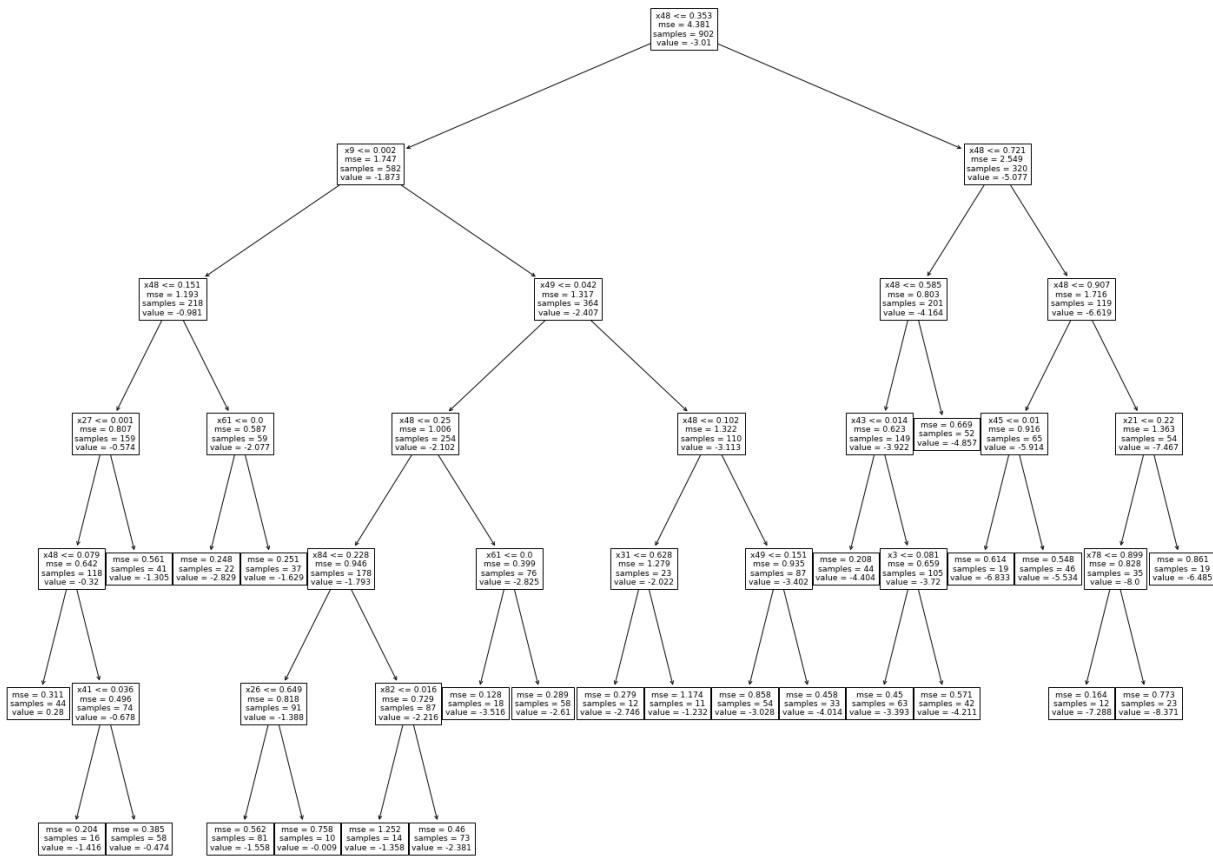
```
In [110...]: #The Best Decision Tree Model Using All Variables
reg_tree_all = DecisionTreeRegressor(max_depth = 7, min_samples_leaf = 10, ccp_alpha = 0.01)
tree_res_all = reg_tree_all.fit(x_train, y_train)
#Plot the Tree
from sklearn.tree import plot_tree
fig = plt.figure(figsize = (25, 20))
plot_tree(tree_res_all, feature_names = x_train.columns)
```

```
Out[110...]: [Text(782.265625, 1009.5428571428572, 'x48 <= 0.353\nmse = 4.381\nsamples = 902\nvalue = -3.01'),
Text(421.40625, 854.2285714285715, 'x9 <= 0.002\nmse = 1.747\nsamples = 582\nvalue = -1.873'),
```

```

Text(193.75, 698.9142857142858, 'x48 <= 0.151\nmse = 1.193\nsamples = 218\nvalue = -0.981'),
Text(116.25, 543.6, 'x27 <= 0.001\nmse = 0.807\nsamples = 159\nvalue = -0.574'),
Text(77.5, 388.28571428571433, 'x48 <= 0.079\nmse = 0.642\nsamples = 118\nvalue = -0.32'),
Text(38.75, 232.97142857142865, 'mse = 0.311\nsamples = 44\nvalue = 0.28'),
Text(116.25, 232.97142857142865, 'x41 <= 0.036\nmse = 0.496\nsamples = 74\nvalue = -0.678'),
Text(77.5, 77.65714285714284, 'mse = 0.204\nsamples = 16\nvalue = -1.416'),
Text(155.0, 77.65714285714284, 'mse = 0.385\nsamples = 58\nvalue = -0.474'),
Text(155.0, 388.28571428571433, 'mse = 0.561\nsamples = 41\nvalue = -1.305'),
Text(271.25, 543.6, 'x61 <= 0.0\nmse = 0.587\nsamples = 59\nvalue = -2.077'),
Text(232.5, 388.28571428571433, 'mse = 0.248\nsamples = 22\nvalue = -2.829'),
Text(310.0, 388.28571428571433, 'mse = 0.251\nsamples = 37\nvalue = -1.629'),
Text(649.0625, 698.9142857142858, 'x49 <= 0.042\nmse = 1.317\nsamples = 364\nvalue = -2.407'),
Text(484.375, 543.6, 'x48 <= 0.25\nmse = 1.006\nsamples = 254\nvalue = -2.102'),
Text(387.5, 388.28571428571433, 'x84 <= 0.228\nmse = 0.946\nsamples = 178\nvalue = -1.793'),
Text(310.0, 232.97142857142865, 'x26 <= 0.649\nmse = 0.818\nsamples = 91\nvalue = -1.388'),
Text(271.25, 77.65714285714284, 'mse = 0.562\nsamples = 81\nvalue = -1.558'),
Text(348.75, 77.65714285714284, 'mse = 0.758\nsamples = 10\nvalue = -0.009'),
Text(465.0, 232.97142857142865, 'x82 <= 0.016\nmse = 0.729\nsamples = 87\nvalue = -2.216'),
Text(426.25, 77.65714285714284, 'mse = 1.252\nsamples = 14\nvalue = -1.358'),
Text(503.75, 77.65714285714284, 'mse = 0.46\nsamples = 73\nvalue = -2.381'),
Text(581.25, 388.28571428571433, 'x61 <= 0.0\nmse = 0.399\nsamples = 76\nvalue = -2.825'),
Text(542.5, 232.97142857142865, 'mse = 0.128\nsamples = 18\nvalue = -3.516'),
Text(620.0, 232.97142857142865, 'mse = 0.289\nsamples = 58\nvalue = -2.61'),
Text(813.75, 543.6, 'x48 <= 0.102\nmse = 1.322\nsamples = 110\nvalue = -3.113'),
Text(736.25, 388.28571428571433, 'x31 <= 0.628\nmse = 1.279\nsamples = 23\nvalue = -2.022'),
Text(697.5, 232.97142857142865, 'mse = 0.279\nsamples = 12\nvalue = -2.746'),
Text(775.0, 232.97142857142865, 'mse = 1.174\nsamples = 11\nvalue = -1.232'),
Text(891.25, 388.28571428571433, 'x49 <= 0.151\nmse = 0.935\nsamples = 87\nvalue = -3.402'),
Text(852.5, 232.97142857142865, 'mse = 0.858\nsamples = 54\nvalue = -3.028'),
Text(930.0, 232.97142857142865, 'mse = 0.458\nsamples = 33\nvalue = -4.014'),
Text(1143.125, 854.2285714285715, 'x48 <= 0.721\nmse = 2.549\nsamples = 320\nvalue = -5.077'),
Text(1046.25, 698.9142857142858, 'x48 <= 0.585\nmse = 0.803\nsamples = 201\nvalue = -4.164'),
Text(1007.5, 543.6, 'x43 <= 0.014\nmse = 0.623\nsamples = 149\nvalue = -3.922'),
Text(968.75, 388.28571428571433, 'mse = 0.208\nsamples = 44\nvalue = -4.404'),
Text(1046.25, 388.28571428571433, 'x3 <= 0.081\nmse = 0.659\nsamples = 105\nvalue = -3.72'),
Text(1007.5, 232.97142857142865, 'mse = 0.45\nsamples = 63\nvalue = -3.393'),
Text(1085.0, 232.97142857142865, 'mse = 0.571\nsamples = 42\nvalue = -4.211'),
Text(1085.0, 543.6, 'mse = 0.669\nsamples = 52\nvalue = -4.857'),
Text(1240.0, 698.9142857142858, 'x48 <= 0.907\nmse = 1.716\nsamples = 119\nvalue = -6.619'),
Text(1162.5, 543.6, 'x45 <= 0.01\nmse = 0.916\nsamples = 65\nvalue = -5.914'),
Text(1123.75, 388.28571428571433, 'mse = 0.614\nsamples = 19\nvalue = -6.833'),
Text(1201.25, 388.28571428571433, 'mse = 0.548\nsamples = 46\nvalue = -5.534'),
Text(1317.5, 543.6, 'x21 <= 0.22\nmse = 1.363\nsamples = 54\nvalue = -7.467'),
Text(1278.75, 388.28571428571433, 'x78 <= 0.899\nmse = 0.828\nsamples = 35\nvalue = -8.0'),
Text(1240.0, 232.97142857142865, 'mse = 0.164\nsamples = 12\nvalue = -7.288'),
Text(1317.5, 232.97142857142865, 'mse = 0.773\nsamples = 23\nvalue = -8.371'),
Text(1356.25, 388.28571428571433, 'mse = 0.861\nsamples = 19\nvalue = -6.485')
]

```



model 8: Prediction on the Test Dataset

```
In [111...]: pred_tree_all = tree_res_all.predict(x_test)
```

```
In [112...]: #Absolute error  
abs err tree all = abs(y test - pred tree all)
```

```
In [113...]: #Absolute error mean, median, sd, IQR, max, min  
from scipy.stats import iqr  
model_comp = model_comp.append(pd.DataFrame({  
    'Mean of AbsErrors' : abs_err_tree_al,  
    'Median of AbsErrors' : abs_err_tree_al,  
    'SD of AbsErrors' : abs_err_tree_al,  
    'IQR of AbsErrors' : iqr(abs_err_tree_al),  
    'Min of AbsErrors' : abs_err_tree_al,  
    'Max of AbsErrors' : abs_err_tree_al,  
    'R^2-score' : metrics.r2_score(y_test, p)  
}, ignore_index = False))
```

model_comp	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709

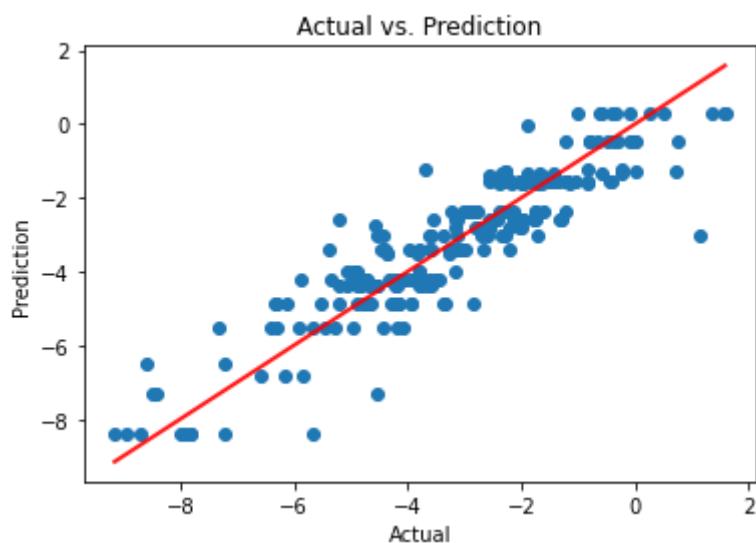
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841

In [114...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_tree_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[114...]



