In [140]:
```
import pandas as pd
import seaborn as sns
sns.set(color_codes=True)
from sklearn.preprocessing import LabelEncoder
import numpy as np
from pandas_datareader import data
from sklearn.tree import DecisionTreeRegressor
from sklearn.model_selection import train_test_split
from sklearn import metrics
from sklearn.metrics import r2_score
from sklearn.datasets import load_boston
from sklearn.model_selection import GridSearchCV
```

In [141]:
```
df = pd.read_csv('heart-statlog_csv.csv', na_values = ['?'])
```

In [142]:
```
le=LabelEncoder()
label=le.fit_transform(df["class"])
```

In [143]:
```
le.classes_
```

Out[143]:
```
array(['absent', 'present'], dtype=object)
```

In [144]:
```
Data=df.drop("class",axis='columns')
```

In [145]:
```
Data["class"]=label
```

In [146]:
```
Data
```

Out[146]:

	age	sex	chest	resting_blood_pressure	serum_cholestoral	fasting_blood_sugar	resting_elec
0	70	1	4	130	322	0	
1	67	0	3	115	564	0	
2	57	1	2	124	261	0	
3	64	1	4	128	263	0	
4	74	0	2	120	269	0	
...	...	...	...	...	...	...	
265	52	1	3	172	199	1	
266	44	1	2	120	263	0	
267	56	0	2	140	294	0	
268	57	1	4	140	192	0	
269	67	1	4	160	286	0	

270 rows × 14 columns

In [147]:
```
X = df.drop(['class'],axis=1)
y = df['class']
```

In [148]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, stratify=y, test_size=0
```

In [149]:
```
from sklearn.preprocessing import StandardScaler
scaler = StandardScaler()
scaler.fit(X_train)

X_train = scaler.transform(X_train)
X_test = scaler.transform(X_test)
```

In [150]:
```
print('Distribution of traget variable in training set')
print(y_train.value_counts())

print('Distribution of traget variable in test set')
print(y_test.value_counts())
```

```
Distribution of traget variable in training set
absent     120
present     96
Name: class, dtype: int64
Distribution of traget variable in test set
absent     30
present    24
Name: class, dtype: int64
```

In [151]:
```
print('------------Training Set-----------------')
print(X_train.shape)
print(y_train.shape)

print('------------Test Set-----------------')
print(X_test.shape)
print(y_test.shape)
```

```
------------Training Set-----------------
(216, 13)
(216,)
------------Test Set-----------------
(54, 13)
(54,)
```

In [152]:
```
RandomForestClassifier,VotingClassifier,AdaBoostClassifier,GradientBoostingClassi
```