Xi Liu

part 1

Criterion	Best Test Accuracy
Gini Impurity	0.9079710144927536
Shannon I.G.	0.9289855072463769

part 2

Criterion	# Estimators	1	3	5	10
Gini Impurity	Test Accuracy	0.9217	0.9420	0.9471	0.9565
Shannon I.G.	Test Accuracy	0.9202	0.9376	0.9485	0.9572

Criterion	# Estimators	15	20	40	70
Gini Impurity	Test Accuracy	0.9586	0.9579	0.9594	0.9608
Shannon I.G.	Test Accuracy	0.9608	0.9608	0.9644	0.9644

```
Gini Impurity
estimator: 1, accuracy: 0.9217391304347826
estimator: 3, accuracy: 0.9420289855072463
estimator: 5, accuracy: 0.9471014492753623
estimator: 10, accuracy: 0.9565217391304348
estimator: 15, accuracy: 0.9586956521739131
estimator: 20, accuracy: 0.9579710144927536
estimator: 40, accuracy: 0.9594202898550724
estimator: 70, accuracy: 0.9608695652173913

Shannnon I.G.
estimator: 1, accuracy: 0.9202898550724637
estimator: 3, accuracy: 0.9376811594202898
estimator: 5, accuracy: 0.9485507246376812
estimator: 10, accuracy: 0.9572463768115942
estimator: 15, accuracy: 0.9608695652173913
estimator: 20, accuracy: 0.9608695652173913
estimator: 40, accuracy: 0.9644927536231884
estimator: 70, accuracy: 0.9644927536231884
```

intuition for results observed for different hyperparameters used
the accuracy generally increased if the count of estimator increased
for sklearn.ensemble.RandomForestClassifier, n_parameters is the number of decision
trees in the forest. if the number of trees increase, then the accuracy would increase
up to a certain upper bound and it would take longer to compute, since random forest's
prediction is a result of majority vote of individual trees' predictions