Model 9: Bagging

Bagging is an ensemble machine learning algorithm that combines the predictions from many decision trees. Ensemble machine learning methods come in 2 different flavours – bagging and boosting.

- Bagging is a technique in which many predictors are trained independently of one another and then they are aggregated afterwards using an average (majority vote/mode, mean, weighted mean). Random forests are an example of bagging.
- Boosting is a technique in which the predictors are trained sequentially (the error of one stage is passed as input into the next stage)

Model 9: Prediction on Test Dataset

```
In [115...]: from sklearn.ensemble import RandomForestRegressor
```

```
In [116...]: for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        bagging_reg = RandomForestRegressor(max_features = 78, max_depth = grid.loc[i, 'max_depth'],
                                            min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                                            ccp_alpha = grid.loc[i, 'ccp_alpha'], n_estimators = 1000)
        bagging_res = bagging_reg.fit(x_train_pca_const_df.iloc[folds != j, 1:], y_train)
        pred_bagging = bagging_res.predict(x_train_pca_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_bagging) ** 2).mean()
```

```
In [117...]: #Best Model
grid.loc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

```
Out[117...]: max_depth      15.0000
min_samples_leaf   2.0000
ccp_alpha         0.0001
Name: 49, dtype: float64
```

```
In [118...]: bagging_reg_pca = RandomForestRegressor(max_features = 78, max_depth = 15, random_state = 42,
                                              min_samples_leaf = 2,
                                              ccp_alpha = 0.0001, n_estimators = 1000)
```

```
In [119...]: bagging_res_pca = bagging_reg_pca.fit(x_train_pca, y_train)
pred_bagging_pca = bagging_res_pca.predict(x_test_pca)
```

```
In [120...]: #Absolute error
abs_err_bagging = abs(y_test - pred_bagging_pca)
```

```
In [121...]: #Absolute error mean, median, sd, IQR, max, min
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_bagging,
                                              'Median of AbsErrors': abs_err_bagging,
                                              'SD of AbsErrors': abs_err_bagging,
                                              'IQR of AbsErrors': iqr(abs_err_bagging),
                                              'Min of AbsErrors': abs_err_bagging,
                                              'Max of AbsErrors': abs_err_bagging,
                                              'R^2-score': metrics.r2_score(y_test, pred_bagging_pca),
                                              ignore_index = False})
```

```
model_comp
```

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487

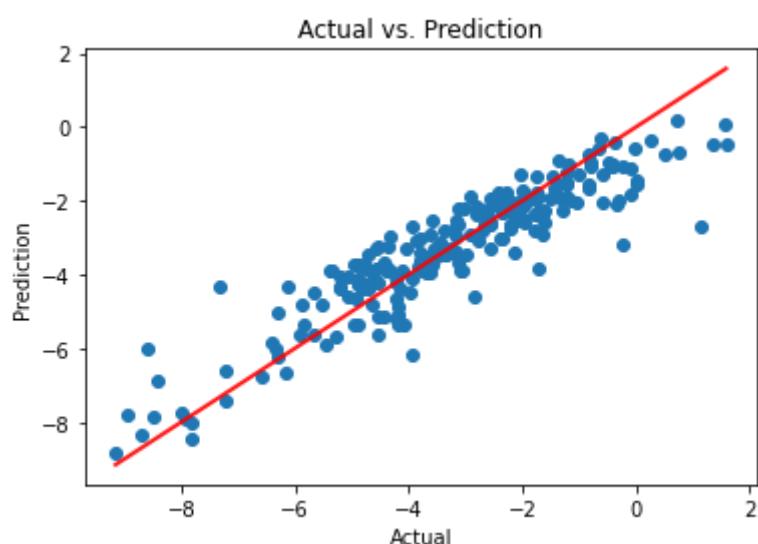
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841

In [122...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_bagging_pca)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[122...]



Model 10 : Bagging All Variables

In [123...]

```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        bagging_reg_all = RandomForestRegressor(max_features = 184, max_depth = grid
                                                min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                                                ccp_alpha = grid.loc[i, 'ccp_alpha'], n_estimators = 100)
        bagging_res_all = bagging_reg_all.fit(x_train_const_df.iloc[folds != j, 1:])
        pred_bagging_all = bagging_res_all.predict(x_train_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_bagging_all) ** 2).mean()
```

In [124...]

```
#Best Model
grid.loc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

Out[124...]

max_depth	15.0000
min_samples_leaf	2.0000

```
ccp_alpha      0.0001
Name: 49, dtype: float64
```

In [125...]

```
#Bagging: Using All Features
bagging_reg_all_ = RandomForestRegressor(max_features = 184,
                                         min_samples_leaf = 2 ,
                                         max_depth =15 ,
                                         ccp_alpha = 0.0001 ,random_state = 123, n_estimators = 100)
bagging_res_all_ = bagging_reg_all_.fit(x_train, y_train)
pred_bagging_all_ = bagging_res_all_.predict(x_test)
```

In [126...]

```
#Absolute error
abs_err_bagging_all = abs(y_test - pred_bagging_all_)
```

In [127...]

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors' : abs_err_bagging,
                                              'Median of AbsErrors' : abs_err_bagging,
                                              'SD of AbsErrors' : abs_err_bagging,
                                              'IQR of AbsErrors' : iqr(abs_err_bagging),
                                              'Min of AbsErrors' : abs_err_bagging,
                                              'Max of AbsErrors' : abs_err_bagging,
                                              'R^2-score' : metrics.r2_score(y_test, pred_bagging_all_),
                                              ignore_index = False})
```

model_comp

Out[127...]

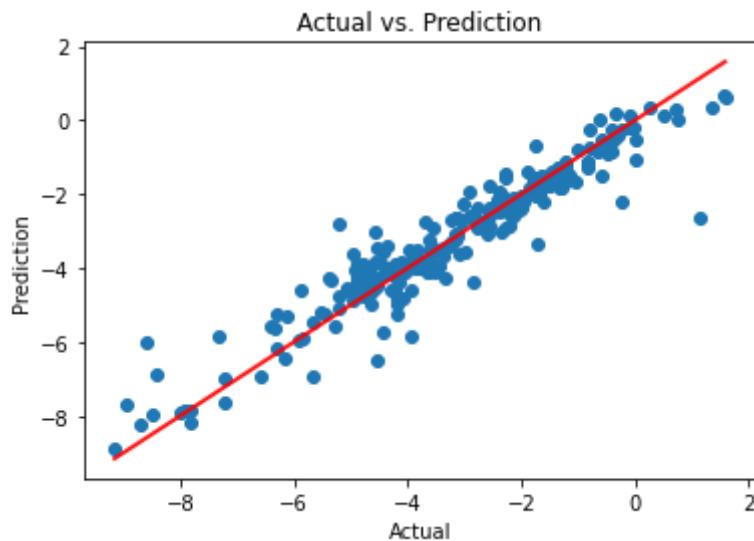
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969

In [128...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_bagging_all_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')
```

```
#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[128...]



Model 11 : Random Forest

In [129...]

```
#max_features = p/3
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        rf_reg_pca = RandomForestRegressor(max_features = 26, max_depth = grid.loc[i, 'max_depth'],
                                            min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                                            ccp_alpha = grid.loc[i, 'ccp_alpha'], n_estimators = 49)
        rf_res_pca = rf_reg_pca.fit(x_train_pca_const_df.iloc[folds != j, 1:], y_train)
        pred_rf_pca = rf_res_pca.predict(x_train_pca_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_rf_pca) ** 2).mean()
```

In [130...]

```
#Best Model
grid.loc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

Out[130...]

max_depth	15.0000
min_samples_leaf	2.0000
ccp_alpha	0.0001
Name:	49, dtype: float64

In [131...]

```
#Random Forest
rf_reg = RandomForestRegressor(max_features = 26,
                               min_samples_leaf = 2,
                               max_depth = 15,
                               ccp_alpha = 0.0001, random_state = 123, n_estimators = 49)
rf_res = rf_reg.fit(x_train_pca, y_train)
```

In [230...]

```
Importance = pd.DataFrame({'Importance':rf_res.feature_importances_* 100},
                           index = x_test_pca_const_df.iloc[:, 1:].columns)
Importance.sort_values(by = 'Importance', axis = 0, ascending = False)
```

Out[230...]

	Importance
3	31.221160

Importance	
6	10.529580
7	4.204461
2	3.911653
5	3.854954
1	3.757647
18	2.633990
10	2.305666
4	1.777094
41	1.173883
17	1.081239
12	1.036080
13	1.032642
15	1.032347
21	1.019059
24	0.926254
32	0.911824
16	0.885204
8	0.764031
36	0.751799
14	0.695793
9	0.684961
42	0.670694
52	0.662584
30	0.615156
25	0.612205
27	0.611743
50	0.606334
11	0.590159
37	0.586996
67	0.577611
29	0.553704
76	0.513866
26	0.512545
28	0.492350
19	0.475650
73	0.474841

Importance	
77	0.467655
31	0.460987
75	0.458523
62	0.449553
58	0.447451
40	0.445767
23	0.429366
74	0.426864
65	0.426331
49	0.425228
53	0.421231
56	0.409194
57	0.404675
33	0.395923
47	0.389565
46	0.388476
68	0.387547
48	0.383071
22	0.373055
60	0.372374
20	0.367330
59	0.367000
35	0.365939
34	0.362924
45	0.353685
55	0.352949
51	0.352797
54	0.350072
38	0.347655
61	0.329632
72	0.326159
69	0.323754
44	0.323513
43	0.322283
71	0.313126
78	0.301682

Importance	
70	0.299367
63	0.293347
64	0.288238
39	0.281566
66	0.266387

- importance is based upon the mean decrease of accuracy in predictions on the out of bag samples when a given variable is excluded from the model.

