



मौलाना आज़ाद
राष्ट्रीय प्रौद्योगिकी संस्थान भोपाल (म.प्र.) भारत
MAULANA AZAD
NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL (M. P.) INDIA

Data Warehousing & Mining Lab

Assignment

Lab - 7

Sub Code: CSE-326

Date: 30-03-2022

Vivek Kumar Ahirwar
191112419
CSE - 3

Department:
Computer Science and Engineering

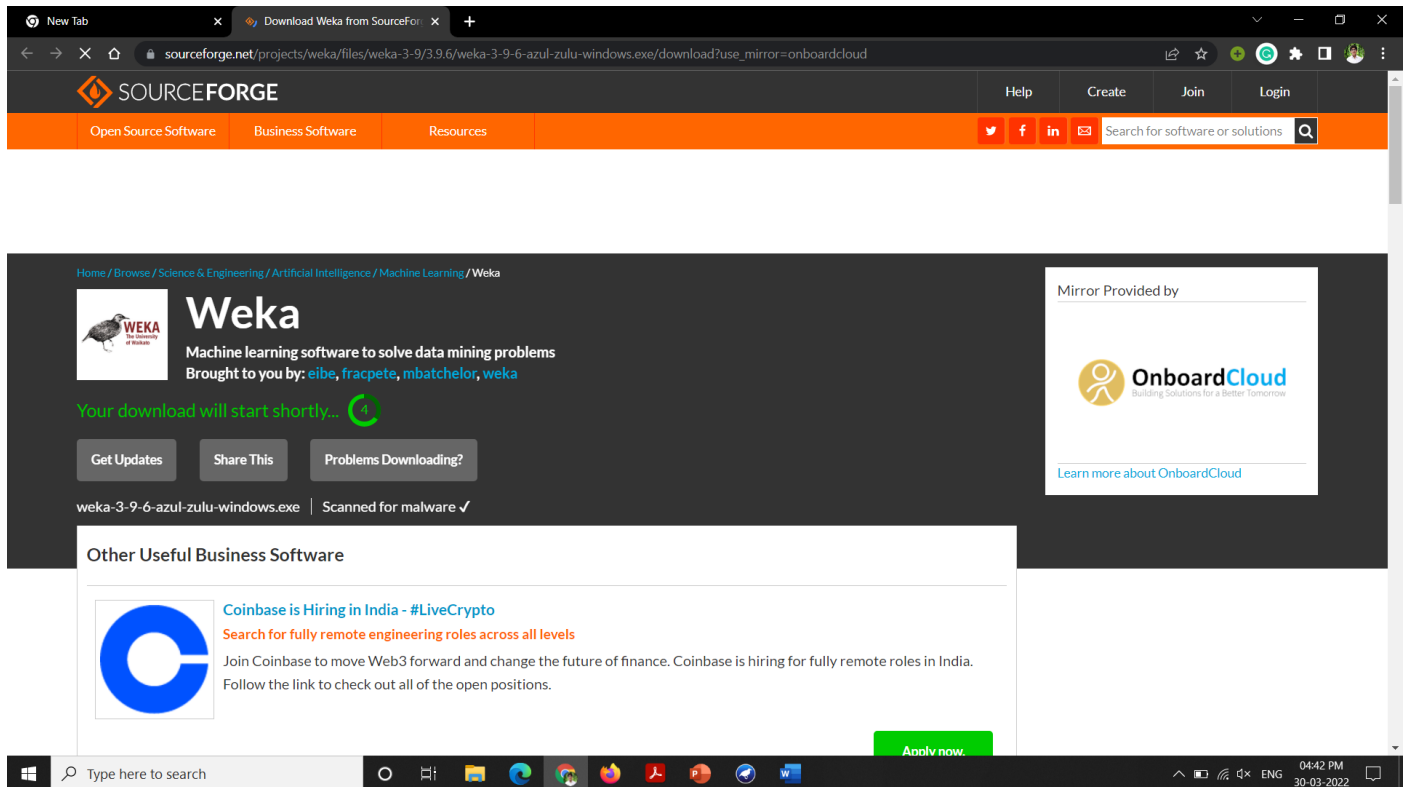
Contents

A.	Perform Association mining using Apriori algorithm with WEKA tool.....	2
i.	Download and install weka.....	2
ii.	Open WEKA explorer	2
iii.	Upload the dataset to apply the apriori algorithm	3
iv.	Set different parameter values for Apriori and analyse the results.....	4
i.	Support = 0.15, Confidence = 0.9	4
ii.	Support = 0.3, Confidence = 0.8	5
iii.	Support = 0.4, Confidence = 0.6	6

