In[15]:=
```
dataPath = FileNameJoin[
    {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[16]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real",
     "Real", "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[17]:=
```
trainData = Values@
    Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[18]:=
```
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[19]:=
```
cm = cluster["KMeans", 30, ManhattanDistance];
```

In[20]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[20]= ⟨| False → 0.0480793, True → 0.163169 |⟩

In[21]:=
```
cm["Accuracy"]
```

Out[21]= 0.976769

In[22]:=
```
cm["FScore"]
```

Out[22]= ⟨| False → 0.985345, True → 0.94399 |⟩

In[23]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[23]= ⟨| False → 0.0480793, True → 0.163169 |⟩

In[24]:=
```
cm["Specificity"]
```

Out[24]= ⟨| False → 0.980866, True → 0.975747 |⟩

In[25]:=
```
cm["Perplexity"]
```

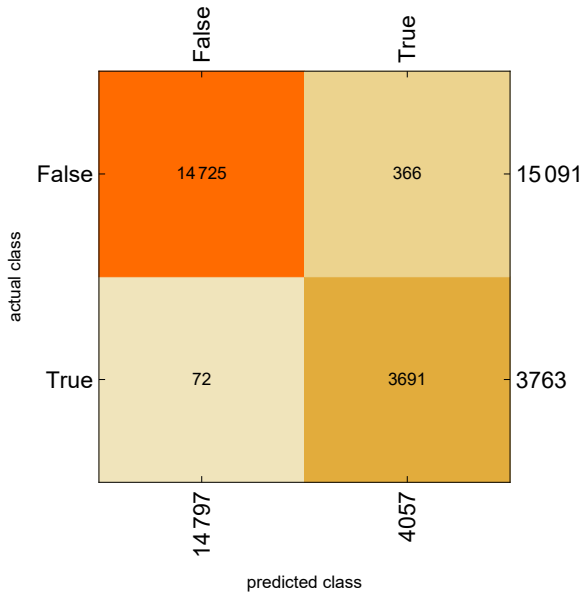
Out[25]= 1.07363

In[26]:=
```
cm["Precision"]
```

Out[26]= ⟨| False → 0.995134, True → 0.909786 |⟩

In[27]:=
```
cm["ConfusionMatrixPlot"]
```

Out[27]=



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

Out[28]=