```
In [1]:
         import pandas as pd
         df_train = pd.read_csv('../Admin/datasets/TITANIC/train.csv')
In [2]:
         df test = pd.read csv('../Admin/datasets/TITANIC/test.csv')
         X cols = list(df train.columns)
In [3]:
         v col = 'Survived'
In [4]: X cols.remove('Cabin')
         X_cols.remove('PassengerId')
         X cols.remove('Survived')
         X cols.remove('Ticket')
         X cols.remove('Name')
         df train['Age'].fillna(df train['Age'].median(),inplace=True)
In [5]:
         df test['Age'].fillna(df train['Age'].median(),inplace=True)
         df train['Embarked'].fillna(df train['Embarked'].mode()[0],inplace=True)
         df test['Embarked'].fillna(df train['Embarked'].mode()[0],inplace=True)
In [6]:
         temp = pd.get dummies(df train['Embarked'])
         df train = pd.concat([df train,temp],axis=1)
         temp = pd.get_dummies(df_test['Embarked'])
         df test = pd.concat([df test,temp],axis=1)
         X cols.extend(temp.columns)
         X cols.remove('Embarked')
In [7]:
In [8]:
         X_cols
Out[8]: ['Pclass', 'Sex', 'Age', 'SibSp', 'Parch', 'Fare', 'C', 'Q', 'S']
        temp_1 = pd.get_dummies(df_train['Sex'])
In [9]:
         df_train = pd.concat([df_train,temp_1],axis=1)
         temp_1 = pd.get_dummies(df_test['Sex'])
         df_test = pd.concat([df_test,temp_1],axis=1)
```

```
X cols.extend(temp 1.columns)
          X cols.remove('Sex')
In [10]:
In [11]:
          X cols
Out[11]: ['Pclass', 'Age', 'SibSp', 'Parch', 'Fare', 'C', 'Q', 'S', 'female', 'male']
In [12]:
          X cols.remove('male')
In [13]:
          X cols
Out[13]: ['Pclass', 'Age', 'SibSp', 'Parch', 'Fare', 'C', 'Q', 'S', 'female']
          df train[X cols].info()
In [14]:
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 891 entries, 0 to 890
         Data columns (total 9 columns):
              Column Non-Null Count Dtype
              Pclass 891 non-null
                                      int64
          1
              Age
                      891 non-null
                                     float64
                     891 non-null
          2
              SibSp
                                      int64
          3
                     891 non-null
                                     int64
              Parch
                      891 non-null
          4
              Fare
                                     float64
          5
                      891 non-null
                                      uint8
              C
          6
              0
                      891 non-null
                                      uint8
          7
              S
                      891 non-null
                                      uint8
              female 891 non-null
                                      uint8
         dtypes: float64(2), int64(3), uint8(4)
         memory usage: 38.4 KB
          df_test[X_cols].info()
In [15]:
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 418 entries, 0 to 417
         Data columns (total 9 columns):
              Column Non-Null Count Dtype
              _____
              Pclass 418 non-null
                                      int64
              Age
          1
                      418 non-null
                                     float64
              SibSp
                      418 non-null
                                     int64
```

```
Parch
                      418 non-null
                                      int64
           4
                      417 non-null
                                      float64
              Fare
           5
              C
                      418 non-null
                                      uint8
                      418 non-null
                                      uint8
           6
              Q
           7
                      418 non-null
                                      uint8
              S
              female 418 non-null
                                      uint8
         dtypes: float64(2), int64(3), uint8(4)
         memory usage: 18.1 KB
          df test['Fare'].fillna(df train['Fare'].median(),inplace=True)
In [16]:
          df test[X cols].isna().sum()
In [17]:
         Pclass
                   0
Out[17]:
         Age
                   0
         SibSp
         Parch
         Fare
         C
         Q
                   0
         female
         dtype: int64
          df_train[X_cols]
In [18]:
Out[18]:
              Pclass Age SibSp Parch
                                        Fare C Q S female
                  3 22.0
           0
                             1
                                   0
                                      7.2500 0 0 1
                                                          0
                  1 38.0
                                   0 71.2833 1 0 0
           1
                                                          1
                             1
           2
                  3 26.0
                             0
                                      7.9250 0 0 1
                                                          1
           3
                  1 35.0
                             1
                                      53.1000 0 0 1
                                                          1
                                      8.0500 0 0 1
           4
                  3 35.0
                             0
                                                          0
                                   0 13.0000 0 0 1
         886
                  2 27.0
                             0
                                                          0
         887
                  1 19.0
                             0
                                   0 30.0000 0 0 1
                                                          1
         888
                  3 28.0
                             1
                                   2 23.4500 0 0 1
                                                          1
         889
                  1 26.0
                             0
                                   0 30.0000 1 0 0
                                                          0
```

```
        Pclass
        Age
        SibSp
        Parch
        Fare
        C
        Q
        S
        female

        890
        3
        32.0
        0
        0
        7.7500
        0
        1
        0
        0
```

891 rows × 9 columns

```
In [19]: def get_agegroup(X):
    if X<20:
        return 'P'
    elif X<40:
        return 'W'
    elif X<60:
        return 'D'
    else:
        return 'Z'</pre>
```

```
In [20]: df_train['Age_Group'] = df_train['Age'].apply(get_agegroup)
df_test['Age_Group'] = df_test['Age'].apply(get_agegroup)
```

```
In [21]: df_train[['Age','Age_Group']]
```

```
Out[21]:
              Age Age_Group
           0 22.0
                          W
           1 38.0
                          W
           2 26.0
                          W
           3 35.0
                          W
           4 35.0
                          W
         886 27.0
                          W
                          Ρ
         887 19.0
         888 28.0
                          W
         889 26.0
                          W
         890 32.0
                          W
```

891 rows × 2 columns

```
In [22]: df_train[X_cols]
```

Out[22]:	Pclass	Age	SibSp	Parch	Fare	C	Q	S	female
0	3	22.0	1	0	7.2500	0	0	1	0
1	1	38.0	1	0	71.2833	1	0	0	1
2	3	26.0	0	0	7.9250	0	0	1	1
3	1	35.0	1	0	53.1000	0	0	1	1
4	3	35.0	0	0	8.0500	0	0	1	0
•••									
886	2	27.0	0	0	13.0000	0	0	1	0
887	1	19.0	0	0	30.0000	0	0	1	1
888	3	28.0	1	2	23.4500	0	0	1	1
889	1	26.0	0	0	30.0000	1	0	0	0
890	3	32.0	0	0	7.7500	0	1	0	0