A. Perform Association mining using Apriori algorithm with WEKA tool.

i. Download and install weka

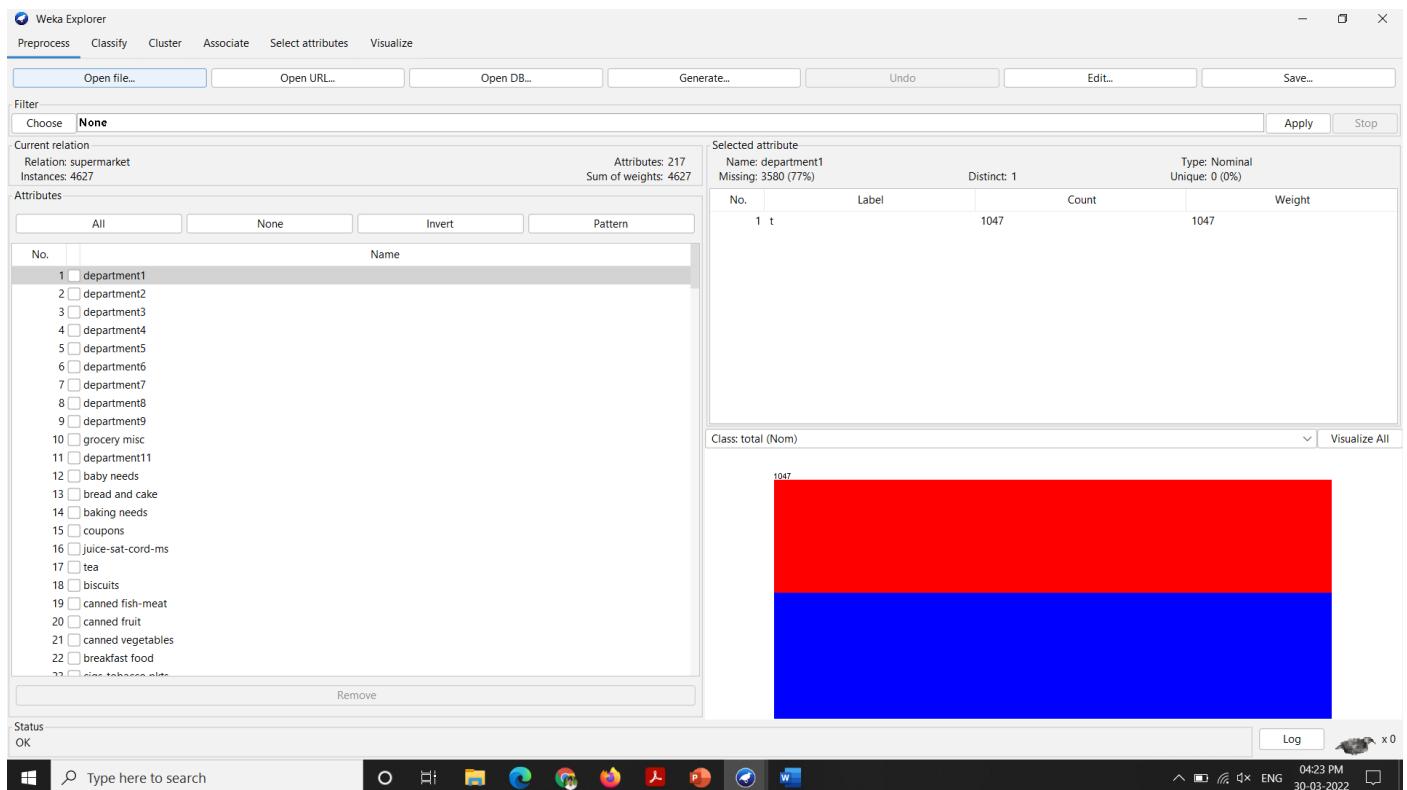
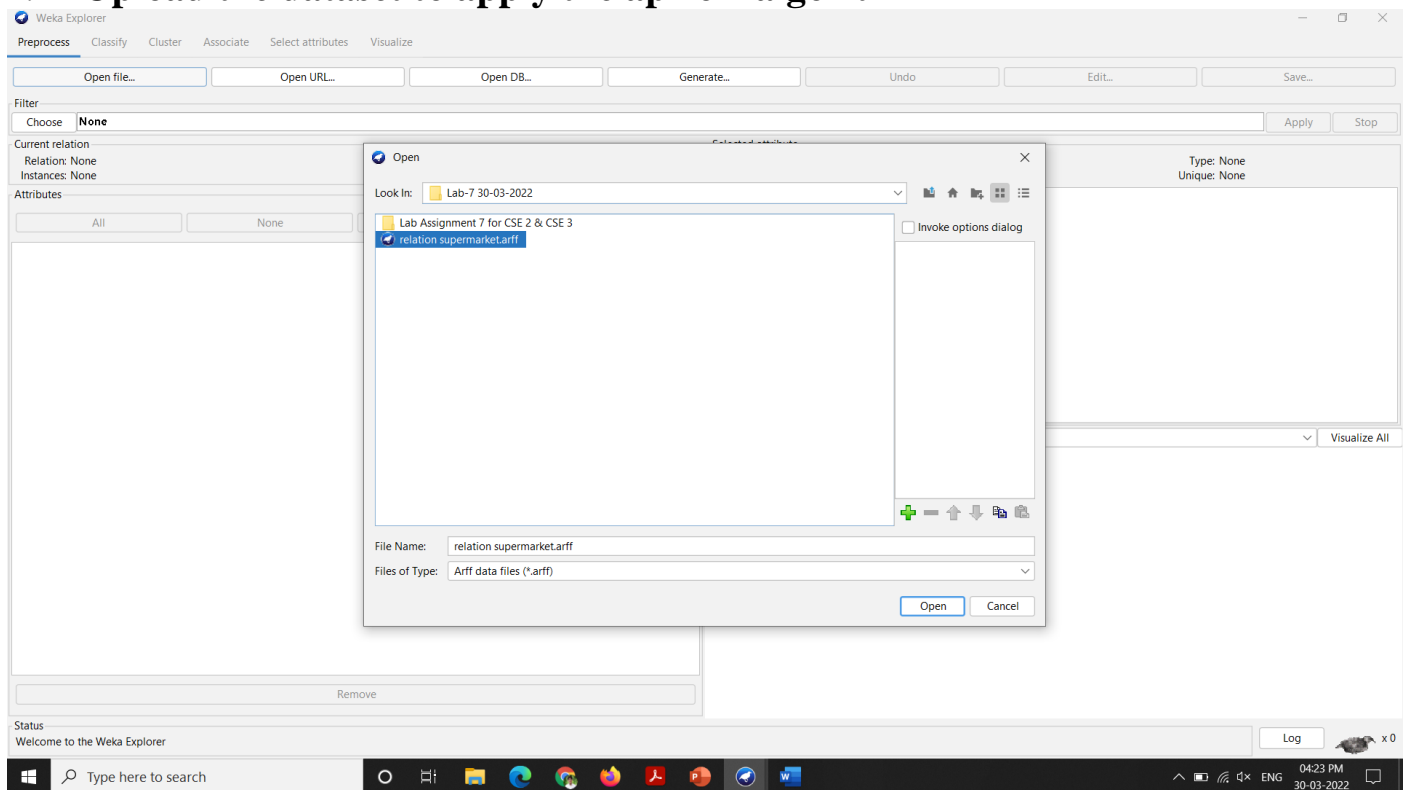
Link: https://sourceforge.net/projects/weka/files/weka-3-9/3.9.6/weka-3-9-6-azul-zulu-windows.exe/download?use_mirror=onboardcloud



