**Cloud Computing for Data Analysis**

**Group Activity 03 – FP-Tree**

**Chapter 6 Exercise 8**

Build and mine FP-Tree using the data below (Min Support 3)

Table 6.24. Example of market basket transactions.

|  |  |
| --- | --- |
| Transaction ID | Items Bought |
| 1 | {a, b, d, e} |
| 2 | {b, c, d} |
| 3 | {a, b, d, e} |
| 4 | {a, c, d, e} |
| 5 | {b, c, d, e} |
| 6 | {b, d, e} |
| 7 | {c, d} |
| 8 | {a, b, c} |
| 9 | {a, d, e} |
| 10 | {b, d} |

**Answer:** Items with min support is 3 are:

Sup(a) = 5

Sup(b) = 7

Sup(c) = 5

Sup(d) = 9

Sup(e) = 6

Order:

Sup(d) = 9

Sup(b) = 7

Sup(e) = 6

Sup(a) = 5

Sup(c) = 5

Ordered Transactions as per items’ support count:

d b e a

d b c

d b e a

d e a c

d b e c

d b e

d c

b a c

d e a

d b

FP-Tree:

Item: a

Suffix Pattern: a – 5

Prefix Paths

(d, b, e, ~~a~~, 2) => (d, e, b, 2)

(d, e, ~~a,~~ 2) => (d, e, 2)

(b, ~~a~~, 1)

Correct Order

d – 4

e – 4

b – 3

Frequent Item-Sets

(d, e, a, 4)

(d, a, 4)

(b, a, 3)

(e, a, 4)

Item: b

Suffix Pattern: b – 7

Prefix Paths

(d, ~~b~~, 6)

Correct Order

d – 6

Frequent Item-Sets

(d, b, 6)

Item: c

Suffix Pattern: c – 5

Prefix Paths

(d, b, ~~c~~, 1) => (d, b, 1)

(d, e, a, ~~c~~, 1) => (d, a, e, 1)

(d, ~~c~~, 1)

(b, a, ~~c~~, 1) => (b, a, 1)

(d, b, e, ~~c~~, 1) => (d,b,e,1)

Correct Order

d – 3

b – 2

a – 2

e – 1

Frequent Item-Sets

(d, c, 4)

(b, c, 3)

Item: d

Suffix Pattern: d – 9

Prefix Paths

None, node ‘d’ below node ‘null’

Correct Order

none

Frequent Item-Sets

None

Item: e

Suffix Pattern: e – 6

Prefix Paths

(d, b, ~~e~~, 4) => (d, b, 4)

(d, ~~e~~, 2)

Correct Order

d – 6

b – 4

Frequent Item-Sets

(d, e, 6)

(d, b, e, 4)

(b, e, 4)