891 rows × 9 columns

```
In [23]: X_cols = list(df_train.columns)
In [24]: X_cols
```

```
'Cabin',
           'Embarked',
           'C',
           'Q',
           'S',
           'female',
           'male',
           'Age Group']
In [25]:
          X cols.remove('Cabin')
          X cols.remove('PassengerId')
          X cols.remove('Survived')
          X cols.remove('Ticket')
          X cols.remove('Name')
          X cols.remove('Age')
          X cols.remove('Sex')
          X cols.remove('Embarked')
          X cols.remove('male')
In [26]:
          X cols
Out[26]: ['Pclass', 'SibSp', 'Parch', 'Fare', 'C', 'Q', 'S', 'female', 'Age Group']
In [27]:
          df train[X cols].info()
          <class 'pandas.core.frame.DataFrame'>
          RangeIndex: 891 entries, 0 to 890
          Data columns (total 9 columns):
               Column
                          Non-Null Count Dtype
               Pclass
                          891 non-null
                                          int64
               SibSp
                          891 non-null
                                          int64
           1
               Parch
                          891 non-null
                                          int64
                          891 non-null
           3
               Fare
                                          float64
                          891 non-null
           4
               C
                                           uint8
           5
               Q
                          891 non-null
                                           uint8
           6
                          891 non-null
               S
                                          uint8
               female
                          891 non-null
                                           uint8
               Age Group 891 non-null
                                          object
          dtypes: float64(1), int64(3), object(1), uint8(4)
          memory usage: 38.4+ KB
In [28]:
           df_test[X_cols].info()
          <class 'pandas.core.frame.DataFrame'>
```

```
RangeIndex: 418 entries, 0 to 417
         Data columns (total 9 columns):
                          Non-Null Count Dtype
               Column
               Pclass
                          418 non-null
                                          int64
                          418 non-null
           1
               SibSp
                                          int64
           2
               Parch
                          418 non-null
                                          int64
           3
              Fare
                          418 non-null
                                          float64
               C
                          418 non-null
                                          uint8
           5
               0
                          418 non-null
                                          uint8
           6
               S
                          418 non-null
                                          uint8
           7
              female
                          418 non-null
                                          uint8
               Age Group 418 non-null
                                          object
          dtypes: float64(1), int64(3), object(1), uint8(4)
         memory usage: 18.1+ KB
          temp 4 = pd.get dummies(df train['Age Group'])
In [29]:
          df train = pd.concat([df train,temp 4],axis=1)
          temp 4 = pd.get dummies(df test['Age Group'])
          df test = pd.concat([df test,temp 4],axis=1)
          X cols.extend(temp 4.columns)
          X cols
In [30]:
Out[30]: ['Pclass',
           'SibSp',
           'Parch',
           'Fare',
          'C',
           'Q',
           'S',
           'female',
           'Age Group',
           'D',
          'P',
           'W',
           'Z']
In [31]:
           df_train[X_cols].info()
          <class 'pandas.core.frame.DataFrame'>
          RangeIndex: 891 entries, 0 to 890
         Data columns (total 13 columns):
               Column
                          Non-Null Count Dtype
```

```
Pclass
           0
                          891 non-null
                                           int64
               SibSp
                          891 non-null
           1
                                           int64
           2
               Parch
                          891 non-null
                                           int64
           3
               Fare
                          891 non-null
                                           float64
                          891 non-null
           4
               C
                                           uint8
           5
               0
                          891 non-null
                                           uint8
           6
               S
                          891 non-null
                                           uint8
           7
               female
                          891 non-null
                                           uint8
           8
                          891 non-null
                                           object
               Age Group
           9
               D
                          891 non-null
                                           uint8
           10
               Ρ
                          891 non-null
                                           uint8
           11
              W
                          891 non-null
                                           uint8
           12 Z
                          891 non-null
                                           uint8
          dtypes: float64(1), int64(3), object(1), uint8(8)
          memory usage: 41.9+ KB
            df test[X cols].info()
In [32]:
          <class 'pandas.core.frame.DataFrame'>
          RangeIndex: 418 entries, 0 to 417
          Data columns (total 13 columns):
               Column
                          Non-Null Count Dtype
                          _____
           0
               Pclass
                          418 non-null
                                           int64
               SibSp
                          418 non-null
           1
                                           int64
           2
               Parch
                          418 non-null
                                           int64
           3
               Fare
                          418 non-null
                                           float64
                          418 non-null
           4
               C
                                           uint8
           5
               Q
                          418 non-null
                                           uint8
           6
               S
                          418 non-null
                                           uint8
           7
                          418 non-null
               female
                                           uint8
           8
                          418 non-null
                                           object
               Age Group
           9
               D
                          418 non-null
                                           uint8
           10
               Ρ
                          418 non-null
                                           uint8
           11
               W
                          418 non-null
                                           uint8
           12 Z
                          418 non-null
                                           uint8
          dtypes: float64(1), int64(3), object(1), uint8(8)
          memory usage: 19.7+ KB
          X cols.remove('Age Group')
In [33]:
          X_cols
In [34]:
Out[34]: ['Pclass',
           'SibSp',
```

```
'Parch',
           'Fare',
          'C',
          'Q',
          'S',
           'female',
          'D',
          'P',
          'W',
          'Z']
In [35]:
          df train[X cols].info()
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 891 entries, 0 to 890
         Data columns (total 12 columns):
              Column Non-Null Count Dtype
          0
              Pclass 891 non-null
                                       int64
              SibSp
                      891 non-null
          1
                                       int64
          2
              Parch
                      891 non-null
                                       int64
          3
              Fare
                       891 non-null
                                       float64
          4
              C
                       891 non-null
                                       uint8
          5
              Q
                       891 non-null
                                       uint8
          6
              S
                       891 non-null
                                       uint8
          7
              female 891 non-null
                                       uint8
          8
              D
                       891 non-null
                                       uint8
          9
              Ρ
                       891 non-null
                                       uint8
          10
              W
                       891 non-null
                                       uint8
          11 Z
                       891 non-null
                                       uint8
         dtypes: float64(1), int64(3), uint8(8)
         memory usage: 34.9 KB
          df test[X cols].info()
In [36]:
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 418 entries, 0 to 417
         Data columns (total 12 columns):
              Column Non-Null Count Dtype
              Pclass 418 non-null
                                       int64
          1
              SibSp
                      418 non-null
                                       int64
          2
              Parch
                      418 non-null
                                       int64
          3
              Fare
                       418 non-null
                                       float64
          4
              C
                       418 non-null
                                       uint8
          5
              Q
                       418 non-null
                                       uint8
          6
              S
                       418 non-null
                                       uint8
```

```
7 female 418 non-null uint8
8 D 418 non-null uint8
9 P 418 non-null uint8
10 W 418 non-null uint8
11 Z 418 non-null uint8
dtypes: float64(1), int64(3), uint8(8)
memory usage: 16.5 KB
```

## **Build ML mode**

## 1. Using RandomForest

```
In [41]:
          X = df train[X cols]
          y = df train[y col]
In [42]:
          from sklearn.model selection import train test split
          X train, X val, y train, y val=train test split(X,y,test size=0.25,random state=96)
          X train.shape, X val.shape
In [43]:
         ((668, 12), (223, 12))
Out[43]:
          from sklearn.ensemble import RandomForestClassifier
In [47]:
In [76]:
          model = RandomForestClassifier(random state=10)
          model.fit(X train,y train)
          model.score(X val,y val)
         0.7982062780269058
Out[76]:
          y pre = model.predict(df test[X cols])
In [77]:
          df_test['Survived'] = y_pre
In [78]:
           df_test[['PassengerId','Survived']]
In [79]:
Out[79]:
              PassengerId Survived
```

	PassengerId	Survived
0	892	0
1	893	0
2	894	0
3	895	0
4	896	0
•••		
413	1305	0
414	1306	1
415	1307	0
416	1308	0
417	1309	1

418 rows × 2 columns

```
df test[['PassengerId','Survived']].to csv('sub01.csv', index=False)
In [80]:
         from sklearn.model selection import GridSearchCV
In [81]:
          params = {'max depth':[2,3,4,5],
In [82]:
                    'min samples leaf':[3,4,5,6],
                    'n estimators':[10,15,20,30,40,50,100,150]}
         grid_cv = GridSearchCV(RandomForestClassifier(),params,cv=5,verbose=3)
In [83]:
         grid cv.fit(X train,y train)
In [84]:
         Fitting 5 folds for each of 128 candidates, totalling 640 fits
         [CV] max_depth=2, min_samples_leaf=3, n_estimators=10 ......
         [CV] max depth=2, min_samples_leaf=3, n_estimators=10, score=0.799, total=
                                                                                    0.0s
         [CV] max depth=2, min samples leaf=3, n estimators=10 ......
         [CV] max_depth=2, min_samples_leaf=3, n_estimators=10, score=0.761, total=
         [CV] max depth=2, min samples leaf=3, n estimators=10 .....
```

<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=10, score=0.731, total= [CV] max_depth=2, min_samples_leaf=3, n_estimators=10</pre>	0.0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=10, score=0.782, total=	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=10</pre>	0.0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15	
<pre>[Parallel(n_jobs=1)]: Using backend SequentialBackend with 1 concurrent worke [Parallel(n_jobs=1)]: Done 1 out of 1   elapsed: 0.0s remaining: 0.</pre>	rs. 0s
- · · · · · · · · · · · · · · · · · · ·	0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15, score=0.784, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15	0.12
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15, score=0.731, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15, score=0.746, total=	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=15</pre>	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15, score=0.744, total=	0.0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15	0 0
[CV] max_depth=2, min_samples_leaf=3, n_estimators=15, score=0.835, total=	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=20</pre>	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20	0.13
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20, score=0.769, total=	0.0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20	0.00
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20, score=0.754, total=	0.0s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20, score=0.752, total=	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=20</pre>	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=20, score=0.812, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30	0.1-
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30, score=0.806, total=	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=30</pre>	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30	0.13
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30, score=0.731, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=30, score=0.759, total=	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=30</pre>	
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=30, score=0.820, total=</pre>	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40	
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40, score=0.776, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40	0 1 5
<pre>[CV] max_depth=2, min_samples_leaf=3, n_estimators=40, score=0.776, total= [CV] max_depth=2, min_samples_leaf=3, n_estimators=40</pre>	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40, score=0.716, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40	0.13
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40, score=0.782, total=	0.1s
[CV] max_depth=2, min_samples_leaf=3, n_estimators=40	

[CV]	<pre>max_depth=2, min_samples_leaf=3, n_estimators=40, score=0.820, total=</pre>	0.1s
[cv]		
[cv]	<pre>max_depth=2, min_samples_leaf=3, n_estimators=50, score=0.784, total=</pre>	0.1s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=50, score=0.746, total=	0.1s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=50, score=0.724, total=	0.1s
[cvj	max_depth=2, min_samples_leaf=3, n_estimators=50	
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=50, score=0.767, total=	0.1s
[cvj	max_depth=2, min_samples_leaf=3, n_estimators=50	
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=50, score=0.827, total=	0.2s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=100, score=0.784, total=	0.3s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=100, score=0.784, total=	0.3s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=100, score=0.754, total=	0.3s
[cv]		
[CV]	max depth=2, min samples leaf=3, n estimators=100, score=0.767, total=	0.3s
[CV]		0.00
[CV]	max_depth=2, min_samples_leaf=3, n_estimators=100, score=0.827, total=	0.3s
[CV]		0.00
[CV]	max_depth=2, min_samples_leaf=3, n_estimators=150, score=0.799, total=	0.5s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=150, score=0.784, total=	0.4s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=150, score=0.754, total=	0.4s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=150, score=0.759, total=	0.3s
[cv]		
[cv]	max_depth=2, min_samples_leaf=3, n_estimators=150, score=0.842, total=	0.4s
[cv]		
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=10, score=0.799, total=	0.0s
[cvj		
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=10, score=0.761, total=	0.0s
[cv]		
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=10, score=0.709, total=	0.0s
[cv]		
[cv]	max depth=2, min samples leaf=4, n estimators=10, score=0.812, total=	0.0s
	max_depth=2, min_samples_leaf=4, n_estimators=10	
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=10, score=0.699, total=	0.0s
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=15	
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=15, score=0.836, total=	0.1s
[cv]		
[cv]	max_depth=2, min_samples_leaf=4, n_estimators=15, score=0.776, total=	0.0s
[cv]		
[cvj	max_depth=2, min_samples_leaf=4, n_estimators=15, score=0.754, total=	0.0s