Model 11: Prediction on the Test Dataset

```
In [134... pred_rf = rf_res.predict(x_test_pca)

In [135... #Absolute error
abs_err_rf = abs(y_test - pred_rf)

In [136... #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_rf.mean
                                              'Median of AbsErrors' : abs_err_rf.median()
                                              'SD of AbsErrors' : abs_err_rf.std()
                                              'IQR of AbsErrors' : iqr(abs_err_rf)
                                              'Min of AbsErrors' : abs_err_rf.min()
                                              'Max of AbsErrors' : abs_err_rf.max()
                                              'R^2-score' : metrics.r2_score(y_test, p
ignore_index = False)

model_comp
```

Out[136...]	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841

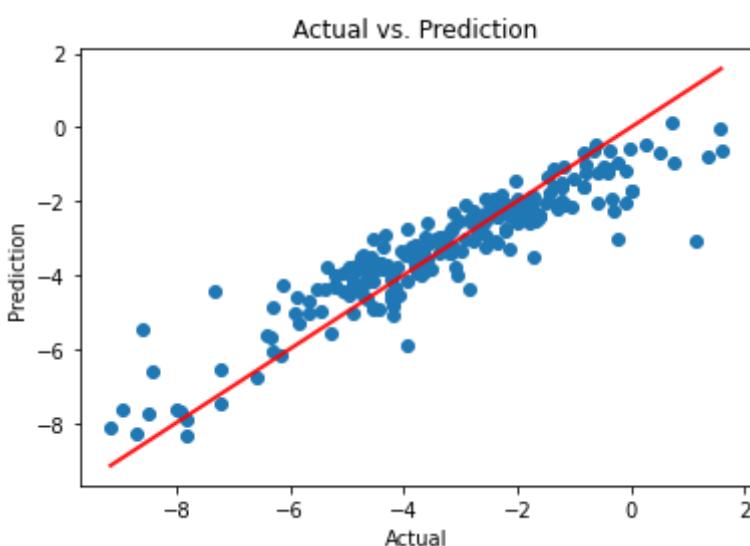
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929

In [137...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_rf)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[137...]



model 12 : Random Forest for all variables

In [138...]

```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        rf_reg_all = RandomForestRegressor(max_features = 67, max_depth = grid.loc[i, 'max_depth'],
                                         min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                                         ccp_alpha = grid.loc[i, 'ccp_alpha'], n_estimators = 49)
        rf_res_all = rf_reg_all.fit(x_train_const_df.iloc[folds != j, 1:], y_train[folds == j])
        pred_rf_all = rf_res_all.predict(x_train_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_rf_all) ** 2).mean()
```

In [139...]

```
#Best Model
grid.loc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

Out[139...]

```
max_depth      15.0000
min_samples_leaf  2.0000
ccp_alpha       0.0001
Name: 49, dtype: float64
```

In [140...]

```
rf_reg_all = RandomForestRegressor(max_features = 67,
```

```
min_samples_leaf = 2 ,
max_depth = 15 ,
ccp_alpha = 0.0001 ,random_state = 123, n_estimators = 100
rf_res_all = rf_reg_all.fit(x_train, y_train)
```

In [231...]

```
Importance = pd.DataFrame({'Importance':rf_res_all.feature_importances_* 100},
                           index = x_test.columns)
Importance.sort_values(by = 'Importance', axis = 0, ascending = False)
```

Out[231...]

Importance

x48	35.775199
x49	10.683889
x78	7.832093
x9	7.106252
x15	3.668940
x13	3.599959
x6	2.429267
x39	2.060667
x41	1.622357
x47	1.613481
x11	1.528292
x27	1.239158
x59	1.072549
x105	1.044277
x3	1.024284
x28	1.013041
x8	0.954734
x52	0.940552
x201	0.871491
x97	0.788980
x43	0.587894
x45	0.549509
x84	0.537854
x10	0.477132
x5	0.467809
x12	0.455045
x4	0.407100
x40	0.393392
x36	0.386416
x29	0.385852

Importance	
x79	0.355447
x2	0.328520
x69	0.315141
x44	0.260057
x46	0.236698
x32	0.231051
x30	0.229167
x90	0.219605
x115	0.217488
x83	0.215657
x61	0.212069
x37	0.199681
x100	0.194723
x80	0.179233
x38	0.173242
x21	0.172153
x25	0.167948
x88	0.166997
x16	0.161354
x98	0.157914
x68	0.152724
x160	0.146132
x94	0.137805
x107	0.135187
x24	0.130886
x22	0.130541
x20	0.128972
x17	0.120880
x26	0.120286
x60	0.119115
x31	0.119038
x74	0.117703
x19	0.113501
x51	0.111647
x89	0.104699
x81	0.103880

Importance	
x101	0.101338
x93	0.100797
x117	0.099835
x114	0.092383
x99	0.091242
x86	0.081049
x118	0.080828
x23	0.077519
x131	0.069009
x63	0.067200
x87	0.065662
x75	0.065302
x71	0.062902
x189	0.062871
x96	0.060136
x183	0.055716
x82	0.050006
x70	0.047253
x76	0.046732
x92	0.045218
x152	0.044715
x73	0.043082
x102	0.038657
x121	0.037045
x56	0.034362
x72	0.031584
x58	0.030973
x146	0.026415
x103	0.022583
x143	0.022341
x132	0.021830
x57	0.019471
x126	0.018764
x95	0.018477
x122	0.017791
x180	0.017726

Importance	
x157	0.017417
x77	0.016197
x65	0.013214
x141	0.012590
x55	0.010955
x145	0.010682
x181	0.010408
x54	0.009723
x85	0.009302
x66	0.009262
x53	0.009154
x163	0.008149
x171	0.007735
x135	0.007650
x142	0.007531
x164	0.007243
x156	0.007099
x123	0.006606
x173	0.006300
x199	0.005838
x167	0.003350
x174	0.003343
x168	0.003233
x133	0.002757
x200	0.002505
x64	0.002359
x175	0.002169
x179	0.001965
x119	0.001865
x191	0.001838
x187	0.001079
x192	0.001018
x138	0.000911
x161	0.000867
x139	0.000762
x170	0.000608

Importance	
x176	0.000538
x185	0.000478
x194	0.000454
x128	0.000431
x158	0.000421
x149	0.000218
x18	0.000215
x130	0.000133
x151	0.000009
x104	0.000000
x178	0.000000
x186	0.000000
x177	0.000000
x190	0.000000
x193	0.000000
x195	0.000000
x196	0.000000
x197	0.000000
x198	0.000000
x188	0.000000
x116	0.000000
x172	0.000000
x169	0.000000
x120	0.000000
x124	0.000000
x125	0.000000
x113	0.000000
x129	0.000000
x112	0.000000
x111	0.000000
x134	0.000000
x136	0.000000
x140	0.000000
x110	0.000000
x109	0.000000
x144	0.000000

Importance	
x108	0.000000
x147	0.000000
x148	0.000000
x91	0.000000
x154	0.000000
x155	0.000000
x106	0.000000
x35	0.000000
x162	0.000000
x166	0.000000
x159	0.000000

Model 12 : Prediction on TestDataset

```
In [143...]: pred_rf_all = rf_res_all.predict(x_test)
```

```
In [144...]: #Absolute error
abs_err_rf_all = abs(y_test - pred_rf_all)
```

```
In [145...]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_rf_all,
                                              'Median of AbsErrors': abs_err_rf_all,
                                              'SD of AbsErrors': abs_err_rf_all,
                                              'IQR of AbsErrors': iqr(abs_err_rf_all),
                                              'Min of AbsErrors': abs_err_rf_all,
                                              'Max of AbsErrors': abs_err_rf_all,
                                              'R^2-score': metrics.r2_score(y_test, pred_rf_all),
                                              ignore_index = False})
model_comp
```

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485

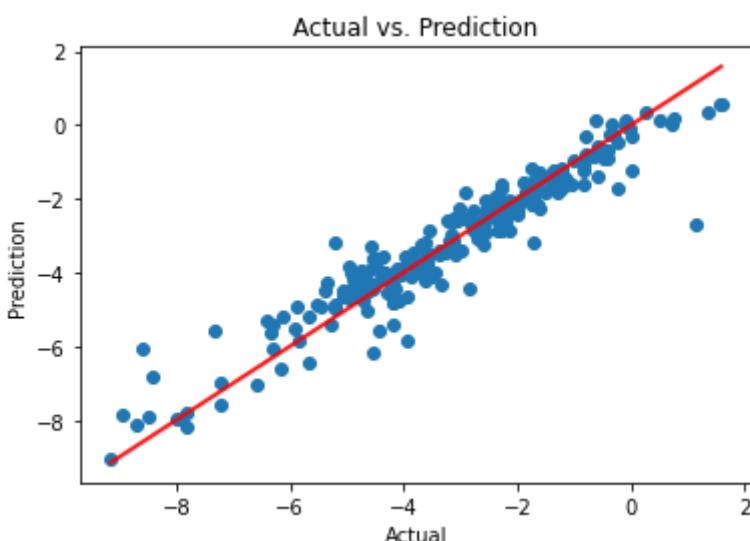
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066

In [146...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_rf_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[146...]



model 13 : GB Regression

Gradient boosting is a boosting ensemble method.

Ensemble machine learning methods are ones in which a number of predictors are aggregated to form a final prediction, which has lower bias and variance than any of the individual predictors. Gradient boosting produces an ensemble of decision trees that, on their own, are weak decision models.

In [147...]

```
#K-Fold Cross Validation for Choosing Hyper-parameters
#create Hyper-parameters grid
learning_rate = [0.001, 0.01, 0.1]
```

```
subsample = [0.5, 0.7, 0.9]
max_depth = [3, 6, 9]
min_samples_leaf= [2, 5 , 7]
grid = list(itertools.product(learning_rate, subsample, max_depth , min_samples_leaf))
grid = pd.DataFrame(data = grid, index = range(1, 82), columns = ['learning_rate', 'subsample', 'max_depth', 'min_samples_leaf'])
```

Out[147...]

	learning_rate	subsample	max_depth	min_samples_leaf
1	0.001	0.5	3	2
2	0.001	0.5	3	5
3	0.001	0.5	3	7
4	0.001	0.5	6	2
5	0.001	0.5	6	5
6	0.001	0.5	6	7
7	0.001	0.5	9	2
8	0.001	0.5	9	5
9	0.001	0.5	9	7
10	0.001	0.7	3	2
11	0.001	0.7	3	5
12	0.001	0.7	3	7
13	0.001	0.7	6	2
14	0.001	0.7	6	5
15	0.001	0.7	6	7
16	0.001	0.7	9	2
17	0.001	0.7	9	5
18	0.001	0.7	9	7
19	0.001	0.9	3	2
20	0.001	0.9	3	5
21	0.001	0.9	3	7
22	0.001	0.9	6	2
23	0.001	0.9	6	5
24	0.001	0.9	6	7
25	0.001	0.9	9	2
26	0.001	0.9	9	5
27	0.001	0.9	9	7
28	0.010	0.5	3	2
29	0.010	0.5	3	5
30	0.010	0.5	3	7
31	0.010	0.5	6	2
32	0.010	0.5	6	5

	learning_rate	subsample	max_depth	min_samples_leaf
33	0.010	0.5	6	7
34	0.010	0.5	9	2
35	0.010	0.5	9	5
36	0.010	0.5	9	7
37	0.010	0.7	3	2
38	0.010	0.7	3	5
39	0.010	0.7	3	7
40	0.010	0.7	6	2
41	0.010	0.7	6	5
42	0.010	0.7	6	7
43	0.010	0.7	9	2
44	0.010	0.7	9	5
45	0.010	0.7	9	7
46	0.010	0.9	3	2
47	0.010	0.9	3	5
48	0.010	0.9	3	7
49	0.010	0.9	6	2
50	0.010	0.9	6	5
51	0.010	0.9	6	7
52	0.010	0.9	9	2
53	0.010	0.9	9	5
54	0.010	0.9	9	7
55	0.100	0.5	3	2
56	0.100	0.5	3	5
57	0.100	0.5	3	7
58	0.100	0.5	6	2
59	0.100	0.5	6	5
60	0.100	0.5	6	7
61	0.100	0.5	9	2
62	0.100	0.5	9	5
63	0.100	0.5	9	7
64	0.100	0.7	3	2
65	0.100	0.7	3	5
66	0.100	0.7	3	7
67	0.100	0.7	6	2
68	0.100	0.7	6	5

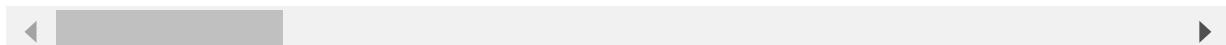
	learning_rate	subsample	max_depth	min_samples_leaf
69	0.100	0.7	6	7
70	0.100	0.7	9	2
71	0.100	0.7	9	5
72	0.100	0.7	9	7
73	0.100	0.9	3	2
74	0.100	0.9	3	5
75	0.100	0.9	3	7
76	0.100	0.9	6	2
77	0.100	0.9	6	5
78	0.100	0.9	6	7
79	0.100	0.9	9	2
80	0.100	0.9	9	5
81	0.100	0.9	9	7

In [148...]

