DWDM Lab Assignment 8

6 April 2022

Gyanendra Kumar Shukla

CSE 1

191112040

Department of Computer Science

MAULANA AZAD

NATIONAL INSTITUTE OF TECHNOLOGY
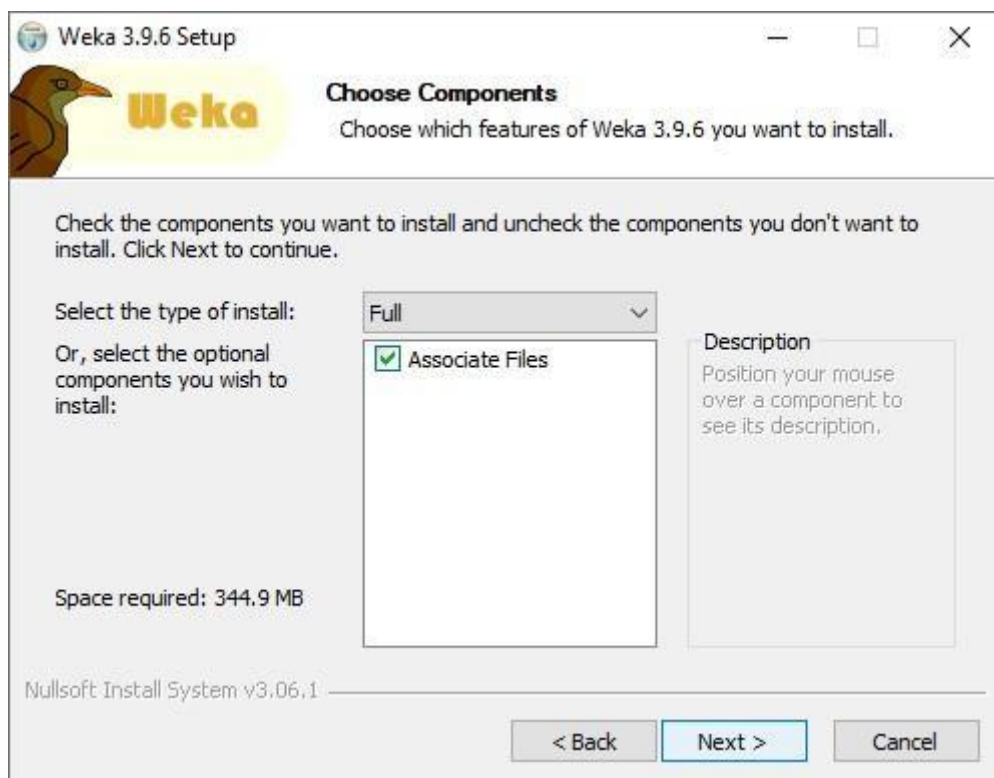
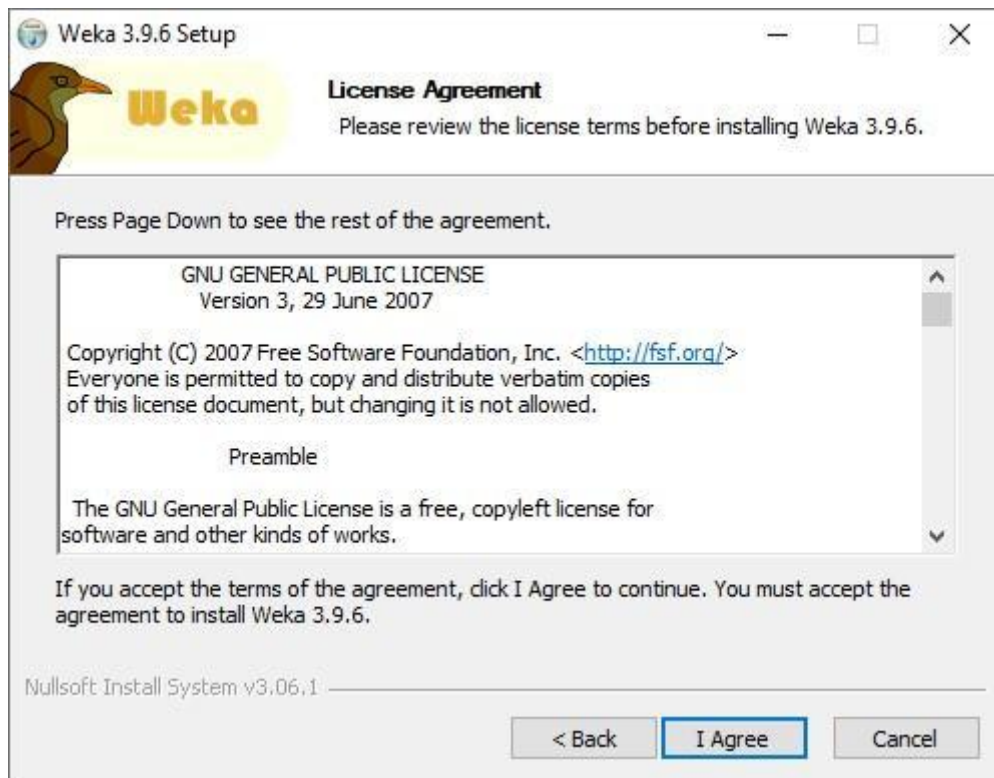**BHOPAL – 462 003 (INDIA)**