	max_depth=2, min_samples_leaf=4, n_estimators=15	
[CV]		0.0s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=15</pre>	
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=15, score=0.797, total=</pre>	0.0s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=20</pre>	
[cv]		0.1s
[cv]		
[CV]		0.1s
[CV]		0.13
		0.05
[CV]		0.0s
[CV]		
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=30</pre>	
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=30, score=0.784, total=</pre>	0.1s
[cv]		
įcvi		0.1s
[CA]		0.12
[CV]		0.1s
	max_depth=2, min_samples_leaf=4, n_estimators=30	0.13
= =		0 1 -
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=40</pre>	
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=40, score=0.821, total=</pre>	0.1s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=40</pre>	
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=40, score=0.754, total=</pre>	0.1s
[cv]		
[cv]		0.1s
[CV]		0.12
[CV]		0.1s
[CV]		0.13
		0 10
[CV]		0.1s
= =	max_depth=2, min_samples_leaf=4, n_estimators=50	0.4
[CV]		0.1s
	max_depth=2, min_samples_leaf=4, n_estimators=50	
	<pre>max_depth=2, min_samples_leaf=4, n_estimators=50, score=0.746, total=</pre>	0.1s
[CV]	max_depth=2, min_samples_leaf=4, n_estimators=50	
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=50, score=0.782, total=</pre>	0.1s
[CV]	<pre>max_depth=2, min_samples_leaf=4, n_estimators=50</pre>	
[cv]		0.1s
	max depth=2, min samples leaf=4, n estimators=100	
[cv]		0.3s
	max_depth=2, min_samples_leaf=4, n_estimators=100	
[ - 4 ]		

<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=100, score=0.776, tota</pre>	l= 0.3s
[CV] max_depth=2, min_samples_leaf=4, n_estimators=100	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=100, score=0.716, tota	l= 0.3s
	1- 0.55
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=100</pre>	_
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=100, score=0.767, tota</pre>	l= 0.3s
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=100</pre>	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=100, score=0.820, tota	l= 0.3s
	1- 0.55
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=150</pre>	_
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=150, score=0.776, tota</pre>	l= 0.4s
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=150</pre>	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150, score=0.784, tota	l= 0.4s
	1- 0.43
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150, score=0.754, tota	l= 0.4s
<pre>[CV] max_depth=2, min_samples_leaf=4, n_estimators=150</pre>	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150, score=0.759, tota	l= 0.4s
	1- 0.43
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150	
[CV] max_depth=2, min_samples_leaf=4, n_estimators=150, score=0.820, tota	l= 0.4s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=10</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10, score=0.791, total	= 0.0s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10	0.00
	0.0
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10, score=0.776, total	= 0.0s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=10</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10, score=0.731, total	= 0.0s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10	
	0.00
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10, score=0.797, total	= 0.0s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=10</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=10, score=0.744, total	= 0.0s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15, score=0.799, total	= 0.1s
	- 0.15
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=15</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15, score=0.776, total	= 0.0s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=15</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15, score=0.739, total	= 0.0s
	- 0.03
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=15</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15, score=0.789, total	= 0.1s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=15</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=15, score=0.842, total	= 0.0s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20	0.05
	0.4
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20, score=0.821, total	= 0.1s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=20</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20, score=0.769, total	= 0.1s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20	
	0.15
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20, score=0.746, total	= 0.1s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=20</pre>	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20, score=0.729, total	= 0.1s
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20	
[CV] max_depth=2, min_samples_leaf=5, n_estimators=20, score=0.774, total	= 0.1s
[cv] max_deptil=2, min_samples_fear=3, il_estimators=20, score=0.774, total	- 0.13

rcv1	<pre>max_depth=2, min_samples_leaf=5, n_estimators=30</pre>	
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=30, score=0.776, total=	0.1s
[CV]		0.13
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=30, score=0.791, total=	0.1s
[CV]		0.13
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=30, score=0.739, total=	0.1s
[CV]		0.13
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=30, score=0.759, total=	0.1s
[CV]		0.13
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=30, score=0.827, total=	0.1s
[CV]		0.13
	max_depth=2, min_samples_leaf=5, n_estimators=40, score=0.791, total=	0.1s
[CV]		0.13
[CV]		0.16
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=40, score=0.769, total=	0.1s
[CV]		0.16
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=40, score=0.776, total=	0.1s
	max_depth=2, min_samples_leaf=5, n_estimators=40	0.1-
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=40, score=0.774, total=	0.1s
	max_depth=2, min_samples_leaf=5, n_estimators=40	0.1-
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=40, score=0.789, total=	0.1s
	max_depth=2, min_samples_leaf=5, n_estimators=50	0 0
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=50, score=0.799, total=	0.2s
[CV]		0.4
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=50, score=0.746, total=	0.1s
[CV]		0 0
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=50, score=0.739, total=	0.2s
[CV]		
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=50, score=0.774, total=	0.1s
[CV]		
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=50, score=0.812, total=	0.1s
[CV]		
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=100, score=0.791, total=	0.2s
	max_depth=2, min_samples_leaf=5, n_estimators=100	
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=100, score=0.776, total=	0.2s
	max_depth=2, min_samples_leaf=5, n_estimators=100	
[CV]	<pre>max_depth=2, min_samples_leaf=5, n_estimators=100, score=0.761, total=</pre>	0.3s
	max_depth=2, min_samples_leaf=5, n_estimators=100	
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=100, score=0.782, total=	0.3s
	max_depth=2, min_samples_leaf=5, n_estimators=100	
	max_depth=2, min_samples_leaf=5, n_estimators=100, score=0.789, total=	0.3s
	max_depth=2, min_samples_leaf=5, n_estimators=150	
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=150, score=0.791, total=	0.4s
	max_depth=2, min_samples_leaf=5, n_estimators=150	_ =
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=150, score=0.791, total=	0.5s
[CV]		
[CV]	max_depth=2, min_samples_leaf=5, n_estimators=150, score=0.746, total=	0.5s
[CV]	<pre>max_depth=2, min_samples_leaf=5, n_estimators=150</pre>	

[CV] max_depth=2, min_samples_leaf=5, n_estimators=150, score=0.759, total=	0.4s
<pre>[CV] max_depth=2, min_samples_leaf=5, n_estimators=150</pre>	0.5s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=10</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=10</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=10 [CV] max_depth=2, min_samples_leaf=6, n_estimators=10, score=0.709, total=</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=10</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=10</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=15</pre>	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=15</pre>	0.0s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=15</pre>	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=15</pre>	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=15</pre>	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=20</pre>	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=30</pre>	0.1s
[CV] max_depth=2, min_samples_leaf=6, n_estimators=40	0.1s
<pre>[CV] max_depth=2, min_samples_leaf=6, n_estimators=40</pre>	0.1s

r cv1	<pre>max_depth=2, min_samples_leaf=6, n_estimators=40</pre>	
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=40, score=0.754, total=	0.1s
		0.13
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=40, score=0.774, total=	0.1s
[CV]		0.13
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=40, score=0.797, total=	0.1s
		0.15
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=50, score=0.769, total=	0.1s
[CV]		0.15
[CV]		0.1s
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=50, score=0.791, total=	0.15
[CV]	<pre>max_depth=2, min_samples_leaf=6, n_estimators=50 max_depth=2, min_samples_leaf=6, n_estimators=50, score=0.724, total=</pre>	0.1s
[CV]		0.15
[CV]		0.16
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=50, score=0.759, total=	0.1s
[CV]		0.1-
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=50, score=0.842, total=	0.1s
[CV]		0 0
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=100, score=0.791, total=	0.3s
[CV]	_ , , _ , _ , _	
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=100, score=0.776, total=	0.3s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=100, score=0.731, total=	0.3s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=100, score=0.789, total=	0.2s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=100, score=0.805, total=	0.3s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=150, score=0.784, total=	0.4s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=150, score=0.791, total=	0.5s
[CV]		
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=150, score=0.754, total=	0.5s
	max_depth=2, min_samples_leaf=6, n_estimators=150	
[CV]	max_depth=2, min_samples_leaf=6, n_estimators=150, score=0.767, total=	0.5s
	max_depth=2, min_samples_leaf=6, n_estimators=150	
[CV]	<pre>max_depth=2, min_samples_leaf=6, n_estimators=150, score=0.835, total=</pre>	0.4s
	max_depth=3, min_samples_leaf=3, n_estimators=10	
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10, score=0.799, total=</pre>	0.0s
	max_depth=3, min_samples_leaf=3, n_estimators=10	
	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10, score=0.769, total=</pre>	0.0s
	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10, score=0.791, total=</pre>	0.0s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10, score=0.820, total=</pre>	0.0s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=10, score=0.805, total=</pre>	0.0s
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=15</pre>	

