

```

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[66]:= cm = cluster["KMeans", 30, ManhattanDistance];

In[67]:= cm["ClassMeanCrossEntropy"]

Out[67]= <| False → 0.0439473, True → 0.169693 |>

In[68]:= cm["Accuracy"]

Out[68]= 0.980641

In[69]:= cm["FScore"]

Out[69]= <| False → 0.9878, True → 0.953139 |>

In[70]:= cm["ClassMeanCrossEntropy"]

Out[70]= <| False → 0.0439473, True → 0.169693 |>

In[71]:= cm["Specificity"]

Out[71]= <| False → 0.986447, True → 0.979193 |>

In[72]:= cm["Perplexity"]

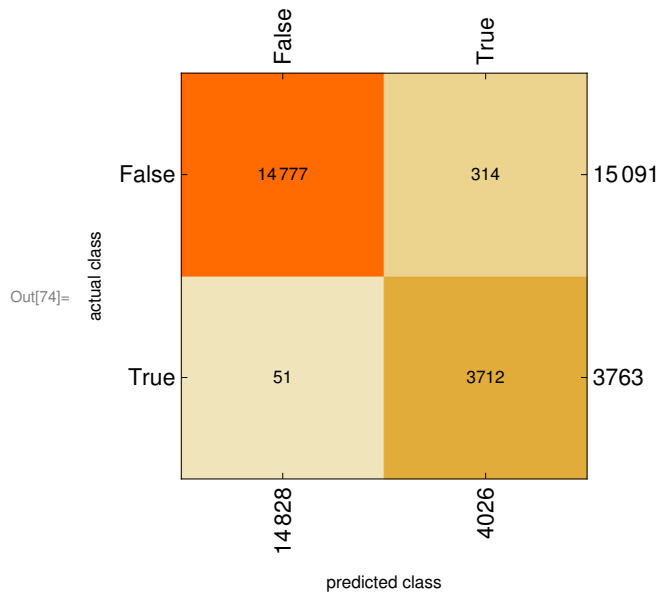
Out[72]= 1.07148

In[73]:= cm["Precision"]

Out[73]= <| False → 0.996561, True → 0.922007 |>

In[74]:= cm["ConfusionMatrixPlot"]

```



In[75]:= `cm["ROCCurve"]`