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Contents

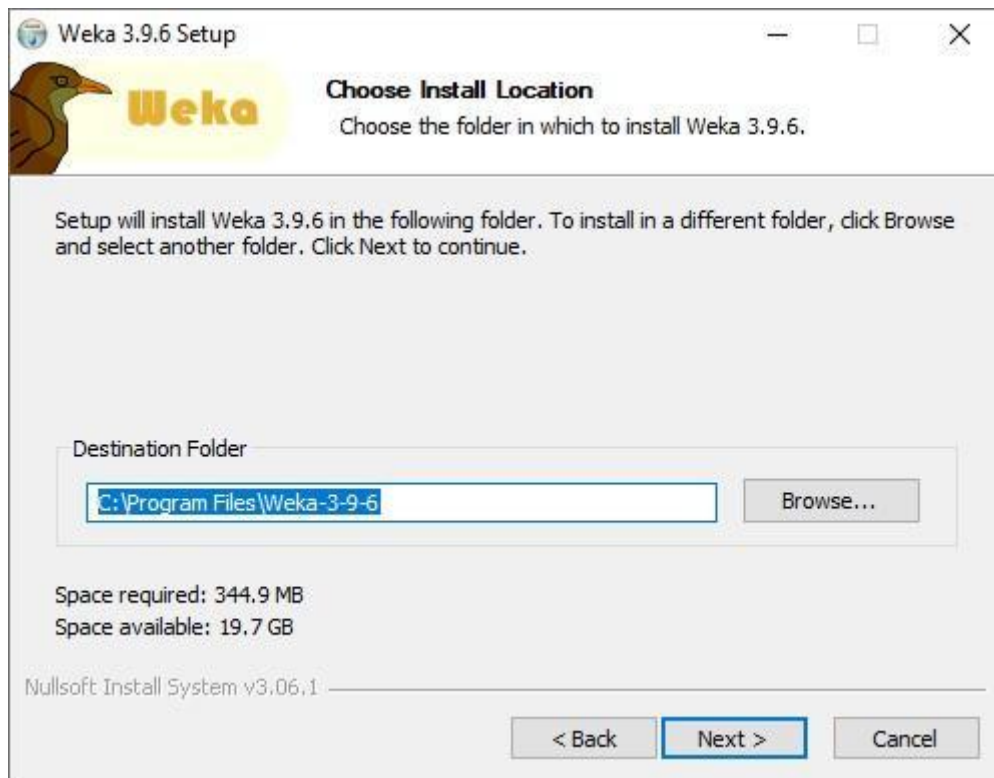# Association Mining using