[CV] max_depth=3, min_samples_leaf=3, n_estimators=15, score=0.799, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=3, n_estimators=15	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=15, score=0.754, to	tal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=15</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=15, score=0.701, to	tal= 0.0s
	0.05
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=15</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=15, score=0.797, to	tal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=15</pre>	
	±-1 0.0-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=15, score=0.865, to	tal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=20</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20, score=0.821, to	tal= 0.1s
	00-
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=20</pre>	_
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20, score=0.806, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=20</pre>	
	tal= 0.1s
	ta1= 0.15
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20, score=0.805, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=20, score=0.797, to	tal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=30</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30, score=0.821, to	tal= 0.1s
	ta1- 0.13
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=30</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30, score=0.761, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30	
	±-1 0.1-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30, score=0.776, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=30</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30, score=0.774, to	tal= 0.1s
	00-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=30, score=0.789, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=40</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=40, score=0.813, to	tal= 0.1s
	ta1- 0.13
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=40</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=40, score=0.776, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=3, n_estimators=40	
	±-1 0.1-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=40, score=0.776, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=40</pre>	
[CV] max depth=3, min samples leaf=3, n estimators=40, score=0.774, to	tal= 0.1s
	00-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=40, score=0.827, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=50, score=0.821, to	tal= 0.1s
	CGT- 0.12
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=50, score=0.821, to	tal= 0.1s
[CV] max depth=3, min samples leaf=3, n estimators=50	
	+-1- 0 2-
[CV] max_depth=3, min_samples_leaf=3, n_estimators=50, score=0.776, to	tal= 0.2s
<pre>[CV] max_depth=3, min_samples_leaf=3, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=3, n_estimators=50, score=0.767, to	tal= 0.1s
[31]sept 5,sept 5,esetdes. 5 55, 5est e=0.767, co	

[ C\/ ]	may double 2 min semples leaf 2 m estimateur 50	
	max_depth=3, min_samples_leaf=3, n_estimators=50	0.1-
[CV]		0.1s
	max_depth=3, min_samples_leaf=3, n_estimators=100	
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100, score=0.806, total=</pre>	0.3s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100, score=0.799, total=</pre>	0.2s
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100, score=0.776, total=</pre>	0.2s
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100</pre>	
[cv]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=100, score=0.782, total=</pre>	0.3s
įcvį		
[CV]	max_depth=3, min_samples_leaf=3, n_estimators=100, score=0.812, total=	0.3s
[CV]		0.55
[CV]	max_depth=3, min_samples_leaf=3, n_estimators=150, score=0.791, total=	0.4s
= =		0.43
[CV]		0.45
[CV]	max_depth=3, min_samples_leaf=3, n_estimators=150, score=0.799, total=	0.4s
[CV]		
[CV]	max_depth=3, min_samples_leaf=3, n_estimators=150, score=0.776, total=	0.3s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=150, score=0.805, total=</pre>	0.4s
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=150</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=3, n_estimators=150, score=0.842, total=</pre>	0.3s
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=10</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=10, score=0.806, total=</pre>	0.0s
[cv]	max_depth=3, min_samples_leaf=4, n_estimators=10	
[cv]	max_depth=3, min_samples_leaf=4, n_estimators=10, score=0.769, total=	0.0s
[vɔ]		
[cv]	max_depth=3, min_samples_leaf=4, n_estimators=10, score=0.754, total=	0.0s
[CV]		0.05
[CV]	max_depth=3, min_samples_leaf=4, n_estimators=10, score=0.767, total=	0.0s
= =	max_depth=3, min_samples_leaf=4, n_estimators=10	0.03
[CV]		0.00
[CV]	max_depth=3, min_samples_leaf=4, n_estimators=10, score=0.767, total=	0.0s
[CV]		0 1
[CV]	max_depth=3, min_samples_leaf=4, n_estimators=15, score=0.799, total=	0.1s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15, score=0.746, total=</pre>	0.0s
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15, score=0.739, total=</pre>	0.0s
	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15, score=0.812, total=</pre>	0.0s
	max_depth=3, min_samples_leaf=4, n_estimators=15	
[cv]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=15, score=0.857, total=</pre>	0.0s
[CV]		
[CV]	max depth=3, min samples leaf=4, n estimators=20, score=0.813, total=	0.1s
	max_depth=3, min_samples_leaf=4, n_estimators=20	0.13
= =	max_depth=3, min_samples_leaf=4, n_estimators=20, score=0.776, total=	0.0s
[CV]		0.05
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=20</pre>	

[CV] max_depth=3, min_samples_leaf=4, n_estimators=20, score=0.791, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=20	
[CV] max depth=3, min samples leaf=4, n estimators=20, score=0.767, to	tal= 0.0s
	ta1- 0.03
[CV] max_depth=3, min_samples_leaf=4, n_estimators=20	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=20, score=0.789, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=30</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30, score=0.799, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30, score=0.784, to	tal= 0.1s
	ta1- 0.13
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30, score=0.799, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=30</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30, score=0.797, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=30, score=0.812, to	tal= 0.1s
	ta1- 0.13
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40, score=0.813, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40, score=0.776, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40, score=0.769, to	tal= 0.1s
	ta1- 0.13
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40, score=0.805, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=40</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=40, score=0.842, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50, score=0.799, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50	0.1
	+-1- 0.1-
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50, score=0.776, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50, score=0.784, to	tal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=50</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50, score=0.789, to	tal= 0.1s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=50, score=0.827, to	tal= 0.1s
	ta1- 0.13
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100, score=0.791, t	otal= 0.2s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=100</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100, score=0.791, to	otal= 0.2s
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100, score=0.769, to	otal= 0.2s
	0.23
	-+-1 0 0
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100, score=0.797, t	otal= 0.2s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=100</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=100, score=0.820, to	otal= 0.2s
<pre>[CV] max_depth=3, min_samples_leaf=4, n_estimators=150</pre>	
[CV] max_depth=3, min_samples_leaf=4, n_estimators=150, score=0.799, to	otal= 0.3s

[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=150</pre>	
[cv]		0.3s
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=150</pre>	
[CV]		0.4s
[CV]		
[CV]	max_depth=3, min_samples_leaf=4, n_estimators=150, score=0.797, total=	0.3s
[CV]		0.3s
[CV]	<pre>max_depth=3, min_samples_leaf=4, n_estimators=150, score=0.820, total= max_depth=3, min_samples_leaf=5, n_estimators=10</pre>	0.35
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=10, score=0.784, total=	0.0s
[CV]		0.05
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=10, score=0.761, total=	0.0s
[cv]		
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=10, score=0.739, total=</pre>	0.0s
[CV]		
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=10, score=0.797, total=	0.0s
	max_depth=3, min_samples_leaf=5, n_estimators=10	0.0-
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=10, score=0.789, total= max_depth=3, min_samples_leaf=5, n_estimators=15</pre>	0.0s
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=15	0.0s
[CV]		0.03
[CV]		0.1s
[cv]		
[cv]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=15, score=0.776, total=</pre>	0.0s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=15, score=0.767, total=</pre>	0.0s
[CV]		
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=15, score=0.827, total=	0.0s
[CV]		0.0s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=20, score=0.806, total= max_depth=3, min_samples_leaf=5, n_estimators=20</pre>	0.05
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=20, score=0.769, total=	0.1s
	max_depth=3, min_samples_leaf=5, n_estimators=20	0.12
[cv]	max_depth=3, min_samples_leaf=5, n_estimators=20, score=0.791, total=	0.1s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=20</pre>	
[CV]		0.0s
	max_depth=3, min_samples_leaf=5, n_estimators=20	
[CV]		0.1s
	<pre>max_depth=3, min_samples_leaf=5, n_estimators=30 max_depth=3, min_samples_leaf=5, n_estimators=30, score=0.828, total=</pre>	0.1s
	max_depth=3, min_samples_leaf=5, n_estimators=30	0.15
[CV]	max_depth=3, min samples_leaf=5, n estimators=30, score=0.776, total=	0.1s
[CV]		0.13
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=30, score=0.784, total=	0.1s
[cv]		
[CV]		0.1s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=30</pre>	

