In [ ]:
```
#Ensemble Learning
>it is a technique to train multiple weak models and then combine predictions
of all weak model to make final prediction(voting or avg).

>there 2 two primary implementations of ensemble learning
    >Bagging
        >ALGOs:RandomForestClassifier,BaggingClassifier,etc.
    >Boosting
        >ALGOs:Adaboost,Gradientboost,XGBoost,etc.
    >Stacking
        >ALGOs:VotingClassifier,etc.
```

In [ ]:
```
Bagging:
    >we create multiple subsets from training set using
        >random sampling with replacement
        >random sampling without replacement
```

In [1]:
```
from sklearn.ensemble import RandomForestClassifier
```

In [2]:
```
from sklearn.datasets import load_iris
```

In [3]:
```
iris=load_iris()
```

In [4]:
```
X=iris.data
y=iris.target
```

In [14]:
```
model=RandomForestClassifier(n_estimators=15,bootstrap=True,oob_score=True,max_samples=N
model.fit(X,y)
```

Out[14]:
```
RandomForestClassifier(n_estimators=15, oob_score=True)
```

In [15]:
```
sample=[1.5,.8,2.8,.5]
model.predict([sample])
```

Out[15]:
```
array([0])
```

In [16]:
```
model.predict_proba([sample])
```

Out[16]:
```
array([[0.73333333, 0.2       , 0.06666667]])
```

In [17]:
```
model.oob_score
```

Out[17]:
```
True
```

In [19]:
```
model.estimator_
```

Out[19]:
```
DecisionTreeClassifier()
```

In [23]:
```
model.oob_score_
```

Out[23]:
```
0.9266666666666666
```

In [ ]: