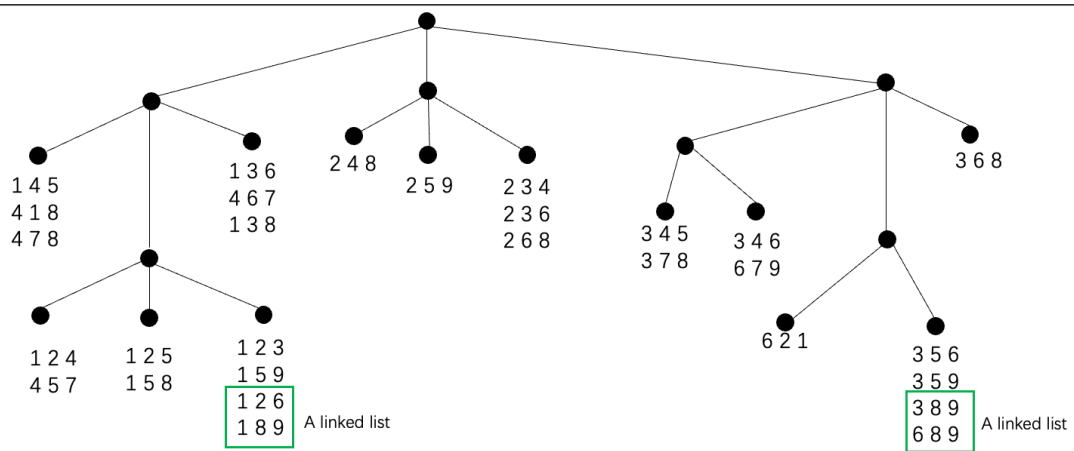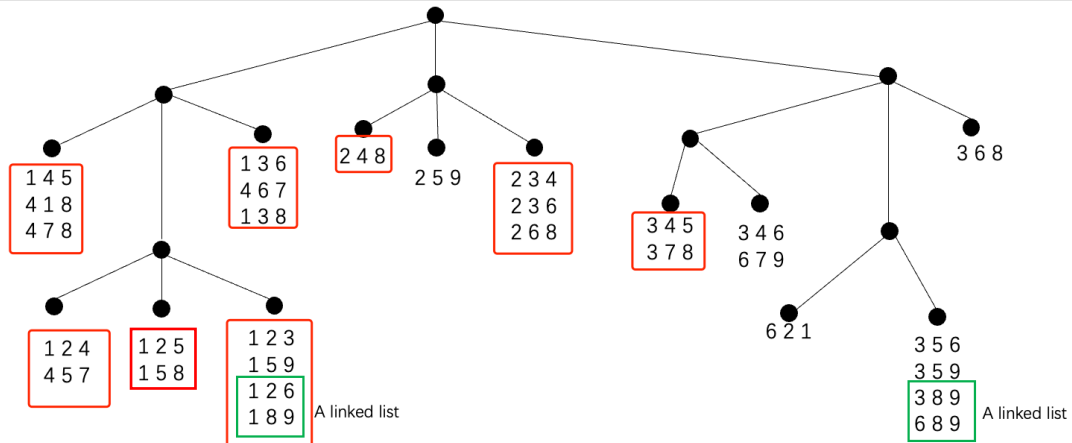## Q1

### (a)

The generated list is:

```
[[[[1, 4, 5], [1, 4, 8], [4, 7, 8]],
  [[[1, 2, 4], [4, 5, 7]],
   [[1, 2, 5], [1, 5, 8]],
   [[1, 2, 3], [1, 5, 9], '[1, 2, 6]->[1, 8, 9]']],
  [[1, 3, 6], [4, 6, 7], [1, 3, 8]]],
 [[[2, 4, 8]], [[2, 5, 9]], [[2, 3, 4], [2, 3, 6], [2, 6, 8]]],
 [[[], [[3, 4, 5], [3, 7, 8]], [[3, 4, 6], [6, 7, 9]]],
  [[], [], [[3, 5, 6], [3, 5, 9], '[3, 8, 9]->[6, 8, 9]']],
  [[3, 6, 8]]]]
```

And the corresponded Tree Structure is :



### (b)



As shown as red rectangle, Match transaction against 20 out of 29 candidates, 20 comparisons

## Q2
### (a)

```
Milk : 5526
Ghee : 5510
Coffee Powder : 5509
Yougurt : 5503
Bread : 5484
Sweet : 5483
Sugar : 5482
Butter : 5481
Cheese : 5476
Panner : 5444
Lassi : 5432
Tea Powder : 5383
('Coffee Powder', 'Ghee') : 2578
('Lassi', 'Sweet') : 2576
('Butter', 'Sugar') : 2571
('Sugar', 'Milk') : 2563
('Yougurt', 'Coffee Powder') : 2555
('Panner', 'Bread') : 2550
('Butter', 'Sweet') : 2543
('Lassi', 'Milk') : 2539
('Sweet', 'Bread') : 2539
('Cheese', 'Yougurt') : 2532
('Cheese', 'Bread') : 2530
('Butter', 'Ghee') : 2530
('Butter', 'Yougurt') : 2529
('Sugar', 'Yougurt') : 2529
('Bread', 'Coffee Powder') : 2528
('Panner', 'Ghee') : 2523
('Coffee Powder', 'Milk') : 2518
('Cheese', 'Coffee Powder') : 2517
('Bread', 'Milk') : 2517
('Sugar', 'Ghee') : 2516
('Yougurt', 'Milk') : 2513
('Lassi', 'Coffee Powder') : 2512
('Sweet', 'Milk') : 2512
('Lassi', 'Ghee') : 2511
('Ghee', 'Milk') : 2511
('Bread', 'Yougurt') : 2507
('Lassi', 'Bread') : 2506
('Panner', 'Sugar') : 2505
('Panner', 'Sweet') : 2505
('Sweet', 'Ghee') : 2504
('Tea Powder', 'Sweet') : 2503
('Lassi', 'Sugar') : 2503
('Sugar', 'Coffee Powder') : 2503
('Bread', 'Ghee') : 2503
('Butter', 'Coffee Powder') : 2502
('Lassi', 'Butter') : 2501
```

(b)

Cond. FP-tree on 'D':

{ (A:1, B:1, C:1,D:1),

 (A:1,D:1)}

After filtering by the threshold = 2, the conditional pattern base of 'D'is:

{ (A:1, D:1),

 (A:1, D:1)}