

```
for n_estimators= 5 for max_features= 2 for max_depth= 5
Random Forest Accuracy for Train: 0.8379888268156425
Random Forest F1-Measure for Train: [0.87832168 0.75766017]
-----
Random Forest Accuracy for Test: 0.7359307359307359
Random Forest F1-Measure for Test: [0.81570997 0.53435115]
-----
for n_estimators= 5 for max_features= 2 for max_depth= 10
Random Forest Accuracy for Train: 0.9515828677839852
Random Forest F1-Measure for Train: [0.9619883 0.93333333]
-----
Random Forest Accuracy for Test: 0.7056277056277056
Random Forest F1-Measure for Test: [0.78481013 0.53424658]
-----
for n_estimators= 5 for max_features= 2 for max_depth= 15
Random Forest Accuracy for Train: 0.9608938547486033
Random Forest F1-Measure for Train: [0.96952104 0.94545455]
-----
Random Forest Accuracy for Test: 0.7316017316017316
Random Forest F1-Measure for Test: [0.80864198 0.55072464]
-----
for n_estimators= 5 for max_features= 2 for max_depth= 20
Random Forest Accuracy for Train: 0.9702048417132216
Random Forest F1-Measure for Train: [0.97687861 0.95811518]
-----
Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.79874214 0.55555556]
-----
for n_estimators= 5 for max_features= 4 for max_depth= 5
Random Forest Accuracy for Train: 0.8696461824953445
Random Forest F1-Measure for Train: [0.90084986 0.80978261]
-----
Random Forest Accuracy for Test: 0.7272727272727273
Random Forest F1-Measure for Test: [0.80851064 0.52631579]
-----
for n_estimators= 5 for max_features= 4 for max_depth= 10
Random Forest Accuracy for Train: 0.957169459962756
Random Forest F1-Measure for Train: [0.96632504 0.94117647]
-----
Random Forest Accuracy for Test: 0.6666666666666666
Random Forest F1-Measure for Test: [0.75709779 0.46896552]
-----
for n_estimators= 5 for max_features= 4 for max_depth= 15
Random Forest Accuracy for Train: 0.9757914338919925
```

