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[15]:=
```
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[76]:=
```
cm = cluster["KMedoids", 30, ManhattanDistance];
```

In[77]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[77]=
```
⟨|False → 0.0530726, True → 0.226249|⟩
```

In[78]:=
```
cm["Accuracy"]
```

Out[78]=
```
0.974382
```

In[79]:=
```
cm["FScore"]
```

Out[79]=
```
⟨|False → 0.983896, True → 0.937395|⟩
```

In[80]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[80]=
```
⟨|False → 0.0530726, True → 0.226249|⟩
```

In[81]:=
```
cm["Specificity"]
```

Out[81]=
```
⟨|False → 0.960935, True → 0.977735|⟩
```

In[82]:=
```
cm["Perplexity"]
```

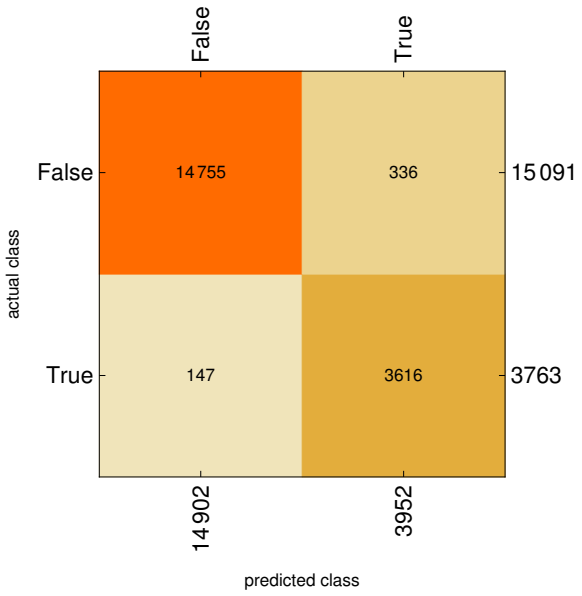
Out[82]=
```
1.09159
```

In[83]:=
```
cm["Precision"]
```

Out[83]=
```
⟨|False → 0.990136, True → 0.91498|⟩
```

In[84]:=
```
cm["ConfusionMatrixPlot"]
```

Out[84]=



In[85]:=
```
cm["ROCCurve"]
```

Out[85]=