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EXPERIMENT-25

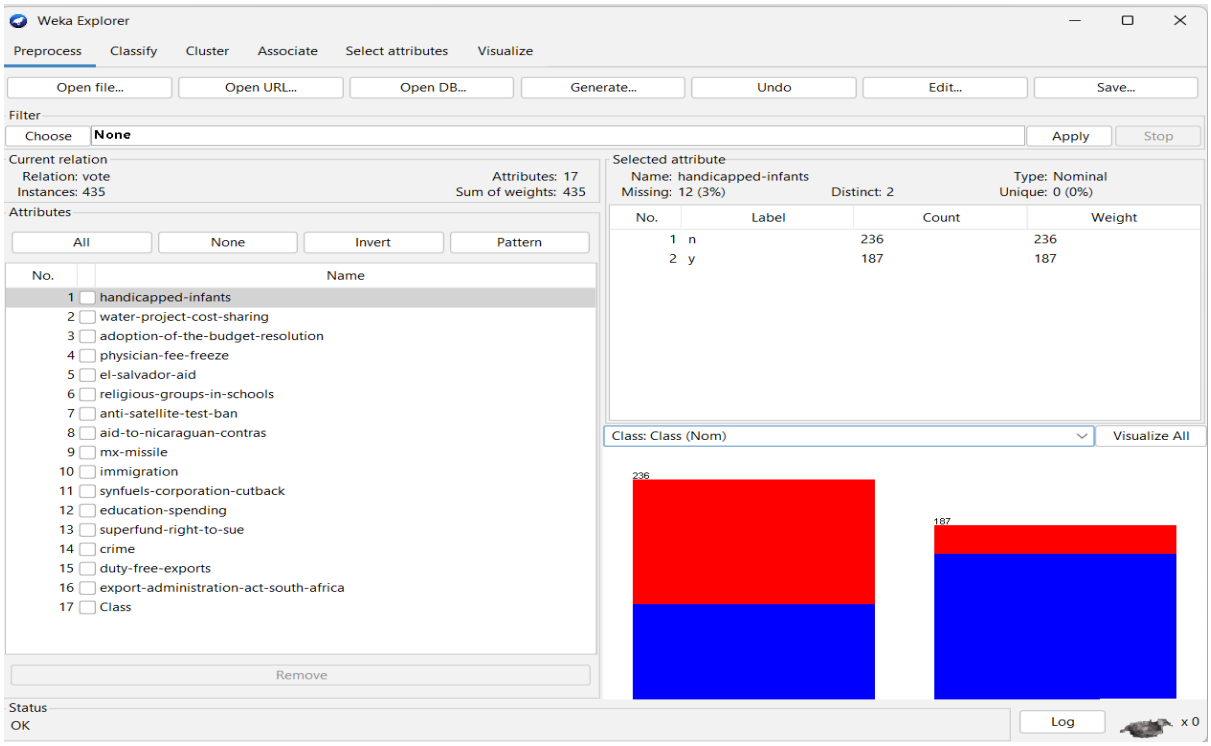
FREQUENT PATTERN MINING USING ASSOCIATION RULE THROUGH WEKA AND R TOOLS

