In [1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [2]:
```
df = pd.read_csv('Iris.csv')
```

In [3]:
```
df.head()
```

Out[3]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [4]:
```
df.drop_duplicates(inplace=True)
```

In [5]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column         Non-Null Count  Dtype  
---  ------         --------------  -----  
 0   Id             150 non-null    int64  
 1   SepalLengthCm  150 non-null    float64
 2   SepalWidthCm   150 non-null    float64
 3   PetalLengthCm  150 non-null    float64
 4   PetalWidthCm   150 non-null    float64
 5   Species        150 non-null    object 
dtypes: float64(4), int64(1), object(1)
memory usage: 8.2+ KB
```

In [6]:
```
df.describe()
```

Out[6]:

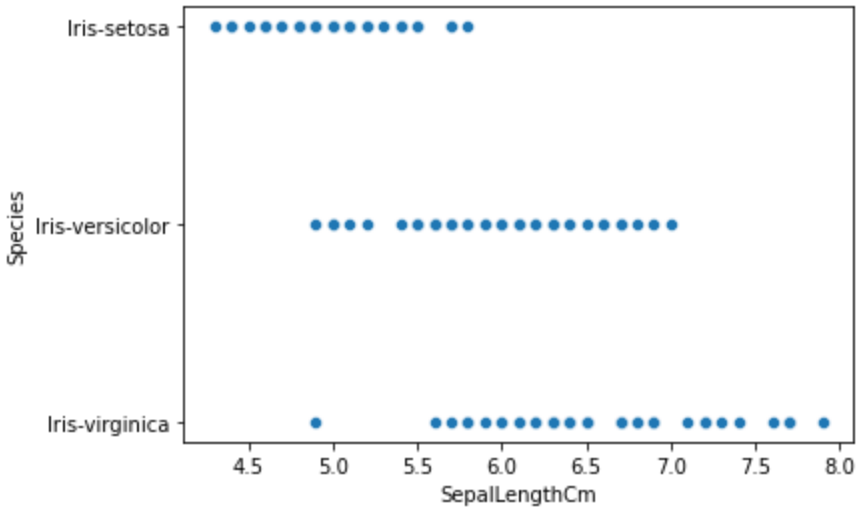
	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

In [7]:
```
df.isnull().sum()
```

Out[7]:
```
Id               0
SepalLengthCm    0
SepalWidthCm     0
PetalLengthCm    0
PetalWidthCm     0
Species          0
dtype: int64
```

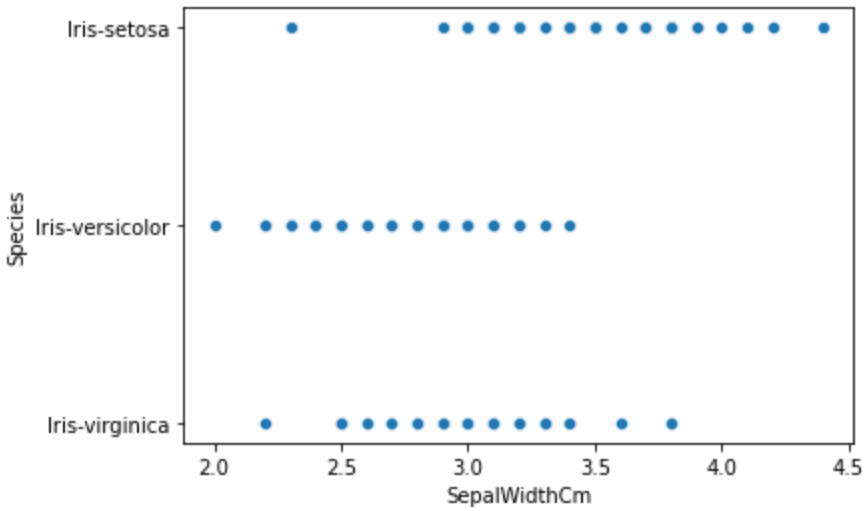
In [8]:
```
sns.scatterplot(x='SepalLengthCm',y='Species',data=df)
```

Out[8]:
```
<AxesSubplot:xlabel='SepalLengthCm', ylabel='Species'>
```



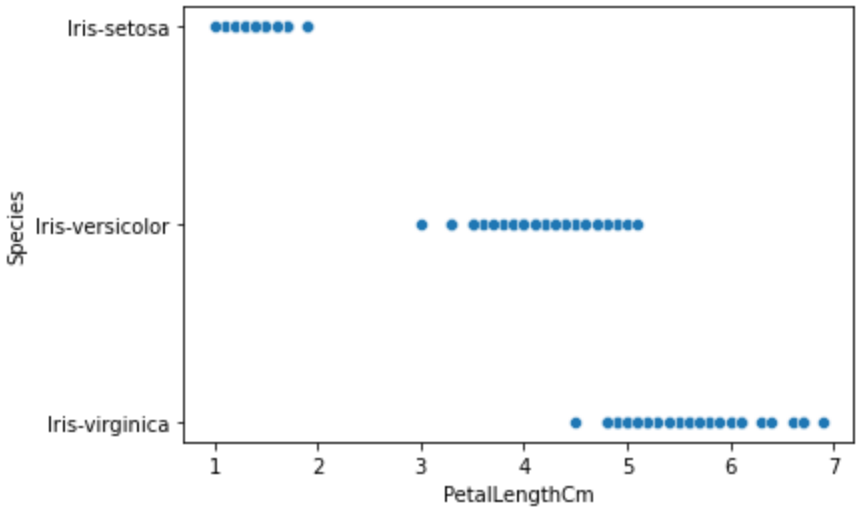
In [9]:
```
# We can see 1 outlier in iris-setosa
sns.scatterplot(x='SepalWidthCm',y='Species',data=df)
```

Out[9]:
```
<AxesSubplot:xlabel='SepalWidthCm', ylabel='Species'>
```



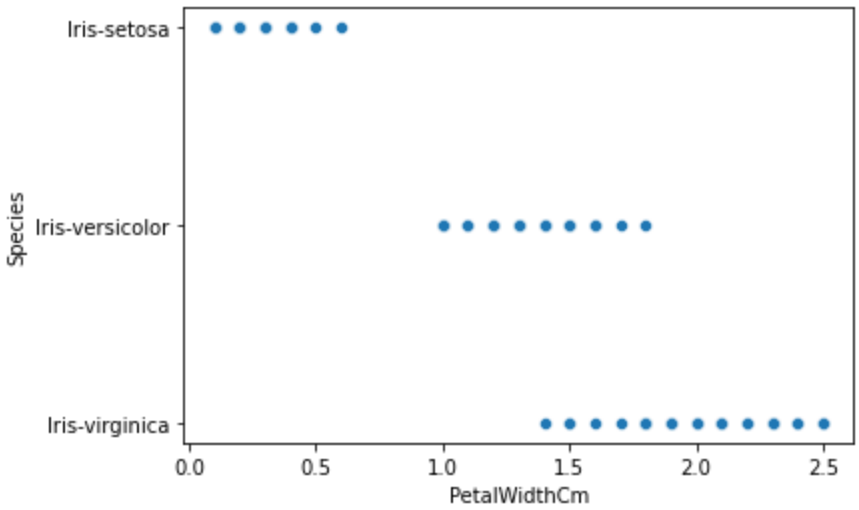
In [10]:
```
sns.scatterplot(x='PetalLengthCm',y='Species',data=df)
```

Out[10]:
```
<AxesSubplot:xlabel='PetalLengthCm', ylabel='Species'>
```



In [11]:
```
sns.scatterplot(x='PetalWidthCm',y='Species',data=df)
```

Out[11]:
```
<AxesSubplot:xlabel='PetalWidthCm', ylabel='Species'>
```



In [12]:
```
from sklearn.preprocessing import LabelEncoder
```

In [13]:
```
le = LabelEncoder()
```

In [14]:
```
df['Species'] = le.fit_transform(df['Species'])
```

In [15]:
```
df.drop('Id',inplace=True,axis=1)
```

In [16]:
```
df
```

Out[16]:

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
4	5.0	3.6	1.4	0.2	0
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	2
146	6.3	2.5	5.0	1.9	2
147	6.5	3.0	5.2	2.0	2
148	6.2	3.4	5.4	2.3	2
149	5.9	3.0	5.1	1.8	2

150 rows × 5 columns

In [17]:
```
from scipy import stats
df = df[(np.abs(stats.zscore(df.loc[:,:])) < 3).all(axis=1)]
```

In [18]:
```
df
```

Out[18]:

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	2
146	6.3	2.5	5.0	1.9	2
147	6.5	3.0	5.2	2.0	2
148	6.2	3.4	5.4	2.3	2
149	5.9	3.0	5.1	1.8	2

149 rows × 5 columns

In [19]:
```
from sklearn.tree import DecisionTreeClassifier
from sklearn.ensemble import RandomForestClassifier
from xgboost import XGBClassifier , XGBRFClassifier
from catboost import CatBoostClassifier
```

In [20]:
```
from sklearn.model_selection import train_test_split
from sklearn.metrics import classification_report as cr , confusion_matrix as cm
```

In [21]:
```
# Feature splitting
X = df.iloc[:,:-1]
y = df.iloc[:,-1]
```

In [22]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.5, random_state=101)
```

In [23]:
```
dtc = DecisionTreeClassifier()
rfc = RandomForestClassifier(n_estimators=300)
xgbc = XGBClassifier()
xgbrfc = XGBRFClassifier()
catboost = CatBoostClassifier()
```

In [24]:
```
def model(model):
    model.fit(X_train,y_train)
    y_pred = model.predict(X_test)
    print("Confusion matrix is :\n",cm(y_test,y_pred))
    print("Classification report is :\n",cr(y_test,y_pred))
```

In [25]:
```
# Theres a very high possibility this model is overfitting and wont predict correctly
model(dtc)
```

```
Confusion matrix is :
 [[23  0  0]
 [ 0 29  2]
 [ 0  1 20]]
Classification report is :
               precision    recall  f1-score   support

           0       1.00      1.00      1.00        23
           1       0.97      0.94      0.95        31
           2       0.91      0.95      0.93        21

    accuracy                           0.96        75
   macro avg       0.96      0.96      0.96        75
weighted avg       0.96      0.96      0.96        75
```

In [26]:
```
# Random forests are almost impossible to overfit
model(rfc)
```

```
Confusion matrix is :
 [[23  0  0]
 [ 0 29  2]
 [ 0  1 20]]
Classification report is :
               precision    recall  f1-score   support

           0       1.00      1.00      1.00        23
           1       0.97      0.94      0.95        31
           2       0.91      0.95      0.93        21

    accuracy                           0.96        75
   macro avg       0.96      0.96      0.96        75
weighted avg       0.96      0.96      0.96        75
```

In [27]:
```
# My preferred choice would be xgbc and xgbrfc
model(xgbc)
```

```
[01:18:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learner.cc:1115: Starting in XGBoost 1.3.0, the default evaluation metric used with the objective 'multi:softprob' was changed from 'merror' to 'mlogloss'. Explicitly set eval_metric if you'd like to restore the old behavior.
