FP-Growth New:

t1	a, c, d
t2	b, c, e
t3	a, b, c, e
t4	b, e

minsup = 2

Goal: reduce FP-growth from 2 TDB scans to one

Step 1: Scan TDB & represent it as a tree

→ **Scan t1:**

```
null
 |
a:1
 |
c:1
 |
d:1
```

Scan t2:

```
       null
      /    \
    a:1    b:1
    /        \
  c:1        c:1
  /            \
d:1            e:1
```

Scan t3:

```
         null
        /    \
      a:2    b:1
     /  \      \
   c:1  b:1    c:1
   /     |       \
 d:1    c:1      e:1
         |
        e:1
```

```
              null
            /      \  b:2
        a:2          \
        /  \ b:1    c:1    e:1
     c:1      |      |
     /       c:1    e:1
    d:1       |
             e:1
```

} tree representing TDB

↳ referred to as REP-tree
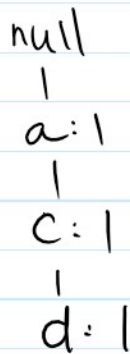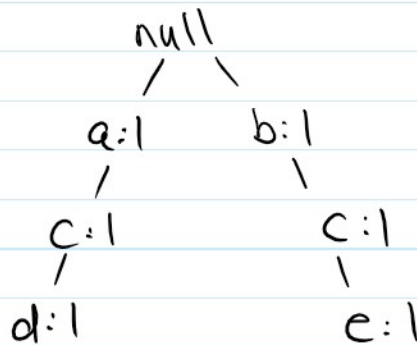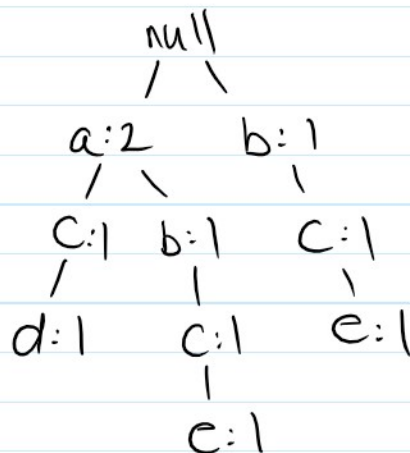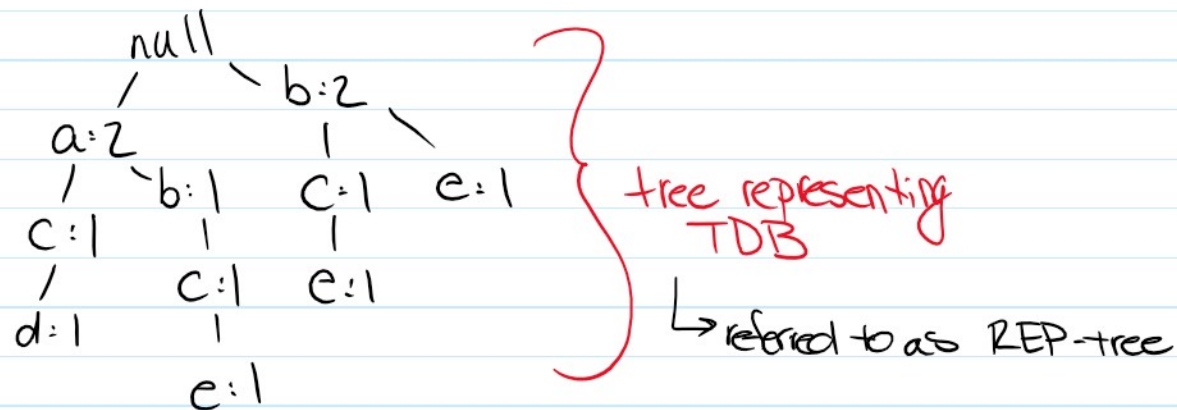
Step 2: Scan new tree & sum occurences of items

item/occurence table

a	2
b	3
c	3
d	1
e	3

→ does not meet minsup requirement

Step 3: Order item/occurence table in frequency descending order

item/occurence table

b	3
c	3
e	3
a	2

For each path in REP-tree, sort in order of item/occurrence table
& construct FP-tree
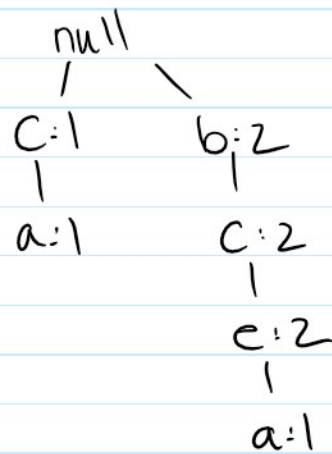
   ↳ Path 1 = a-c-d **becomes** c-a

FP-tree

```
        null
        /
      C:1
       |
      a:1
```
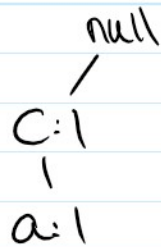
Path 2 = a-b-c-e **becomes** b-c-e-a

FP-tree

```
        null
        /    \
      C:1     b:1
       |       |
      a:1     C:1
               |
              e:1
               |
              a:1
```
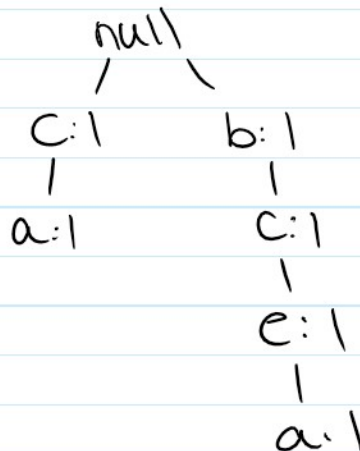
Path 3: b-c-e becomes b-c-e

FP-tree

```
           null
          /    \
       C:1      b:2
        |        |
       a:1      C:2
                 |
                e:2
                 |
                a:1
```

Path 4: b-e becomes b-e

FP-tree

```
           null
          /    \
       C:1      b:3
        |        |  \
       a:1      C:2  e:1
                 |
                e:2
                 |
                a:1
```