Apriori Algorithm with WEKA tool
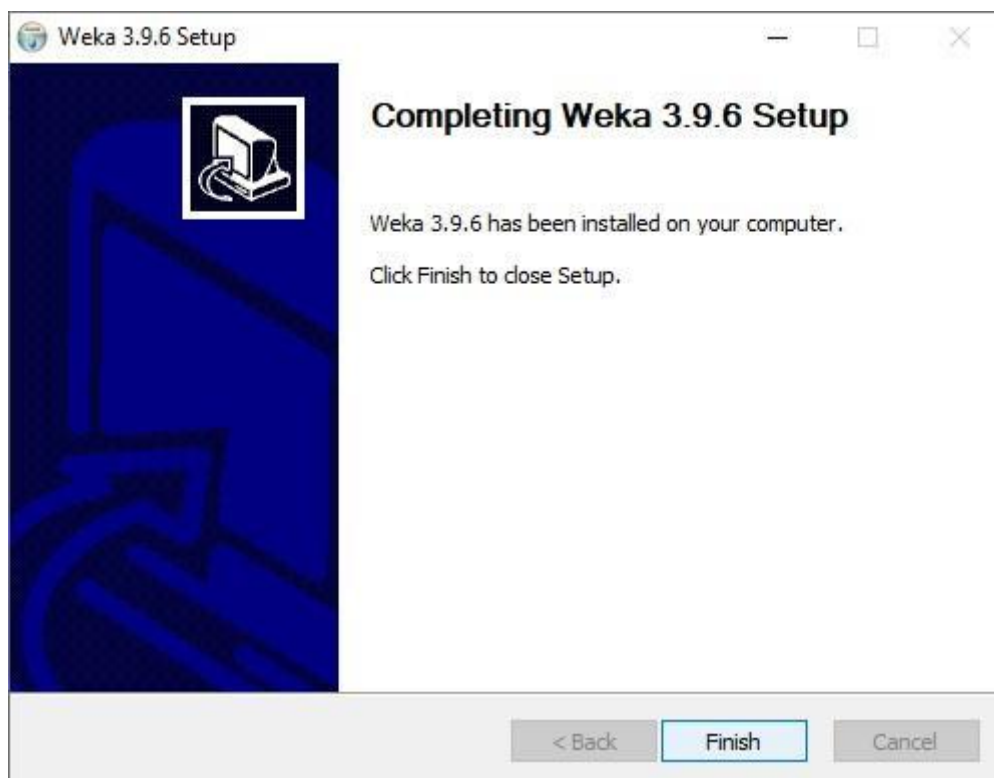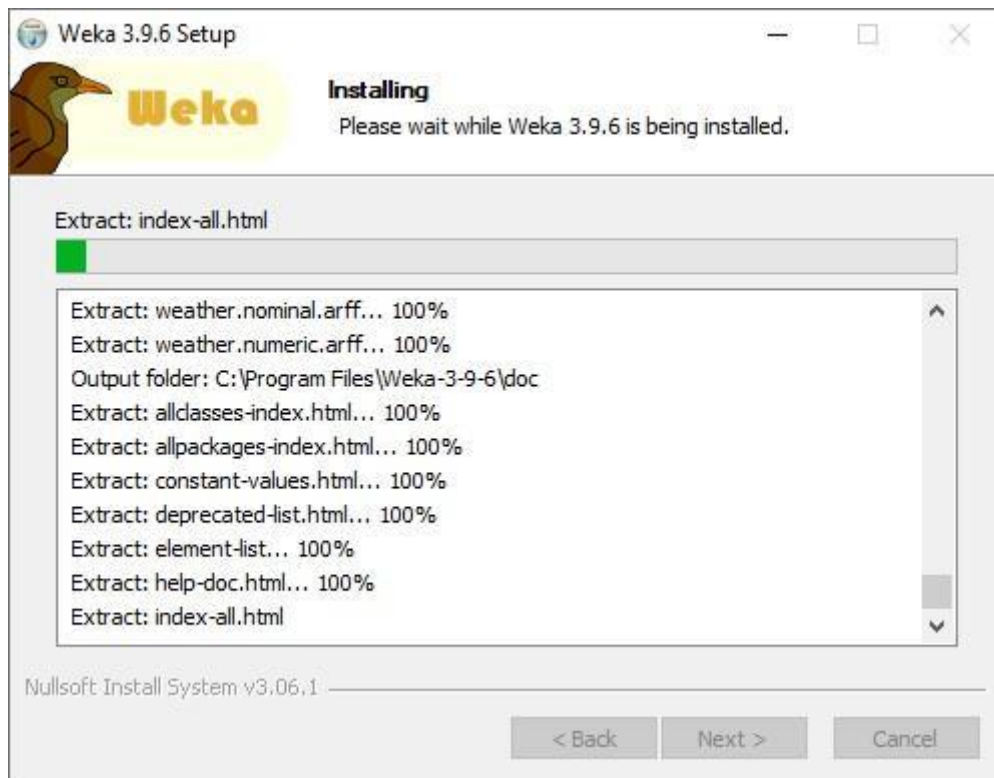
1. Installation:

