

MSBD5002: Data Mining and Knowledge Discovery (MicroMasters)
 Exercise 2 (Suggested Solution)
 FP-tree

Q1 FP-tree

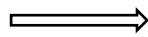
The given tree does not contain a single path.

Conditional FP-tree on {a} $(Count(\{a\}) = 7)$

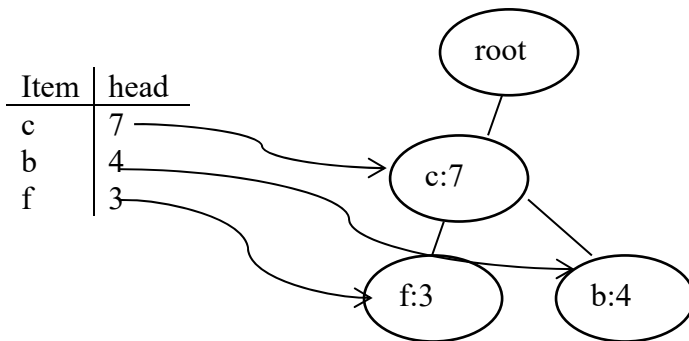
$(f:3, c:3, a:3) \Rightarrow (a:3, c:3, f:3)$

$(c:4, b:4, a:4) \Rightarrow (a:4, c:4, b:4)$

Item	freq
a	7
f	3
c	7
b	4



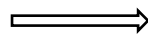
Item	freq
a	7
c	7
b	4
f	3



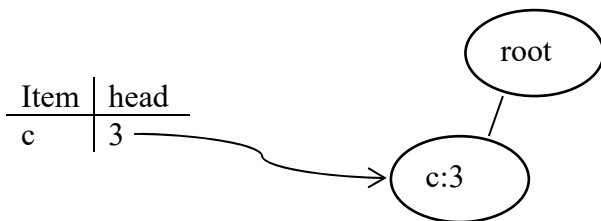
Conditional FP-tree on {a, f} $(Count(\{a, f\}) = 3)$

$(c:3, f:3) \Rightarrow (c:3, f:3)$

Item	freq
c	3
f	3



Item	freq
c	3
f	3

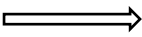


{a,f,c} : 3

Conditional FP-tree on {a, b}
 (c:4, b:4) $\Rightarrow$ (c:4, b:4)

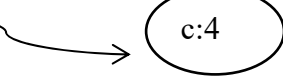
(Count({a, b}) = 4)

Item	freq
b	4
c	4



Item	freq
b	4
c	4

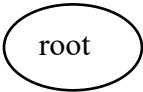
Item	head
c	4



{a,b,c} : 4

Conditional FP-tree on {a, c}
 (c:7) $\Rightarrow$ (c:7)

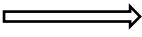
(Count({a, c}) = 7)



Conditional FP-tree on {b}
 (c:4, b:4) $\Rightarrow$ (b:4, c:4)
 (b:4) $\Rightarrow$ (b:4)

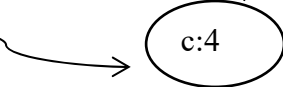
(Count({b}) = 8)

Item	freq
b	8
c	4



Item	freq
b	8
c	4

Item	head
c	4



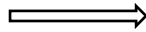
{b,c} : 4

Conditional FP-tree on {c}

(Count({c}) = 9)

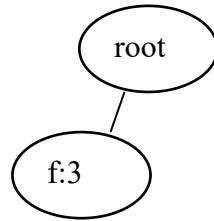
(f:3, c:3) $\Rightarrow$ (c:3, f:3)
 (c:6) $\Rightarrow$ (c:6)

Item	freq
c	9
f	3



Item	freq
c	9
f	3

Item	Head
f	



{c,f} : 3

Conditional FP-tree on {f}

(Count({f}) = 10)

(f:10) $\Rightarrow$ (f:10)



Frequent Patterns = {{a}, {a, f}, {a, f, c}, {a, b}, {a, b, c}, {a, c}, {b}, {b, c}, {c}, {c, f}, {f}}