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Random Forest F1-Measure for Train: [0.98079764 0.96725441]
-----
Random Forest Accuracy for Test: 0.6883116883116883
Random Forest F1-Measure for Test: [0.76315789 0.5443038 ]
-----
for n_estimators= 5 for max_features= 4 for max_depth= 20
Random Forest Accuracy for Train: 0.9553072625698324
Random Forest F1-Measure for Train: [0.96449704 0.93969849]
-----
Random Forest Accuracy for Test: 0.7012987012987013
Random Forest F1-Measure for Test: [0.77669903 0.54901961]
-----
for n_estimators= 5 for max_features= 6 for max_depth= 5
Random Forest Accuracy for Train: 0.8659217877094972
Random Forest F1-Measure for Train: [0.8962536 0.81052632]
-----
Random Forest Accuracy for Test: 0.7532467532467533
Random Forest F1-Measure for Test: [0.82242991 0.59574468]
-----
for n_estimators= 5 for max_features= 6 for max_depth= 10
Random Forest Accuracy for Train: 0.9646182495344506
Random Forest F1-Measure for Train: [0.97234352 0.95090439]
-----
Random Forest Accuracy for Test: 0.70995670995671
Random Forest F1-Measure for Test: [0.79127726 0.5248227 ]
-----
for n_estimators= 5 for max_features= 6 for max_depth= 15
Random Forest Accuracy for Train: 0.9739292364990689
Random Forest F1-Measure for Train: [0.97941176 0.96446701]
-----
Random Forest Accuracy for Test: 0.7272727272727273
Random Forest F1-Measure for Test: [0.80373832 0.55319149]
-----
for n_estimators= 5 for max_features= 6 for max_depth= 20
Random Forest Accuracy for Train: 0.9776536312849162
Random Forest F1-Measure for Train: [0.98240469 0.96938776]
-----
Random Forest Accuracy for Test: 0.7186147186147186
Random Forest F1-Measure for Test: [0.79495268 0.55172414]
-----
for n_estimators= 5 for max_features= 8 for max_depth= 5
Random Forest Accuracy for Train: 0.8677839851024208
Random Forest F1-Measure for Train: [0.89871612 0.80965147]
-----
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Random Forest Accuracy for Test: 0.7316017316017316
Random Forest F1-Measure for Test: [0.80503145 0.56944444]
-----
for n_estimators= 5 for max_features= 8 for max_depth= 10
Random Forest Accuracy for Train: 0.957169459962756
Random Forest F1-Measure for Train: [0.96671491 0.93994778]
-----
Random Forest Accuracy for Test: 0.683982683982684
Random Forest F1-Measure for Test: [0.76971609 0.49655172]
-----
for n_estimators= 5 for max_features= 8 for max_depth= 15
Random Forest Accuracy for Train: 0.9795158286778398
Random Forest F1-Measure for Train: [0.9837037 0.97243108]
-----
Random Forest Accuracy for Test: 0.6623376623376623
Random Forest F1-Measure for Test: [0.74342105 0.50632911]
-----
for n_estimators= 5 for max_features= 8 for max_depth= 20
Random Forest Accuracy for Train: 0.9720670391061452
Random Forest F1-Measure for Train: [0.97810219 0.96143959]
-----
Random Forest Accuracy for Test: 0.6926406926406926
Random Forest F1-Measure for Test: [0.77742947 0.5034965 ]
-----
for n_estimators= 10 for max_features= 2 for max_depth= 5
Random Forest Accuracy for Train: 0.8677839851024208
Random Forest F1-Measure for Train: [0.89929078 0.80758808]
-----
Random Forest Accuracy for Test: 0.7575757575757576
Random Forest F1-Measure for Test: [0.83030303 0.57575758]
-----
for n_estimators= 10 for max_features= 2 for max_depth= 10
Random Forest Accuracy for Train: 0.9683426443202979
Random Forest F1-Measure for Train: [0.97518248 0.9562982 ]
-----
Random Forest Accuracy for Test: 0.696969696969697
Random Forest F1-Measure for Test: [0.77987421 0.51388889]
-----
for n_estimators= 10 for max_features= 2 for max_depth= 15
Random Forest Accuracy for Train: 0.9888268156424581
Random Forest F1-Measure for Train: [0.99125364 0.98453608]
-----
Random Forest Accuracy for Test: 0.6796536796536796
Random Forest F1-Measure for Test: [0.77710843 0.43076923]
```

for n_estimators= 10 for max_features= 2 for max_depth= 20
Random Forest Accuracy for Train: 0.9888268156424581
Random Forest F1-Measure for Train: [0.99122807 0.98461538]

Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.79874214 0.55555556]

for n_estimators= 10 for max_features= 4 for max_depth= 5
Random Forest Accuracy for Train: 0.8584729981378026
Random Forest F1-Measure for Train: [0.89017341 0.80104712]

Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.80124224 0.54285714]

for n_estimators= 10 for max_features= 4 for max_depth= 10
Random Forest Accuracy for Train: 0.9851024208566108
Random Forest F1-Measure for Train: [0.98823529 0.97969543]

Random Forest Accuracy for Test: 0.70995670995671
Random Forest F1-Measure for Test: [0.79127726 0.5248227]

for n_estimators= 10 for max_features= 4 for max_depth= 15
Random Forest Accuracy for Train: 0.9757914338919925
Random Forest F1-Measure for Train: [0.98124098 0.96587927]

Random Forest Accuracy for Test: 0.7316017316017316
Random Forest F1-Measure for Test: [0.81212121 0.53030303]

for n_estimators= 10 for max_features= 4 for max_depth= 20
Random Forest Accuracy for Train: 0.9739292364990689
Random Forest F1-Measure for Train: [0.97971014 0.96354167]

Random Forest Accuracy for Test: 0.7186147186147186
Random Forest F1-Measure for Test: [0.80243161 0.5112782]

for n_estimators= 10 for max_features= 6 for max_depth= 5
Random Forest Accuracy for Train: 0.8770949720670391
Random Forest F1-Measure for Train: [0.90236686 0.83417085]

Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.79746835 0.56164384]

for n_estimators= 10 for max_features= 6 for max_depth= 10

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Random Forest Accuracy for Train: 0.9795158286778398
Random Forest F1-Measure for Train: [0.98394161 0.97172237]
-----
Random Forest Accuracy for Test: 0.7012987012987013
Random Forest F1-Measure for Test: [0.78369906 0.51748252]
-----
for n_estimators= 10 for max_features= 6 for max_depth= 15
Random Forest Accuracy for Train: 0.9832402234636871
Random Forest F1-Measure for Train: [0.98693759 0.97662338]
-----
Random Forest Accuracy for Test: 0.7142857142857143
Random Forest F1-Measure for Test: [0.7962963 0.52173913]
-----
for n_estimators= 10 for max_features= 6 for max_depth= 20
Random Forest Accuracy for Train: 0.9888268156424581
Random Forest F1-Measure for Train: [0.99125364 0.98453608]
-----
Random Forest Accuracy for Test: 0.696969696969697
Random Forest F1-Measure for Test: [0.78527607 0.48529412]
-----
for n_estimators= 10 for max_features= 8 for max_depth= 5
Random Forest Accuracy for Train: 0.8733705772811918
Random Forest F1-Measure for Train: [0.9017341 0.82198953]
-----
Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.80368098 0.52941176]
-----
for n_estimators= 10 for max_features= 8 for max_depth= 10
Random Forest Accuracy for Train: 0.9720670391061452
Random Forest F1-Measure for Train: [0.97803807 0.96163683]
-----
Random Forest Accuracy for Test: 0.7316017316017316
Random Forest F1-Measure for Test: [0.80503145 0.56944444]
-----
for n_estimators= 10 for max_features= 8 for max_depth= 15
Random Forest Accuracy for Train: 0.9869646182495344
Random Forest F1-Measure for Train: [0.9897511 0.98209719]
-----
Random Forest Accuracy for Test: 0.7272727272727273
Random Forest F1-Measure for Test: [0.80615385 0.54014599]
-----
for n_estimators= 10 for max_features= 8 for max_depth= 20
Random Forest Accuracy for Train: 0.9906890130353817
Random Forest F1-Measure for Train: [0.99267936 0.98721228]
```

