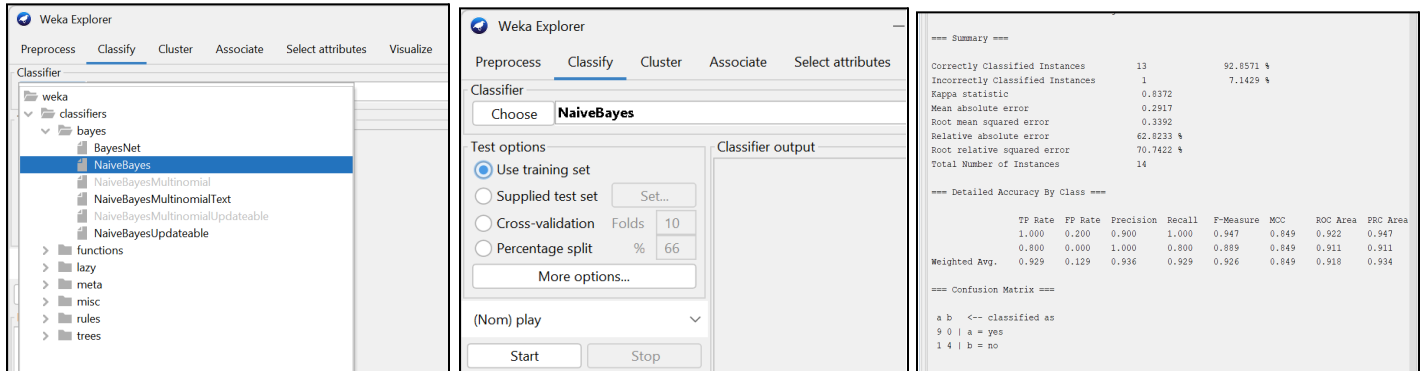


Practical 09: Implementing Classification in Weka [Naïve Bayes]

Step 01: Open Weka Explorer → Preprocess → load weather.nominal.arff → move to Classify tab → choose Naïve Bayes[it will be in bayes directory] → set classifier options via More Options → hit Use Training Set → Start → Now, you will see the results showing 13 correct, 1 incorrect [6th instance, marked [+]], with 92.8571% accuracy.



The image shows the Weka Explorer interface with the 'Classify' tab selected. The 'Classifier' dropdown is set to 'NaiveBayes'. The 'Test options' section shows 'Use training set' selected. The 'Classifier output' section displays the following summary:

```

=== Summary ===
Correctly Classified Instances      13      92.8571 %
Incorrectly Classified Instances    1       7.1429 %
Kappa statistic                    0.9372
Mean absolute error                 0.0917
Root mean squared error             0.3392
Relative absolute error             62.0233 %
Root relative squared error        70.7422 %
Total Number of Instances          14

=== Detailed Accuracy By Class ===

```

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area
1.000	0.200	0.900	1.000	0.947	0.849	0.922	0.947	
0.800	0.000	1.000	0.800	0.889	0.849	0.911	0.911	
Weighted Avg.	0.929	0.129	0.936	0.929	0.926	0.849	0.918	

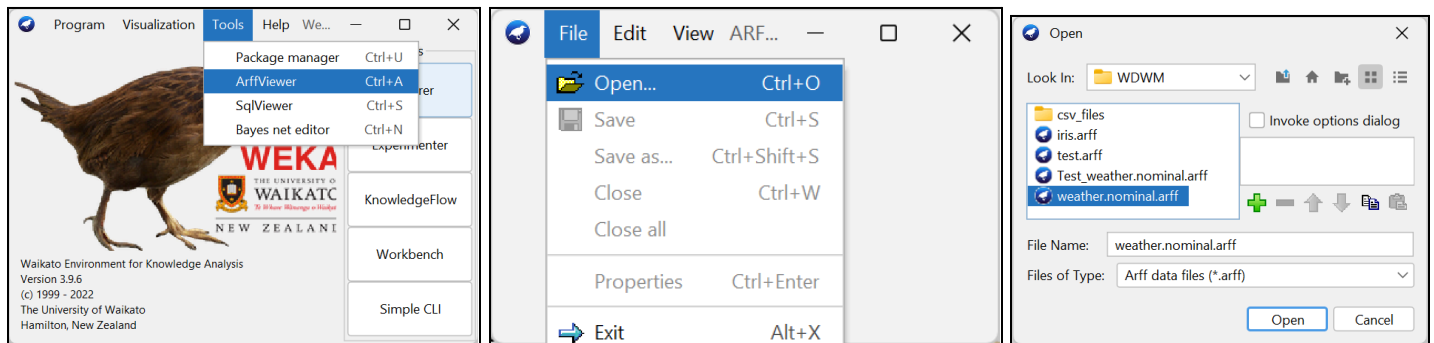
The 'Confusion Matrix' section shows:

```

=== Confusion Matrix ===
 a b  <-- classified as
 0 0 | a = yes
 1 4 | b = no

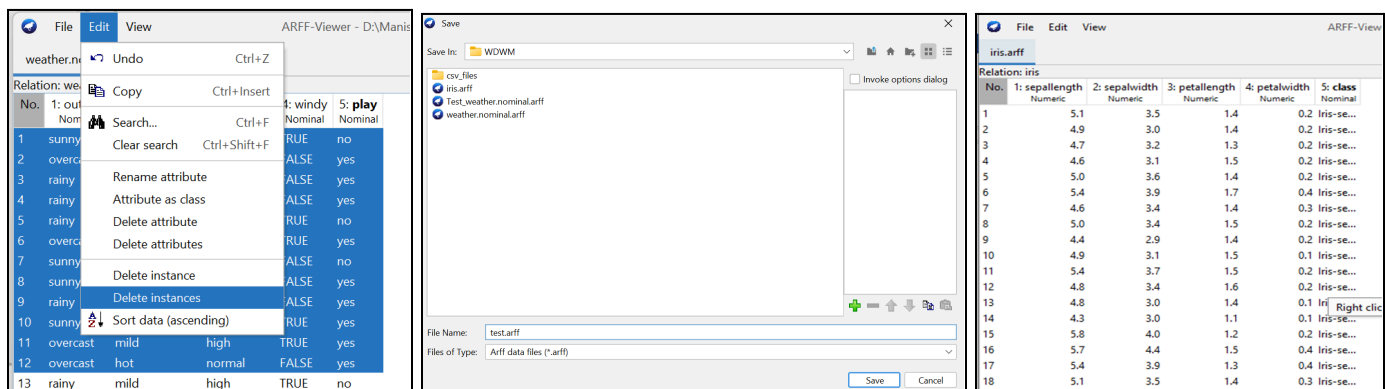
```