```
k = 10
cv_errors = pd.DataFrame(index = range(1, k + 1), columns = range(1, 82))
cv_errors
```

Out[148...]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	NaN															
2	NaN															
3	NaN															
4	NaN															
5	NaN															
6	NaN															
7	NaN															
8	NaN															
9	NaN															
10	NaN															



In [149...]

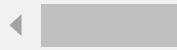
```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        boosting_reg = GradientBoostingRegressor(learning_rate = grid.loc[i, 'learning_rate'],
                                                subsample = grid.loc[i, 'subsample'],
                                                max_depth = grid.loc[i, 'max_depth'],
                                                n_estimators = 500,
                                                min_samples_leaf= grid.loc[i, 'min_samples_leaf'],
                                                random_state = 1234)
        boosting_res = boosting_reg.fit(x_train_pca_const_df.iloc[folds != j, 1:])
        pred = boosting_res.predict(x_train_pca_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred) ** 2).mean()
```

In [150...]

cv_errors

Out[150...]

	1	2	3	4	5	6	7	8	9	1
1	3.173124	3.174245	3.174825	2.786955	2.781952	2.798741	2.703198	2.729314	2.752572	3.14863
2	3.626054	3.629277	3.630997	3.189236	3.21976	3.244176	3.128896	3.186473	3.210558	3.66251
3	2.489066	2.484552	2.486475	2.09683	2.104038	2.124425	2.026538	2.060277	2.095473	2.48644
4	2.480662	2.479538	2.478438	2.151389	2.159264	2.16362	2.096824	2.11662	2.13058	2.4738
5	2.635965	2.631154	2.629586	2.266751	2.26073	2.278751	2.201918	2.21299	2.241854	2.63995
6	2.655024	2.65309	2.65285	2.2985	2.313452	2.318375	2.225544	2.259603	2.27834	2.68687
7	3.311594	3.308623	3.310723	2.862931	2.87711	2.899197	2.810551	2.838227	2.868053	3.34894
8	2.577894	2.574815	2.580317	2.286619	2.298805	2.314327	2.23304	2.25834	2.279366	2.56216
9	2.284278	2.285041	2.285031	1.983868	1.996047	2.02036	1.943063	1.964244	1.992385	2.2715
10	2.525589	2.52118	2.52119	2.14181	2.1608	2.171914	2.077867	2.108224	2.12608	2.54582



In [151...]

cv_errors.mean(axis = 0)

Out[151...]

```
1    2.775925
2    2.774151
3    2.775043
4    2.406489
5    2.417196
6    2.433389
7    2.344744
8    2.373431
9    2.397526
10   2.782675
11   2.781466
12   2.782023
13   2.377606
14   2.383352
15   2.394854
16   2.305070
17   2.326186
18   2.346865
19   2.799714
20   2.798854
21   2.798906
22   2.371400
23   2.376585
24   2.387351
25   2.298340
26   2.308254
27   2.327971
28   0.821972
29   0.828340
30   0.823860
31   0.671176
32   0.681853
33   0.675991
34   0.679957
```

```
35    0.667535
36    0.657631
37    0.840956
38    0.844752
39    0.840149
40    0.706171
41    0.699634
42    0.707076
43    0.745018
44    0.713998
45    0.699307
46    0.859695
47    0.863988
48    0.859639
49    0.747783
50    0.738237
51    0.731575
52    0.852266
53    0.788160
54    0.763425
55    0.619906
56    0.637610
57    0.635911
58    0.678060
59    0.688874
60    0.686846
61    0.715017
62    0.744821
63    0.701925
64    0.636317
65    0.631364
66    0.638666
67    0.720723
68    0.714564
69    0.702243
70    0.794351
71    0.758896
72    0.714732
73    0.615984
74    0.627609
75    0.627467
76    0.759371
77    0.713950
78    0.701935
79    0.856914
80    0.803877
81    0.758638
dtype: float64
```

```
In [152...]: cv_errors.mean(axis = 0).argmin() + 1
```

```
Out[152...]: 73
```

```
In [153...]: grid.iloc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

```
Out[153...]: learning_rate      0.1
subsample           0.9
max_depth          3.0
min_samples_leaf   5.0
Name: 74, dtype: float64
```

Model 13: Prediction on the Test Dataset

In [154...]

```
boosting_reg_ = GradientBoostingRegressor(learning_rate = 0.1, #Learning rate
                                         n_estimators = 500, #the total number of trees
                                         subsample = 0.9, #the fraction of samples used to train each tree
                                         max_depth = 3, #if < 1, Stochastic GB
                                         min_samples_leaf = 5, #the minimum number of samples required to split an internal node
                                         random_state = 1234)

boosting_res_ = boosting_reg_.fit(x_train_pca , y_train)
```

In [155...]

```
pred_boosting_ = boosting_res_.predict(x_test_pca)
```

In [156...]

```
#Absolute error
abs_err_boosting = abs(y_test - pred_boosting_)
```

In [157...]

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_boosting,
                                              'Median of AbsErrors' : abs_err_boosting,
                                              'SD of AbsErrors' : abs_err_boosting,
                                              'IQR of AbsErrors' : iqr(abs_err_boosting),
                                              'Min of AbsErrors' : abs_err_boosting,
                                              'Max of AbsErrors' : abs_err_boosting,
                                              'R^2-score' : metrics.r2_score(y_test, pred_boosting),
                                              ignore_index = False})
```

```
model_comp
```

Out[157...]

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066

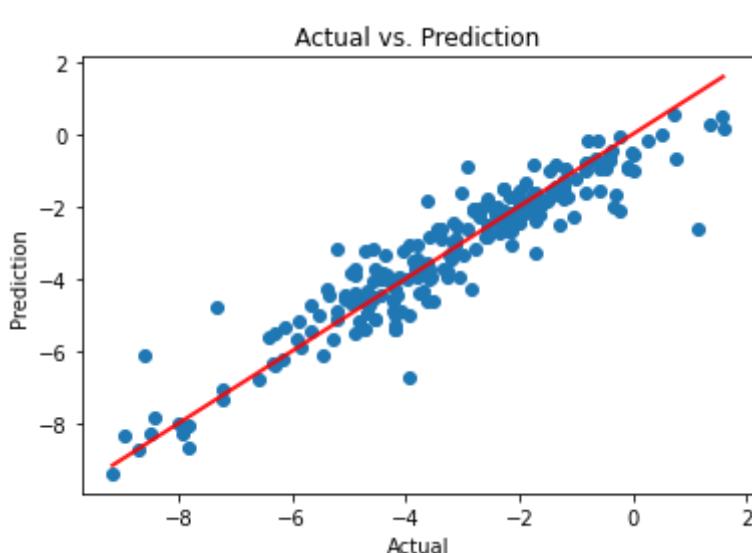
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2- score
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746

In [158...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_boosting_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[158...]



Model 14 : GB for all variables

In [159...]

```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        boosting_reg_all = GradientBoostingRegressor(learning_rate = grid.loc[i, 'le'
            subsample = grid.loc[i, 'subsample'
            max_depth = grid.loc[i, 'max_depth'
            n_estimators = 500,
            min_samples_leaf= grid.loc[i, 'min_
            random_state = 1234)
        boosting_res_all = boosting_reg_all.fit(x_train_const_df.iloc[folds != j, 1:]
        pred_boosting_all = boosting_res_all.predict(x_train_const_df.iloc[folds ==
cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_boosting_all) **
```

In [160...]

```
cv_errors.mean(axis = 0)
```

Out[160...]

1	2.149190
2	2.149131
3	2.149708
4	1.960465
5	1.967523
6	1.976166
7	1.924949
8	1.942142

9	1.958879
10	2.154920
11	2.154867
12	2.155259
13	1.950847
14	1.957147
15	1.963405
16	1.908169
17	1.923251
18	1.936965
19	2.159259
20	2.158783
21	2.158948
22	1.948222
23	1.949681
24	1.959126
25	1.896772
26	1.908274
27	1.926308
28	0.427810
29	0.432565
30	0.439636
31	0.373064
32	0.378288
33	0.379194
34	0.376281
35	0.377474
36	0.376561
37	0.429056
38	0.433962
39	0.438183
40	0.380915
41	0.386428
42	0.386850
43	0.392440
44	0.388730
45	0.388404
46	0.437426
47	0.440063
48	0.445939
49	0.400244
50	0.403186
51	0.401088
52	0.422233
53	0.419263
54	0.409194
55	0.352787
56	0.370968
57	0.370564
58	0.366234
59	0.392235
60	0.366512
61	0.379708
62	0.406823
63	0.374235
64	0.335752
65	0.352045
66	0.357370
67	0.371144
68	0.395967
69	0.383924
70	0.407593
71	0.404436
72	0.388122

```
73    0.344880
74    0.352989
75    0.360863
76    0.398775
77    0.400087
78    0.413892
79    0.437424
80    0.426496
81    0.414757
dtype: float64
```

In [161...]: `cv_errors.mean(axis = 0).argmin() + 1`

Out[161...]: 64

In [162...]: `grid.iloc[cv_errors.mean(axis = 0).argmin() + 1, :]`