Random Forest Accuracy for Test: 0.7359307359307359

Random Forest F1-Measure for Test: [0.81681682 0.52713178]

for n_estimators= 15 for max_features= 2 for max_depth= 5

Random Forest Accuracy for Train: 0.8566108007448789

Random Forest F1-Measure for Train: [0.88952654 0.79575597]

Random Forest Accuracy for Test: 0.7229437229437229

Random Forest F1-Measure for Test: [0.80246914 0.53623188]

for n_estimators= 15 for max_features= 2 for max_depth= 10

Random Forest Accuracy for Train: 0.9795158286778398

Random Forest F1-Measure for Train: [0.98403483 0.97142857]

Random Forest Accuracy for Test: 0.696969696969697

Random Forest F1-Measure for Test: [0.77564103 0.53333333]

for n_estimators= 15 for max_features= 2 for max_depth= 15

Random Forest Accuracy for Train: 0.9906890130353817

Random Forest F1-Measure for Train: [0.99265786 0.98727735]

Random Forest Accuracy for Test: 0.70995670995671

Random Forest F1-Measure for Test: [0.78032787 0.57324841]

for n_estimators= 15 for max_features= 2 for max_depth= 20

Random Forest Accuracy for Train: 0.9832402234636871

Random Forest F1-Measure for Train: [0.98674521 0.97721519]

Random Forest Accuracy for Test: 0.6926406926406926

Random Forest F1-Measure for Test: [0.77742947 0.5034965]

for n_estimators= 15 for max_features= 4 for max_depth= 5

Random Forest Accuracy for Train: 0.8715083798882681

Random Forest F1-Measure for Train: [0.90184922 0.81401617]

Random Forest Accuracy for Test: 0.7186147186147186

Random Forest F1-Measure for Test: [0.80122324 0.51851852]

for n_estimators= 15 for max_features= 4 for max_depth= 10

Random Forest Accuracy for Train: 0.9906890130353817

Random Forest F1-Measure for Train: [0.99267936 0.98721228]

