作业 5

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6.6 （a）FP-growth 算法：

L_1 项集：{{K:5}, {O:4}, {E:4}, {M:3}, {Y:3}}
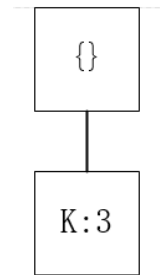
TID	排序后
T100	{K, O, E, M, Y}
T200	{K, O, E, Y}
T300	{K, E, M}
T400	{K, M, Y}
T500	{K, O, E}

构建 FP-tree:
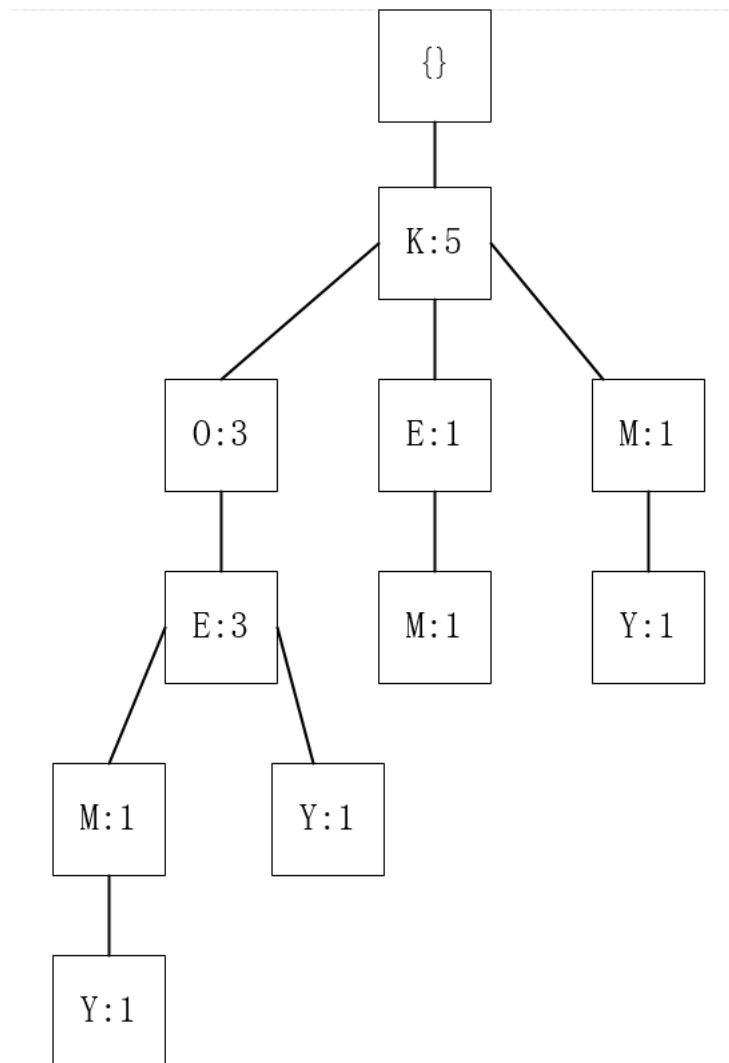
Item	Cond. Pattern base
O	K:3
E	KO:3, K:1
M	KOE:1, KE:1, K:1
Y	KOEM:1, KOE:1, KM:1

Y 的条件 FP-tree：

```
{}
 |
K:3
```

频繁模式组合：{K, Y: 3}

M 的条件 FP-tree:

```
{}
 |
K:3
```
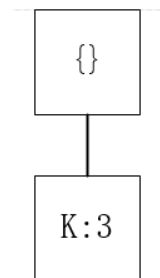
频繁模式组合：{K, M: 3}

E 的条件 FP-tree:

```
{}
 |
K:4
 |
0:3
```
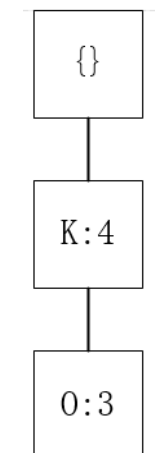
频繁模式组合：{{K, E: 4}, {O, E: 3}, {K, O, E: 3}}

O 的条件 FP-tree：
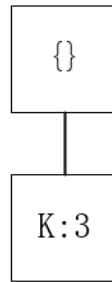
频繁模式组合：{K, O: 3}

（b）由题可得：

$$support(K) = 5, support(O) = 4, support(E) = 4$$

$$support(K, O) = 3, support(K, E) = 4, support(O, E) = 3$$

$$support(K, O, E) = 3$$

$$\forall x \in transaction, buys(X, K) \wedge buys(X, O) \Rightarrow buys(X, E) \ [60\%, 100\%]$$

$$\forall x \in transaction, buys(X, E) \wedge buys(X, O) \Rightarrow buys(X, K) \ [60\%, 100\%]$$