```
learning_rate      0.1
subsample         0.7
max_depth        3.0
min_samples_leaf  5.0
Name: 65, dtype: float64
```

In [163...]: `boosting_reg_all_ = GradientBoostingRegressor(learning_rate = 0.1, #Learning rate
 n_estimators = 500, #the total number of trees
 subsample = 0.7, #the fraction of samples
 #if < 1, Stochastic
 max_depth = 3, #the maximum depth of each tree
 min_samples_leaf = 5, #the minimum number of samples required to split an internal node
 random_state = 1234)`

`boosting_res_all_ = boosting_reg_all_.fit(x_train, y_train)`

In [164...]: `pred_boosting_all_ = boosting_res_all_.predict(x_test)`

In [165...]: `#Absolute error`
`abs_err_boosting_all = abs(y_test - pred_boosting_all_)`

In [166...]: `#Absolute error mean, median, sd, IQR, max, min`
`from scipy.stats import iqr`
`model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_boosting_all,
 'Median of AbsErrors': abs_err_boosting_all,
 'SD of AbsErrors': abs_err_boosting_all,
 'IQR of AbsErrors': iqr(abs_err_boosting_all),
 'Min of AbsErrors': abs_err_boosting_all,
 'Max of AbsErrors': abs_err_boosting_all,
 'R^2-score': metrics.r2_score(y_test, pred_boosting_all_)}))`
`model_comp`

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094

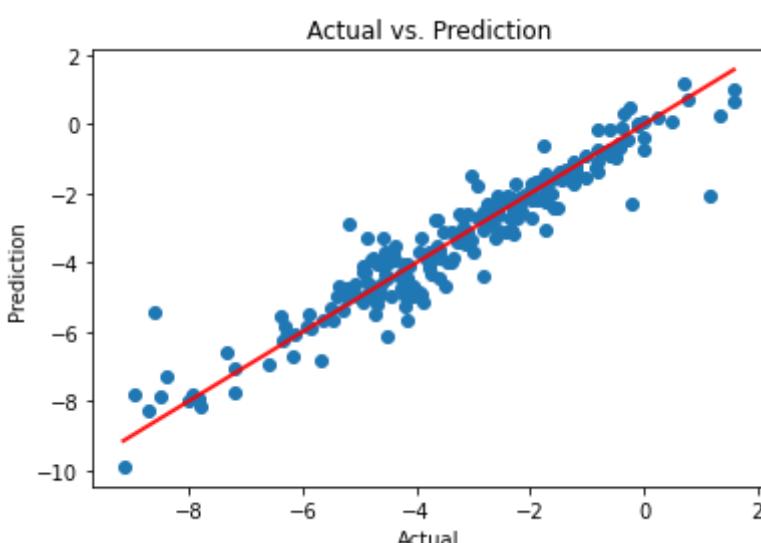
In [167...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_boosting_all_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[167...]

[<matplotlib.lines.Line2D at 0x24b22e077f0>]



Model 15 : XGBoost Regression

XGBoost is an optimized distributed gradient boosting library designed to be highly efficient, flexible and portable. It implements machine learning algorithms under the Gradient Boosting framework. XGBoost provides a parallel tree boosting (also known as GBDT, GBM) that solve many data science problems in a fast and accurate way.

```
In [168...]: from xgboost import XGBRegressor
```

```
In [169...]: for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        xgb_reg = XGBRegressor(learning_rate = grid.loc[i, 'learning_rate'],
                               subsample = grid.loc[i, 'subsample'],
                               max_depth = grid.loc[i, 'max_depth'],
                               n_estimators = 500, reg_alpha = 0.00,
                               reg_lambda = 0.0267, n_jobs = -1,
                               min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                               random_state = 1234)
        xgb_res = xgb_reg.fit(x_train_pca_const_df.iloc[folds != j, 1:], y_train[fol
        pred = xgb_res.predict(x_train_pca_const_df.iloc[folds == j, 1:])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred) ** 2).mean()
```

[08:15:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:15:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:15:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:15:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:15:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:15:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:15:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:16:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:17:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:18:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:18:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:18:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:18:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:19:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:19:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[08:19:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:19:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:20:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:21:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:22:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

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[08:22:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:22:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:22:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:22:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:22:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[08:23:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:23:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:24:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:25:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:26:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:27:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:27:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:27:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:27:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:27:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:27:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:28:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:29:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:30:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:31:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:32:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:33:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:33:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:33:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:33:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:33:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:33:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:34:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:35:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:36:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:37:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:37:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:37:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:37:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:37:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:37:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:38:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:39:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:40:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:41:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:41:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:41:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:41:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:41:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:41:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:42:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:43:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:44:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:45:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:46:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:46:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:46:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:46:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:46:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:46:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:47:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:48:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:49:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:50:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:51:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:51:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:52:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:52:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:52:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[08:52:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but

then being mistakenly passed down to XGBoost core, or some parameter actually being used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:52:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:52:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:52:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:52:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:53:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:54:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:55:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:55:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
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then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:55:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
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then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:55:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
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then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:55:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:56:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[08:56:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:56:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:57:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:58:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:59:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:59:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:59:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:59:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[08:59:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[08:59:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[08:59:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:00:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:01:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:02:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:03:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:03:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:03:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:03:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:03:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:03:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:04:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:05:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:06:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:06:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:06:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:07:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:07:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:07:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:07:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:07:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:08:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
In [170...]: grid.iloc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

```
Out[170...]: learning_rate      0.1
subsample           0.7
max_depth          3.0
min_samples_leaf   5.0
Name: 65, dtype: float64
```

```
In [171...]: xgb_reg_ = XGBRegressor(n_estimators = 500,
                                max_depth = 3,
                                learning_rate = 0.1,
                                subsample = 0.7,
                                min_samples_leaf = 5,
                                reg_alpha = 0.001,
                                reg_lambda = 0.0267,
                                n_jobs = -1,
                                random_state = 1234)

xgb_res_ = xgb_reg_.fit(x_train_pca, y_train)
```

#the maximum depth of each tree
#Learning rate
#the fraction of samples to be used
#L1 (Lasso) regularization term
#L2 (Ridge) regularization term
#-1 means using all processors.

```
[09:10:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

Model 15: Prediction on Test Dataset

```
In [172...]: pred_xgb_ = xgb_res_.predict(x_test_pca)

In [173...]: #Absolute error
abs_err_xgb = abs(y_test - pred_xgb_)

In [174...]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_xgb.mean(),
                                              'Median of AbsErrors': abs_err_xgb.median(),
                                              'SD of AbsErrors': abs_err_xgb.std(),
                                              'IQR of AbsErrors': iqr(abs_err_xgb),
                                              'Min of AbsErrors': abs_err_xgb.min(),
                                              'Max of AbsErrors': abs_err_xgb.max(),
                                              'R^2-score': metrics.r2_score(y_test, p,
                                                ignore_index = False)})

model_comp
```

Out[174...]		Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
	LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
	LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
	Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
	Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
	Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
	Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
	Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
	Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
	Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
	Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929

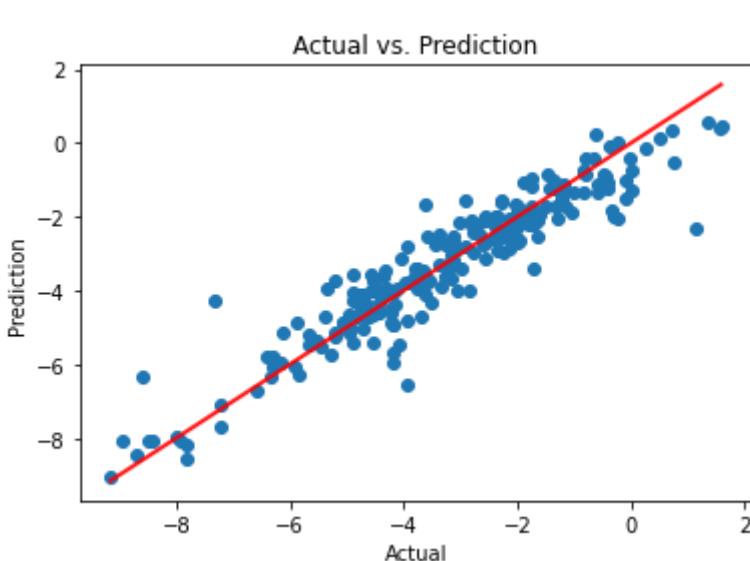
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755

In [175...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_xgb_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[175...]



Model 16 : XGBoost Regression for All Variables

In [176...]

```
for i in range(1, grid.shape[0] + 1):
    for j in range(1, k + 1):
        xgb_reg_all = XGBRegressor(learning_rate = grid.loc[i, 'learning_rate'],
                                    subsample = grid.loc[i, 'subsample'],
                                    max_depth = grid.loc[i, 'max_depth'],
                                    n_estimators = 500, reg_alpha = 0.00,
                                    reg_lambda = 5.72, n_jobs = -1,
                                    colsample_bytree = 0.3,
                                    min_samples_leaf = grid.loc[i, 'min_samples_leaf'],
                                    random_state = 1234)
        xgb_res_all = xgb_reg_all.fit(x_train.iloc[folds != j, :], y_train[folds != j])
        pred_xgb_all = xgb_res_all.predict(x_train.iloc[folds == j, :])
        cv_errors.iloc[j - 1, i - 1] = ((y_train[folds == j] - pred_xgb_all) ** 2).mean()
```

[09:11:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:11:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:11:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:11:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:11:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:11:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:12:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:12:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:13:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:14:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:14:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:14:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:14:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:14:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:14:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:15:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:16:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:16:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:16:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:16:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:16:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:16:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:16:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:17:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:18:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:18:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

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c/learner.cc:576:
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```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:18:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:18:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:18:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:18:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:19:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:20:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:21:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:21:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:21:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:21:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:21:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:21:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:22:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:22:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:22:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:23:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:23:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:23:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:23:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:23:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:24:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:24:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
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```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:24:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:24:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:24:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

```
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:24:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:25:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:26:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:26:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:26:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:26:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:26:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:26:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:26:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:27:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:27:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:27:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:27:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:27:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:27:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:27:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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[09:28:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
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[09:28:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
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[09:28:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
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but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:28:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:29:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:29:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:29:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:29:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:29:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:29:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:29:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:30:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:
```

```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:30:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:30:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:30:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
```

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c/learner.cc:576:
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```
Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

```
[09:30:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
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c/learner.cc:576:
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Parameters: { "min_samples_leaf" } might not be used.
```

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:30:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:07] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:31:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:03] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:32:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:32:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:32:13] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:32:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:32:17] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:32:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:23] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:35] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:38] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:40] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:42] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:44] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
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then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:46] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:48] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:50] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:52] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:54] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:56] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:58] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:32:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:01] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being

g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:05] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:09] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding

s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:15] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:21] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:25] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:27] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:29] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr

```
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.  
  
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:33:31] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:33:33] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
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This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:33:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:33:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

```
[09:33:37] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr  
c/learner.cc:576:  
Parameters: { "min_samples_leaf" } might not be used.
```

```
This could be a false alarm, with some parameters getting used by language binding  
s but  
then being mistakenly passed down to XGBoost core, or some parameter actually bein  
g used  
but getting flagged wrongly here. Please open an issue if you find any such cases.
```

[09:33:39] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:41] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:43] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:45] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:47] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:49] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used

but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:51] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:53] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:55] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:57] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:33:59] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:00] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but

then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:02] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:04] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:06] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:08] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:10] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but
then being mistakenly passed down to XGBoost core, or some parameter actually being used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:12] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:14] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:16] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:18] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:20] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:22] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:24] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:26] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:28] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:30] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:32] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:34] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/sr
c/learner.cc:576:

Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language binding
s but
then being mistakenly passed down to XGBoost core, or some parameter actually bein
g used
but getting flagged wrongly here. Please open an issue if you find any such cases.

[09:34:36] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

In [177...]:

```
grid.iloc[cv_errors.mean(axis = 0).argmin() + 1, :]
```

Out[177...]:

learning_rate	0.1
subsample	0.9
max_depth	3.0
min_samples_leaf	5.0
Name:	74, dtype: float64

In [178...]:

```
xgb_reg_all = XGBRegressor(n_estimators = 500,
                            max_depth = 3,
                            learning_rate = 0.1,
                            subsample = 0.9,
                            colsample_bytree = 0.3,
                            min_samples_leaf= 5 ,
                            reg_alpha = 0.001,
                            reg_lambda = 5.72,
                            n_jobs = -1,
                            random_state = 1234)
```

#the maximum depth of each tree
#Learning rate
#the fraction of samples to be used
#L1 (Lasso) regularization term
#L2 (Ridge) regularization term
#-1 means using all processors.

