In[43]:=
```
dataPath = FileNameJoin[
    {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[44]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real",
     "Real", "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[45]:=
```
trainData = Values@
    Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[46]:=
```
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[47]:=
```
cm = cluster["KMeans", 10, EuclideanDistance];
```

In[48]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[48]=
```
⟨|False → 0.0901257, True → 0.25102|⟩
```

In[49]:=
```
cm["Accuracy"]
```

Out[49]=
```
0.945635
```

In[50]:=
```
cm["FScore"]
```

Out[50]=
```
⟨|False → 0.964886, True → 0.879652|⟩
```

In[51]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[51]=
```
⟨|False → 0.0901257, True → 0.25102|⟩
```

In[52]:=
```
cm["Specificity"]
```

Out[52]=
```
⟨|False → 0.995482, True → 0.933205|⟩
```

In[53]:=
```
cm["Perplexity"]
```

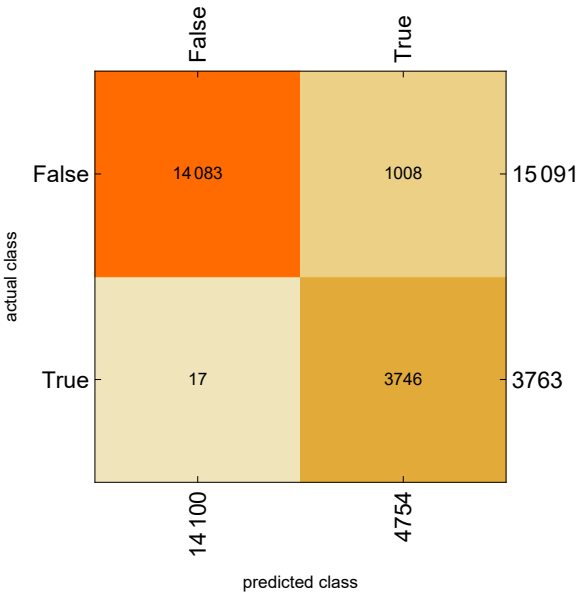
Out[53]=
```
1.13002
```

In[54]:=
```
cm["Precision"]
```

Out[54]=
```
⟨|False → 0.998794, True → 0.787968|⟩
```

In[55]:=
```
cm["ConfusionMatrixPlot"]
```

Out[55]=



In[56]:=
```
cm["ROCCurve"]
```

Out[56]=