In[57]:=
```
dataPath = FileNameJoin[
    {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[58]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real",
     "Real", "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[59]:=
```
trainData = Values@
    Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[60]:=
```
cluster[method_: "GaussianMixture", numberClusters_: 2,
  distanceFunction_: EuclideanDistance] := Module[{clusters, rules, classifier},
  clusters = ClusteringComponents[trainData, numberClusters, 1, Method → method,
    DistanceFunction → distanceFunction, PerformanceGoal → "Quality"];
  rules = Map[clusters[[#]] → data[[#, "Occupancy"]] &, Range[Length[data]]];
  classifier = Classify[rules, Method → Automatic];
  Return[ClassifierMeasurements[classifier, rules]];
 ]
```

In[61]:=
```
cm = cluster["KMeans", 2, EuclideanDistance];
```

In[62]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[62]=
```
⟨|False → 0.139434, True → 0.567991|⟩
```

In[63]:=
```
cm["Accuracy"]
```

Out[63]=
```
0.900286
```

In[64]:=
```
cm["FScore"]
```

Out[64]=
```
⟨|False → 0.934353, True → 0.792723|⟩
```

In[65]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[65]=
```
⟨|False → 0.139434, True → 0.567991|⟩
```

In[66]:=
```
cm["Specificity"]
```

Out[66]=
```
⟨|False → 0.955355, True → 0.886555|⟩
```

In[67]:=
```
cm["Perplexity"]
```

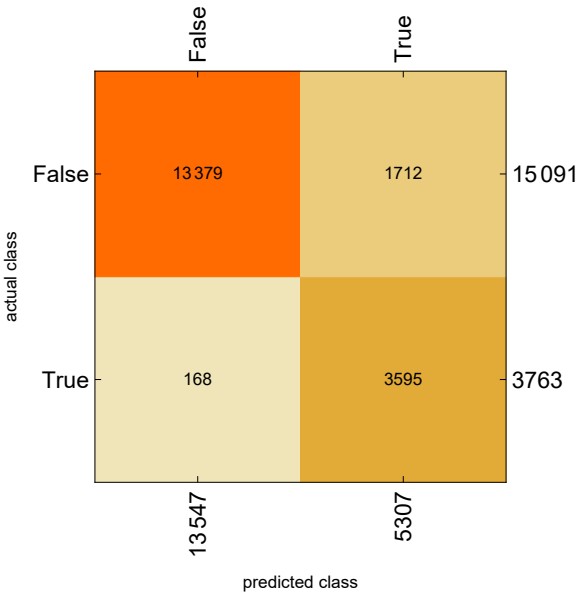
Out[67]=
```
1.25228
```

In[68]:=
```
cm["Precision"]
```

Out[68]=
```
⟨|False → 0.987599, True → 0.677407|⟩
```

In[69]:=
```
cm["ConfusionMatrixPlot"]
```

Out[69]=



In[70]:=
```
cm["ROCCurve"]
```

Out[70]=