a. First, I have downloaded the Weka .exe file from - https://sourceforge.net/projects/weka/files/weka-3-9/3.9.6/weka-3-9-6-azul-zulu-windows.exe/download?use_mirror=onboardcloud.

b. Then, I executed that .exe file and followed the setup steps to install the WEKA on the PC.

Weka 3.9.6 Setup

License Agreement
Please review the license terms before installing Weka 3.9.6.

Press Page Down to see the rest of the agreement.

> GNU GENERAL PUBLIC LICENSE
> Version 3, 29 June 2007
>
> Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
> Everyone is permitted to copy and distribute verbatim copies
> of this license document, but changing it is not allowed.
>
> Preamble
>
> The GNU General Public License is a free, copyleft license for
> software and other kinds of works.

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Weka 3.9.6.

Nullsoft Install System v3.06.1

[< Back] [I Agree] [Cancel]

Weka 3.9.6 Setup

Choose Components
Choose which features of Weka 3.9.6 you want to install.

Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.

Select the type of install: Full

Or, select the optional components you wish to install:
- ☑ Associate Files

Description
Position your mouse over a component to see its description.

Space required: 344.9 MB

Nullsoft Install System v3.06.1

[< Back] [Next >] [Cancel]

Weka 3.9.6 Setup — □ ×

Choose Install Location
Choose the folder in which to install Weka 3.9.6.

Setup will install Weka 3.9.6 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

C:\Program Files\Weka-3-9-6   Browse...