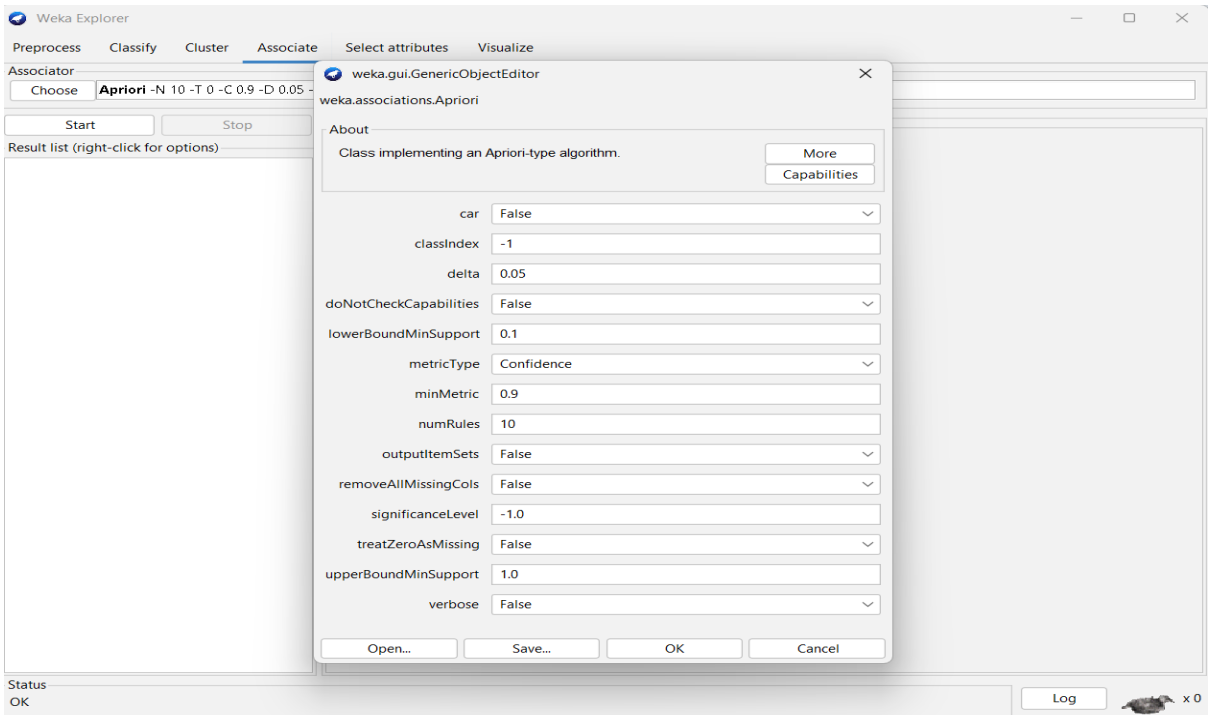
AIM:

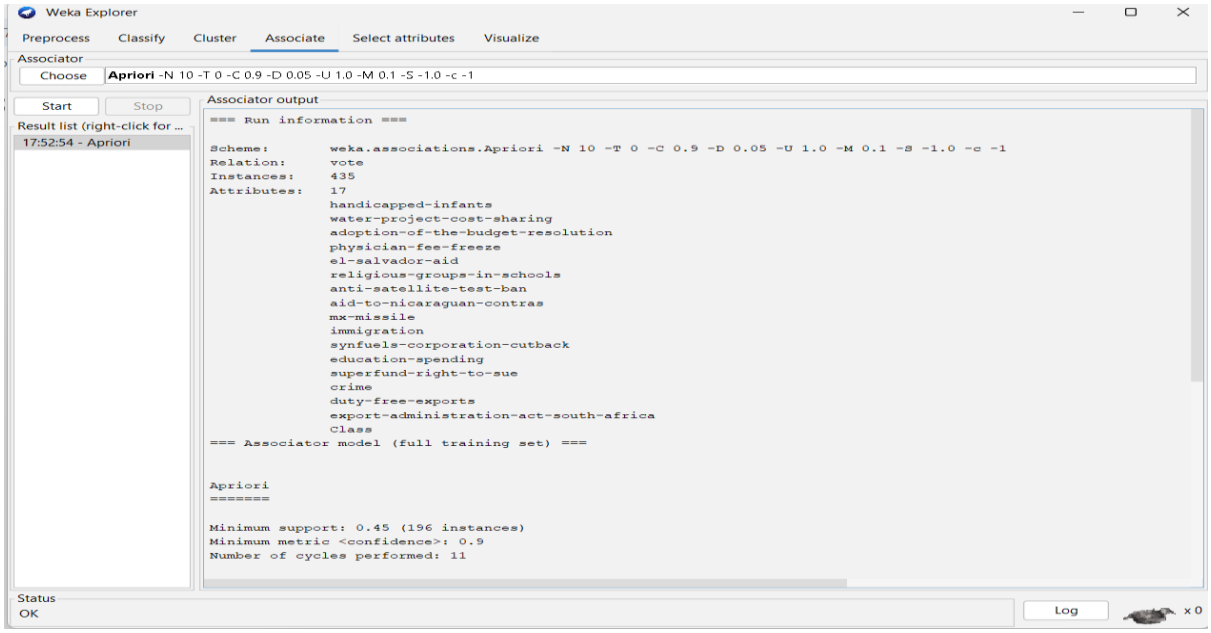
To create frequent pattern mining using association rule through weka and R-tools.

