

Q) 2-2

~~item~~ c₁

1) 1-Item set	Frequency	Support	
Apple	5 6	62.5%	F ₁
Banana	5	62.5%	F ₁
Orange	6	75%	F ₁
Grape	5	50% 62.5%	F ₁

c₂

2) 2-item set	Frequency	Support	
Apple, banana	3	37.5%	F ₂
Apple, grape	3	37.5%	F ₂
Apple, orange	3	37.5%	F ₂
Banana, grape	3	37.5%	F ₂
Banana, orange	4	50% 37.5%	F ₂
Grape, orange	3	37.5%	F ₂

c₃

3) 3-item set	Frequency	Support	
Apple, banana, grape	2	25%	F ₃
Apple, banana, orange	2	25%	F ₃
Apple, orange, grape	1	12.5%	
Banana, orange, grape	2	25%	F ₃

2.1

Association Rules:

Orange \rightarrow Banana 66.6%

Banana \rightarrow Orange 80%

Banana \rightarrow Grape 60%

Grape \rightarrow Banana 60%

Orange, Banana \rightarrow Grape 50%

Orange, Grape \rightarrow Banana 66.6%

Banana, Grape \rightarrow Orange 66.6%

Apple \rightarrow Banana 60%

Banana \rightarrow Apple 60%

Orange \rightarrow Apple 50%

Apple \rightarrow Orange 60%

Apple \rightarrow Grape 60%

Grape \rightarrow Apple 66.6%

Apple, Banana \rightarrow Grape 66.6%

Apple, Grape \rightarrow Banana 66.6%

Banana, Grape \rightarrow Apple 66.6%

Orange, Apple \rightarrow Banana 66.6%

Orange, Banana \rightarrow Apple 50%

Apple, Banana \rightarrow Orange 66.6%

Orange \rightarrow Grape 50%

Grape \rightarrow Orange 60%

FP Growth Tree :

Item	Frequency	Priority
Apple Apple	5	2
Banana Banana	5	3
Orange	6	1
Grape	4	4

* $A \rightarrow$ Apple, $B \rightarrow$ Banana, $O \rightarrow$ Orange, $G \rightarrow$ grape

* Sorting transactions on priority.

$T_1 = O, A, B$

$T_2 = A, G$

$T_3 = O, B, G$

$T_4 = A, B, G$

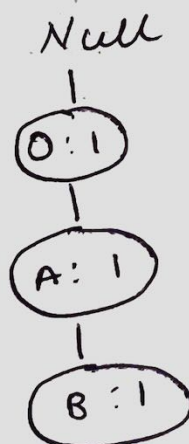
$T_5 = O, A, B, G$

$T_6 = O, B$

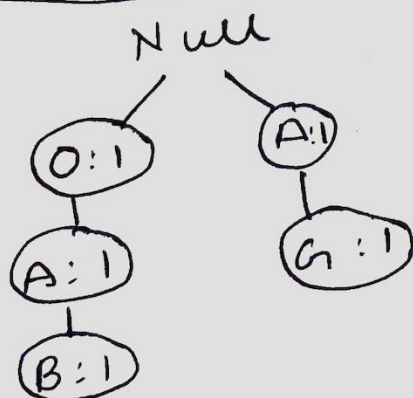
$T_7 = O, A$

$T_8 = O, G$

① FP-Tree \rightarrow

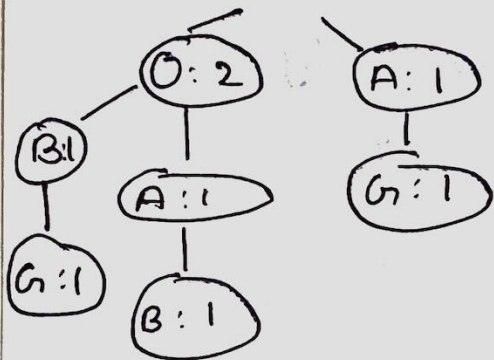


2)



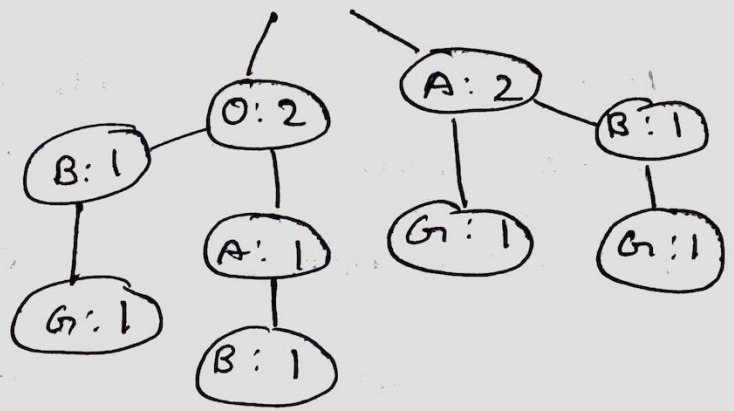
3)