```
xgb_res_all = xgb_reg_all.fit(x_train, y_train)
```

[09:46:11] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:576:
Parameters: { "min_samples_leaf" } might not be used.

This could be a false alarm, with some parameters getting used by language bindings but then being mistakenly passed down to XGBoost core, or some parameter actually being used but getting flagged wrongly here. Please open an issue if you find any such cases.

In [179...]:

```
pred_xgb_all = xgb_res_all.predict(x_test)
```

In [180...]:

```
#Absolute error
abs_err_xgb_all = abs(y_test - pred_xgb_all)
```

In [181...]:

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({ 'Mean of AbsErrors' : abs_err_xgb_all,
                                              'Median of AbsErrors' : abs_err_xgb_all,
                                              'SD of AbsErrors' : abs_err_xgb_all,
                                              'IQR of AbsErrors' : iqr(abs_err_xgb_all)}))
```

```
'Min of AbsErrors': abs_err_xgb_all
'Max of AbsErrors': abs_err_xgb_all
'R^2-score' : metrics.r2_score(y_test, p
ignore_index = False)

model_comp
```

Out[181...]

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035

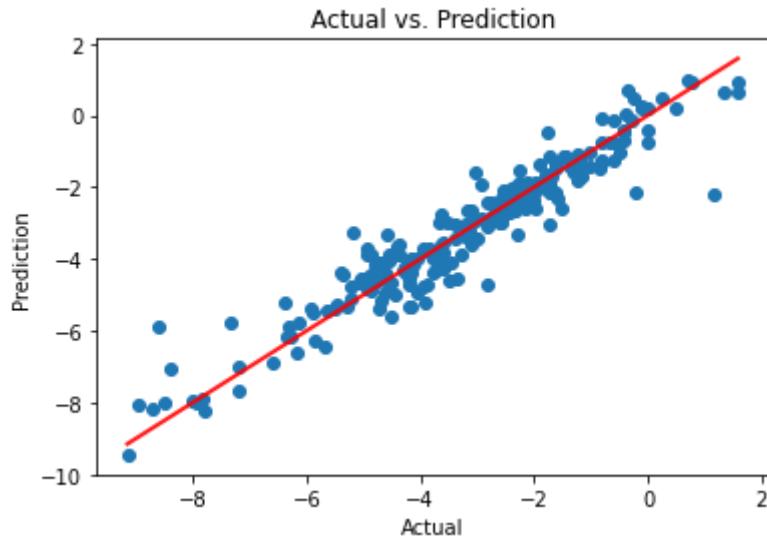
In [182...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_xgb_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[182...]

[<matplotlib.lines.Line2D at 0x24b24859310>]



Model 17 : Support Vector Machine(SVM)

In machine learning, support-vector machines are supervised learning models with associated learning algorithms that analyze data for classification and regression analysis.

```
In [183...]  
svm_pca = SVR()  
svm_res = svm_pca.fit(x_train_pca, y_train)
```

Model 17 : Prediction on Datasets

```
In [184...]  
pred_svm_reg_pca = svm_res.predict(x_test_pca)
```

```
In [185...]  
#Absolute error  
abs_err_svm_pca = abs(y_test - pred_svm_reg_pca)
```

```
In [186...]  
#Absolute error mean, median, sd, IQR, max, min  
from scipy.stats import iqr  
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_svm_pca  
                                              'Median of AbsErrors': abs_err_svm_pca  
                                              'SD of AbsErrors': abs_err_svm_pca  
                                              'IQR of AbsErrors': iqr(abs_err_svm_pca)  
                                              'Min of AbsErrors': abs_err_svm_pca  
                                              'Max of AbsErrors': abs_err_svm_pca  
                                              'R^2-score': metrics.r2_score(y_test, pred_svm_reg_pca)  
                                              ignore_index = False})  
  
model_comp
```

Out[186...]	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053

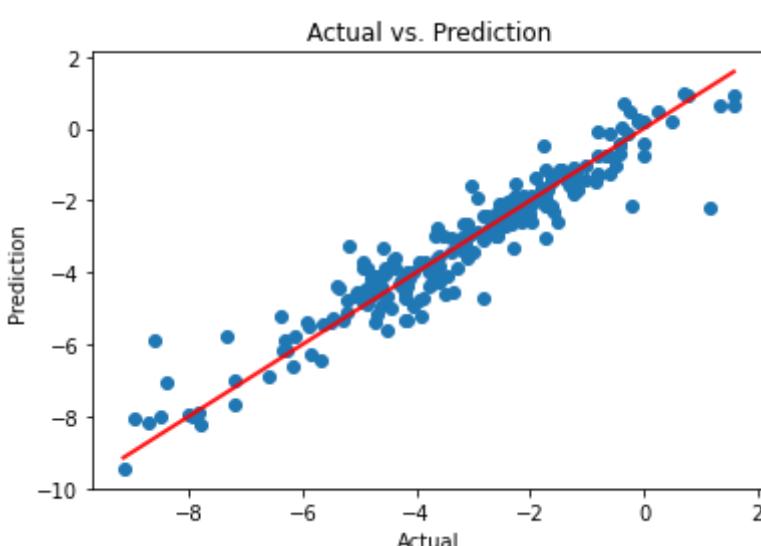
In [187...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_xgb_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[187...]

[<matplotlib.lines.Line2D at 0x24b22d678b0>]



Model 18 : Support Vector Machin for All Variables

```
In [188...]: svm_reg_all = SVR()
svm_reg_all.fit(x_train, y_train)
```

```
Out[188...]: SVR()
```

Model 18 : Prediction on Datasets

```
In [189...]: pred_svm_reg_all = svm_reg_all.predict(x_test)
```

```
In [190...]: #Absolute error
abs_err_svm_all = abs(y_test - pred_svm_reg_all)
```

```
In [191...]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_svm_all,
                                              'Median of AbsErrors' : abs_err_svm_all,
                                              'SD of AbsErrors' : abs_err_svm_all,
                                              'IQR of AbsErrors' : iqr(abs_err_svm),
                                              'Min of AbsErrors' : abs_err_svm_all,
                                              'Max of AbsErrors' : abs_err_svm_all,
                                              'R^2-score' : metrics.r2_score(y_test, p
ignore_index = False)}
```

model_comp

Out[191...]		Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
	LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
	LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
	Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
	Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
	Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
	Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
	Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
	Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
	Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
	Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
	Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
	GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746

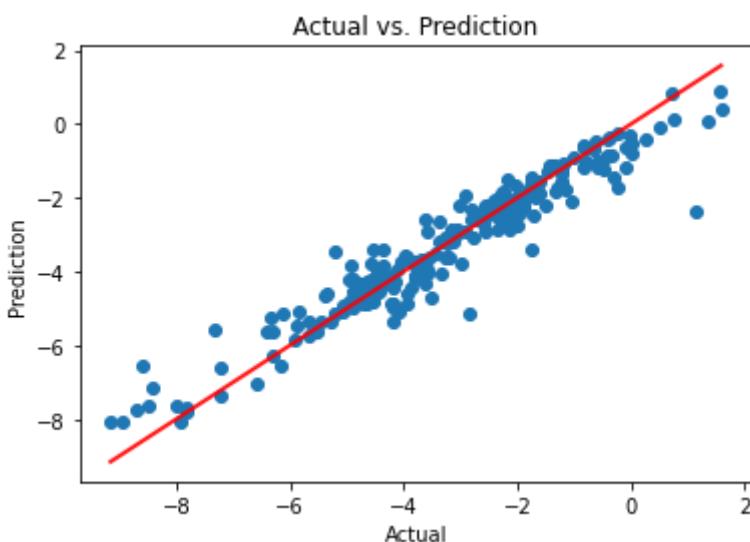
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053
SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092

In [192...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_svm_reg_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[192...]



Model 19 : ADABOOST

AdaBoost is easy to implement. It iteratively corrects the mistakes of the weak classifier and improves accuracy by combining weak learners. You can use many base classifiers with AdaBoost. AdaBoost is not prone to overfitting. This can be found out via experiment results, but there is no concrete reason available.

AdaBoost is sensitive to noise data. It is highly affected by outliers because it tries to fit each point perfectly. AdaBoost is slower compared to XGBoost.

In [193...]

```
from sklearn.ensemble import AdaBoostRegressor
```

In [194...]

```
DTR=DecisionTreeRegressor(max_depth = 10, min_samples_leaf = 15, ccp_alpha = 0.0001)
```

```
RegModel_adaboost = AdaBoostRegressor(n_estimators=1000, base_estimator=DTR ,learnin
```

In [195...]
print(RegModel_adaboost)

```
AdaBoostRegressor(base_estimator=DecisionTreeRegressor(ccp_alpha=0.0001,
                                                       max_depth=10,
                                                       min_samples_leaf=15),
                  learning_rate=0.01, n_estimators=1000)
```

In [196...]
reg_adaboost_pca = RegModel_adaboost.fit(x_train_pca , y_train)

In [197...]
pred_adaboost_pca = reg_adaboost_pca.predict(x_test_pca)

In [198...]
#Absolute error
abs_err_sadaboost_pca = abs(y_test - pred_adaboost_pca)

In [199...]
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_sadaboo
 'Median of AbsErrors' : abs_err_sadaboo
 'SD of AbsErrors' : abs_err_sadaboo
 'IQR of AbsErrors': iqr(abs_err_sadaboo)
 'Min of AbsErrors': abs_err_sadaboo
 'Max of AbsErrors': abs_err_sadaboo
 'R^2-score' : metrics.r2_score(y_test, pred_adaboost_pca,
 ignore_index = False)}

model_comp

Out[199...]

