In[29]:=
```
dataPath = FileNameJoin[
    {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[30]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real",
     "Real", "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[31]:=
```
trainData = Values@
    Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[32]:=
```
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[33]:=
```
cm = cluster["KMeans", 30, EuclideanDistance];
```

In[34]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[34]=
```
⟨|False → 0.0383682, True → 0.0898483|⟩
```

In[35]:=
```
cm["Accuracy"]
```

Out[35]=
```
0.983452
```

In[36]:=
```
cm["FScore"]
```

Out[36]=
```
⟨|False → 0.989558, True → 0.960143|⟩
```

In[37]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[37]=
```
⟨|False → 0.0383682, True → 0.0898483|⟩
```

In[38]:=
```
cm["Specificity"]
```

Out[38]=
```
⟨|False → 0.998671, True → 0.979657|⟩
```

In[39]:=
```
cm["Perplexity"]
```

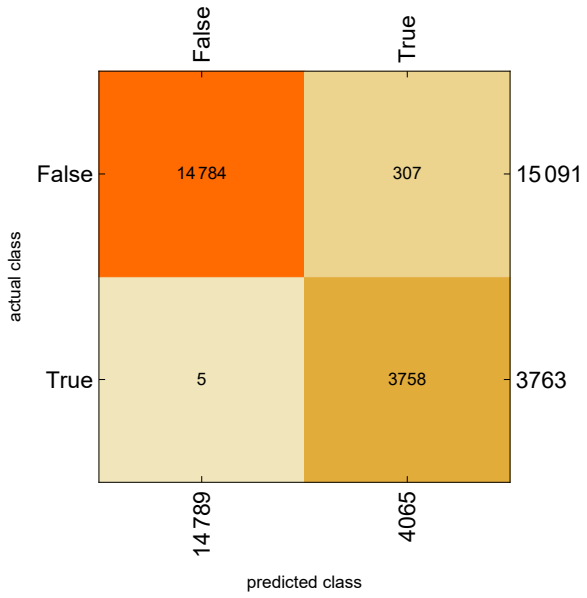
Out[39]=
```
1.04985
```

In[40]:=
```
cm["Precision"]
```

Out[40]=
```
⟨|False → 0.999662, True → 0.924477|⟩
```

In[41]:=
```
cm["ConfusionMatrixPlot"]
```

Out[41]=



In[42]:=
```
cm["ROCCurve"]
```

Out[42]=