Assignment 1

Q1

1. The nested list is as below using the 31 candidates.

**Candidates used to build the hash tree:**

{1 2 3 }, {1 4 5}, {1 2 4}, {1 2 5}, {1 5 9}, {1 3 6}, {2 3 4}, {2 5 9}, {3 4 5}, {3 5 6}, {3 5 9}, {3 8 9}, {3 2 6}, {4 5 7},

{4 1 8}, {4 7 8}, {4 6 7}, {6 1 3}, {6 3 4}, {6 8 9}, {6 2 1}, {6 4 3}, {6 7 9}, {8 2 4}, {8 9 1}, {8 3 6}, {8 3 7}, {8 4 7},

{8 5 1}, {8 3 1}, {8 6 2}

**The printed hash tree:**

I print out the nested lists by rotating the hash tree by 90 degrees. The bottom is the left side of the hash tree and the top is the right side. The number of indentations refer to level of the hash tree. Duplicated items after sorting the item set will be removed from the hash tree.

Text

Description automatically generated

**The visualized hash tree:**

Diagram, engineering drawing

Description automatically generated

b.

The 7 matched candidates are circled in the hash tree as below.

There are in total 46 comparisons.

Diagram

Description automatically generated

Q2

1. The printed frequent patterns with support larger than 2500 are as below.

('Coffee Powder', 'Ghee') : 2578

('Lassi', 'Sweet') : 2576

('Butter', 'Sugar') : 2571

('Milk', 'Sugar') : 2563

('Coffee Powder', 'Yougurt') : 2555

('Bread', 'Panner') : 2550

('Butter', 'Sweet') : 2543

('Bread', 'Sweet') : 2539

('Lassi', 'Milk') : 2539

('Cheese', 'Yougurt') : 2532

('Butter', 'Ghee') : 2530

('Bread', 'Cheese') : 2530

('Sugar', 'Yougurt') : 2529

('Butter', 'Yougurt') : 2529

('Bread', 'Coffee Powder') : 2528

('Ghee', 'Panner') : 2523

('Coffee Powder', 'Milk') : 2518

('Bread', 'Milk') : 2517

('Cheese', 'Coffee Powder') : 2517

('Ghee', 'Sugar') : 2516

('Milk', 'Yougurt') : 2513

('Milk', 'Sweet') : 2512

('Coffee Powder', 'Lassi') : 2512

('Ghee', 'Milk') : 2511

('Ghee', 'Lassi') : 2511

('Bread', 'Yougurt') : 2507

('Bread', 'Lassi') : 2506

('Panner', 'Sugar') : 2505

('Panner', 'Sweet') : 2505

('Ghee', 'Sweet') : 2504

('Bread', 'Ghee') : 2503

('Coffee Powder', 'Sugar') : 2503

('Lassi', 'Sugar') : 2503

('Sweet', 'Tea Powder') : 2503

('Butter', 'Coffee Powder') : 2502

('Butter', 'Lassi') : 2501

1. The conditional pattern base of “D” is {(A:1, D:1), (A:1, D:1)}.