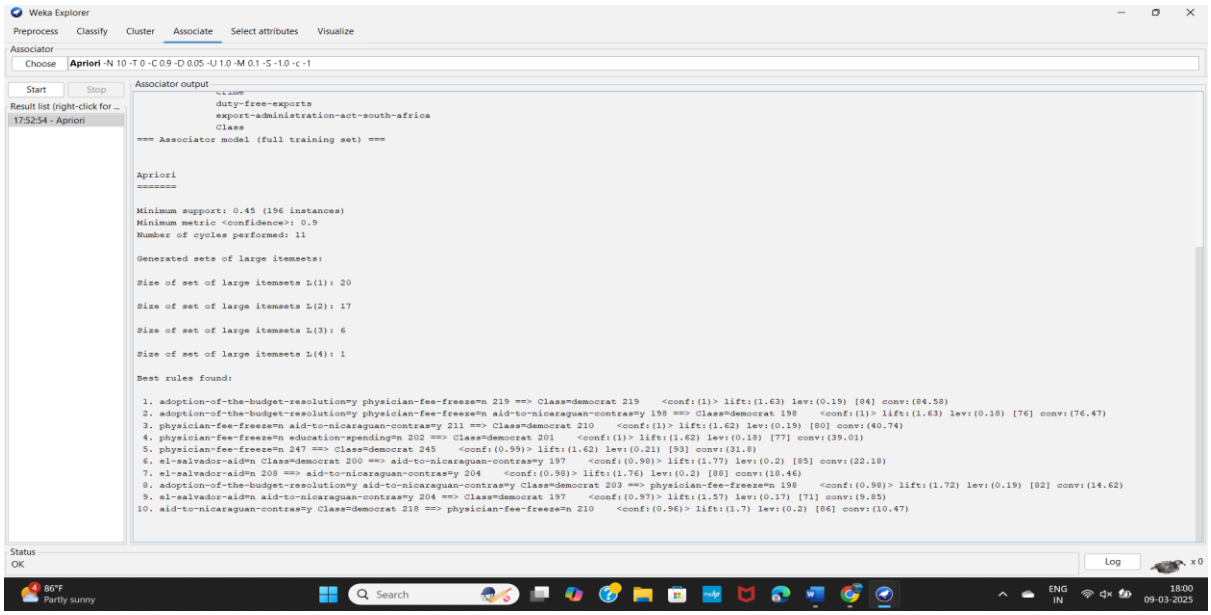
PROCEDURE:

1. Download and install WEKA.
2. Open WEKA and Choose "Explorer" from the main menu.
3. Under Preprocess, Click on the open file button and select the dataset. Ensure that categorical attributes are in the correct format (nominal, not numeric).
4. Go to the **"Associate"** tab for association rule mining.In the **"Associate"** tab, click **"Choose"** and select 'apriori'.
5. Click on **"Apriori"** to configure: **minMetric:** Set the minimum confidence (default=0.9), **numRules:** The number of association rules to generate (default = 10),**lowerBoundMinSupport:** Minimum support value (default = 0.1, or 10%), **upperBoundMinSupport:** Adjusts the range for frequent itemsets.
6. Click **"OK"** and then **"Start"** to begin clustering. Save the file.