Random Forest Accuracy for Test: 0.70995670995671

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Random Forest F1-Measure for Test:  [0.79127726 0.5248227 ]
-----
for n_estimators= 15 for max_features= 4 for max_depth= 15
Random Forest Accuracy for Train:  0.9925512104283054
Random Forest F1-Measure for Train:  [0.99411765 0.98984772]
-----
Random Forest Accuracy for Test:  0.6883116883116883
Random Forest F1-Measure for Test:  [0.775      0.49295775]
-----
for n_estimators= 15 for max_features= 4 for max_depth= 20
Random Forest Accuracy for Train:  0.994413407821229
Random Forest F1-Measure for Train:  [0.99560761 0.99232737]
-----
Random Forest Accuracy for Test:  0.7272727272727273
Random Forest F1-Measure for Test:  [0.80126183 0.56551724]
-----
for n_estimators= 15 for max_features= 6 for max_depth= 5
Random Forest Accuracy for Train:  0.8640595903165735
Random Forest F1-Measure for Train:  [0.89435601 0.80939948]
-----
Random Forest Accuracy for Test:  0.7359307359307359
Random Forest F1-Measure for Test:  [0.81114551 0.56115108]
-----
for n_estimators= 15 for max_features= 6 for max_depth= 10
Random Forest Accuracy for Train:  0.9813780260707635
Random Forest F1-Measure for Train:  [0.98538012 0.97435897]
-----
Random Forest Accuracy for Test:  0.7142857142857143
Random Forest F1-Measure for Test:  [0.78980892 0.55405405]
-----
for n_estimators= 15 for max_features= 6 for max_depth= 15
Random Forest Accuracy for Train:  0.9851024208566108
Random Forest F1-Measure for Train:  [0.98833819 0.97938144]
-----
Random Forest Accuracy for Test:  0.7445887445887446
Random Forest F1-Measure for Test:  [0.81733746 0.57553957]
-----
for n_estimators= 15 for max_features= 6 for max_depth= 20
Random Forest Accuracy for Train:  0.9906890130353817
Random Forest F1-Measure for Train:  [0.99267936 0.98721228]
-----
Random Forest Accuracy for Test:  0.70995670995671
Random Forest F1-Measure for Test:  [0.79256966 0.51798561]
-----
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for n_estimators= 15 for max_features= 8 for max_depth= 5
Random Forest Accuracy for Train: 0.8640595903165735
Random Forest F1-Measure for Train: [0.89311859 0.81329923]
-----
Random Forest Accuracy for Test: 0.7402597402597403
Random Forest F1-Measure for Test: [0.81481481 0.56521739]
-----

for n_estimators= 15 for max_features= 8 for max_depth= 10
Random Forest Accuracy for Train: 0.9925512104283054
Random Forest F1-Measure for Train: [0.9941349 0.98979592]
-----
Random Forest Accuracy for Test: 0.696969696969697
Random Forest F1-Measure for Test: [0.77987421 0.51388889]
-----

for n_estimators= 15 for max_features= 8 for max_depth= 15
Random Forest Accuracy for Train: 0.994413407821229
Random Forest F1-Measure for Train: [0.99556869 0.99244332]
-----
Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.79746835 0.56164384]
-----

for n_estimators= 15 for max_features= 8 for max_depth= 20
Random Forest Accuracy for Train: 0.9981378026070763
Random Forest F1-Measure for Train: [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test: 0.7056277056277056
Random Forest F1-Measure for Test: [0.78481013 0.53424658]
-----

for n_estimators= 50 for max_features= 2 for max_depth= 5
Random Forest Accuracy for Train: 0.8752327746741154
Random Forest F1-Measure for Train: [0.90387374 0.82228117]
-----
Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.79874214 0.55555556]
-----

for n_estimators= 50 for max_features= 2 for max_depth= 10
Random Forest Accuracy for Train: 0.994413407821229
Random Forest F1-Measure for Train: [0.99560761 0.99232737]
-----
Random Forest Accuracy for Test: 0.696969696969697
Random Forest F1-Measure for Test: [0.77987421 0.51388889]
-----

for n_estimators= 50 for max_features= 2 for max_depth= 15
Random Forest Accuracy for Train: 1.0
```