Space required: 344.9 MB
Space available: 19.7 GB

Nullsoft Install System v3.06.1

< Back   Next >   Cancel

After the complete installation of the WEKA I moved to the next step of the question.
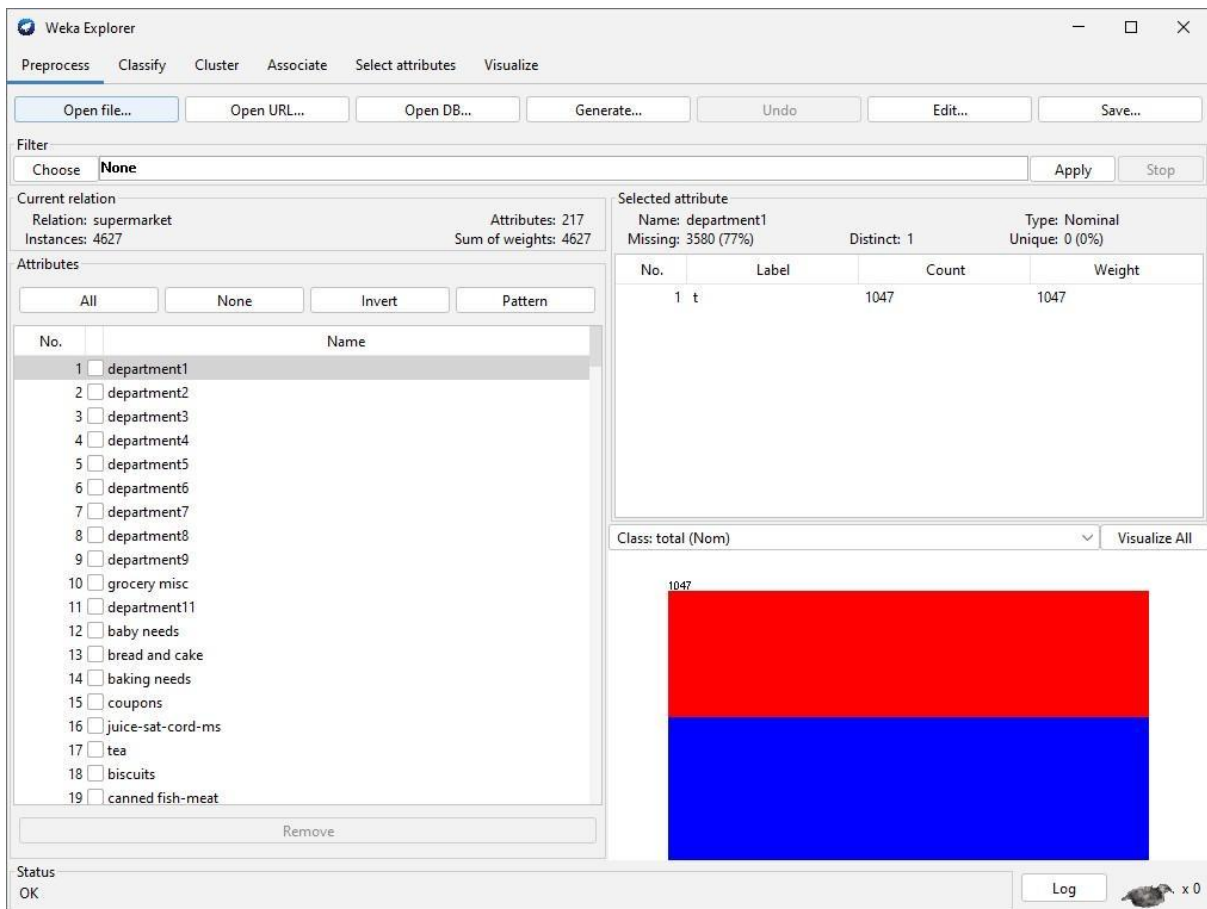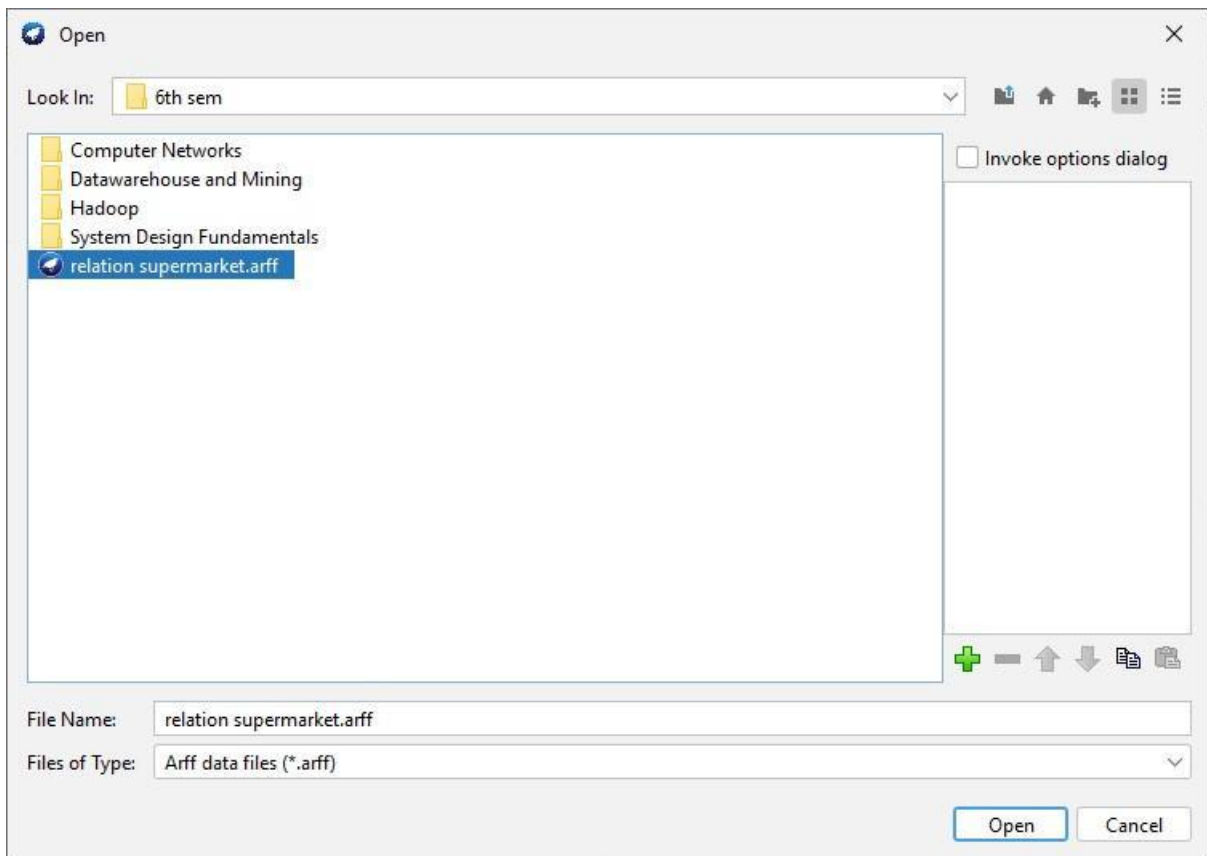
2. Then, I downloaded the dataset file which is provided.