Confusion matrix is :
```

```
 [[23  0  0]
 [ 0 28  3]
 [ 0  1 20]]
Classification report is :
               precision    recall  f1-score   support

           0       1.00      1.00      1.00        23
           1       0.97      0.90      0.93        31
           2       0.87      0.95      0.91        21

    accuracy                           0.95        75
   macro avg       0.95      0.95      0.95        75
weighted avg       0.95      0.95      0.95        75


C:\ProgramData\Anaconda3\lib\site-packages\xgboost\sklearn.py:1224: UserWarning: The use o
f label encoder in XGBClassifier is deprecated and will be removed in a future release. To
remove this warning, do the following: 1) Pass option use_label_encoder=False when constru
cting XGBClassifier object; and 2) Encode your labels (y) as integers starting with 0, i.
e. 0, 1, 2, ..., [num_class - 1].
  warnings.warn(label_encoder_deprecation_msg, UserWarning)
```

In [28]:

```
model(xgbrfc)
```

```
[01:18:19] WARNING: C:/Users/Administrator/workspace/xgboost-win64_release_1.5.1/src/learn
er.cc:1115: Starting in XGBoost 1.3.0, the default evaluation metric used with the objecti
ve 'multi:softprob' was changed from 'merror' to 'mlogloss'. Explicitly set eval_metric if
you'd like to restore the old behavior.
Confusion matrix is :
 [[23  0  0]
 [ 0 29  2]
 [ 0  2 19]]
Classification report is :
               precision    recall  f1-score   support

           0       1.00      1.00      1.00        23
           1       0.94      0.94      0.94        31
           2       0.90      0.90      0.90        21

    accuracy                           0.95        75
   macro avg       0.95      0.95      0.95        75
weighted avg       0.95      0.95      0.95        75


C:\ProgramData\Anaconda3\lib\site-packages\xgboost\sklearn.py:1224: UserWarning: The use o
f label encoder in XGBClassifier is deprecated and will be removed in a future release. To
remove this warning, do the following: 1) Pass option use_label_encoder=False when constru
cting XGBClassifier object; and 2) Encode your labels (y) as integers starting with 0, i.
e. 0, 1, 2, ..., [num_class - 1].
  warnings.warn(label_encoder_deprecation_msg, UserWarning)
```

In [29]:

```
# Catboost is very reliable here with very high precision and no overfitting
model(catboost)
```

```
Learning rate set to 0.069287
0:      learn: 1.0237337        total: 134ms    remaining: 2m 13s
1:      learn: 0.9668416        total: 135ms    remaining: 1m 7s
2:      learn: 0.9186316        total: 135ms    remaining: 44.9s
3:      learn: 0.8687287        total: 135ms    remaining: 33.7s
4:      learn: 0.8291032        total: 136ms    remaining: 27.1s
5:      learn: 0.7966251        total: 137ms    remaining: 22.6s
6:      learn: 0.7687038        total: 137ms    remaining: 19.4s
7:      learn: 0.7302772        total: 137ms    remaining: 17s
8:      learn: 0.6925067        total: 138ms    remaining: 15.2s
9:      learn: 0.6579786        total: 138ms    remaining: 13.7s
10:     learn: 0.6315566        total: 139ms    remaining: 12.5s
```

```
11:     learn: 0.6048585        total: 139ms    remaining: 11.5s
12:     learn: 0.5770934        total: 140ms    remaining: 10.6s
13:     learn: 0.5550238        total: 140ms    remaining: 9.89s
14:     learn: 0.5221110        total: 141ms    remaining: 9.23s
15:     learn: 0.4996352        total: 141ms    remaining: 8.68s
16:     learn: 0.4777224        total: 142ms    remaining: 8.19s
17:     learn: 0.4589682        total: 142ms    remaining: 7.75s
18:     learn: 0.4417999        total: 143ms    remaining: 7.36s
19:     learn: 0.4276129        total: 143ms    remaining: 7.01s
20:     learn: 0.4111978        total: 144ms    remaining: 6.69s
21:     learn: 0.3974495        total: 144ms    remaining: 6.4s
22:     learn: 0.3834657        total: 144ms    remaining: 6.14s
23:     learn: 0.3710990        total: 145ms    remaining: 5.89s
24:     learn: 0.3576703        total: 145ms    remaining: 5.67s
25:     learn: 0.3488918        total: 146ms    remaining: 5.46s
26:     learn: 0.3366131        total: 146ms    remaining: 5.27s
27:     learn: 0.3252132        total: 147ms    remaining: 5.09s
28:     learn: 0.3167427        total: 147ms    remaining: 4.93s
29:     learn: 0.3067955        total: 148ms    remaining: 4.78s
30:     learn: 0.2974672        total: 148ms    remaining: 4.63s
31:     learn: 0.2875921        total: 149ms    remaining: 4.5s
32:     learn: 0.2788601        total: 149ms    remaining: 4.37s
33:     learn: 0.2726105        total: 150ms    remaining: 4.25s
34:     learn: 0.2662502        total: 150ms    remaining: 4.14s
35:     learn: 0.2611593        total: 151ms    remaining: 4.04s
36:     learn: 0.2530455        total: 151ms    remaining: 3.94s
37:     learn: 0.2457221        total: 152ms    remaining: 3.84s
38:     learn: 0.2385280        total: 152ms    remaining: 3.76s
39:     learn: 0.2316342        total: 153ms    remaining: 3.67s
40:     learn: 0.2265760        total: 154ms    remaining: 3.59s
41:     learn: 0.2216748        total: 154ms    remaining: 3.52s
42:     learn: 0.2150802        total: 154ms    remaining: 3.43s
43:     learn: 0.2094810        total: 155ms    remaining: 3.36s
44:     learn: 0.2055687        total: 155ms    remaining: 3.29s
45:     learn: 0.2004487        total: 156ms    remaining: 3.23s
46:     learn: 0.1957540        total: 156ms    remaining: 3.17s
47:     learn: 0.1912089        total: 157ms    remaining: 3.11s
48:     learn: 0.1881327        total: 157ms    remaining: 3.05s
49:     learn: 0.1852307        total: 158ms    remaining: 2.99s
50:     learn: 0.1798421        total: 158ms    remaining: 2.94s
51:     learn: 0.1761482        total: 158ms    remaining: 2.89s
52:     learn: 0.1734813        total: 159ms    remaining: 2.84s
53:     learn: 0.1701048        total: 159ms    remaining: 2.79s
54:     learn: 0.1670668        total: 160ms    remaining: 2.75s
55:     learn: 0.1637385        total: 161ms    remaining: 2.71s
56:     learn: 0.1610769        total: 161ms    remaining: 2.67s
57:     learn: 0.1583365        total: 162ms    remaining: 2.63s
58:     learn: 0.1557026        total: 162ms    remaining: 2.58s
59:     learn: 0.1525245        total: 163ms    remaining: 2.55s
60:     learn: 0.1492337        total: 163ms    remaining: 2.51s
61:     learn: 0.1457437        total: 164ms    remaining: 2.48s
62:     learn: 0.1433170        total: 164ms    remaining: 2.44s
63:     learn: 0.1403461        total: 165ms    remaining: 2.41s
64:     learn: 0.1383795        total: 165ms    remaining: 2.38s
65:     learn: 0.1360704        total: 166ms    remaining: 2.35s
66:     learn: 0.1331372        total: 168ms    remaining: 2.33s
67:     learn: 0.1305096        total: 168ms    remaining: 2.31s
68:     learn: 0.1282567        total: 169ms    remaining: 2.28s
69:     learn: 0.1260838        total: 169ms    remaining: 2.25s
70:     learn: 0.1238740        total: 170ms    remaining: 2.22s
71:     learn: 0.1216864        total: 170ms    remaining: 2.19s
72:     learn: 0.1196943        total: 171ms    remaining: 2.17s
73:     learn: 0.1170116        total: 171ms    remaining: 2.14s
74:     learn: 0.1152249        total: 172ms    remaining: 2.12s
75:     learn: 0.1136861        total: 172ms    remaining: 2.09s
76:     learn: 0.1121362        total: 173ms    remaining: 2.07s
```

```
77:     learn: 0.1103864        total: 173ms    remaining: 2.05s
78:     learn: 0.1087540        total: 174ms    remaining: 2.02s
79:     learn: 0.1066946        total: 174ms    remaining: 2s
80:     learn: 0.1056207        total: 175ms    remaining: 1.98s
81:     learn: 0.1044449        total: 175ms    remaining: 1.96s
82:     learn: 0.1032878        total: 176ms    remaining: 1.94s
83:     learn: 0.1019273        total: 176ms    remaining: 1.92s
84:     learn: 0.1004700        total: 177ms    remaining: 1.9s
85:     learn: 0.0992595        total: 177ms    remaining: 1.88s
86:     learn: 0.0981621        total: 178ms    remaining: 1.86s
87:     learn: 0.0972842        total: 178ms    remaining: 1.85s
88:     learn: 0.0959330        total: 179ms    remaining: 1.83s
89:     learn: 0.0941102        total: 180ms    remaining: 1.82s
90:     learn: 0.0930315        total: 181ms    remaining: 1.81s
91:     learn: 0.0915339        total: 181ms    remaining: 1.79s
92:     learn: 0.0906390        total: 182ms    remaining: 1.77s
93:     learn: 0.0893033        total: 183ms    remaining: 1.76s
94:     learn: 0.0882212        total: 183ms    remaining: 1.75s
95:     learn: 0.0871837        total: 184ms    remaining: 1.73s
96:     learn: 0.0865423        total: 184ms    remaining: 1.72s
97:     learn: 0.0855397        total: 185ms    remaining: 1.7s
98:     learn: 0.0844491        total: 185ms    remaining: 1.69s
99:     learn: 0.0833396        total: 186ms    remaining: 1.67s
100:    learn: 0.0821930        total: 186ms    remaining: 1.66s
101:    learn: 0.0811500        total: 187ms    remaining: 1.65s
102:    learn: 0.0804341        total: 187ms    remaining: 1.63s
103:    learn: 0.0792554        total: 188ms    remaining: 1.62s
104:    learn: 0.0784611        total: 189ms    remaining: 1.61s
105:    learn: 0.0776081        total: 189ms    remaining: 1.59s
106:    learn: 0.0768327        total: 190ms    remaining: 1.58s
107:    learn: 0.0760099        total: 190ms    remaining: 1.57s
108:    learn: 0.0747616        total: 191ms    remaining: 1.56s
109:    learn: 0.0739950        total: 191ms    remaining: 1.55s
110:    learn: 0.0729893        total: 192ms    remaining: 1.54s
111:    learn: 0.0721282        total: 193ms    remaining: 1.53s
112:    learn: 0.0712868        total: 194ms    remaining: 1.52s
113:    learn: 0.0705773        total: 195ms    remaining: 1.51s