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Open file...
Open URL...
Open DB...
Generate...
Undo
Edit...
Save...
Filter
Choose
None
Apply
Stop
Current relation
Relation: vote
Instances: 435
Attributes: 17
Sum of weights: 435
Attributes
All
None
Invert
Pattern
No.
Name
1 handicapped-infants
2 water-project-cost-sharing
3 adoption-of-the-budget-resolution
4 physician-fee-freeze
5 el-salvador-aid
6 religious-groups-in-schools
7 anti-satellite-test-ban
8 aid-to-nicaraguan-contras
9 mx-missile
10 immigration
11 synfuels-corporation-cutback
12 education-spending
13 superfund-right-to-sue
14 crime
15 duty-free-exports
16 export-administration-act-south-africa
17 Class
Remove
Selected attribute
Name: handicapped-infants
Missing: 12 (3%)
Distinct: 2
Type: Nominal
Unique: 0 (0%)
No.
Label
Count
Weight
1 n 236 236
2 y 187 187
Class: Class (Nom)
Visualize All
236
187
Status
OK
Log
x 0


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Associator
Choose
Apriori -N 10 -T 0 -C 0.9 -D 0.05 -
Start
Stop
Result list (right-click for options)
weka.gui.GenericObjectEditor
weka.associations.Apriori
About
Class implementing an Apriori-type algorithm.
More
Capabilities
car False
classIndex -1
delta 0.05
doNotCheckCapabilities False
lowerBoundMinSupport 0.1
metricType Confidence
minMetric 0.9
numRules 10
outputItemSets False
removeAllMissingCols False
significanceLevel -1.0
treatZeroAsMissing False
upperBoundMinSupport 1.0
verbose False
Open...
Save...
OK
Cancel
Status
OK
Log
x 0





OBSERVATION:

Apriori

Minimum support: 0.45 (196 instances)

Minimum metric <confidence>: 0.9

Number of cycles performed: 11

Generated sets of large itemsets:

Size of set of large itemsets L(1): 20

Size of set of large itemsets L(2): 17

Size of set of large itemsets L(3): 6

Size of set of large itemsets L(4): 1

Best rules found:

1. adoption-of-the-budget-resolution=y physician-fee-freeze=n 219 ==> Class=democrat 219 <conf:(1)> lift:(1.63) lev:(0.19) [84] conv:(84.58)

2. adoption-of-the-budget-resolution=y physician-fee-freeze=n aid-to-nicaraguan-contras=y 198 ==> Class=democrat 198 <conf:(1)> lift:(1.63) lev:(0.18) [76] conv:(76.47)

3. physician-fee-freeze=n aid-to-nicaraguan-contras=y 211 ==> Class=democrat 210 <conf:(1)> lift:(1.62) lev:(0.19) [80] conv:(40.74)

4. physician-fee-freeze=n education-spending=n 202 ==> Class=democrat 201 <conf:(1)> lift:(1.62) lev:(0.18) [77] conv:(39.01)

5. physician-fee-freeze=n 247 ==> Class=democrat 245 <conf:(0.99)> lift:(1.62) lev:(0.21) [93] conv:(31.8)

6. el-salvador-aid=n Class=democrat 200 ==> aid-to-nicaraguan-contras=y 197 <conf:(0.98)> lift:(1.77) lev:(0.2) [85] conv:(22.18)

7. el-salvador-aid=n 208 ==> aid-to-nicaraguan-contras=y 204 <conf:(0.98)> lift:(1.76) lev:(0.2) [88] conv:(18.46)

8. adoption-of-the-budget-resolution=y aid-to-nicaraguan-contras=y Class=democrat 203 ==> physician-fee-freeze=n 198 <conf:(0.98)> lift:(1.72) lev:(0.19) [82] conv:(14.62)

9. el-salvador-aid=n aid-to-nicaraguan-contras=y 204 ==> Class=democrat 197 <conf:(0.97)> lift:(1.57) lev:(0.17) [71] conv:(9.85)

10. aid-to-nicaraguan-contras=y Class=democrat 218 ==> physician-fee-freeze=n 210 <conf:(0.96)> lift:(1.7) lev:(0.2) [86] conv:(10.47)

RESULT:

Thus, the Apriori algorithm analyzing using both the weka tool and R- tool has been successfully completed. In case of weka tool, the change in upper bound and lower bound values lead to the increase and decrease of number of itemsets and rules . In case of R-tool, there is an increase in absolute minimum support count value.