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053
SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092
AdaBoost Reg PCA	0.650152	0.518535	0.561602	0.614877	0.002059	3.933793	0.832489

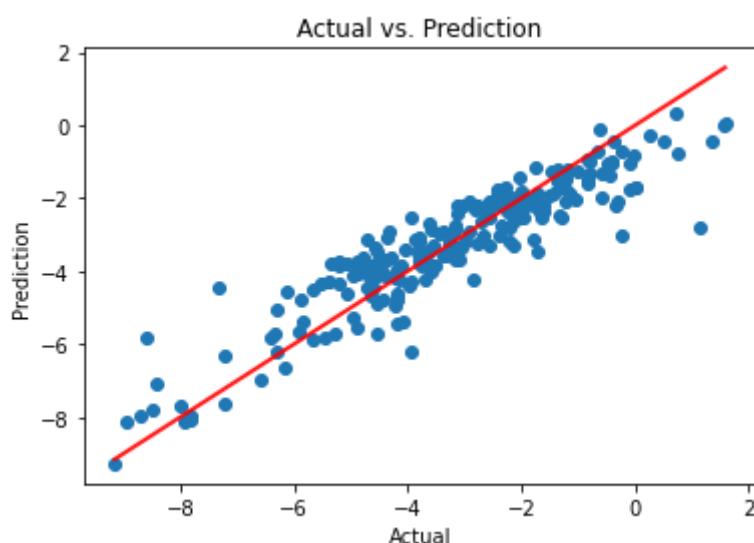
In [200...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_adaboost_pca)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[200...]

[<matplotlib.lines.Line2D at 0x24b249961f0>]



Model 20 : KNN

The kNN algorithm is a supervised machine learning model. That means it predicts a target variable using one or multiple independent variables.

In [201...]

```
from sklearn import neighbors
from math import sqrt
from sklearn.metrics import mean_squared_error
```

In [202...]

```
rmse_val_pca = [] #to store rmse values for different k
for K in range(20):
    K = K+1
    model_pca = neighbors.KNeighborsRegressor(n_neighbors = K)

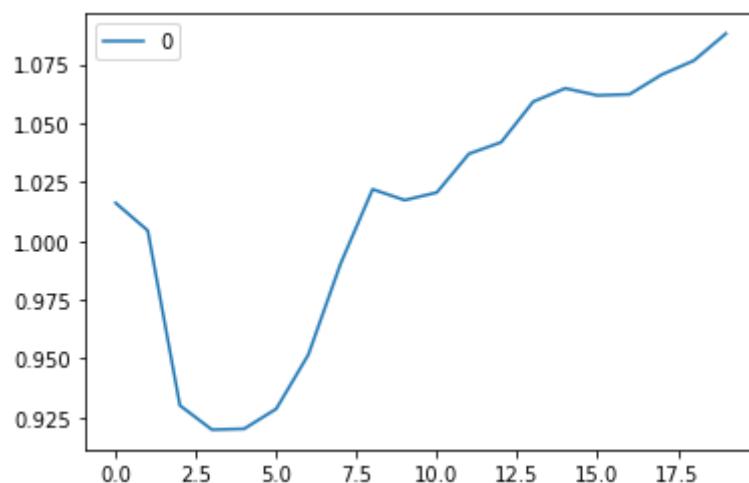
    model_pca.fit(x_train_pca, y_train) #fit the model
    pred_pca=model_pca.predict(x_test_pca) #make prediction on test set
    error = sqrt(mean_squared_error(y_test,pred_pca)) #calculate rmse
    rmse_val_pca.append(error) #store rmse values
print('RMSE value for k= ', K , 'is:', error)
```

RMSE value for k= 1 is: 1.0161169820640428
 RMSE value for k= 2 is: 1.0043732349743013
 RMSE value for k= 3 is: 0.9300645945045085
 RMSE value for k= 4 is: 0.9197598963150486
 RMSE value for k= 5 is: 0.9201248972550806
 RMSE value for k= 6 is: 0.9286077640342981
 RMSE value for k= 7 is: 0.9516382769940489
 RMSE value for k= 8 is: 0.9901820903105609
 RMSE value for k= 9 is: 1.0219260973704678
 RMSE value for k= 10 is: 1.0173081299819802
 RMSE value for k= 11 is: 1.0205592963345607
 RMSE value for k= 12 is: 1.0370134279912053
 RMSE value for k= 13 is: 1.0418929204327083
 RMSE value for k= 14 is: 1.0591612752692483
 RMSE value for k= 15 is: 1.0648263289642388
 RMSE value for k= 16 is: 1.0618308719742258
 RMSE value for k= 17 is: 1.0622826771218843
 RMSE value for k= 18 is: 1.0706582691575892
 RMSE value for k= 19 is: 1.076596804742546
 RMSE value for k= 20 is: 1.0881009024414074

In [203...]

```
#plotting the rmse values against k values
curve = pd.DataFrame(rmse_val_pca) #elbow curve
curve.plot()
```

Out[203...]



- As we discussed, when we take k=1, we get a very high RMSE value. The RMSE value decreases as we increase the k value. At k= 5, the RMSE is approximately 0.922, and shoots up on further increasing the k value. We can safely say that k=5 will give us the best result in this case.

These are the predictions using our training dataset. Let us now predict the values for test dataset and make a submission.

Model 20 : Predictions on the test dataset

```
In [204...]: model_pca_ = neighbors.KNeighborsRegressor(n_neighbors = 5)

In [205...]: model_pca_.fit(x_train_pca, y_train)
Out[205...]: KNeighborsRegressor()

In [206...]: pred_knn_pca_ = model_pca_.predict(x_test_pca)

In [207...]: #Absolute error
abs_err_knn_pca_ = abs(y_test - pred_knn_pca_)

In [208...]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_knn_pca,
                                              'Median of AbsErrors': abs_err_knn_pca,
                                              'SD of AbsErrors': abs_err_knn_pca,
                                              'IQR of AbsErrors': iqr(abs_err_knn),
                                              'Min of AbsErrors': abs_err_knn_pca,
                                              'Max of AbsErrors': abs_err_knn_pca,
                                              'R^2-score': metrics.r2_score(y_test, p
                                                ignore_index = False)
                                              })
model_comp
```

Out[208...]		Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
	LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
	LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
	Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
	Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
	Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
	Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
	Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
	Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
	Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
	Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929

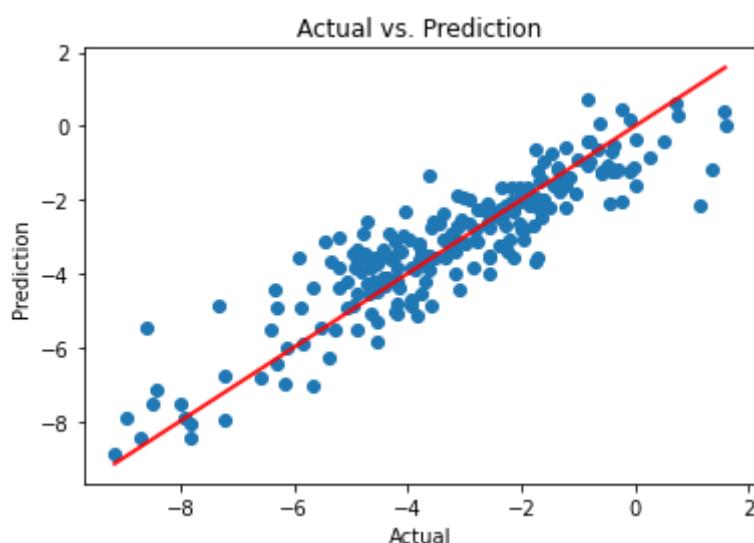
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053
SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092
AdaBoost Reg PCA	0.650152	0.518535	0.561602	0.614877	0.002059	3.933793	0.832489
KNN Reg PCA	0.692713	0.577300	0.606966	0.763900	0.004000	3.294200	0.807493

In [209...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_knn_pca_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[209...]



Model : KNN For All Variables

In [210...]

```
rmse_val_all = [] #to store rmse values for different k
for K in range(20):
    K = K+1
    model_pca_all = neighbors.KNeighborsRegressor(n_neighbors = K)
```

```

model_pca_all.fit(x_train, y_train) #fit the model
pred_all=model_pca_all.predict(x_test) #make prediction on test set
error = sqrt(mean_squared_error(y_test,pred_all)) #calculate rmse
rmse_val_all.append(error) #store rmse values
print('RMSE value for k= ', K , 'is:', error)

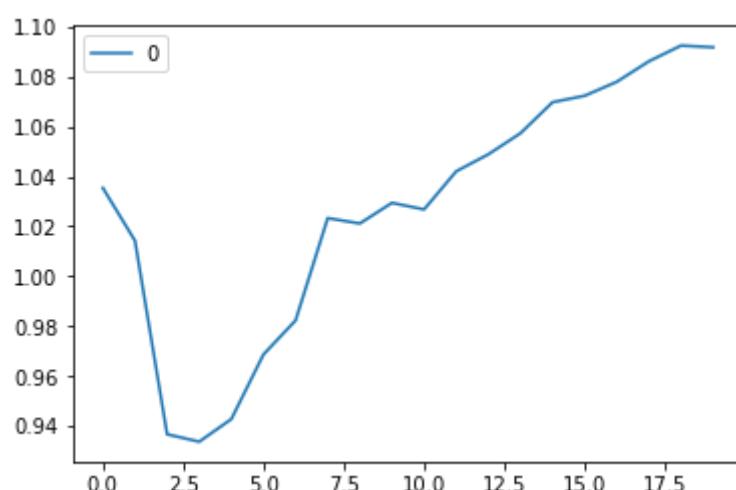
```

RMSE value for k= 1 is: 1.0353913308332274
 RMSE value for k= 2 is: 1.014242908228053
 RMSE value for k= 3 is: 0.9366930386066921
 RMSE value for k= 4 is: 0.9337238162859282
 RMSE value for k= 5 is: 0.9427814394003925
 RMSE value for k= 6 is: 0.9686651385738515
 RMSE value for k= 7 is: 0.982317326877871
 RMSE value for k= 8 is: 1.0232926008179808
 RMSE value for k= 9 is: 1.0211597997161466
 RMSE value for k= 10 is: 1.0294193651883468
 RMSE value for k= 11 is: 1.0267768902467405
 RMSE value for k= 12 is: 1.0420557620205722
 RMSE value for k= 13 is: 1.0488620891818172
 RMSE value for k= 14 is: 1.0573040439759047
 RMSE value for k= 15 is: 1.0697348969966847
 RMSE value for k= 16 is: 1.0723292734960004
 RMSE value for k= 17 is: 1.0779224108421799
 RMSE value for k= 18 is: 1.0861457944163826
 RMSE value for k= 19 is: 1.0924354231551292
 RMSE value for k= 20 is: 1.091741314227077

In [211...]

```
#plotting the rmse values against k values
curve = pd.DataFrame(rmse_val_all) #elbow curve
curve.plot()
```

Out[211...]



As we discussed, when we take k=1, we get a very high RMSE value. The RMSE value decreases as we increase the k value. At k= 4, the RMSE is approximately 0.9337, and shoots up on further increasing the k value. We can safely say that k=4 will give us the best result in this case.

These are the predictions using our training dataset. Let us now predict the values for test dataset and make a submission.

In [212...]

```
model_all_ = neighbors.KNeighborsRegressor(n_neighbors = 4)
model_all_.fit(x_train, y_train)
```

Out[212...]