114:    learn: 0.0700274        total: 196ms    remaining: 1.51s
115:    learn: 0.0693253        total: 197ms    remaining: 1.5s
116:    learn: 0.0682902        total: 197ms    remaining: 1.49s
117:    learn: 0.0677648        total: 198ms    remaining: 1.48s
118:    learn: 0.0672208        total: 198ms    remaining: 1.47s
119:    learn: 0.0664922        total: 199ms    remaining: 1.46s
120:    learn: 0.0657205        total: 199ms    remaining: 1.45s
121:    learn: 0.0651273        total: 200ms    remaining: 1.44s
122:    learn: 0.0641675        total: 200ms    remaining: 1.43s
123:    learn: 0.0634828        total: 201ms    remaining: 1.42s
124:    learn: 0.0627973        total: 201ms    remaining: 1.41s
125:    learn: 0.0619585        total: 202ms    remaining: 1.4s
126:    learn: 0.0613192        total: 202ms    remaining: 1.39s
127:    learn: 0.0607686        total: 203ms    remaining: 1.38s
128:    learn: 0.0600681        total: 203ms    remaining: 1.37s
129:    learn: 0.0596568        total: 204ms    remaining: 1.36s
130:    learn: 0.0591022        total: 204ms    remaining: 1.36s
131:    learn: 0.0584655        total: 205ms    remaining: 1.35s
132:    learn: 0.0579236        total: 206ms    remaining: 1.34s
133:    learn: 0.0574182        total: 206ms    remaining: 1.33s
134:    learn: 0.0568022        total: 207ms    remaining: 1.33s
135:    learn: 0.0562241        total: 208ms    remaining: 1.32s
136:    learn: 0.0557318        total: 209ms    remaining: 1.31s
137:    learn: 0.0553166        total: 209ms    remaining: 1.3s
138:    learn: 0.0547024        total: 210ms    remaining: 1.3s
139:    learn: 0.0542557        total: 210ms    remaining: 1.29s
140:    learn: 0.0536973        total: 211ms    remaining: 1.28s
141:    learn: 0.0531835        total: 211ms    remaining: 1.28s
142:    learn: 0.0527737        total: 212ms    remaining: 1.27s
```

```
143:    learn: 0.0523327        total: 212ms    remaining: 1.26s
144:    learn: 0.0517360        total: 213ms    remaining: 1.25s
145:    learn: 0.0513405        total: 213ms    remaining: 1.25s
146:    learn: 0.0509986        total: 214ms    remaining: 1.24s
147:    learn: 0.0505729        total: 214ms    remaining: 1.23s
148:    learn: 0.0500784        total: 215ms    remaining: 1.23s
149:    learn: 0.0497025        total: 216ms    remaining: 1.22s
150:    learn: 0.0492292        total: 216ms    remaining: 1.21s
151:    learn: 0.0488304        total: 217ms    remaining: 1.21s
152:    learn: 0.0483783        total: 217ms    remaining: 1.2s
153:    learn: 0.0480119        total: 218ms    remaining: 1.2s
154:    learn: 0.0476069        total: 218ms    remaining: 1.19s
155:    learn: 0.0471920        total: 219ms    remaining: 1.18s
156:    learn: 0.0467648        total: 220ms    remaining: 1.18s
157:    learn: 0.0464028        total: 221ms    remaining: 1.18s
158:    learn: 0.0459902        total: 221ms    remaining: 1.17s
159:    learn: 0.0455992        total: 222ms    remaining: 1.16s
160:    learn: 0.0452240        total: 222ms    remaining: 1.16s
161:    learn: 0.0448754        total: 223ms    remaining: 1.15s
162:    learn: 0.0445200        total: 223ms    remaining: 1.15s
163:    learn: 0.0441879        total: 224ms    remaining: 1.14s
164:    learn: 0.0439492        total: 225ms    remaining: 1.14s
165:    learn: 0.0436654        total: 225ms    remaining: 1.13s
166:    learn: 0.0433396        total: 226ms    remaining: 1.12s
167:    learn: 0.0430732        total: 226ms    remaining: 1.12s
168:    learn: 0.0426935        total: 227ms    remaining: 1.11s
169:    learn: 0.0423409        total: 227ms    remaining: 1.11s
170:    learn: 0.0420269        total: 228ms    remaining: 1.1s
171:    learn: 0.0417042        total: 228ms    remaining: 1.1s
172:    learn: 0.0413934        total: 229ms    remaining: 1.09s
173:    learn: 0.0410665        total: 229ms    remaining: 1.09s
174:    learn: 0.0407185        total: 230ms    remaining: 1.08s
175:    learn: 0.0404275        total: 230ms    remaining: 1.08s
176:    learn: 0.0400573        total: 231ms    remaining: 1.07s
177:    learn: 0.0397944        total: 231ms    remaining: 1.07s
178:    learn: 0.0395145        total: 232ms    remaining: 1.06s
179:    learn: 0.0391211        total: 232ms    remaining: 1.06s
180:    learn: 0.0388783        total: 233ms    remaining: 1.05s
181:    learn: 0.0386359        total: 234ms    remaining: 1.05s
182:    learn: 0.0382828        total: 234ms    remaining: 1.05s
183:    learn: 0.0380898        total: 235ms    remaining: 1.04s
184:    learn: 0.0377746        total: 236ms    remaining: 1.04s
185:    learn: 0.0375674        total: 236ms    remaining: 1.03s
186:    learn: 0.0372383        total: 237ms    remaining: 1.03s
187:    learn: 0.0370328        total: 237ms    remaining: 1.02s
188:    learn: 0.0368053        total: 238ms    remaining: 1.02s
189:    learn: 0.0365784        total: 238ms    remaining: 1.01s
190:    learn: 0.0363474        total: 239ms    remaining: 1.01s
191:    learn: 0.0361641        total: 239ms    remaining: 1.01s
192:    learn: 0.0359320        total: 240ms    remaining: 1s
193:    learn: 0.0357212        total: 240ms    remaining: 998ms
194:    learn: 0.0354806        total: 241ms    remaining: 994ms
195:    learn: 0.0352264        total: 241ms    remaining: 990ms
196:    learn: 0.0350393        total: 242ms    remaining: 986ms
197:    learn: 0.0347917        total: 242ms    remaining: 982ms
198:    learn: 0.0346632        total: 243ms    remaining: 978ms
199:    learn: 0.0344278        total: 243ms    remaining: 974ms
200:    learn: 0.0342631        total: 244ms    remaining: 970ms
201:    learn: 0.0340323        total: 245ms    remaining: 966ms
202:    learn: 0.0338661        total: 245ms    remaining: 962ms
203:    learn: 0.0336538        total: 246ms    remaining: 959ms
204:    learn: 0.0334885        total: 246ms    remaining: 955ms
205:    learn: 0.0332758        total: 247ms    remaining: 951ms
206:    learn: 0.0330356        total: 247ms    remaining: 947ms
207:    learn: 0.0328343        total: 248ms    remaining: 944ms
208:    learn: 0.0326545        total: 248ms    remaining: 940ms
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209:    learn: 0.0324292        total: 249ms    remaining: 936ms
210:    learn: 0.0322388        total: 249ms    remaining: 933ms
211:    learn: 0.0319621        total: 250ms    remaining: 929ms
212:    learn: 0.0317162        total: 251ms    remaining: 926ms
213:    learn: 0.0315583        total: 251ms    remaining: 922ms
214:    learn: 0.0314530        total: 252ms    remaining: 919ms
215:    learn: 0.0312730        total: 252ms    remaining: 915ms
216:    learn: 0.0311084        total: 253ms    remaining: 912ms
217:    learn: 0.0309500        total: 253ms    remaining: 908ms
218:    learn: 0.0308122        total: 254ms    remaining: 905ms
219:    learn: 0.0306844        total: 254ms    remaining: 902ms
220:    learn: 0.0305104        total: 255ms    remaining: 898ms
221:    learn: 0.0303849        total: 255ms    remaining: 895ms
222:    learn: 0.0302415        total: 256ms    remaining: 892ms
223:    learn: 0.0301045        total: 256ms    remaining: 888ms
224:    learn: 0.0299300        total: 257ms    remaining: 885ms
225:    learn: 0.0297987        total: 257ms    remaining: 882ms
226:    learn: 0.0296599        total: 258ms    remaining: 879ms
227:    learn: 0.0293943        total: 259ms    remaining: 875ms
228:    learn: 0.0292284        total: 259ms    remaining: 872ms
229:    learn: 0.0290640        total: 260ms    remaining: 869ms
230:    learn: 0.0288859        total: 260ms    remaining: 866ms
231:    learn: 0.0287570        total: 261ms    remaining: 863ms
232:    learn: 0.0285668        total: 261ms    remaining: 860ms
233:    learn: 0.0284501        total: 262ms    remaining: 857ms
234:    learn: 0.0282728        total: 262ms    remaining: 854ms
235:    learn: 0.0281380        total: 263ms    remaining: 851ms
236:    learn: 0.0279936        total: 263ms    remaining: 848ms
237:    learn: 0.0278701        total: 264ms    remaining: 845ms
238:    learn: 0.0277551        total: 264ms    remaining: 842ms
239:    learn: 0.0275874        total: 265ms    remaining: 839ms
240:    learn: 0.0274629        total: 265ms    remaining: 836ms
241:    learn: 0.0272819        total: 266ms    remaining: 833ms
242:    learn: 0.0271410        total: 266ms    remaining: 830ms
243:    learn: 0.0270144        total: 267ms    remaining: 827ms
244:    learn: 0.0268957        total: 268ms    remaining: 824ms
245:    learn: 0.0267512        total: 268ms    remaining: 822ms
246:    learn: 0.0266166        total: 269ms    remaining: 819ms
247:    learn: 0.0265168        total: 269ms    remaining: 816ms
248:    learn: 0.0263797        total: 270ms    remaining: 813ms
249:    learn: 0.0262526        total: 270ms    remaining: 811ms
250:    learn: 0.0261430        total: 271ms    remaining: 808ms
251:    learn: 0.0260134        total: 271ms    remaining: 805ms
252:    learn: 0.0259166        total: 272ms    remaining: 802ms
253:    learn: 0.0257724        total: 272ms    remaining: 800ms
254:    learn: 0.0255801        total: 273ms    remaining: 797ms
255:    learn: 0.0254451        total: 273ms    remaining: 794ms
256:    learn: 0.0253343        total: 274ms    remaining: 792ms
257:    learn: 0.0252333        total: 275ms    remaining: 790ms
258:    learn: 0.0250970        total: 275ms    remaining: 787ms
259:    learn: 0.0250108        total: 276ms    remaining: 785ms
260:    learn: 0.0248772        total: 276ms    remaining: 782ms
261:    learn: 0.0247965        total: 277ms    remaining: 780ms
262:    learn: 0.0246673        total: 277ms    remaining: 777ms
263:    learn: 0.0245658        total: 278ms    remaining: 775ms
