

Experiment - 1.4

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Semester: 6th
Subject Name: Data Mining Lab

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1. Aim:

Demonstration of FP Growth algorithm on supermarket data.

2. Objective:

To demonstration of FP Growth algorithm on supermarket data.

3. Summary :

FP Growth Algorithm : FP-growth algorithm is a popular and efficient algorithm used in data mining for finding frequent itemsets in large datasets. The algorithm uses a tree structure called the FP-tree to represent the frequent itemsets in the dataset. The algorithm is divided into two phases: the first phase involves building the FP-tree, and the second phase involves mining frequent itemsets from the FP-tree.

FP-growth algorithm has several advantages over traditional algorithms such as Apriori. It can handle large datasets efficiently and requires only a single pass over the dataset. It also generates fewer candidate itemsets and has a faster runtime compared to Apriori. Therefore, FP-growth algorithm is widely used in various data mining applications such as market basket analysis, text mining, and bioinformatics.

Script/Code/Steps:

```
setwd("C:/Users/ASUS/OneDrive/Documents")  
  
//assigning location  
  
getwd()  
  
library("arules")  
  
//creating library  
  
data("Mushroom")  
  
//creating dataset  
  
fprules <- fim4r(Mushroom, method = "fpgrowth", target = "rules", supp = 70, conf = 60)  
  
fprules  
  
inspect(fprules[1:5])  
  
x <- as(fprules, "data.frame")
```

```
write.csv(x, file="mushroomrules.csv")
```

Output Screenshots :

```

Console Terminal Background Jobs
R 4.2.2 ~ /

> library("arules")
> data("Mushroom")
> fprules <- fim4r(Mushroom, method = "fpgrowth", target = "rules", supp = 70, conf = 60)
Package fim4r is required.
Download and install the package?
1: Yes
2: No

Selection: Yes
Installing package into 'C:/Users/ASUS/AppData/Local/R/win-library/4.2'
(as 'lib' is unspecified)
trying URL 'https://mhahsler.github.io/arules/docs/fim4r/fim4r_latest.tar.gz'

```

```

> fprules
set of 168 rules
> inspect(fprules[1:5])
  lhs                rhs      support  confidence lift count
[1] {} => {VeilType=partial} 1.0000000 1.0000000 1 8124
[2] {VeilColor=white} => {VeilType=partial} 0.9753816 1.0000000 1 7924
[3] {VeilType=partial} => {VeilColor=white} 0.9753816 0.9753816 1 7924
[4] {} => {VeilColor=white} 0.9753816 0.9753816 1 7924
[5] {GillAttached=free} => {VeilType=partial} 0.9741507 1.0000000 1 7914
> x <- as(fprules,"data.frame")
> write.csv(x, file="mushroomrules.csv")
>

```

mushroomrules - Excel

	A	B	C	D	E	F	G
1	rules	support	confidence	lift	count		
2	1 {} => {VeilType=partial}	1	1	1	8124		
3	2 {VeilColor=white} => {VeilType=partial}	0.9753816	1.0000000	1	7924		
4	3 {VeilType=partial} => {VeilColor=white}	0.9753816	0.9753816	1	7924		
5	4 {} => {VeilColor=white}	0.9753816	0.9753816	1	7924		
6	5 {GillAttached=free} => {VeilType=partial}	0.9741507	1.0000000	1	7914		
7	6 {VeilType=partial} => {VeilColor=white}	0.9741507	0.9741507	1	7914		
8	7 {GillAttached=free} => {VeilColor=white}	0.9731666	0.9731666	1	7906		
9	8 {GillAttached=free} => {VeilType=partial}	0.9731666	0.9989899	1.024203	7906		
10	9 {VeilType=partial} => {VeilColor=white}	0.9731666	0.997728	1.024203	7906		
11	10 {GillAttached=free} => {VeilType=partial}	0.9731666	0.9989899	1.024203	7906		
12	11 {VeilColor=white} => {VeilType=partial}	0.9731666	0.997728	1.024203	7906		
13	12 {} => {GillAttached=free}	0.9741507	0.9741507	1	7914		
14	13 {RingNumber=1} => {VeilType=partial}	0.921713	1	1	7488		
15	14 {VeilType=partial} => {RingNumber=1}	0.921713	0.921713	1	7488		
16	15 {VeilColor=white} => {VeilType=partial}	0.897095	1	1	7288		
17	16 {VeilType=partial} => {VeilColor=white}	0.897095	0.973291	0.997856	7288		
18	17 {VeilType=partial} => {VeilColor=white}	0.897095	0.919738	0.997856	7288		
19	18 {RingNumber=1} => {VeilType=partial}	0.897095	0.973291	0.997856	7288		
20	19 {VeilColor=white} => {VeilType=partial}	0.897095	0.919738	0.997856	7288		

mushroomrules