Null

~~3~~

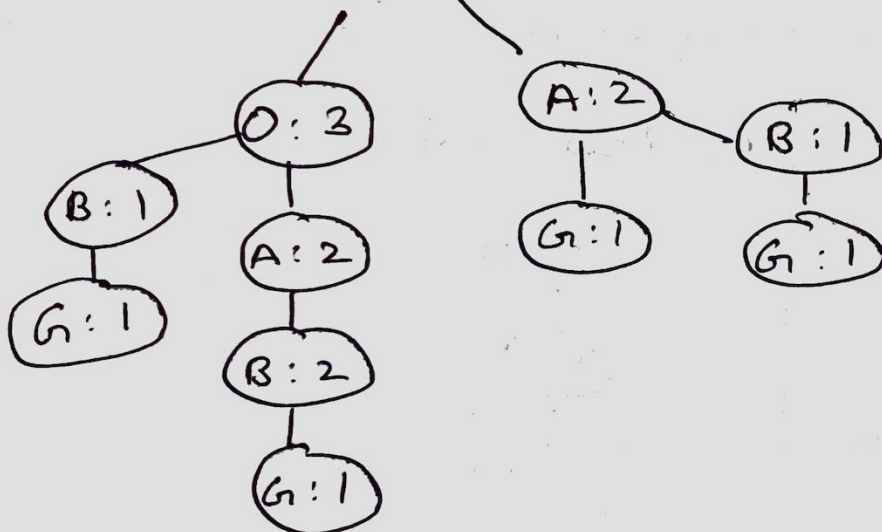
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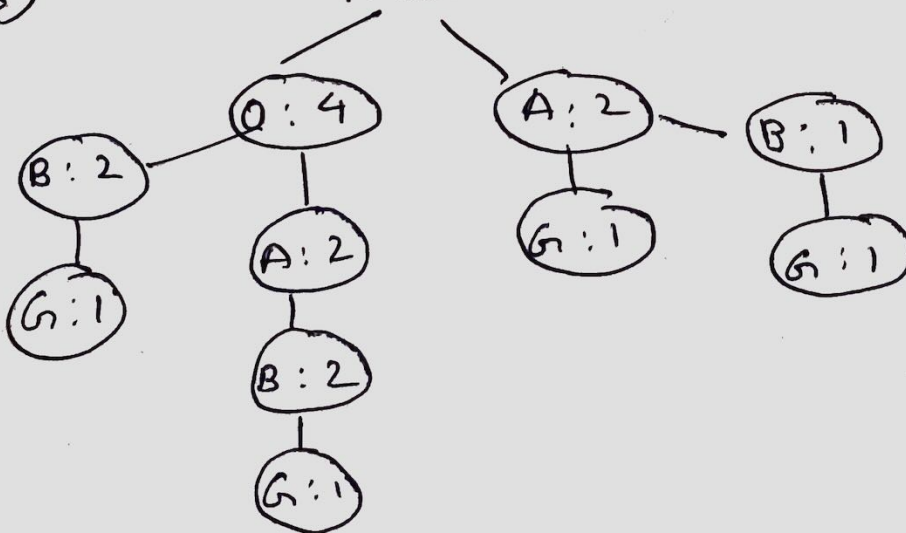
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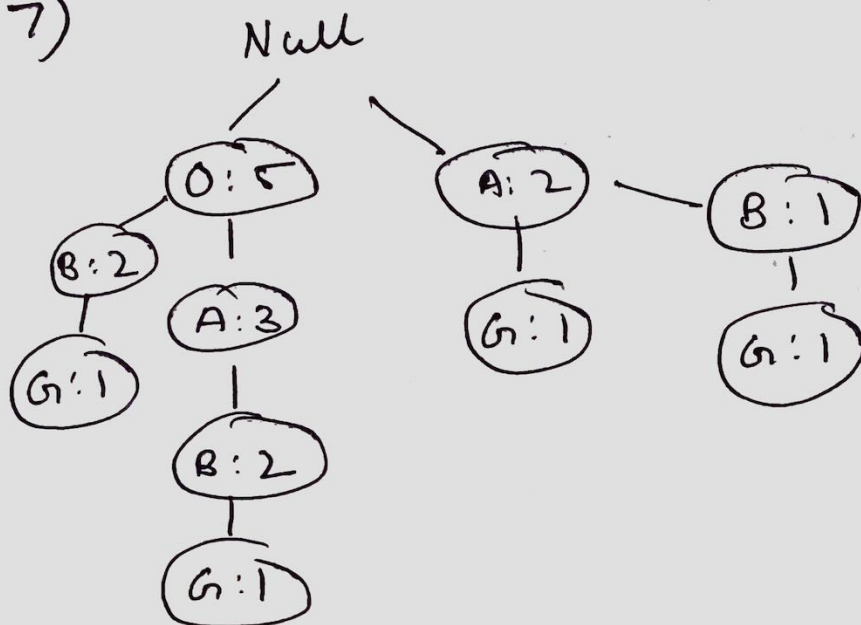