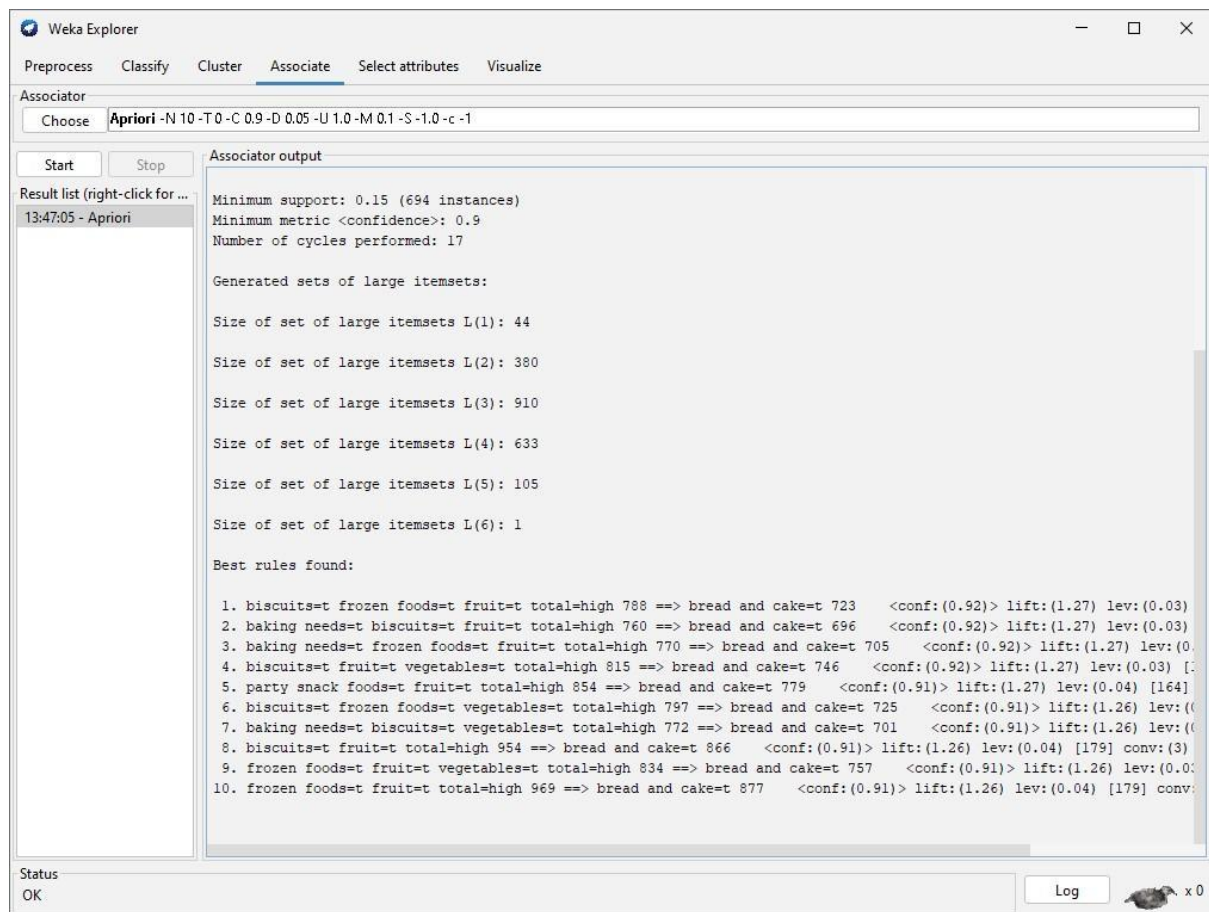3. Uploading the (.arff) file to the WEKA Explorer.