[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=30, score=0.827, total=</pre>	0.1s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=40</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=40, score=0.828, total=</pre>	0.1s
[CV]		
[cv]	max_depth=3, min_samples_leaf=5, n_estimators=40, score=0.813, total=	0.1s
[cv]		
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=40, score=0.776, total=	0.1s
[CV]		0.13
[CV]		0.1s
		0.13
[CV]		0.1-
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=40, score=0.797, total=	0.1s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=50, score=0.799, total=</pre>	0.1s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=50, score=0.799, total=</pre>	0.1s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=50</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=50, score=0.776, total=</pre>	0.1s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=50</pre>	
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=50, score=0.774, total=	0.1s
[cv]		
[cv]	max_depth=3, min_samples_leaf=5, n_estimators=50, score=0.789, total=	0.1s
	max depth=3, min samples leaf=5, n estimators=100	0.12
[CV]	max depth=3, min samples leaf=5, n estimators=100, score=0.828, total=	0.2s
[CV]		0.23
		0.3s
[CV]		0.55
[CV]		0.2-
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=100, score=0.776, total=	0.2s
[CV]		
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=100, score=0.797, total=	0.2s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=100, score=0.812, total=</pre>	0.2s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=150</pre>	
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=150, score=0.799, total=</pre>	0.3s
[CV]	<pre>max_depth=3, min_samples_leaf=5, n_estimators=150</pre>	
[CV]	max depth=3, min samples leaf=5, n estimators=150, score=0.806, total=	0.3s
[CV]	max_depth=3, min_samples_leaf=5, n_estimators=150	
[cv]	max depth=3, min samples leaf=5, n estimators=150, score=0.769, total=	0.4s
[CV]		
[CV]	max depth=3, min samples leaf=5, n estimators=150, score=0.797, total=	0.4s
	max_depth=3, min_samples_leaf=5, n_estimators=150	0.43
	max_depth=3, min_samples_leaf=5, n_estimators=150, score=0.835, total=	0.3s
[CV]		0.33
[CV]		0.0-
[CV]	max_depth=3, min_samples_leaf=6, n_estimators=10, score=0.784, total=	0.0s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=6, n_estimators=10, score=0.799, total=</pre>	0.0s
[CV]		
[CV]	<pre>max_depth=3, min_samples_leaf=6, n_estimators=10, score=0.754, total=</pre>	0.0s

<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=10</pre>	
[CV] max_depth=3, min_samples_leaf=6, n estimators=10, score=0.797, t	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=10	Ota1- 0.03
	otal= 0.0s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=10, score=0.797, t	Otal= 0.03
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15, score=0.813, t	otal= 0.0s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15, score=0.784, t	otal= 0.0s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15, score=0.799, t	otal= 0.0s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=15	
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=15, score=0.805, t</pre>	otal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=15</pre>	
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=15, score=0.797, t</pre>	otal= 0.0s
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=20</pre>	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20, score=0.791, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20, score=0.776, t	otal= 0.0s
[CV] max depth=3, min samples leaf=6, n estimators=20	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20, score=0.746, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20	0.00.2
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20, score=0.797, t	otal= 0.0s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20	0.03
[CV] max_depth=3, min_samples_leaf=6, n_estimators=20, score=0.797, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30, score=0.813, t	
	Ota1- 0.15
	o+o1 0_1c
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30, score=0.799, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30	-+-1 0.1-
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30, score=0.761, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30, score=0.774, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=30, score=0.812, t	otal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=40</pre>	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40, score=0.821, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40, score=0.799, t	otal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=40</pre>	
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=40, score=0.769, t</pre>	otal= 0.1s
<pre>[CV] max_depth=3, min_samples_leaf=6, n_estimators=40</pre>	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40, score=0.782, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=40, score=0.797, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=50	
[CV] max_depth=3, min_samples_leaf=6, n_estimators=50, score=0.821, t	otal= 0.1s
[CV] max_depth=3, min_samples_leaf=6, n_estimators=50	

[CV		0.1s
[CV	<code>/] max_depth=3, min_samples_leaf=6, n_estimators=50</code>	
[CV	max_depth=3, min_samples_leaf=6, n_estimators=50, score=0.776, total=	0.1s
Γcν		
[CV		0.1s
-		0.13
[CV		
[CV		0.1s
[CV	] max_depth=3, min_samples_leaf=6, n_estimators=100	
[CV	max_depth=3, min_samples_leaf=6, n_estimators=100, score=0.806, total=	0.2s
[cv		
[CV		0.2s
_		0.25
[CV		
[CV		0.2s
[CV	<code>/] max_depth=3, min_samples_leaf=6, n_estimators=100</code>	
[CV	max_depth=3, min_samples_leaf=6, n_estimators=100, score=0.774, total=	0.2s
[cv		
[CV		0.2s
_		0.23
[CV		
[CV		0.3s
[CV	] max_depth=3, min_samples_leaf=6, n_estimators=150	
[CV	max_depth=3, min_samples_leaf=6, n_estimators=150, score=0.799, total=	0.4s
Γ̈́CV		
[CV		0.3s
_		0.55
[CV		0 0
[CV		0.3s
[CV		
[CV	] max_depth=3, min_samples_leaf=6, n_estimators=150, score=0.827, total=	0.3s
[CV	<code>] max_depth=4, min_samples_leaf=3, n_estimators=10</code>	
[cv		0.0s
[CV		
		0.0s
[CV		0.05
[CV		
[CV		0.0s
[CV	] max_depth=4, min_samples_leaf=3, n_estimators=10	
[CV	<pre>max_depth=4, min_samples_leaf=3, n_estimators=10, score=0.789, total=</pre>	0.0s
[cv		
[CV		0.0s
_		0.03
[CV		
[CV		0.1s
[CV	] max_depth=4, min_samples_leaf=3, n_estimators=15	
[CV	max_depth=4, min_samples_leaf=3, n_estimators=15, score=0.761, total=	0.0s
[CV	max_depth=4, min_samples_leaf=3, n_estimators=15	
[CV		0.0s
_		0.03
[CV		0.0-
[CV		0.0s
[CV		
[CV	max_depth=4, min_samples_leaf=3, n_estimators=15, score=0.805, total=	0.0s

rcv1	<pre>max_depth=4, min_samples_leaf=3, n_estimators=20</pre>	
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=20, score=0.806, total=	0.1s
[CV]		0.13
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=20, score=0.813, total=	0.1s
[CV]		0.13
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=20, score=0.776, total=	0.0s
[CV]		0.03
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=20, score=0.797, total=	0.1s
[CV]		0.13
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=20, score=0.805, total=	0.1s
[CV]		0.15
	max_depth=4, min_samples_leaf=3, n_estimators=30, score=0.799, total=	0.1s
[CV]		0.15
[CV]		0 10
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=30, score=0.813, total=	0.1s
[CV]		0.15
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=30, score=0.776, total=	0.1s
	max_depth=4, min_samples_leaf=3, n_estimators=30	0.1-
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=30, score=0.797, total=	0.1s
[CV]		0.1-
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=30, score=0.812, total=	0.1s
[CV]		0 0
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=40, score=0.821, total=	0.2s
[CV]		0 1
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=40, score=0.806, total=	0.1s
[CV]		0 1
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=40, score=0.784, total=	0.1s
[CV]		
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=40, score=0.805, total=	0.2s
[CV]		
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=40, score=0.835, total=	0.2s
[CV]		
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=50, score=0.828, total=	0.2s
	max_depth=4, min_samples_leaf=3, n_estimators=50	
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=50, score=0.769, total=	0.1s
	max_depth=4, min_samples_leaf=3, n_estimators=50	
[CV]	<pre>max_depth=4, min_samples_leaf=3, n_estimators=50, score=0.776, total=</pre>	0.1s
	max_depth=4, min_samples_leaf=3, n_estimators=50	
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=50, score=0.805, total=	0.1s
	max_depth=4, min_samples_leaf=3, n_estimators=50	
	<pre>max_depth=4, min_samples_leaf=3, n_estimators=50, score=0.820, total=</pre>	0.2s
	max_depth=4, min_samples_leaf=3, n_estimators=100	
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=100, score=0.821, total=	0.3s
	max_depth=4, min_samples_leaf=3, n_estimators=100	
[CV]	<pre>max_depth=4, min_samples_leaf=3, n_estimators=100, score=0.813, total=</pre>	0.3s
[CV]		
[CV]	max_depth=4, min_samples_leaf=3, n_estimators=100, score=0.776, total=	0.3s
[CV]	<pre>max_depth=4, min_samples_leaf=3, n_estimators=100</pre>	