264:    learn: 0.0244575        total: 279ms    remaining: 772ms
265:    learn: 0.0243465        total: 279ms    remaining: 770ms
266:    learn: 0.0242567        total: 280ms    remaining: 769ms
267:    learn: 0.0241801        total: 281ms    remaining: 766ms
268:    learn: 0.0240891        total: 281ms    remaining: 764ms
269:    learn: 0.0239662        total: 282ms    remaining: 762ms
270:    learn: 0.0238686        total: 282ms    remaining: 759ms
271:    learn: 0.0237613        total: 283ms    remaining: 757ms
272:    learn: 0.0236753        total: 283ms    remaining: 755ms
273:    learn: 0.0235494        total: 284ms    remaining: 752ms
274:    learn: 0.0234444        total: 285ms    remaining: 750ms
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275:    learn: 0.0233264        total: 285ms    remaining: 748ms
276:    learn: 0.0232385        total: 286ms    remaining: 746ms
277:    learn: 0.0231562        total: 286ms    remaining: 743ms
278:    learn: 0.0230730        total: 287ms    remaining: 741ms
279:    learn: 0.0229847        total: 287ms    remaining: 739ms
280:    learn: 0.0228694        total: 288ms    remaining: 737ms
281:    learn: 0.0228122        total: 288ms    remaining: 734ms
282:    learn: 0.0227119        total: 289ms    remaining: 732ms
283:    learn: 0.0226397        total: 290ms    remaining: 730ms
284:    learn: 0.0225384        total: 290ms    remaining: 728ms
285:    learn: 0.0224507        total: 291ms    remaining: 725ms
286:    learn: 0.0223658        total: 291ms    remaining: 724ms
287:    learn: 0.0223023        total: 292ms    remaining: 722ms
288:    learn: 0.0222224        total: 292ms    remaining: 719ms
289:    learn: 0.0220953        total: 293ms    remaining: 717ms
290:    learn: 0.0219996        total: 293ms    remaining: 715ms
291:    learn: 0.0219081        total: 294ms    remaining: 713ms
292:    learn: 0.0218088        total: 295ms    remaining: 711ms
293:    learn: 0.0217366        total: 295ms    remaining: 709ms
294:    learn: 0.0216719        total: 296ms    remaining: 706ms
295:    learn: 0.0215804        total: 296ms    remaining: 704ms
296:    learn: 0.0215185        total: 297ms    remaining: 702ms
297:    learn: 0.0214387        total: 297ms    remaining: 700ms
298:    learn: 0.0213971        total: 298ms    remaining: 698ms
299:    learn: 0.0213365        total: 298ms    remaining: 696ms
300:    learn: 0.0212713        total: 299ms    remaining: 694ms
301:    learn: 0.0211952        total: 299ms    remaining: 692ms
302:    learn: 0.0211151        total: 300ms    remaining: 690ms
303:    learn: 0.0210499        total: 300ms    remaining: 688ms
304:    learn: 0.0209771        total: 301ms    remaining: 686ms
305:    learn: 0.0208962        total: 302ms    remaining: 684ms
306:    learn: 0.0207972        total: 302ms    remaining: 682ms
307:    learn: 0.0207258        total: 303ms    remaining: 680ms
308:    learn: 0.0206574        total: 304ms    remaining: 679ms
309:    learn: 0.0205791        total: 304ms    remaining: 677ms
310:    learn: 0.0205119        total: 305ms    remaining: 675ms
311:    learn: 0.0204544        total: 305ms    remaining: 673ms
312:    learn: 0.0204032        total: 306ms    remaining: 671ms
313:    learn: 0.0203344        total: 306ms    remaining: 669ms
314:    learn: 0.0202494        total: 307ms    remaining: 667ms
315:    learn: 0.0201971        total: 307ms    remaining: 665ms
316:    learn: 0.0201394        total: 308ms    remaining: 663ms
317:    learn: 0.0200694        total: 308ms    remaining: 661ms
318:    learn: 0.0200032        total: 309ms    remaining: 659ms
319:    learn: 0.0199360        total: 309ms    remaining: 657ms
320:    learn: 0.0198756        total: 310ms    remaining: 656ms
321:    learn: 0.0198015        total: 310ms    remaining: 654ms
322:    learn: 0.0197508        total: 311ms    remaining: 652ms
323:    learn: 0.0196880        total: 312ms    remaining: 650ms
324:    learn: 0.0196126        total: 312ms    remaining: 648ms
325:    learn: 0.0195565        total: 313ms    remaining: 646ms
326:    learn: 0.0194914        total: 313ms    remaining: 645ms
327:    learn: 0.0194367        total: 314ms    remaining: 643ms
328:    learn: 0.0193547        total: 314ms    remaining: 641ms
329:    learn: 0.0193015        total: 315ms    remaining: 640ms
330:    learn: 0.0192413        total: 316ms    remaining: 639ms
331:    learn: 0.0191684        total: 317ms    remaining: 638ms
332:    learn: 0.0191147        total: 318ms    remaining: 636ms
333:    learn: 0.0190476        total: 318ms    remaining: 635ms
334:    learn: 0.0189975        total: 319ms    remaining: 633ms
335:    learn: 0.0189259        total: 320ms    remaining: 631ms
336:    learn: 0.0188667        total: 320ms    remaining: 630ms
337:    learn: 0.0187906        total: 321ms    remaining: 628ms
338:    learn: 0.0187144        total: 321ms    remaining: 626ms
339:    learn: 0.0186193        total: 322ms    remaining: 624ms
340:    learn: 0.0185538        total: 322ms    remaining: 623ms
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341:    learn: 0.0184996        total: 323ms    remaining: 621ms
342:    learn: 0.0184328        total: 323ms    remaining: 619ms
343:    learn: 0.0183658        total: 324ms    remaining: 617ms
344:    learn: 0.0183168        total: 324ms    remaining: 616ms
345:    learn: 0.0182575        total: 325ms    remaining: 614ms
346:    learn: 0.0181918        total: 325ms    remaining: 612ms
347:    learn: 0.0181099        total: 326ms    remaining: 611ms
348:    learn: 0.0180467        total: 327ms    remaining: 609ms
349:    learn: 0.0180008        total: 327ms    remaining: 607ms
350:    learn: 0.0179452        total: 328ms    remaining: 606ms
351:    learn: 0.0178994        total: 328ms    remaining: 604ms
352:    learn: 0.0178399        total: 329ms    remaining: 603ms
353:    learn: 0.0177947        total: 329ms    remaining: 601ms
354:    learn: 0.0177438        total: 330ms    remaining: 599ms
355:    learn: 0.0176944        total: 330ms    remaining: 598ms
356:    learn: 0.0176224        total: 331ms    remaining: 596ms
357:    learn: 0.0175708        total: 332ms    remaining: 595ms
358:    learn: 0.0175219        total: 332ms    remaining: 593ms
359:    learn: 0.0174713        total: 333ms    remaining: 591ms
360:    learn: 0.0174306        total: 333ms    remaining: 590ms
361:    learn: 0.0173816        total: 334ms    remaining: 588ms
362:    learn: 0.0173193        total: 334ms    remaining: 587ms
363:    learn: 0.0172459        total: 335ms    remaining: 585ms
364:    learn: 0.0171911        total: 335ms    remaining: 583ms
365:    learn: 0.0171260        total: 336ms    remaining: 582ms
366:    learn: 0.0170687        total: 336ms    remaining: 580ms
367:    learn: 0.0170151        total: 337ms    remaining: 579ms
368:    learn: 0.0169612        total: 338ms    remaining: 577ms
369:    learn: 0.0169097        total: 338ms    remaining: 576ms
370:    learn: 0.0168532        total: 339ms    remaining: 574ms
371:    learn: 0.0168073        total: 339ms    remaining: 573ms
372:    learn: 0.0167494        total: 340ms    remaining: 571ms
373:    learn: 0.0166883        total: 340ms    remaining: 569ms
374:    learn: 0.0166332        total: 341ms    remaining: 568ms
375:    learn: 0.0165866        total: 341ms    remaining: 566ms
376:    learn: 0.0165360        total: 342ms    remaining: 565ms
377:    learn: 0.0164909        total: 342ms    remaining: 563ms
378:    learn: 0.0164374        total: 343ms    remaining: 562ms
379:    learn: 0.0163732        total: 344ms    remaining: 560ms
380:    learn: 0.0163336        total: 344ms    remaining: 559ms
381:    learn: 0.0162818        total: 345ms    remaining: 557ms
382:    learn: 0.0162372        total: 345ms    remaining: 556ms
383:    learn: 0.0161916        total: 346ms    remaining: 554ms
384:    learn: 0.0161515        total: 346ms    remaining: 553ms
385:    learn: 0.0160943        total: 347ms    remaining: 551ms
386:    learn: 0.0160516        total: 347ms    remaining: 550ms
387:    learn: 0.0160031        total: 348ms    remaining: 548ms
388:    learn: 0.0159629        total: 348ms    remaining: 547ms
389:    learn: 0.0159186        total: 349ms    remaining: 546ms
390:    learn: 0.0158848        total: 349ms    remaining: 544ms
391:    learn: 0.0158228        total: 350ms    remaining: 543ms
392:    learn: 0.0157720        total: 350ms    remaining: 541ms
393:    learn: 0.0157264        total: 351ms    remaining: 540ms
394:    learn: 0.0156918        total: 352ms    remaining: 538ms
395:    learn: 0.0156498        total: 352ms    remaining: 537ms
396:    learn: 0.0156058        total: 353ms    remaining: 536ms
397:    learn: 0.0155683        total: 353ms    remaining: 534ms
398:    learn: 0.0155179        total: 354ms    remaining: 533ms
399:    learn: 0.0154695        total: 354ms    remaining: 531ms
400:    learn: 0.0154314        total: 355ms    remaining: 530ms
401:    learn: 0.0153745        total: 355ms    remaining: 529ms
402:    learn: 0.0153396        total: 356ms    remaining: 527ms
403:    learn: 0.0153247        total: 357ms    remaining: 526ms
404:    learn: 0.0152835        total: 357ms    remaining: 525ms
405:    learn: 0.0152404        total: 358ms    remaining: 523ms
406:    learn: 0.0152109        total: 358ms    remaining: 522ms
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407:    learn: 0.0151655        total: 359ms    remaining: 521ms
408:    learn: 0.0151137        total: 359ms    remaining: 519ms
409:    learn: 0.0150636        total: 360ms    remaining: 518ms
410:    learn: 0.0150213        total: 360ms    remaining: 516ms
411:    learn: 0.0149891        total: 361ms    remaining: 515ms