ii. Open WEKA explorer



iii. Upload the dataset to apply the apriori algorithm



iv. Set different parameter values for Apriori and analyse the results

i. Support = 0.15, Confidence = 0.9

The screenshot displays the Weka Explorer interface with the Apriori algorithm selected in the 'Associate' tab. A dialog box titled 'weka.gui.GenericObjectEditor' is open, showing the configuration for 'weka.associations.Apriori'.

Configuration Parameters:

- 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

Associator output:

```

=== Associator model (full training set) ===

Apriori
=====

Minimum support: 0.15 (694 instances)
Minimum metric <confidence>: 0.9
Number of cycles performed: 17

Generated sets of large itemsets:

Size of set of large itemsets L(1): 44
Size of set of large itemsets L(2): 380
Size of set of large itemsets L(3): 910
Size of set of large itemsets L(4): 633
Size of set of large itemsets L(5): 105
Size of set of large itemsets L(6): 1

Best rules found:

1. biscuits=t frozen foods=t fruit=t total=high 788 ==> bread and cake=t 723 <conf:(0.92)> lift:(1.27) lev:(0.03) [155] conv:(3.35)
2. baking needs=t biscuits=t fruit=t total=high 760 ==> bread and cake=t 696 <conf:(0.92)> lift:(1.27) lev:(0.03) [149] conv:(3.28)
3. baking needs=t frozen foods=t fruit=t total=high 770 ==> bread and cake=t 705 <conf:(0.92)> lift:(1.27) lev:(0.03) [150] conv:(3.27)
4. biscuits=t fruit=t vegetables=t total=high 815 ==> bread and cake=t 746 <conf:(0.92)> lift:(1.27) lev:(0.03) [159] conv:(3.26)
5. party snack foods=t fruit=t total=high 854 ==> bread and cake=t 779 <conf:(0.91)> lift:(1.27) lev:(0.04) [164] conv:(3.15)
6. biscuits=t frozen foods=t vegetables=t total=high 797 ==> bread and cake=t 725 <conf:(0.91)> lift:(1.26) lev:(0.03) [151] conv:(3.06)
7. baking needs=t biscuits=t vegetables=t total=high 772 ==> bread and cake=t 701 <conf:(0.91)> lift:(1.26) lev:(0.03) [145] conv:(3.01)
8. biscuits=t fruit=t total=high 954 ==> bread and cake=t 866 <conf:(0.91)> lift:(1.26) lev:(0.04) [179] conv:(3)
9. frozen foods=t fruit=t vegetables=t total=high 834 ==> bread and cake=t 757 <conf:(0.91)> lift:(1.26) lev:(0.03) [156] conv:(3)
10. frozen foods=t fruit=t total=high 969 ==> bread and cake=t 877 <conf:(0.91)> lift:(1.26) lev:(0.04) [179] conv:(2.92)
  
