In[1]:=
```
dataPath = FileNameJoin[
   {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[2]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real", "Real",
    "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[3]:=
```
trainData = Values@
   Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[4]:=
```
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[27]:=
```
cm = cluster["GaussianMixture", Automatic, SquaredEuclideanDistance];
```

In[28]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[28]=
```
⟨|False → 0.0560637, True → 0.24418|⟩
```

In[29]:=
```
cm["Accuracy"]
```

Out[29]=
```
0.970404
```

In[30]:=
```
cm["FScore"]
```

Out[30]=
```
⟨|False → 0.981458, True → 0.926714|⟩
```

In[31]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[31]=
```
⟨|False → 0.0560637, True → 0.24418|⟩
```

In[32]:=
```
cm["Specificity"]
```

Out[32]=
```
⟨|False → 0.93755, True → 0.978597|⟩
```

In[33]:=
```
cm["Perplexity"]
```

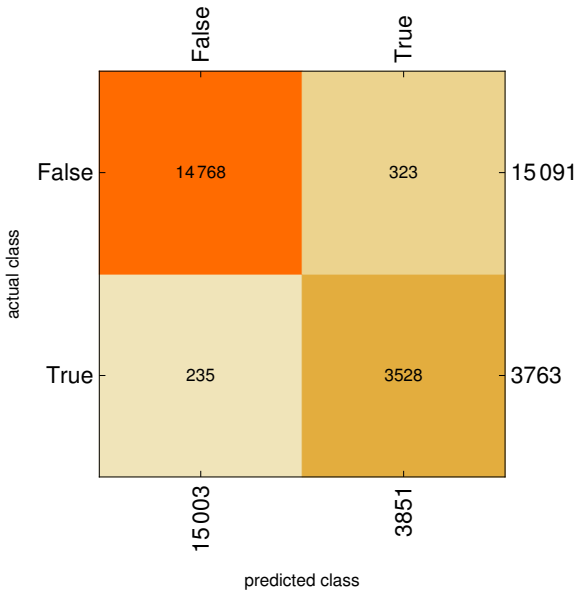
Out[33]=
```
1.09813
```

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

Out[34]=
```
⟨|False → 0.984336, True → 0.916126|⟩
```

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

Out[35]=



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

Out[36]=