412:    learn: 0.0149420        total: 361ms    remaining: 514ms
413:    learn: 0.0149011        total: 362ms    remaining: 512ms
414:    learn: 0.0148659        total: 362ms    remaining: 511ms
415:    learn: 0.0148289        total: 363ms    remaining: 510ms
416:    learn: 0.0147870        total: 364ms    remaining: 508ms
417:    learn: 0.0147401        total: 364ms    remaining: 507ms
418:    learn: 0.0147041        total: 365ms    remaining: 506ms
419:    learn: 0.0146630        total: 365ms    remaining: 504ms
420:    learn: 0.0146333        total: 366ms    remaining: 503ms
421:    learn: 0.0146043        total: 366ms    remaining: 502ms
422:    learn: 0.0145425        total: 367ms    remaining: 501ms
423:    learn: 0.0145005        total: 367ms    remaining: 499ms
424:    learn: 0.0144734        total: 368ms    remaining: 498ms
425:    learn: 0.0144179        total: 369ms    remaining: 497ms
426:    learn: 0.0143727        total: 369ms    remaining: 496ms
427:    learn: 0.0143452        total: 370ms    remaining: 495ms
428:    learn: 0.0143110        total: 371ms    remaining: 494ms
429:    learn: 0.0142770        total: 372ms    remaining: 492ms
430:    learn: 0.0142347        total: 372ms    remaining: 491ms
431:    learn: 0.0142008        total: 373ms    remaining: 490ms
432:    learn: 0.0141600        total: 373ms    remaining: 489ms
433:    learn: 0.0141222        total: 374ms    remaining: 487ms
434:    learn: 0.0140862        total: 374ms    remaining: 486ms
435:    learn: 0.0140534        total: 375ms    remaining: 485ms
436:    learn: 0.0140283        total: 375ms    remaining: 483ms
437:    learn: 0.0140040        total: 376ms    remaining: 482ms
438:    learn: 0.0139700        total: 376ms    remaining: 481ms
439:    learn: 0.0139323        total: 377ms    remaining: 480ms
440:    learn: 0.0138703        total: 377ms    remaining: 478ms
441:    learn: 0.0138442        total: 378ms    remaining: 477ms
442:    learn: 0.0138096        total: 379ms    remaining: 476ms
443:    learn: 0.0137814        total: 379ms    remaining: 475ms
444:    learn: 0.0137441        total: 380ms    remaining: 474ms
445:    learn: 0.0137148        total: 380ms    remaining: 473ms
446:    learn: 0.0136815        total: 381ms    remaining: 471ms
447:    learn: 0.0136387        total: 382ms    remaining: 470ms
448:    learn: 0.0136053        total: 382ms    remaining: 469ms
449:    learn: 0.0135745        total: 384ms    remaining: 469ms
450:    learn: 0.0135406        total: 385ms    remaining: 468ms
451:    learn: 0.0135117        total: 386ms    remaining: 467ms
452:    learn: 0.0134791        total: 386ms    remaining: 466ms
453:    learn: 0.0134420        total: 387ms    remaining: 465ms
454:    learn: 0.0134129        total: 387ms    remaining: 464ms
455:    learn: 0.0133936        total: 388ms    remaining: 463ms
456:    learn: 0.0133615        total: 388ms    remaining: 461ms
457:    learn: 0.0133070        total: 389ms    remaining: 460ms
458:    learn: 0.0132704        total: 389ms    remaining: 459ms
459:    learn: 0.0132404        total: 390ms    remaining: 458ms
460:    learn: 0.0132114        total: 390ms    remaining: 457ms
461:    learn: 0.0131645        total: 391ms    remaining: 455ms
462:    learn: 0.0131252        total: 392ms    remaining: 454ms
463:    learn: 0.0131003        total: 392ms    remaining: 453ms
464:    learn: 0.0130800        total: 393ms    remaining: 452ms
465:    learn: 0.0130498        total: 393ms    remaining: 450ms
466:    learn: 0.0130043        total: 394ms    remaining: 449ms
467:    learn: 0.0129818        total: 394ms    remaining: 448ms
468:    learn: 0.0129432        total: 395ms    remaining: 447ms
469:    learn: 0.0129140        total: 395ms    remaining: 446ms
470:    learn: 0.0128835        total: 396ms    remaining: 445ms
471:    learn: 0.0128486        total: 397ms    remaining: 444ms
472:    learn: 0.0128172        total: 398ms    remaining: 443ms
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473:    learn: 0.0127882        total: 398ms    remaining: 442ms
474:    learn: 0.0127619        total: 399ms    remaining: 441ms
475:    learn: 0.0127261        total: 399ms    remaining: 440ms
476:    learn: 0.0126948        total: 400ms    remaining: 439ms
477:    learn: 0.0126721        total: 400ms    remaining: 437ms
478:    learn: 0.0126492        total: 401ms    remaining: 436ms
479:    learn: 0.0126085        total: 402ms    remaining: 435ms
480:    learn: 0.0125881        total: 402ms    remaining: 434ms
481:    learn: 0.0125640        total: 403ms    remaining: 433ms
482:    learn: 0.0125404        total: 403ms    remaining: 431ms
483:    learn: 0.0125177        total: 404ms    remaining: 430ms
484:    learn: 0.0124917        total: 404ms    remaining: 429ms
485:    learn: 0.0124701        total: 405ms    remaining: 428ms
486:    learn: 0.0124408        total: 405ms    remaining: 427ms
487:    learn: 0.0124094        total: 406ms    remaining: 426ms
488:    learn: 0.0123879        total: 406ms    remaining: 425ms
489:    learn: 0.0123633        total: 407ms    remaining: 423ms
490:    learn: 0.0123366        total: 407ms    remaining: 422ms
491:    learn: 0.0123044        total: 408ms    remaining: 421ms
492:    learn: 0.0122724        total: 409ms    remaining: 420ms
493:    learn: 0.0122426        total: 409ms    remaining: 419ms
494:    learn: 0.0122169        total: 411ms    remaining: 419ms
495:    learn: 0.0121861        total: 411ms    remaining: 418ms
496:    learn: 0.0121557        total: 412ms    remaining: 417ms
497:    learn: 0.0121393        total: 412ms    remaining: 416ms
498:    learn: 0.0121136        total: 413ms    remaining: 415ms
499:    learn: 0.0120924        total: 414ms    remaining: 414ms
500:    learn: 0.0120741        total: 414ms    remaining: 412ms
501:    learn: 0.0120420        total: 415ms    remaining: 411ms
502:    learn: 0.0120083        total: 415ms    remaining: 410ms
503:    learn: 0.0119866        total: 416ms    remaining: 409ms
504:    learn: 0.0119525        total: 416ms    remaining: 408ms
505:    learn: 0.0119231        total: 417ms    remaining: 407ms
506:    learn: 0.0118948        total: 417ms    remaining: 406ms
507:    learn: 0.0118716        total: 418ms    remaining: 405ms
508:    learn: 0.0118488        total: 418ms    remaining: 404ms
509:    learn: 0.0118264        total: 419ms    remaining: 402ms
510:    learn: 0.0118038        total: 419ms    remaining: 401ms
511:    learn: 0.0117700        total: 420ms    remaining: 400ms
512:    learn: 0.0117422        total: 421ms    remaining: 399ms
513:    learn: 0.0117111        total: 421ms    remaining: 398ms
514:    learn: 0.0116787        total: 422ms    remaining: 397ms
515:    learn: 0.0116533        total: 423ms    remaining: 396ms
516:    learn: 0.0116264        total: 423ms    remaining: 395ms
517:    learn: 0.0115977        total: 424ms    remaining: 395ms
518:    learn: 0.0115735        total: 425ms    remaining: 394ms
519:    learn: 0.0115541        total: 425ms    remaining: 393ms
520:    learn: 0.0115348        total: 426ms    remaining: 392ms
521:    learn: 0.0114960        total: 427ms    remaining: 391ms
522:    learn: 0.0114753        total: 427ms    remaining: 390ms
523:    learn: 0.0114457        total: 428ms    remaining: 388ms
524:    learn: 0.0114187        total: 428ms    remaining: 387ms
525:    learn: 0.0113895        total: 429ms    remaining: 386ms
526:    learn: 0.0113738        total: 429ms    remaining: 385ms
527:    learn: 0.0113464        total: 430ms    remaining: 384ms
528:    learn: 0.0113273        total: 430ms    remaining: 383ms
529:    learn: 0.0113096        total: 431ms    remaining: 382ms
530:    learn: 0.0112825        total: 432ms    remaining: 381ms
531:    learn: 0.0112617        total: 432ms    remaining: 380ms
532:    learn: 0.0112407        total: 433ms    remaining: 379ms
533:    learn: 0.0112156        total: 433ms    remaining: 378ms
534:    learn: 0.0111872        total: 434ms    remaining: 377ms
535:    learn: 0.0111696        total: 434ms    remaining: 376ms
536:    learn: 0.0111510        total: 435ms    remaining: 375ms
537:    learn: 0.0111306        total: 436ms    remaining: 374ms
538:    learn: 0.0111012        total: 436ms    remaining: 373ms
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539:    learn: 0.0110722        total: 437ms    remaining: 372ms
540:    learn: 0.0110492        total: 438ms    remaining: 372ms
541:    learn: 0.0110273        total: 439ms    remaining: 371ms
542:    learn: 0.0110101        total: 439ms    remaining: 370ms
543:    learn: 0.0109902        total: 440ms    remaining: 369ms
544:    learn: 0.0109685        total: 440ms    remaining: 368ms
545:    learn: 0.0109506        total: 441ms    remaining: 367ms
546:    learn: 0.0109182        total: 441ms    remaining: 366ms
547:    learn: 0.0109018        total: 442ms    remaining: 365ms
548:    learn: 0.0108826        total: 442ms    remaining: 363ms
549:    learn: 0.0108604        total: 443ms    remaining: 362ms
550:    learn: 0.0108204        total: 444ms    remaining: 361ms
551:    learn: 0.0107965        total: 444ms    remaining: 360ms
552:    learn: 0.0107781        total: 445ms    remaining: 359ms
553:    learn: 0.0107491        total: 445ms    remaining: 358ms
554:    learn: 0.0107307        total: 446ms    remaining: 357ms
555:    learn: 0.0107028        total: 446ms    remaining: 356ms
556:    learn: 0.0106852        total: 447ms    remaining: 355ms
557:    learn: 0.0106585        total: 448ms    remaining: 354ms
558:    learn: 0.0106355        total: 448ms    remaining: 353ms
559:    learn: 0.0106154        total: 449ms    remaining: 353ms
560:    learn: 0.0105896        total: 449ms    remaining: 352ms