```
Random Forest F1-Measure for Train:  [1. 1.]
-----
Random Forest Accuracy for Test:  0.7056277056277056
Random Forest F1-Measure for Test:  [0.78481013 0.53424658]
-----
for n_estimators= 50 for max_features= 2 for max_depth= 20
Random Forest Accuracy for Train:  1.0
Random Forest F1-Measure for Train:  [1. 1.]
-----
Random Forest Accuracy for Test:  0.7272727272727273
Random Forest F1-Measure for Test:  [0.80250784 0.55944056]
-----
for n_estimators= 50 for max_features= 4 for max_depth= 5
Random Forest Accuracy for Train:  0.8752327746741154
Random Forest F1-Measure for Train:  [0.90387374 0.82228117]
-----
Random Forest Accuracy for Test:  0.7186147186147186
Random Forest F1-Measure for Test:  [0.79623824 0.54545455]
-----
for n_estimators= 50 for max_features= 4 for max_depth= 10
Random Forest Accuracy for Train:  0.9981378026070763
Random Forest F1-Measure for Train:  [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test:  0.70995670995671
Random Forest F1-Measure for Test:  [0.78996865 0.53146853]
-----
for n_estimators= 50 for max_features= 4 for max_depth= 15
Random Forest Accuracy for Train:  1.0
Random Forest F1-Measure for Train:  [1. 1.]
-----
Random Forest Accuracy for Test:  0.7359307359307359
Random Forest F1-Measure for Test:  [0.81230769 0.55474453]
-----
for n_estimators= 50 for max_features= 4 for max_depth= 20
Random Forest Accuracy for Train:  0.9981378026070763
Random Forest F1-Measure for Train:  [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test:  0.7186147186147186
Random Forest F1-Measure for Test:  [0.79495268 0.55172414]
-----
for n_estimators= 50 for max_features= 6 for max_depth= 5
Random Forest Accuracy for Train:  0.88268156424581
Random Forest F1-Measure for Train:  [0.9080292 0.83804627]
-----
```

```
Random Forest Accuracy for Test: 0.7186147186147186
Random Forest F1-Measure for Test: [0.79495268 0.55172414]
-----
for n_estimators= 50 for max_features= 6 for max_depth= 10
Random Forest Accuracy for Train: 0.9981378026070763
Random Forest F1-Measure for Train: [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test: 0.7012987012987013
Random Forest F1-Measure for Test: [0.78233438 0.52413793]
-----
for n_estimators= 50 for max_features= 6 for max_depth= 15
Random Forest Accuracy for Train: 0.9981378026070763
Random Forest F1-Measure for Train: [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test: 0.7186147186147186
Random Forest F1-Measure for Test: [0.79623824 0.54545455]
-----
for n_estimators= 50 for max_features= 6 for max_depth= 20
Random Forest Accuracy for Train: 0.9981378026070763
Random Forest F1-Measure for Train: [0.99853157 0.99745547]
-----
Random Forest Accuracy for Test: 0.7056277056277056
Random Forest F1-Measure for Test: [0.78343949 0.54054054]
-----
for n_estimators= 50 for max_features= 8 for max_depth= 5
Random Forest Accuracy for Train: 0.8789571694599627
Random Forest F1-Measure for Train: [0.90647482 0.82849604]
-----
Random Forest Accuracy for Test: 0.7142857142857143
Random Forest F1-Measure for Test: [0.79375 0.53521127]
-----
for n_estimators= 50 for max_features= 8 for max_depth= 10
Random Forest Accuracy for Train: 1.0
Random Forest F1-Measure for Train: [1. 1.]
-----
Random Forest Accuracy for Test: 0.7186147186147186
Random Forest F1-Measure for Test: [0.79750779 0.53900709]
-----
for n_estimators= 50 for max_features= 8 for max_depth= 15
Random Forest Accuracy for Train: 1.0
Random Forest F1-Measure for Train: [1. 1.]
-----
Random Forest Accuracy for Test: 0.7229437229437229
Random Forest F1-Measure for Test: [0.80124224 0.54285714]
```

```
-----  
for n_estimators= 50 for max_features= 8 for max_depth= 20  
Random Forest Accuracy for Train: 1.0  
Random Forest F1-Measure for Train: [1. 1.]  
-----
```

```
Random Forest Accuracy for Test: 0.7316017316017316  
Random Forest F1-Measure for Test: [0.80379747 0.57534247]  
-----
```

```
Best Accuracy for Test: 0.7575757575757576 for n_estimators= 10 for max_fea  
tures= 2 for max_depth= 5
```