a. After the complete installation of the WEKA, I opened the WEKA Explored and uploaded the "relative supermarket" dataset.

b. Then, I explored the dataset.

The dataset has 4627 instances of the data and 217 attributes.

Open

Look In: 6th sem

- Computer Networks
- Datawarehouse and Mining
- Hadoop
- System Design Fundamentals
- relation supermarket.arff

☐ Invoke options dialog

File Name: relation supermarket.arff

Files of Type: Arff data files (*.arff)

[Open] [Cancel]

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: supermarket   Attributes: 217
Instances: 4627   Sum of weights: 4627

Selected attribute
Name: department1   Type: Nominal
Missing: 3580 (77%)   Distinct: 1   Unique: 0 (0%)

No.	Label	Count	Weight
1	t	1047	1047

Attributes

[All] [None] [Invert] [Pattern]

No.	Name
1	☐ department1
2	☐ department2
3	☐ department3
4	☐ department4
5	☐ department5
6	☐ department6
7	☐ department7
8	☐ department8
9	☐ department9
10	☐ grocery misc
11	☐ department11
12	☐ baby needs
13	☐ bread and cake
14	☐ baking needs
15	☐ coupons
16	☐ juice-sat-cord-ms
17	☐ tea
18	☐ biscuits
19	☐ canned fish-meat

Class: total (Nom)   [Visualize All]

1047

[Remove]

Status
OK   [Log]   x 0

4. Applying the Apriori Algorithm on the dataset with different value of minimum support and minimum confidence and number of rules.

Now we change the attributes by clicking on apriori associator tab to change the minimum support and confidence value.

Weka Explorer

Preprocess | Classify | Cluster | **Associate** | Select attributes | Visualize

Associator

Choose | **Apriori** -N 15 -T 0 -C 0.8 -D 0.05 -U 1.0 -M 0.4 -S -1.0 -c -1

Start | Stop

Result list (right-click for ...)
- 13:47:05 - Apriori
- 13:50:07 - Apriori
- 13:51:53 - Apriori

Associator output

```
=== Run information ===

Scheme:        weka.associations.Apriori -N 15 -T 0 -C 0.8 -D 0.05 -U 1.0 -M 0.4 -S -1.0 -c -1
Relation:      supermarket
Instances:     4627
Attributes:    217
               [list of attributes omitted]
=== Associator model (full training set) ===


Apriori
=======

Minimum support: 0.4 (1851 instances)
Minimum metric <confidence>: 0.8
Number of cycles performed: 12

Generated sets of large itemsets:

Size of set of large itemsets L(1): 18

Size of set of large itemsets L(2): 16

Best rules found:
```

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 -U 1.0 -M 0.3 -S -1.0 -c -1

Start | Stop

Result list (right-click for ...)
- 13:47:05 - Apriori
- 13:50:07 - Apriori
- 13:51:53 - Apriori
- 13:52:49 - Apriori

Associator output

```
=== Run information ===

Scheme:        weka.associations.Apriori -N 10 -T 0 -C 0.9 -D 0.05 -U 1.0 -M 0.3 -S -1.0 -c -1
Relation:      supermarket
Instances:     4627
Attributes:    217
               [list of attributes omitted]
=== Associator model (full training set) ===


Apriori
=======

Minimum support: 0.3 (1388 instances)
Minimum metric <confidence>: 0.9
Number of cycles performed: 14

Generated sets of large itemsets:

Size of set of large itemsets L(1): 25

Size of set of large itemsets L(2): 69

Size of set of large itemsets L(3): 20

Best rules found:
```

Status
OK | Log | x 0