[CV] i	<pre>max_depth=4, min_samples_leaf=3, n_estimators=100, score=0.805, total=</pre>	0.2s
	ax_depth=4, min_samples_leaf=3, n_estimators=100	
	max_depth=4, min_samples_leaf=3, n_estimators=100, score=0.835, total=	0.3s
		0.55
	ax_depth=4, min_samples_leaf=3, n_estimators=150	
[CV] i	<pre>max_depth=4, min_samples_leaf=3, n_estimators=150, score=0.813, total=</pre>	0.4s
[CV] ma	ax_depth=4, min_samples_leaf=3, n_estimators=150	
	max_depth=4, min_samples_leaf=3, n_estimators=150, score=0.799, total=	0.4s
		0.43
	ax_depth=4, min_samples_leaf=3, n_estimators=150	
	<pre>max_depth=4, min_samples_leaf=3, n_estimators=150, score=0.769, total=</pre>	0.4s
[CV] ma	ax_depth=4, min_samples_leaf=3, n_estimators=150	
	max_depth=4, min_samples_leaf=3, n_estimators=150, score=0.797, total=	0.5s
		0.55
	ax_depth=4, min_samples_leaf=3, n_estimators=150	
	<pre>max_depth=4, min_samples_leaf=3, n_estimators=150, score=0.842, total=</pre>	0.4s
[CV] ma	ax_depth=4, min_samples_leaf=4, n_estimators=10	
[CV] i	<pre>max_depth=4, min_samples_leaf=4, n_estimators=10, score=0.813, total=</pre>	0.0s
	ax_depth=4, min_samples_leaf=4, n_estimators=10	
		0 0-
	max_depth=4, min_samples_leaf=4, n_estimators=10, score=0.806, total=	0.0s
[CV] ma	ax_depth=4, min_samples_leaf=4, n_estimators=10	
[CV] i	max_depth=4, min_samples_leaf=4, n_estimators=10, score=0.784, total=	0.0s
	ax_depth=4, min_samples_leaf=4, n_estimators=10	
	max_depth=4, min_samples_leaf=4, n_estimators=10, score=0.782, total=	0.0s
		0.05
	ax_depth=4, min_samples_leaf=4, n_estimators=10	
[CV] i	max_depth=4, min_samples_leaf=4, n_estimators=10, score=0.820, total=	0.0s
[CV] ma	ax_depth=4, min_samples_leaf=4, n_estimators=15	
	max_depth=4, min_samples_leaf=4, n_estimators=15, score=0.784, total=	0.1s
		0.13
	ax_depth=4, min_samples_leaf=4, n_estimators=15	
	<pre>max_depth=4, min_samples_leaf=4, n_estimators=15, score=0.769, total=</pre>	0.0s
[CV] ma	ax_depth=4, min_samples_leaf=4, n_estimators=15	
	max_depth=4, min_samples_leaf=4, n_estimators=15, score=0.769, total=	0.1s
	ax_depth=4, min_samples_leaf=4, n_estimators=15	0.25
		0 1
	max_depth=4, min_samples_leaf=4, n_estimators=15, score=0.820, total=	0.1s
[CV] m	ax_depth=4, min_samples_leaf=4, n_estimators=15	
[CV] i	max_depth=4, min_samples_leaf=4, n_estimators=15, score=0.820, total=	0.1s
	ax_depth=4, min_samples_leaf=4, n_estimators=20	
	max_depth=4, min_samples_leaf=4, n_estimators=20, score=0.813, total=	0.16
		0.1s
	ax_depth=4, min_samples_leaf=4, n_estimators=20	
[CV] ı	max_depth=4, min_samples_leaf=4, n_estimators=20, score=0.776, total=	0.1s
[CV] m	<pre>ax_depth=4, min_samples_leaf=4, n_estimators=20</pre>	
	max_depth=4, min_samples_leaf=4, n_estimators=20, score=0.746, total=	0.1s
		0.13
	ax_depth=4, min_samples_leaf=4, n_estimators=20	
	max_depth=4, min_samples_leaf=4, n_estimators=20, score=0.797, total=	0.1s
[CV] ma	ax_depth=4, min_samples_leaf=4, n_estimators=20	
	max depth=4, min samples leaf=4, n estimators=20, score=0.805, total=	0.1s
	ax_depth=4, min_samples_leaf=4, n_estimators=30	
		0 1-
	max_depth=4, min_samples_leaf=4, n_estimators=30, score=0.836, total=	0.1s
	ax_depth=4, min_samples_leaf=4, n_estimators=30	
[CV] i	max_depth=4, min_samples_leaf=4, n_estimators=30, score=0.776, total=	0.1s

[CV] may denth=4 min samnles lea	af=4, n_estimators=30	
		.1s
	af=4, n_estimators=30	• 13
		.1s
	af=4, n_estimators=30	• = 3
		.1s
	af=4, n_estimators=40	.13
		.1s
	af=4, n_estimators=40	.13
		.1s
	af=4, n_estimators=40	.13
		.1s
	af=4, n_estimators=40	.13
	· · · <del>-</del>	.2s
	af=4, n_estimators=40	. 23
	· · · <del>-</del>	.1s
	af=4, n_estimators=50	.13
	· · · <del>-</del>	.2s
	af=4, n_estimators=50	. 25
		.2s
	· -	. 25
	af=4, n_estimators=50eaf=4, n_estimators=50, score=0.776, total= 0.	26
	af=4, n_estimators=50	.2s
	· -	.1s
	nf=4, n_estimators=50	.13
		.2s
	af=4, n_estimators=100	. 23
		0.3s
	nf=4, n_estimators=100	0.33
		0.3s
	af=4, n_estimators=100	0.33
		0.3s
	af=4, n_estimators=100	0.55
	· · · <del>-</del>	0.3s
	af=4, n_estimators=100	0.53
	· · · · · · · · · · · · · · · · · · ·	0.3s
	af=4, n_estimators=150	0.55
		0.4s
	af=4, n_estimators=150	0.43
	eaf=4, n_estimators=150, score=0.799, total=	0 10
	af=4, n_estimators=150	0.43
		0.4s
	af=4, n estimators=150	0.43
	· =	0.4s
	nf=4, n_estimators=150	0.43
		0.4s
	af=5, n_estimators=10	U. 73
[ev] may_achen_4, min_ampres_rea	11-5, 11_c3c1macor 3-10	

[CV] max_depth=4, min_samples_leaf=5, n_estimators=10, score=0.821, total=	0.0s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=10</pre>	0.0s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=10</pre>	0.0s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=10	
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=10, score=0.805, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=10</pre>	0.0s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=10, score=0.835, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=15	0.0s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=15, score=0.799, total=	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=15</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=15</pre>	0.0s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=15	
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=15, score=0.759, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=15</pre>	0.1s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=15, score=0.835, total=	0.0s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=20, score=0.791, total=	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=20</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=20</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=20, score=0.754, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=20</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=20, score=0.789, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=20</pre>	0.1s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=20, score=0.782, total=	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=30</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=30</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=30</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=30, score=0.754, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=30</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=30, score=0.820, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=30</pre>	0.1s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=30, score=0.835, total=	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=40</pre>	0.1s
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=40</pre>	0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=40	
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=40, score=0.746, total= [CV] max_depth=4, min_samples_leaf=5, n_estimators=40</pre>	0.1s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=40, score=0.789, total=	0.2s

<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=40</pre>		
[CV] max depth=4, min samples leaf=5, n estimators=40, score=0.812		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50	-	0.23
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50, score=0.821		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50		0.23
[CV] max depth=4, min samples leaf=5, n estimators=50, score=0.784		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50		0.23
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50, score=0.784		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50		0.23
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50, score=0.805		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50		0.23
[CV] max_depth=4, min_samples_leaf=5, n_estimators=50, score=0.835		0.2s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100		0.23
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.79		0.4s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100		0.43
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.77		0.3s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100		0.53
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.77		0.3s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.77		0.55
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.79		0.3s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.79		0.55
[CV] max_depth=4, min_samples_leaf=5, n_estimators=100, score=0.82		0.3s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=160, score=0.82		0.33
[CV] max_depth=4, min_samples_leaf=5, n_estimators=150, score=0.82		0.4s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=150		0.43
[CV] max_depth=4, min_samples_leaf=5, n_estimators=150, score=0.79		0.4s
		0.43
		0.4s
		0.43
<pre>[CV] max_depth=4, min_samples_leaf=5, n_estimators=150 [CV] max_depth=4, min_samples_leaf=5, n_estimators=150, score=0.80</pre>		0.4s
[CV] max_depth=4, min_samples_leaf=5, n_estimators=150		0.43
[CV] max_depth=4, min_samples_leaf=5, n_estimators=150, score=0.84		0.5s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10		0.55
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10, score=0.799		0.0s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10		0.03
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10, score=0.799		0.0s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10		0.03
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10, score=0.776		0.0s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10		0.05
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10, score=0.797		0.0s
		0.05
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=10</pre>		0.0s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=10, score=0.827		0.05
		0.1s
		0.12
		0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=15, score=0.776 [CV] max_depth=4, min_samples_leaf=6, n_estimators=15</pre>		0.12
[cv] max_dehtil-4, mili_samples_ledi=0, ii_estimators=13	. • • •	

[CV] max_depth=4, min_samples_leaf=6, n_estimators=15, score=0.769, tota	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=15</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=15</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=20</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=20</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=20</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=20</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=20</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=30</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=30, score=0.813, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=30</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=30, score=0.769, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=30</pre>	l= 0.2s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=30, score=0.754, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=30</pre>	l= 0.1s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=30, score=0.797, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=30	l= 0.1s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=30, score=0.827, tota	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=40</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=40</pre>	l= 0.2s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=40</pre>	l= 0.2s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=40</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=40</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=50</pre>	
[CV] max_depth=4, min_samples_leaf=6, n_estimators=50	
[CV] max_depth=4, min_samples_leaf=6, n_estimators=50	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=50, score=0.761, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=50</pre>	
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=50, score=0.789, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=50</pre>	l= 0.1s
<pre>[CV] max_depth=4, min_samples_leaf=6, n_estimators=50, score=0.805, tota [CV] max_depth=4, min_samples_leaf=6, n_estimators=100</pre>	l= 0.1s
[CV] max_depth=4, min_samples_leaf=6, n_estimators=100, score=0.821, tot	al= 0.3s