561:    learn: 0.0105636        total: 450ms    remaining: 351ms
562:    learn: 0.0105385        total: 451ms    remaining: 350ms
563:    learn: 0.0105169        total: 452ms    remaining: 349ms
564:    learn: 0.0104937        total: 452ms    remaining: 348ms
565:    learn: 0.0104728        total: 453ms    remaining: 347ms
566:    learn: 0.0104491        total: 453ms    remaining: 346ms
567:    learn: 0.0104250        total: 454ms    remaining: 345ms
568:    learn: 0.0103936        total: 454ms    remaining: 344ms
569:    learn: 0.0103693        total: 455ms    remaining: 343ms
570:    learn: 0.0103443        total: 455ms    remaining: 342ms
571:    learn: 0.0103250        total: 456ms    remaining: 341ms
572:    learn: 0.0103115        total: 456ms    remaining: 340ms
573:    learn: 0.0102969        total: 457ms    remaining: 339ms
574:    learn: 0.0102749        total: 458ms    remaining: 338ms
575:    learn: 0.0102591        total: 458ms    remaining: 337ms
576:    learn: 0.0102345        total: 459ms    remaining: 336ms
577:    learn: 0.0102147        total: 459ms    remaining: 335ms
578:    learn: 0.0101883        total: 460ms    remaining: 334ms
579:    learn: 0.0101614        total: 460ms    remaining: 333ms
580:    learn: 0.0101460        total: 461ms    remaining: 332ms
581:    learn: 0.0101217        total: 461ms    remaining: 331ms
582:    learn: 0.0101026        total: 462ms    remaining: 331ms
583:    learn: 0.0100811        total: 463ms    remaining: 330ms
584:    learn: 0.0100595        total: 463ms    remaining: 329ms
585:    learn: 0.0100398        total: 464ms    remaining: 328ms
586:    learn: 0.0100225        total: 464ms    remaining: 327ms
587:    learn: 0.0100017        total: 465ms    remaining: 326ms
588:    learn: 0.0099854        total: 465ms    remaining: 325ms
589:    learn: 0.0099662        total: 466ms    remaining: 324ms
590:    learn: 0.0099526        total: 467ms    remaining: 323ms
591:    learn: 0.0099308        total: 467ms    remaining: 322ms
592:    learn: 0.0099048        total: 468ms    remaining: 321ms
593:    learn: 0.0098850        total: 468ms    remaining: 320ms
594:    learn: 0.0098653        total: 469ms    remaining: 319ms
595:    learn: 0.0098449        total: 470ms    remaining: 318ms
596:    learn: 0.0098283        total: 470ms    remaining: 318ms
597:    learn: 0.0098044        total: 471ms    remaining: 317ms
598:    learn: 0.0097906        total: 472ms    remaining: 316ms
599:    learn: 0.0097740        total: 472ms    remaining: 315ms
600:    learn: 0.0097603        total: 473ms    remaining: 314ms
601:    learn: 0.0097448        total: 473ms    remaining: 313ms
602:    learn: 0.0097324        total: 474ms    remaining: 312ms
603:    learn: 0.0097175        total: 474ms    remaining: 311ms
604:    learn: 0.0097030        total: 475ms    remaining: 310ms
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605:    learn: 0.0096818        total: 476ms    remaining: 309ms
606:    learn: 0.0096631        total: 476ms    remaining: 308ms
607:    learn: 0.0096420        total: 477ms    remaining: 308ms
608:    learn: 0.0096263        total: 478ms    remaining: 307ms
609:    learn: 0.0096079        total: 478ms    remaining: 306ms
610:    learn: 0.0095898        total: 479ms    remaining: 305ms
611:    learn: 0.0095776        total: 479ms    remaining: 304ms
612:    learn: 0.0095618        total: 480ms    remaining: 303ms
613:    learn: 0.0095472        total: 480ms    remaining: 302ms
614:    learn: 0.0095329        total: 481ms    remaining: 301ms
615:    learn: 0.0095160        total: 481ms    remaining: 300ms
616:    learn: 0.0095006        total: 482ms    remaining: 299ms
617:    learn: 0.0094853        total: 482ms    remaining: 298ms
618:    learn: 0.0094697        total: 483ms    remaining: 297ms
619:    learn: 0.0094550        total: 484ms    remaining: 296ms
620:    learn: 0.0094360        total: 484ms    remaining: 296ms
621:    learn: 0.0094203        total: 485ms    remaining: 295ms
622:    learn: 0.0094026        total: 485ms    remaining: 294ms
623:    learn: 0.0093854        total: 486ms    remaining: 293ms
624:    learn: 0.0093701        total: 486ms    remaining: 292ms
625:    learn: 0.0093582        total: 487ms    remaining: 291ms
626:    learn: 0.0093449        total: 487ms    remaining: 290ms
627:    learn: 0.0093285        total: 488ms    remaining: 289ms
628:    learn: 0.0093154        total: 489ms    remaining: 288ms
629:    learn: 0.0093008        total: 489ms    remaining: 287ms
630:    learn: 0.0092846        total: 490ms    remaining: 286ms
631:    learn: 0.0092709        total: 490ms    remaining: 285ms
632:    learn: 0.0092537        total: 491ms    remaining: 285ms
633:    learn: 0.0092392        total: 491ms    remaining: 284ms
634:    learn: 0.0092252        total: 492ms    remaining: 283ms
635:    learn: 0.0092108        total: 492ms    remaining: 282ms
636:    learn: 0.0091957        total: 493ms    remaining: 281ms
637:    learn: 0.0091840        total: 493ms    remaining: 280ms
638:    learn: 0.0091706        total: 494ms    remaining: 279ms
639:    learn: 0.0091572        total: 495ms    remaining: 278ms
640:    learn: 0.0091432        total: 495ms    remaining: 277ms
641:    learn: 0.0091242        total: 496ms    remaining: 276ms
642:    learn: 0.0091102        total: 496ms    remaining: 275ms
643:    learn: 0.0090990        total: 497ms    remaining: 275ms
644:    learn: 0.0090827        total: 497ms    remaining: 274ms
645:    learn: 0.0090689        total: 498ms    remaining: 273ms
646:    learn: 0.0090503        total: 498ms    remaining: 272ms
647:    learn: 0.0090318        total: 499ms    remaining: 271ms
648:    learn: 0.0090185        total: 500ms    remaining: 270ms
649:    learn: 0.0090068        total: 500ms    remaining: 269ms
650:    learn: 0.0089943        total: 501ms    remaining: 268ms
651:    learn: 0.0089790        total: 501ms    remaining: 268ms
652:    learn: 0.0089690        total: 502ms    remaining: 267ms
653:    learn: 0.0089574        total: 502ms    remaining: 266ms
654:    learn: 0.0089410        total: 503ms    remaining: 265ms
655:    learn: 0.0089266        total: 503ms    remaining: 264ms
656:    learn: 0.0089129        total: 504ms    remaining: 263ms
657:    learn: 0.0089003        total: 504ms    remaining: 262ms
658:    learn: 0.0088900        total: 505ms    remaining: 261ms
659:    learn: 0.0088767        total: 506ms    remaining: 260ms
660:    learn: 0.0088652        total: 506ms    remaining: 260ms
661:    learn: 0.0088476        total: 507ms    remaining: 259ms
662:    learn: 0.0088347        total: 507ms    remaining: 258ms
663:    learn: 0.0088199        total: 508ms    remaining: 257ms
664:    learn: 0.0088077        total: 508ms    remaining: 256ms
665:    learn: 0.0087957        total: 509ms    remaining: 255ms
666:    learn: 0.0087807        total: 510ms    remaining: 254ms
667:    learn: 0.0087594        total: 510ms    remaining: 254ms
668:    learn: 0.0087490        total: 511ms    remaining: 253ms
669:    learn: 0.0087330        total: 511ms    remaining: 252ms
670:    learn: 0.0087204        total: 512ms    remaining: 251ms
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671:    learn: 0.0087062        total: 512ms    remaining: 250ms
672:    learn: 0.0086956        total: 513ms    remaining: 249ms
673:    learn: 0.0086773        total: 514ms    remaining: 248ms
674:    learn: 0.0086566        total: 514ms    remaining: 248ms
675:    learn: 0.0086430        total: 515ms    remaining: 247ms
676:    learn: 0.0086286        total: 515ms    remaining: 246ms
677:    learn: 0.0086169        total: 516ms    remaining: 245ms
678:    learn: 0.0086068        total: 516ms    remaining: 244ms
679:    learn: 0.0085947        total: 517ms    remaining: 243ms
680:    learn: 0.0085809        total: 517ms    remaining: 242ms
681:    learn: 0.0085665        total: 518ms    remaining: 242ms
682:    learn: 0.0085569        total: 519ms    remaining: 241ms
683:    learn: 0.0085466        total: 519ms    remaining: 240ms
684:    learn: 0.0085350        total: 520ms    remaining: 239ms
685:    learn: 0.0085212        total: 520ms    remaining: 238ms
686:    learn: 0.0085098        total: 521ms    remaining: 237ms
687:    learn: 0.0084961        total: 521ms    remaining: 236ms
688:    learn: 0.0084844        total: 522ms    remaining: 236ms
689:    learn: 0.0084645        total: 522ms    remaining: 235ms
690:    learn: 0.0084538        total: 523ms    remaining: 234ms
691:    learn: 0.0084435        total: 523ms    remaining: 233ms
692:    learn: 0.0084239        total: 524ms    remaining: 232ms
693:    learn: 0.0084138        total: 525ms    remaining: 231ms
694:    learn: 0.0084011        total: 525ms    remaining: 230ms
695:    learn: 0.0083881        total: 526ms    remaining: 230ms
696:    learn: 0.0083760        total: 526ms    remaining: 229ms
697:    learn: 0.0083646        total: 527ms    remaining: 228ms
698:    learn: 0.0083533        total: 527ms    remaining: 227ms
699:    learn: 0.0083356        total: 528ms    remaining: 226ms
700:    learn: 0.0083248        total: 528ms    remaining: 225ms
701:    learn: 0.0083149        total: 529ms    remaining: 225ms
702:    learn: 0.0083013        total: 530ms    remaining: 224ms
703:    learn: 0.0082835        total: 530ms    remaining: 223ms
704:    learn: 0.0082729        total: 531ms    remaining: 222ms
705:    learn: 0.0082596        total: 531ms    remaining: 221ms
706:    learn: 0.0082409        total: 532ms    remaining: 220ms
707:    learn: 0.0082224        total: 532ms    remaining: 220ms
708:    learn: 0.0082075        total: 533ms    remaining: 219ms
709:    learn: 0.0081998        total: 533ms    remaining: 218ms