```

ii. Support = 0.3, Confidence = 0.8

The screenshot displays the Weka Explorer interface with the Apriori algorithm selected under the 'Associate' tab. The 'Associate' window shows the following configuration:

- Class implementing an Apriori-type algorithm.
- car: False
- classIndex: -1
- delta: 0.05
- doNotCheckCapabilities: False
- lowerBoundMinSupport: 0.1
- metricType: Confidence
- minMetric: 0.8
- numRules: 12
- outputItemSets: False
- removeAllMissingCols: False
- significanceLevel: -1.0
- treatZeroAsMissing: False
- upperBoundMinSupport: 1.0
- verbose: False

The 'Associator output' window shows the results of the Apriori algorithm. The output includes the following information:

- Minimum support: 0.15 (694 instances)
- Minimum metric <confidence>: 0.5
- Number of cycles performed: 17
- Generated sets of large itemsets:
- Size of set of large itemsets L(1): 44
- Size of set of large itemsets L(2): 380
- Size of set of large itemsets L(3): 910
- Size of set of large itemsets L(4): 633
- Size of set of large itemsets L(5): 105
- Size of set of large itemsets L(6): 1
- Best rules found:

The 'Result list' shows the following rules:

- biscuits=t frozen foods=t fruit=t total=high 78
- baking needs=t biscuits=t fruit=t total=high 76
- baking needs=t frozen foods=t fruit=t total=high 76
- biscuits=t fruit=t vegetables=t total=high 815
- party snack foods=t fruit=t total=high 854
- biscuits=t frozen foods=t vegetables=t total=high 854
- baking needs=t biscuits=t vegetables=t total=high 854
- biscuits=t fruit=t total=high 954
- frozen foods=t fruit=t vegetables=t total=high 954
- frozen foods=t fruit=t total=high 969

The 'Status' window shows 'OK'.

The 'Log' window shows the following output:

```

Log
x 0
04:25 PM
30-03-2022

```

iii. Support = 0.4, Confidence = 0.6

The screenshot shows the Weka Explorer interface with the 'Associate' tab selected. The 'Apriori' algorithm is chosen, and the 'Associator output' is displayed. The output shows the minimum support is 0.3 (1388 instances) and the minimum metric (confidence) is 0.8. The number of cycles performed is 14. The generated sets of large itemsets are: L(1): 25, L(2): 69, and L(3): 20. The best rules found are listed, including rules like 'biscuits=t vegetables=t 1764 ==> bread and cake=t 1413'.

The 'weka.gui.GenericObjectEditor' dialog box is open, showing the 'weka.associations.Apriori' class. The 'About' tab is selected, displaying the class description: 'Class implementing an Apriori-type algorithm.' The 'More' and 'Capabilities' buttons are visible. The 'Parameters' tab is also visible, showing settings for the Apriori algorithm, including 'car' (False), 'classIndex' (-1), 'delta' (0.05), 'doNotCheckCapabilities' (False), 'lowerBoundMinSupport' (0.3), 'metricType' (Confidence), 'minMetric' (0.6), 'numRules' (19), 'outputItemSets' (False), 'removeAllMissingCols' (False), 'significanceLevel' (-1.0), 'treatZeroAsMissing' (False), 'upperBoundMinSupport' (1.0), and 'verbose' (False).

The screenshot shows the Weka Explorer interface with the 'Associate' tab selected. The 'Apriori' algorithm is chosen, and the 'Associator output' is displayed. The output shows the minimum support is 0.4 (1851 instances) and the minimum metric (confidence) is 0.6. The number of cycles performed is 12. The generated sets of large itemsets are: L(1): 18, L(2): 16, and L(3): 20. The best rules found are listed, including rules like 'biscuits=t 2605 ==> bread and cake=t 2083' and 'milk-cream=t 2939 ==> bread and cake=t 2337'. Each rule is accompanied by its confidence, lift, and level (lev) values.