[CV]	max depth=4, min samples leaf=6, n estimators=100	
[CV]	max_depth=4, min_samples_leaf=6, n_estimators=100, score=0.806, total=	0.2s
	max_depth=4, min_samples_leaf=6, n_estimators=100	0.23
[CV]	max_depth=4, min_samples_leaf=6, n_estimators=100, score=0.776, total=	0.2s
[CV]		0.23
[CV]	max_depth=4, min_samples_leaf=6, n_estimators=100, score=0.789, total=	0.2s
[CV]		0.23
[CV]	max_depth=4, min_samples_leaf=6, n_estimators=100, score=0.842, total=	0.2s
[CV]		0.23
[CV]	max_depth=4, min_samples_leaf=6, n_estimators=150, score=0.813, total=	0.4s
[CV]		
[cv]	max_depth=4, min_samples_leaf=6, n_estimators=150, score=0.813, total=	0.3s
[cv]		
[cv]	max_depth=4, min_samples_leaf=6, n_estimators=150, score=0.776, total=	0.3s
[cv]		
[CV]	<pre>max_depth=4, min_samples_leaf=6, n_estimators=150, score=0.789, total=</pre>	0.4s
[CV]	<pre>max_depth=4, min_samples_leaf=6, n_estimators=150</pre>	
[CV]	<pre>max_depth=4, min_samples_leaf=6, n_estimators=150, score=0.827, total=</pre>	0.4s
	max_depth=5, min_samples_leaf=3, n_estimators=10	
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=10, score=0.813, total=</pre>	0.0s
[CV]		
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=10, score=0.761, total=	0.0s
[CV]		0 0
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=10, score=0.776, total=	0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=10</pre>	0.0s
[CV]		0.03
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=10, score=0.782, total=	0.0s
[CV]		0.05
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=15, score=0.828, total=	0.0s
[CV]		
[cv]	max_depth=5, min_samples_leaf=3, n_estimators=15, score=0.784, total=	0.1s
[cv]		
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=15, score=0.776, total=</pre>	0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=15</pre>	
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=15, score=0.812, total=</pre>	0.0s
	<pre>max_depth=5, min_samples_leaf=3, n_estimators=15</pre>	
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=15, score=0.797, total=</pre>	0.0s
	max_depth=5, min_samples_leaf=3, n_estimators=20	
	max_depth=5, min_samples_leaf=3, n_estimators=20, score=0.821, total=	0.1s
	max_depth=5, min_samples_leaf=3, n_estimators=20	0.4
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=20, score=0.784, total=	0.1s
[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=20 max_depth=5, min_samples_leaf=3, n_estimators=20, score=0.791, total=</pre>	0.1s
[CV]		0.12
[CV]	max_depth=5, min_samples_leaf=3, n_estimators=20, score=0.805, total=	0.0s
	max_depth=5, min samples leaf=3, n estimators=20	0.00
[]		

[CV] may double [ min complex look 2 m optimateur 20	
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=30</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=30</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=30 [CV] max_depth=5, min_samples_leaf=3, n_estimators=30, score=0.769, total= 0.1</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=30</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=30</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=40</pre>	Ls
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=50</pre>	Ls
	.3s
	.2s
	.2s
	.3s
	.2s
	.4s
	.4s
<pre>[CV] max_depth=5, min_samples_leaf=3, n_estimators=150</pre>	.4s

[CV]	<pre>max_depth=5, min_samples_leaf=3, n_estimators=150</pre>	
[CV]	_ , , _ , _ , _ , _ , _ , _ , _ , _ , _	0.4s
[CV]		0.4s
[CV]		0.45
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=10, score=0.806, total=	0.0s
[CV]		
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=10, score=0.746, total=	0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=10</pre>	0.0s
[CV]		0.03
[cv]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=10, score=0.782, total=</pre>	0.0s
[CV]		
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=10, score=0.857, total=	0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=15</pre>	0.0s
	max_depth=5, min_samples_leaf=4, n_estimators=15	0.03
[cv]		0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=15</pre>	
[CV]		0.0s
	<pre>max_depth=5, min_samples_leaf=4, n_estimators=15</pre>	0.0s
[CV]		0.05
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=15, score=0.812, total=	0.0s
[cv]	max_depth=5, min_samples_leaf=4, n_estimators=20	
[CV]	_ , , _ , _ , _ , _ , _ , _ , _ , _ , _	0.1s
[CV]		0.16
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=20, score=0.799, total= max_depth=5, min_samples_leaf=4, n_estimators=20</pre>	0.1s
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=20, score=0.754, total=	0.0s
[cv]		
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=20, score=0.797, total=	0.1s
	max_depth=5, min_samples_leaf=4, n_estimators=20	0.16
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=20, score=0.805, total= max_depth=5, min_samples_leaf=4, n_estimators=30</pre>	0.1s
[CV]		0.1s
	<pre>max_depth=5, min_samples_leaf=4, n_estimators=30</pre>	
[CV]	_ , , _ , _ , _ , _ , _ , _ , _ , _ , _	0.1s
	max_depth=5, min_samples_leaf=4, n_estimators=30	0.1s
	<pre>max_depth=5, min_samples_leaf=4, n_estimators=30, score=0.784, total= max_depth=5, min_samples_leaf=4, n_estimators=30</pre>	0.15
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=30, score=0.789, total=	0.1s
[cv]	max_depth=5, min_samples_leaf=4, n_estimators=30	
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=30, score=0.805, total=	0.1s
[CV]		0 1-
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=40, score=0.784, total= max_depth=5, min_samples_leaf=4, n_estimators=40</pre>	0.1s
[cv]	max_depen=9, min_sumpics_ical=4, n_escimator s=40	

[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=40, score=0.776, total=</pre>	0.1s
[cv]	max_depth=5, min_samples_leaf=4, n_estimators=40	
cvi		0.1s
[CV]		
[CV]		0.1s
[CV]		0.13
[CV]		0.1s
		0.15
[CV]		0 1-
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]		
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=50, score=0.797, total=	0.1s
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=50	
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=50, score=0.820, total=</pre>	0.1s
[CV]	max_depth=5, min_samples_leaf=4, n_estimators=100	
[cv]		0.3s
cvi		
[CV]		0.2s
	max_depth=5, min_samples_leaf=4, n_estimators=100	0.12
[CV]		0.2s
[CV]		0.23
[CV]		0.2s
[CV]		0.23
		0.3s
[CV]		0.55
[CV]		0.4-
[CV]		0.4s
[CV]		
[CV]		0.4s
[CV]		
[CV]		0.4s
[CV]		
[CV]		0.3s
[CV]		
[CV]	<pre>max_depth=5, min_samples_leaf=4, n_estimators=150, score=0.820, total=</pre>	0.3s
[CV]	max_depth=5, min_samples_leaf=5, n_estimators=10	
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=10, score=0.806, total=</pre>	0.0s
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=10</pre>	
[CV]		0.0s
[cv]		
[cv]		0.0s
[CV]		
[CV]		0.0s
[CV]		3.03
[CV]		0.0s
[CV]	max_depth-5, min_samples_fear-5, h_estimators-10, score=0.005, total=	0.05

[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=15</pre>	
[CV]		0.0s
[CV]		0.03
[CV]		0.0s
[CV]		0.05
[CV]		0.0s
[CV]		0.03
[CV]		0.0s
[CV]		0.03
[CV]		0.0s
[CV]		0.05
[CV]		0.1s
[CV]		0.13
[CV]		0.0s
[CV]		0.05
[CV]		0.1s
[CV]		0.12
[CV]		0.0s
[CV]		0.05
[CV]		0.1s
[cv]		
[cv]		0.1s
[cv]		
[cv]		0.1s
[cv]		
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=30, score=0.791, total=</pre>	0.1s
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=30</pre>	
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=30, score=0.797, total=</pre>	0.1s
[CV]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=30</pre>	
[CV]		0.1s
[CV]		
[CV]		0.1s
[CV]	_ , , , _ , _	
[CV]		0.1s
[CV]		
[CV]		0.1s
	max_depth=5, min_samples_leaf=5, n_estimators=40	
[CV]		0.1s
	max_depth=5, min_samples_leaf=5, n_estimators=40	
	max_depth=5, min_samples_leaf=5, n_estimators=40, score=0.820, total=	0.1s
	max_depth=5, min_samples_leaf=5, n_estimators=50	
[CV]		0.1s
= =	max_depth=5, min_samples_leaf=5, n_estimators=50	0.1
[CV]		0.1s
[CV]		0.4
[CV]		0.1s
[cv]	<pre>max_depth=5, min_samples_leaf=5, n_estimators=50</pre>	

[CV] max_depth=5, min_samples_leaf=5, n_estimators=50, score=0.797, total	= 0.1s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=50</pre>	= 0.1s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=100</pre>	l= 0.2s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=100</pre>	l= 0.2s
[CV] max_depth=5, min_samples_leaf=5, n_estimators=100	
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=100, score=0.776, tota [CV] max_depth=5, min_samples_leaf=5, n_estimators=100</pre>	
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=100, score=0.805, tota [CV] max_depth=5, min_samples_leaf=5, n_estimators=100</pre>	1= 0.3s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=100, score=0.827, tota [CV] max_depth=5, min_samples_leaf=5, n_estimators=150</pre>	l= 0.2s
[CV] max_depth=5, min_samples_leaf=5, n_estimators=150, score=0.828, tota	l= 0.4s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=150</pre>	l= 0.4s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=150</pre>	l= 0.3s
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=150</pre>	l= 0.4s
[CV] max_depth=5, min_samples_leaf=5, n_estimators=150	
<pre>[CV] max_depth=5, min_samples_leaf=5, n_estimators=150, score=0.835, tota [CV] max_depth=5, min_samples_leaf=6, n_estimators=10</pre>	
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=10, score=0.821, total [CV] max_depth=5, min_samples_leaf=6, n_estimators=10</pre>	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=10, score=0.776, total [CV] max_depth=5, min_samples_leaf=6, n_estimators=10</pre>	= 0.0s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=10, score=0.806, total	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=10</pre>	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=10</pre>	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=15</pre>	= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=15	
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=15, score=0.761, total [CV] max_depth=5, min_samples_leaf=6, n_estimators=15</pre>	
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=15, score=0.813, total [CV] max_depth=5, min_samples_leaf=6, n_estimators=15</pre>	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=15, score=0.789, total [CV] max_depth=5, min_samples_leaf=6, n_estimators=15</pre>	= 0.0s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=15, score=0.827, total	= 0.0s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=20</pre>	= 0.1s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=20</pre>	= 0.0s