710:    learn: 0.0081904        total: 534ms    remaining: 217ms
711:    learn: 0.0081722        total: 535ms    remaining: 216ms
712:    learn: 0.0081583        total: 535ms    remaining: 215ms
713:    learn: 0.0081454        total: 536ms    remaining: 215ms
714:    learn: 0.0081344        total: 536ms    remaining: 214ms
715:    learn: 0.0081225        total: 537ms    remaining: 213ms
716:    learn: 0.0081083        total: 537ms    remaining: 212ms
717:    learn: 0.0080971        total: 538ms    remaining: 211ms
718:    learn: 0.0080875        total: 538ms    remaining: 210ms
719:    learn: 0.0080747        total: 539ms    remaining: 210ms
720:    learn: 0.0080643        total: 539ms    remaining: 209ms
721:    learn: 0.0080503        total: 540ms    remaining: 208ms
722:    learn: 0.0080344        total: 541ms    remaining: 207ms
723:    learn: 0.0080257        total: 541ms    remaining: 206ms
724:    learn: 0.0080153        total: 542ms    remaining: 205ms
725:    learn: 0.0080006        total: 542ms    remaining: 205ms
726:    learn: 0.0079892        total: 543ms    remaining: 204ms
727:    learn: 0.0079792        total: 543ms    remaining: 203ms
728:    learn: 0.0079686        total: 544ms    remaining: 202ms
729:    learn: 0.0079581        total: 544ms    remaining: 201ms
730:    learn: 0.0079463        total: 545ms    remaining: 201ms
731:    learn: 0.0079378        total: 545ms    remaining: 200ms
732:    learn: 0.0079259        total: 546ms    remaining: 199ms
733:    learn: 0.0079086        total: 547ms    remaining: 198ms
734:    learn: 0.0078952        total: 547ms    remaining: 197ms
735:    learn: 0.0078870        total: 548ms    remaining: 197ms
736:    learn: 0.0078740        total: 548ms    remaining: 196ms
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737:    learn: 0.0078630        total: 549ms    remaining: 195ms
738:    learn: 0.0078521        total: 550ms    remaining: 194ms
739:    learn: 0.0078408        total: 550ms    remaining: 193ms
740:    learn: 0.0078317        total: 551ms    remaining: 192ms
741:    learn: 0.0078238        total: 551ms    remaining: 192ms
742:    learn: 0.0078112        total: 552ms    remaining: 191ms
743:    learn: 0.0078008        total: 552ms    remaining: 190ms
744:    learn: 0.0077924        total: 553ms    remaining: 189ms
745:    learn: 0.0077808        total: 553ms    remaining: 188ms
746:    learn: 0.0077664        total: 554ms    remaining: 188ms
747:    learn: 0.0077531        total: 554ms    remaining: 187ms
748:    learn: 0.0077377        total: 555ms    remaining: 186ms
749:    learn: 0.0077286        total: 556ms    remaining: 185ms
750:    learn: 0.0077126        total: 556ms    remaining: 184ms
751:    learn: 0.0077006        total: 557ms    remaining: 184ms
752:    learn: 0.0076844        total: 557ms    remaining: 183ms
753:    learn: 0.0076660        total: 558ms    remaining: 182ms
754:    learn: 0.0076577        total: 558ms    remaining: 181ms
755:    learn: 0.0076482        total: 559ms    remaining: 180ms
756:    learn: 0.0076358        total: 560ms    remaining: 180ms
757:    learn: 0.0076270        total: 560ms    remaining: 179ms
758:    learn: 0.0076167        total: 561ms    remaining: 178ms
759:    learn: 0.0076079        total: 562ms    remaining: 177ms
760:    learn: 0.0075964        total: 562ms    remaining: 177ms
761:    learn: 0.0075849        total: 563ms    remaining: 176ms
762:    learn: 0.0075736        total: 563ms    remaining: 175ms
763:    learn: 0.0075650        total: 564ms    remaining: 174ms
764:    learn: 0.0075497        total: 564ms    remaining: 173ms
765:    learn: 0.0075404        total: 565ms    remaining: 173ms
766:    learn: 0.0075321        total: 566ms    remaining: 172ms
767:    learn: 0.0075164        total: 566ms    remaining: 171ms
768:    learn: 0.0075036        total: 567ms    remaining: 170ms
769:    learn: 0.0074942        total: 567ms    remaining: 169ms
770:    learn: 0.0074810        total: 568ms    remaining: 169ms
771:    learn: 0.0074696        total: 568ms    remaining: 168ms
772:    learn: 0.0074586        total: 569ms    remaining: 167ms
773:    learn: 0.0074492        total: 569ms    remaining: 166ms
774:    learn: 0.0074356        total: 570ms    remaining: 165ms
775:    learn: 0.0074273        total: 570ms    remaining: 165ms
776:    learn: 0.0074169        total: 571ms    remaining: 164ms
777:    learn: 0.0074085        total: 571ms    remaining: 163ms
778:    learn: 0.0073976        total: 572ms    remaining: 162ms
779:    learn: 0.0073892        total: 573ms    remaining: 162ms
780:    learn: 0.0073780        total: 573ms    remaining: 161ms
781:    learn: 0.0073687        total: 574ms    remaining: 160ms
782:    learn: 0.0073586        total: 574ms    remaining: 159ms
783:    learn: 0.0073481        total: 575ms    remaining: 158ms
784:    learn: 0.0073386        total: 575ms    remaining: 158ms
785:    learn: 0.0073305        total: 576ms    remaining: 157ms
786:    learn: 0.0073183        total: 576ms    remaining: 156ms
787:    learn: 0.0073081        total: 577ms    remaining: 155ms
788:    learn: 0.0072996        total: 577ms    remaining: 154ms
789:    learn: 0.0072869        total: 578ms    remaining: 154ms
790:    learn: 0.0072771        total: 579ms    remaining: 153ms
791:    learn: 0.0072659        total: 579ms    remaining: 152ms
792:    learn: 0.0072539        total: 580ms    remaining: 151ms
793:    learn: 0.0072396        total: 580ms    remaining: 151ms
794:    learn: 0.0072296        total: 581ms    remaining: 150ms
795:    learn: 0.0072178        total: 582ms    remaining: 149ms
796:    learn: 0.0072087        total: 582ms    remaining: 148ms
797:    learn: 0.0071970        total: 583ms    remaining: 147ms
798:    learn: 0.0071893        total: 583ms    remaining: 147ms
799:    learn: 0.0071788        total: 584ms    remaining: 146ms
800:    learn: 0.0071675        total: 584ms    remaining: 145ms
801:    learn: 0.0071591        total: 585ms    remaining: 144ms
802:    learn: 0.0071505        total: 586ms    remaining: 144ms
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803:    learn: 0.0071400        total: 587ms    remaining: 143ms
804:    learn: 0.0071249        total: 588ms    remaining: 142ms
805:    learn: 0.0071148        total: 588ms    remaining: 142ms
806:    learn: 0.0071088        total: 589ms    remaining: 141ms
807:    learn: 0.0071023        total: 590ms    remaining: 140ms
808:    learn: 0.0070940        total: 590ms    remaining: 139ms
809:    learn: 0.0070855        total: 591ms    remaining: 139ms
810:    learn: 0.0070774        total: 591ms    remaining: 138ms
811:    learn: 0.0070699        total: 592ms    remaining: 137ms
812:    learn: 0.0070604        total: 592ms    remaining: 136ms
813:    learn: 0.0070504        total: 593ms    remaining: 135ms
814:    learn: 0.0070403        total: 593ms    remaining: 135ms
815:    learn: 0.0070290        total: 594ms    remaining: 134ms
816:    learn: 0.0070155        total: 595ms    remaining: 133ms
817:    learn: 0.0070075        total: 595ms    remaining: 132ms
818:    learn: 0.0070014        total: 596ms    remaining: 132ms
819:    learn: 0.0069942        total: 596ms    remaining: 131ms
820:    learn: 0.0069861        total: 597ms    remaining: 130ms
821:    learn: 0.0069792        total: 597ms    remaining: 129ms
822:    learn: 0.0069721        total: 598ms    remaining: 129ms
823:    learn: 0.0069627        total: 598ms    remaining: 128ms
824:    learn: 0.0069540        total: 599ms    remaining: 127ms
825:    learn: 0.0069461        total: 599ms    remaining: 126ms
826:    learn: 0.0069372        total: 600ms    remaining: 126ms
827:    learn: 0.0069266        total: 601ms    remaining: 125ms
828:    learn: 0.0069193        total: 601ms    remaining: 124ms
829:    learn: 0.0069109        total: 603ms    remaining: 123ms
830:    learn: 0.0069044        total: 604ms    remaining: 123ms
831:    learn: 0.0068958        total: 604ms    remaining: 122ms
832:    learn: 0.0068890        total: 605ms    remaining: 121ms
833:    learn: 0.0068797        total: 605ms    remaining: 121ms
834:    learn: 0.0068721        total: 606ms    remaining: 120ms
835:    learn: 0.0068645        total: 607ms    remaining: 119ms
836:    learn: 0.0068569        total: 607ms    remaining: 118ms
837:    learn: 0.0068493        total: 608ms    remaining: 117ms
838:    learn: 0.0068381        total: 608ms    remaining: 117ms
839:    learn: 0.0068304        total: 609ms    remaining: 116ms
840:    learn: 0.0068223        total: 609ms    remaining: 115ms
841:    learn: 0.0068145        total: 610ms    remaining: 114ms
842:    learn: 0.0068081        total: 611ms    remaining: 114ms
843:    learn: 0.0068001        total: 611ms    remaining: 113ms
844:    learn: 0.0067902        total: 612ms    remaining: 112ms
845:    learn: 0.0067817        total: 612ms    remaining: 111ms
846:    learn: 0.0067728        total: 613ms    remaining: 111ms
847:    learn: 0.0067643        total: 613ms    remaining: 110ms
848:    learn: 0.0067552        total: 614ms    remaining: 109ms
849:    learn: 0.0067464        total: 615ms    remaining: 109ms
850:    learn: 0.0067390        total: 616ms    remaining: 108ms
851:    learn: 0.0067313        total: 617ms    remaining: 107ms
852:    learn: 0.0067241        total: 617ms    remaining: 106ms
853:    learn: 0.0067174        total: 618ms    remaining: 106ms
854:    learn: 0.0067070        total: 618ms    remaining: 105ms
855:    learn: 0.0067001        total: 619ms    remaining: 104ms
856:    learn: 0.0066909        total: 620ms    remaining: 103ms
857:    learn: 0.0066820        total: 620ms    remaining: 103ms
858:    learn: 0.0066744        total: 621ms    remaining: 102ms