6)

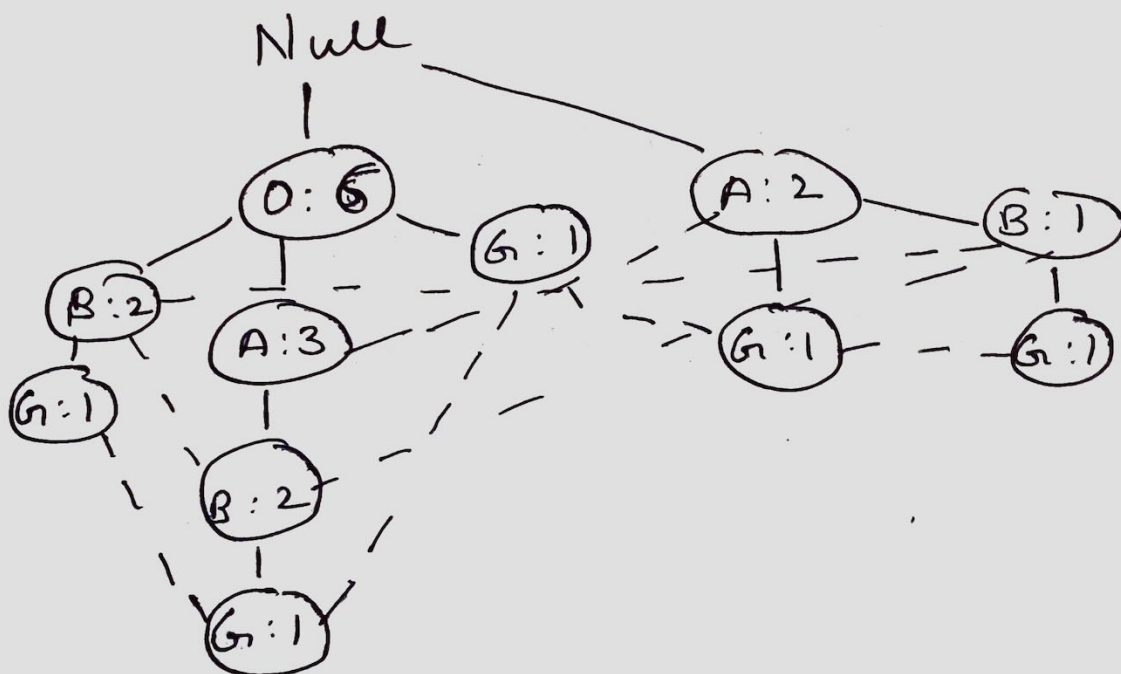
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7)



8)



For ending with	Paths	pairs	item set
G	OB: 1	O: 3	G: 3
	OAB: 1	B: 3	OE: 3
	OG: 1	A: 3	AG: 3
	AG: 1		BE: 3
	ABG: 1		

On solving the rest, we get.

Orange \rightarrow banana 66.6%

Banana \rightarrow Orange ~~66~~ 30%.

Orange, grape \rightarrow banana 66.6%.

Banana, grape \rightarrow Orange 66.6%.

Apple, Banana \rightarrow grape 66.6%.

Apple, grape \rightarrow Banana 66.6%.

Banana, grape \rightarrow Apple 66.6%.

Orange, Apple \rightarrow Banana 66.6%.

Apple, Banana \rightarrow Orange 66.6%.