<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=20</pre>	
[CV] max_depth=5, min_samples_leaf=6, n_estimators=20, score=0.791, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=20	Ca1- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=20, score=0.789, to	tal= 0.0s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=20	Cu1- 0.05
[CV] max_depth=5, min_samples_leaf=6, n_estimators=20, score=0.850, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30	ta1- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30, score=0.821, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30	ta1- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30, score=0.791, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30	ta1- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30, score=0.776, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30	tai- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30, score=0.797, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30	ta1- 0.15
[CV] max_depth=5, min_samples_leaf=6, n_estimators=30, score=0.820, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=40	ta1- 0.15
	tal= 0.1s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=40, score=0.836, to [CV] max_depth=5, min_samples_leaf=6, n_estimators=40</pre>	ta1= 0.15
	tal= 0.1s
	ta1= 0.15
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=40</pre>	+-1- 0.1c
	tal= 0.1s
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=40</pre>	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=40	ta1- 0.15
[CV] max_depth=5, min_samples_leaf=6, n_estimators=40, score=0.827, to	tal= 0.1s
	ta1- 0.15
	tal= 0.1s
	ta1- 0.15
<pre>[CV] max_depth=5, min_samples_leaf=6, n_estimators=50</pre>	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=50	tai- 0.15
[CV] max_depth=5, min_samples_leaf=6, n_estimators=50, score=0.776, to	tal= 0.1s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=50	tai- 0.13
[CV] max_depth=5, min_samples_leaf=6, n_estimators=50, score=0.797, to	tal= 0.2s
[CV] max_depth=5, min samples leaf=6, n estimators=50	ta1- 0.23
[CV] max_depth=5, min_samples_leaf=6, n_estimators=50, score=0.842, to	tal= 0.2s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100	ta1- 0.23
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100, score=0.821, t	otal= 0.3s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100	OCA1- 0.53
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100, score=0.791, t	otal- 0 3c
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100	OCA1- 0.53
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100, score=0.754, t	otal= 0.3s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100	Oca1- 0.33
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100, score=0.805, t	otal= 0.3s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100	OCAI- 0.33
[CV] max_depth=5, min_samples_leaf=6, n_estimators=100, score=0.812, t	otal= 0.4s
[CV] max_depth=5, min_samples_leaf=6, n_estimators=150	0.43
[ev] max_acptil=5, min_sumpres_real=0, n_estimators=150	

```
[CV] max depth=5, min samples leaf=6, n estimators=150, score=0.828, total=
                                                                                       0.55
         [CV] max depth=5, min samples leaf=6, n estimators=150 ......
         [CV] max depth=5, min samples leaf=6, n estimators=150, score=0.776, total=
                                                                                       0.55
         [CV] max depth=5, min samples leaf=6, n estimators=150 ......
         [CV] max depth=5, min samples leaf=6, n estimators=150, score=0.791, total=
                                                                                       0.5s
         [CV] max depth=5, min samples leaf=6, n estimators=150 ......
         [CV] max depth=5, min samples leaf=6, n estimators=150, score=0.805, total=
                                                                                       0.5s
         [CV] max depth=5, min samples leaf=6, n estimators=150 ......
         [CV] max depth=5, min samples leaf=6, n estimators=150, score=0.820, total=
         [Parallel(n jobs=1)]: Done 640 out of 640 | elapsed: 1.6min finished
Out[84]: GridSearchCV(cv=5, estimator=RandomForestClassifier(),
                      param grid={'max depth': [2, 3, 4, 5],
                                  'min samples leaf': [3, 4, 5, 6],
                                  'n estimators': [10, 15, 20, 30, 40, 50, 100, 150]},
                      verbose=3)
In [85]:
          grid cv.best params
         {'max depth': 5, 'min samples leaf': 3, 'n estimators': 150}
          model 01 = RandomForestClassifier(max depth=5,min samples leaf=6,n estimators=150)
In [87]:
In [88]:
          model 01.fit(X train,y train)
         RandomForestClassifier(max depth=5, min samples leaf=6, n estimators=150)
Out[88]:
          model 01.score(X val, v val)
In [89]:
         0.820627802690583
Out[89]:
          model 01 final = RandomForestClassifier(max depth=5,min samples leaf=6,n estimators=150,random state=10)
In [101...
          model 01 final.fit(X,v)
          model 01 final.score(X val,y val)
         0.8475336322869955
Out[101...
          y pre = model 01 final.predict(df test[X cols])
In [104...
In [105...
          y_pre
Out[105... array([0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 1, 1, 0, 0, 0, 1, 0, 0,
                1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1,
```

127.0.0.1:8888/nbconvert/html/FINAL TITANIC .ipynb?download=false

```
1, 0, 0, 0, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1,
1, 0, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0,
1, 1, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0,
0, 1, 1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1,
0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1,
1, 1, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0,
0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0,
1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 1, 1, 1, 1,
0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 1,
0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 1, 1, 0,
0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0,
0, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0,
1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0,
0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 0,
1, 1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1,
0, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 1, 1, 0, 0, 1, 0, 0, 0,
dtvpe=int64)
```

```
In [106... df_test.shape
```

Out[106... (418, 22)

In [107... df\_test['Survived'] = y\_pre

In [108... df\_test[['PassengerId','Survived']]

Out[108	PassengerId	Survived
0	892	0
1	893	0
2	894	0
3	895	0
4	896	1
•••		
413	1305	0
414	1306	1
415	1307	0

	Passengerld	Survived
416	1308	(
417	1309	(

418 rows × 2 columns

```
In [109... df_test[['PassengerId','Survived']].to_csv('sub03.csv', index=False)
In []:
```

## **Using Xgboost Classifier**

```
from xgboost import XGBClassifier
In [53]:
          model 1 = XGBClassifier(n estimators=30, min samples leaf=2, max depth=4, random state=10)
In [56]:
          model 1.fit(X train, y train)
          model 1.score(X val,y val)
         [15:50:16] WARNING: ..\src\learner.cc:541:
         Parameters: { min samples leaf } might not be used.
           This may not be accurate due to some parameters are only used in language bindings but
           passed down to XGBoost core. Or some parameters are not used but slip through this
           verification. Please open an issue if you find above cases.
         [15:50:16] WARNING: ..\src\learner.cc:1061: Starting in XGBoost 1.3.0, the default evaluation metric used with the objective 'bina
         ry:logistic' was changed from 'error' to 'logloss'. Explicitly set eval metric if you'd like to restore the old behavior.
Out[56]:
         0.8161434977578476
In [91]:
          model 1 final = XGBClassifier(n estimators=30, min samples leaf=2, max depth=4, random state=10)
          model 1 final.fit(X,y)
          model 1 final.score(X val,y val)
         [16:33:08] WARNING: ..\src\learner.cc:541:
         Parameters: { min_samples_leaf } might not be used.
           This may not be accurate due to some parameters are only used in language bindings but
           passed down to XGBoost core. Or some parameters are not used but slip through this
```

verification. Please open an issue if you find above cases.

```
[16:33:08] WARNING: ..\src\learner.cc:1061: Starting in XGBoost 1.3.0, the default evaluation metric used with the objective 'bina
         ry:logistic' was changed from 'error' to 'logloss'. Explicitly set eval metric if you'd like to restore the old behavior.
         C:\Users\Admin\anaconda3\lib\site-packages\xgboost\sklearn.py:888: UserWarning: The use of label encoder in XGBClassifier is depre
         cated and will be removed in a future release. To remove this warning, do the following: 1) Pass option use label encoder=False wh
         en constructing 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)
Out[91]: 0.9013452914798207
          v pre = model 1 final.predict(df test[X cols])
In [92]:
In [93]:
         y_pre
1, 0, 1, 0, 1, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 1,
                1, 0, 0, 0, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1,
                1, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0,
                1, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0,
                0, 1, 1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0,
                0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1,
                0, 0, 1, 1, 0, 1, 1, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1,
                1, 1, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 1,
                0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0,
                1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1,
                0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 1,
                0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 1, 1, 1, 1, 0,
                0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1,
                0, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0,
                1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0,
                0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0,
               1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1,
               0, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 0]
               dtype=int64)
          df test.shape
In [94]:
Out[94]: (418, 22)
In [95]:
          df test['Survived'] = y pre
```

In [96]: | df\_test[['PassengerId','Survived']]

Out[96]:		PassengerId	Survived
	0	892	0
	1	893	0
	2	894	0
	3	895	0
	4	896	1
	•••		
	413	1305	0
	414	1306	1
	415	1307	0
	416	1308	0
	417	1309	0

418 rows × 2 columns

```
In [97]: df_test[['PassengerId','Survived']].to_csv('sub02.csv', index=False)
In [ ]:
```