Step 02: Now will create a training dataset and for that, Open weka GUI → Tool Tab → Arrffviewer → File → open weather.nominal.arff file.



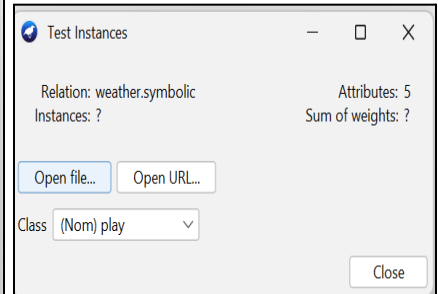
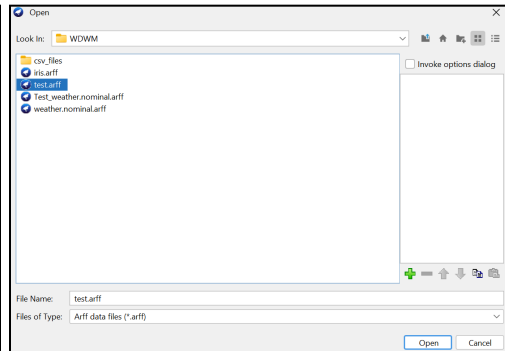
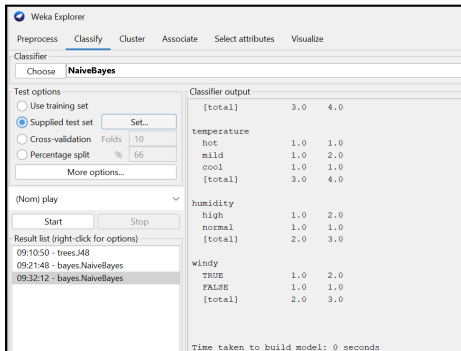
The image shows three screenshots of the Weka GUI. The first screenshot shows the 'Tools' menu with 'Arrffviewer' selected. The second screenshot shows the 'File' menu with 'Open...' selected. The third screenshot shows the 'Open' dialog box with 'weather.nominal.arff' selected.

Step 03: Select all records, exclude one, delete the rest, and save as **test.arff**. After that Go to the Preprocess tab → Open file → iris.arff.



The image shows three screenshots of the Weka GUI. The first screenshot shows the 'ARFF-Viewer' window with the 'weather.nominal.arff' file loaded. The second screenshot shows the 'Save' dialog box with 'test.arff' as the filename. The third screenshot shows the 'ARFF-Viewer' window with the 'iris.arff' file loaded.

Step 04: Move to Classify tab → choose Naïve Bayes → hit Start to build the classifier, then Select Supplied test set → hit Set and open test.arff file, once the file details are displayed → hit Start again to classify the test instances. The classifier predicts an unknown instance as Play: Yes



```

=== Summary ===

Correctly Classified Instances      1      100    %
Incorrectly Classified Instances    0         0    %
Kappa statistic                    1
Mean absolute error                 0.1111
Root mean squared error             0.1111
Relative absolute error             33.3333 %
Root relative squared error         33.3333 %
Total Number of Instances          1

=== Detailed Accuracy By Class ===

      TP Rate  FP Rate  Precision  Recall   F-Measure  MCC      ROC Area  PRC Area
      ?       0.000    ?         ?         ?         ?         ?         ?
Weighted Avg.  1.000    ?         1.000    1.000    1.000    ?         ?         1.000

=== Confusion Matrix ===

 a b  <-- classified as
 0 0 | a = yes
 0 1 | b = no
    
```