859:    learn: 0.0066680        total: 621ms    remaining: 101ms
860:    learn: 0.0066611        total: 622ms    remaining: 100ms
861:    learn: 0.0066533        total: 622ms    remaining: 99.6ms
862:    learn: 0.0066445        total: 623ms    remaining: 98.9ms
863:    learn: 0.0066378        total: 623ms    remaining: 98.1ms
864:    learn: 0.0066319        total: 624ms    remaining: 97.4ms
865:    learn: 0.0066218        total: 625ms    remaining: 96.7ms
866:    learn: 0.0066117        total: 625ms    remaining: 95.9ms
867:    learn: 0.0066045        total: 626ms    remaining: 95.2ms
868:    learn: 0.0065960        total: 627ms    remaining: 94.4ms
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869:    learn: 0.0065867        total: 627ms    remaining: 93.7ms
870:    learn: 0.0065724        total: 628ms    remaining: 93ms
871:    learn: 0.0065643        total: 629ms    remaining: 92.3ms
872:    learn: 0.0065545        total: 630ms    remaining: 91.6ms
873:    learn: 0.0065450        total: 631ms    remaining: 90.9ms
874:    learn: 0.0065384        total: 631ms    remaining: 90.2ms
875:    learn: 0.0065294        total: 632ms    remaining: 89.4ms
876:    learn: 0.0065219        total: 632ms    remaining: 88.7ms
877:    learn: 0.0065155        total: 633ms    remaining: 87.9ms
878:    learn: 0.0065071        total: 633ms    remaining: 87.2ms
879:    learn: 0.0064998        total: 634ms    remaining: 86.5ms
880:    learn: 0.0064931        total: 635ms    remaining: 85.7ms
881:    learn: 0.0064814        total: 635ms    remaining: 85ms
882:    learn: 0.0064738        total: 636ms    remaining: 84.2ms
883:    learn: 0.0064645        total: 636ms    remaining: 83.5ms
884:    learn: 0.0064560        total: 637ms    remaining: 82.7ms
885:    learn: 0.0064487        total: 637ms    remaining: 82ms
886:    learn: 0.0064419        total: 638ms    remaining: 81.3ms
887:    learn: 0.0064356        total: 638ms    remaining: 80.5ms
888:    learn: 0.0064292        total: 639ms    remaining: 79.8ms
889:    learn: 0.0064200        total: 640ms    remaining: 79.1ms
890:    learn: 0.0064142        total: 640ms    remaining: 78.3ms
891:    learn: 0.0064027        total: 641ms    remaining: 77.6ms
892:    learn: 0.0063939        total: 641ms    remaining: 76.9ms
893:    learn: 0.0063852        total: 642ms    remaining: 76.2ms
894:    learn: 0.0063793        total: 643ms    remaining: 75.5ms
895:    learn: 0.0063706        total: 644ms    remaining: 74.8ms
896:    learn: 0.0063637        total: 645ms    remaining: 74ms
897:    learn: 0.0063544        total: 645ms    remaining: 73.3ms
898:    learn: 0.0063484        total: 646ms    remaining: 72.6ms
899:    learn: 0.0063405        total: 646ms    remaining: 71.8ms
900:    learn: 0.0063319        total: 647ms    remaining: 71.1ms
901:    learn: 0.0063239        total: 647ms    remaining: 70.3ms
902:    learn: 0.0063181        total: 648ms    remaining: 69.6ms
903:    learn: 0.0063125        total: 649ms    remaining: 68.9ms
904:    learn: 0.0063057        total: 649ms    remaining: 68.1ms
905:    learn: 0.0063000        total: 650ms    remaining: 67.4ms
906:    learn: 0.0062939        total: 650ms    remaining: 66.7ms
907:    learn: 0.0062883        total: 651ms    remaining: 65.9ms
908:    learn: 0.0062778        total: 651ms    remaining: 65.2ms
909:    learn: 0.0062690        total: 652ms    remaining: 64.5ms
910:    learn: 0.0062635        total: 653ms    remaining: 63.7ms
911:    learn: 0.0062557        total: 653ms    remaining: 63ms
912:    learn: 0.0062499        total: 654ms    remaining: 62.3ms
913:    learn: 0.0062424        total: 654ms    remaining: 61.6ms
914:    learn: 0.0062360        total: 655ms    remaining: 60.8ms
915:    learn: 0.0062266        total: 655ms    remaining: 60.1ms
916:    learn: 0.0062192        total: 656ms    remaining: 59.4ms
917:    learn: 0.0062130        total: 657ms    remaining: 58.7ms
918:    learn: 0.0062024        total: 658ms    remaining: 58ms
919:    learn: 0.0061950        total: 658ms    remaining: 57.2ms
920:    learn: 0.0061842        total: 659ms    remaining: 56.5ms
921:    learn: 0.0061754        total: 659ms    remaining: 55.8ms
922:    learn: 0.0061682        total: 660ms    remaining: 55ms
923:    learn: 0.0061621        total: 660ms    remaining: 54.3ms
924:    learn: 0.0061566        total: 661ms    remaining: 53.6ms
925:    learn: 0.0061509        total: 662ms    remaining: 52.9ms
926:    learn: 0.0061438        total: 662ms    remaining: 52.1ms
927:    learn: 0.0061385        total: 663ms    remaining: 51.4ms
928:    learn: 0.0061317        total: 663ms    remaining: 50.7ms
929:    learn: 0.0061231        total: 664ms    remaining: 50ms
930:    learn: 0.0061152        total: 664ms    remaining: 49.2ms
931:    learn: 0.0061087        total: 665ms    remaining: 48.5ms
932:    learn: 0.0061031        total: 666ms    remaining: 47.8ms
933:    learn: 0.0060970        total: 666ms    remaining: 47.1ms
934:    learn: 0.0060913        total: 667ms    remaining: 46.3ms
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935:    learn: 0.0060844        total: 667ms    remaining: 45.6ms
936:    learn: 0.0060767        total: 668ms    remaining: 44.9ms
937:    learn: 0.0060713        total: 668ms    remaining: 44.2ms
938:    learn: 0.0060652        total: 669ms    remaining: 43.5ms
939:    learn: 0.0060580        total: 670ms    remaining: 42.7ms
940:    learn: 0.0060509        total: 670ms    remaining: 42ms
941:    learn: 0.0060428        total: 676ms    remaining: 41.7ms
942:    learn: 0.0060338        total: 677ms    remaining: 40.9ms
943:    learn: 0.0060286        total: 678ms    remaining: 40.2ms
944:    learn: 0.0060235        total: 679ms    remaining: 39.5ms
945:    learn: 0.0060162        total: 679ms    remaining: 38.8ms
946:    learn: 0.0060097        total: 680ms    remaining: 38.1ms
947:    learn: 0.0060041        total: 681ms    remaining: 37.3ms
948:    learn: 0.0059968        total: 681ms    remaining: 36.6ms
949:    learn: 0.0059909        total: 682ms    remaining: 35.9ms
950:    learn: 0.0059793        total: 682ms    remaining: 35.2ms
951:    learn: 0.0059729        total: 683ms    remaining: 34.4ms
952:    learn: 0.0059654        total: 684ms    remaining: 33.7ms
953:    learn: 0.0059598        total: 684ms    remaining: 33ms
954:    learn: 0.0059526        total: 685ms    remaining: 32.3ms
955:    learn: 0.0059467        total: 685ms    remaining: 31.5ms
956:    learn: 0.0059409        total: 686ms    remaining: 30.8ms
957:    learn: 0.0059339        total: 686ms    remaining: 30.1ms
958:    learn: 0.0059259        total: 687ms    remaining: 29.4ms
959:    learn: 0.0059177        total: 687ms    remaining: 28.6ms
960:    learn: 0.0059107        total: 688ms    remaining: 27.9ms
961:    learn: 0.0059033        total: 689ms    remaining: 27.2ms
962:    learn: 0.0058988        total: 689ms    remaining: 26.5ms
963:    learn: 0.0058904        total: 690ms    remaining: 25.8ms
964:    learn: 0.0058826        total: 690ms    remaining: 25ms
965:    learn: 0.0058734        total: 691ms    remaining: 24.3ms
966:    learn: 0.0058615        total: 691ms    remaining: 23.6ms
967:    learn: 0.0058555        total: 692ms    remaining: 22.9ms
968:    learn: 0.0058484        total: 693ms    remaining: 22.2ms
969:    learn: 0.0058436        total: 693ms    remaining: 21.4ms
970:    learn: 0.0058393        total: 694ms    remaining: 20.7ms
971:    learn: 0.0058346        total: 694ms    remaining: 20ms
972:    learn: 0.0058284        total: 695ms    remaining: 19.3ms
973:    learn: 0.0058223        total: 695ms    remaining: 18.6ms
974:    learn: 0.0058155        total: 696ms    remaining: 17.8ms
975:    learn: 0.0058087        total: 696ms    remaining: 17.1ms
976:    learn: 0.0058039        total: 697ms    remaining: 16.4ms
977:    learn: 0.0057989        total: 698ms    remaining: 15.7ms
978:    learn: 0.0057941        total: 698ms    remaining: 15ms
979:    learn: 0.0057881        total: 699ms    remaining: 14.3ms
980:    learn: 0.0057838        total: 699ms    remaining: 13.5ms
981:    learn: 0.0057768        total: 700ms    remaining: 12.8ms
982:    learn: 0.0057713        total: 700ms    remaining: 12.1ms
983:    learn: 0.0057662        total: 701ms    remaining: 11.4ms
984:    learn: 0.0057608        total: 701ms    remaining: 10.7ms
985:    learn: 0.0057544        total: 702ms    remaining: 9.97ms
986:    learn: 0.0057477        total: 703ms    remaining: 9.25ms
987:    learn: 0.0057418        total: 703ms    remaining: 8.54ms
988:    learn: 0.0057361        total: 704ms    remaining: 7.83ms
989:    learn: 0.0057276        total: 704ms    remaining: 7.11ms
990:    learn: 0.0057211        total: 705ms    remaining: 6.4ms
991:    learn: 0.0057159        total: 705ms    remaining: 5.69ms
992:    learn: 0.0057106        total: 706ms    remaining: 4.98ms
993:    learn: 0.0057056        total: 707ms    remaining: 4.26ms
994:    learn: 0.0056984        total: 707ms    remaining: 3.55ms
995:    learn: 0.0056929        total: 708ms    remaining: 2.84ms
996:    learn: 0.0056886        total: 708ms    remaining: 2.13ms
997:    learn: 0.0056837        total: 709ms    remaining: 1.42ms
998:    learn: 0.0056756        total: 709ms    remaining: 710us
999:    learn: 0.0056699        total: 710ms    remaining: 0us
Confusion matrix is :
```

```
 [[23  0  0]
 [ 0 29  2]
 [ 0  1 20]]
Classification report is :
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        23
           1       0.97      0.94      0.95        31
           2       0.91      0.95      0.93        21

    accuracy                           0.96        75
   macro avg       0.96      0.96      0.96        75
weighted avg       0.96      0.96      0.96        75
```