KNeighborsRegressor(n_neighbors=4)

```
In [213...]: pred_knn_all_ = model_all_.predict(x_test)

In [214...]: #Absolute error
abs_err_knn_all_ = abs(y_test - pred_knn_all_)

In [215...]: #Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors': abs_err_knn_all,
                                              'Median of AbsErrors': abs_err_knn_all,
                                              'SD of AbsErrors': abs_err_knn_all,
                                              'IQR of AbsErrors': iqr(abs_err_knn),
                                              'Min of AbsErrors': abs_err_knn_all,
                                              'Max of AbsErrors': abs_err_knn_all,
                                              'R^2-score': metrics.r2_score(y_test, p),
                                              ignore_index = False})
model_comp
```

Out[215...]	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053

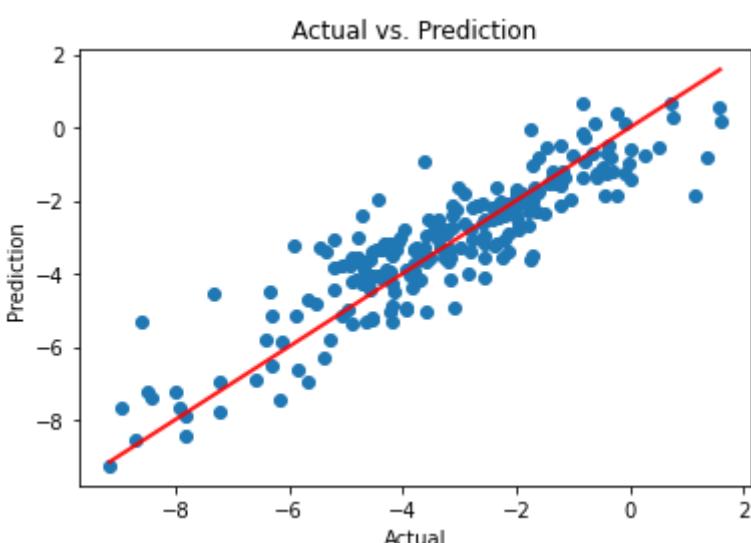
	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092
AdaBoost Reg PCA	0.650152	0.518535	0.561602	0.614877	0.002059	3.933793	0.832489
KNN Reg PCA	0.692713	0.577300	0.606966	0.763900	0.004000	3.294200	0.807493
KNN Reg All Variables	0.708136	0.600125	0.609942	0.770375	0.005000	3.285000	0.801760

In [216...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_knn_all_)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[216...]



Model 21: Multilayer Perceptron (MLP)

A MLP consists of, at least, three layers of nodes: an input layer, a hidden layer and an output layer. Except for the input nodes, each node is a neuron that uses a nonlinear activation function

In [217...]

```
mlp_pca = MLPRegressor()
mlp_pca.fit(x_train_pca, y_train)
print(mlp_pca)
```

MLPRegressor()

In [218...]

```
pred_mlp_pca = mlp_pca.predict(x_test_pca)
```

In [219...]

```
#Absolute error
```

```
abs_err_mlp = abs(y_test - pred_mlp_pca)
```

In [220...]

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors' : abs_err_mlp.mean(),
                                              'Median of AbsErrors' : abs_err_mlp.median(),
                                              'SD of AbsErrors' : abs_err_mlp.std(),
                                              'IQR of AbsErrors' : iqr(abs_err_mlp),
                                              'Min of AbsErrors' : abs_err_mlp.min(),
                                              'Max of AbsErrors' : abs_err_mlp.max(),
                                              'R^2-score' : metrics.r2_score(y_test, pred_mlp_pca),
                                              'ignore_index' : False})
```

model_comp

Out[220...]

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053
SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092
AdaBoost Reg PCA	0.650152	0.518535	0.561602	0.614877	0.002059	3.933793	0.832489
KNN Reg PCA	0.692713	0.577300	0.606966	0.763900	0.004000	3.294200	0.807493

	Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
KNN Reg All Variables	0.708136	0.600125	0.609942	0.770375	0.005000	3.285000	0.801760
MLP Reg PCA	0.413480	0.257506	0.463025	0.419114	0.002503	3.268227	0.912593

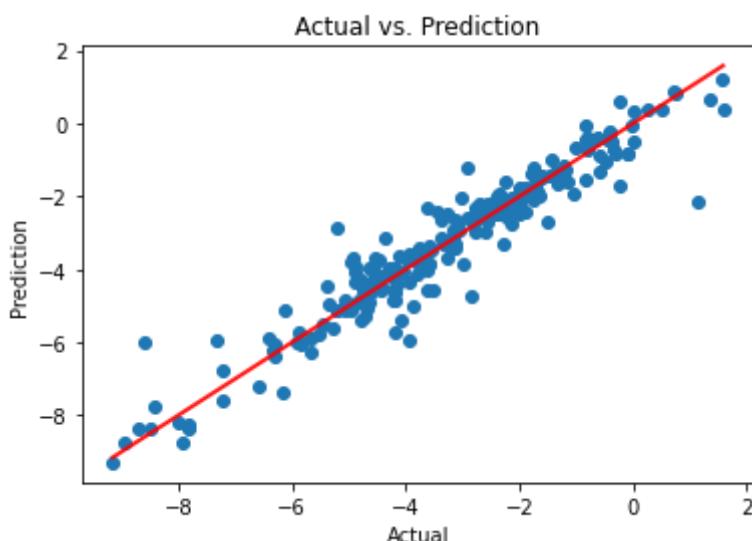
In [221...]

```
#Actual vs. Prediction
plt.scatter(x = y_test, y = pred_mlp_pca)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[221...]

[<matplotlib.lines.Line2D at 0x24b21f87d90>]



Model 22 : MLP For All Variables

In [222...]

```
mlp_all = MLPRegressor()
mlp_all.fit(x_train, y_train)
```

Out[222...]

MLPRegressor()

In [223...]

```
pred_mlp_all = mlp_all.predict(x_test)
```

In [224...]

```
#Absolute error
abs_err_mlp_all = abs(y_test - pred_mlp_all)
```

In [225...]

```
#Absolute error mean, median, sd, IQR, max, min
from scipy.stats import iqr
model_comp = model_comp.append(pd.DataFrame({'Mean of AbsErrors' : abs_err_mlp_all,
                                              'Median of AbsErrors' : abs_err_mlp_all,
                                              'SD of AbsErrors' : abs_err_mlp_all,
                                              'IQR of AbsErrors' : iqr(abs_err_mlp_all),
                                              'Min of AbsErrors' : abs_err_mlp_all}))
```

```
'Max of AbsErrors': abs_err_mlp_all
'R^2-score' : metrics.r2_score(y_test, p
ignore_index = False)
```

model_comp

Out[225...]		Mean of AbsErrors	Median of AbsErrors	SD of AbsErrors	IQR of AbsErrors	Min of AbsErrors	Max of AbsErrors	R^2-score
	LM Reg PCA	0.547305	0.421018	0.496421	0.499233	0.001250	3.087932	0.876103
	LM Reg All Variables	0.557660	0.391625	0.530183	0.500443	0.004216	3.054768	0.865656
	Ridge Reg PCA	0.549234	0.424161	0.491562	0.515300	0.016369	3.115507	0.876709
	Ridge Reg All Variables	0.957500	0.767662	0.785779	1.078682	0.004350	4.199069	0.651762
	Lasso Reg PCA	0.583556	0.474700	0.506530	0.581610	0.001286	3.322734	0.864487
	Lasso Reg All Variables	0.603030	0.462729	0.514093	0.579391	0.007978	3.346922	0.857485
	Decision Tree Reg All Variables	0.682087	0.577824	0.569314	0.622367	0.000595	4.171648	0.820841
	Bagging Reg PCA	0.637403	0.506196	0.577829	0.638506	0.000673	3.830325	0.820841
	Bagging Reg All Variables	0.457234	0.307379	0.495121	0.480558	0.002400	3.773229	0.896969
	Random Forest Reg PCA	0.637666	0.508818	0.596749	0.580672	0.001625	4.237025	0.826929
	Random Forest Reg All Variable	0.447139	0.342238	0.467487	0.461285	0.003040	3.855965	0.905066
	GB Reg PCA	0.541099	0.395642	0.526200	0.557001	0.004241	3.789241	0.870746
	GB Reg All Variables	0.436727	0.294973	0.472490	0.502062	0.001243	3.186488	0.906094
	XGB Reg PCA	0.521055	0.381268	0.508404	0.548683	0.002215	3.433861	0.879755
	XGB Reg All Variables	0.444069	0.324421	0.451400	0.468292	0.004021	3.356936	0.909035
	SVM Reg PCA	0.420018	0.288348	0.445029	0.407094	0.002275	3.555425	0.915053
	SVM Reg All Variables	0.428758	0.311138	0.441413	0.485322	0.004918	3.496119	0.914092
	AdaBoost Reg PCA	0.650152	0.518535	0.561602	0.614877	0.002059	3.933793	0.832489
	KNN Reg PCA	0.692713	0.577300	0.606966	0.763900	0.004000	3.294200	0.807493
	KNN Reg All Variables	0.708136	0.600125	0.609942	0.770375	0.005000	3.285000	0.801760
	MLP Reg PCA	0.413480	0.257506	0.463025	0.419114	0.002503	3.268227	0.912593
	MLP Reg All Variables	0.422541	0.285316	0.436086	0.382154	0.001956	2.861343	0.912593

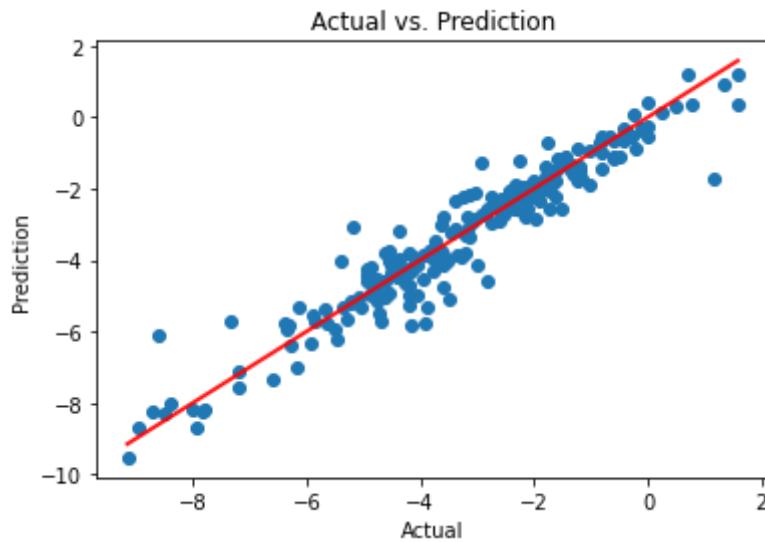
In [226...]

#Actual vs. Prediction

```
plt.scatter(x = y_test, y = pred_mlp_all)
plt.xlabel('Actual')
plt.ylabel('Prediction')
plt.title('Actual vs. Prediction')

#Add 45 degree Line
xp = np.linspace(y_test.min(), y_test.max(), 100)
plt.plot(xp, xp, alpha = 0.9, linewidth = 2, color = 'red')
```

Out[226...]: <matplotlib.lines.Line2D at 0x24b220048e0>



- Conclusion:

Among all the fitted models, our best choice is the support vector machine model. There is no significant difference between the two fitted models with all variables and variables selected with PCA, but if we choose based on R2 and the mean and median of the absolute errors, we prefer the model with variables selected with PCA. And if we decide to choose based on the minimum standard deviation of absolute errors, we will choose the model that fits using all variables.

In []: