Answer for Assignment 1

README

The Code is written in Jupter Lab and I think it is a much better way to show the whole process. Necessary comments and Markdown notes are written in the notebook, please enjoy it.

Q1.Hash Tree

(a)

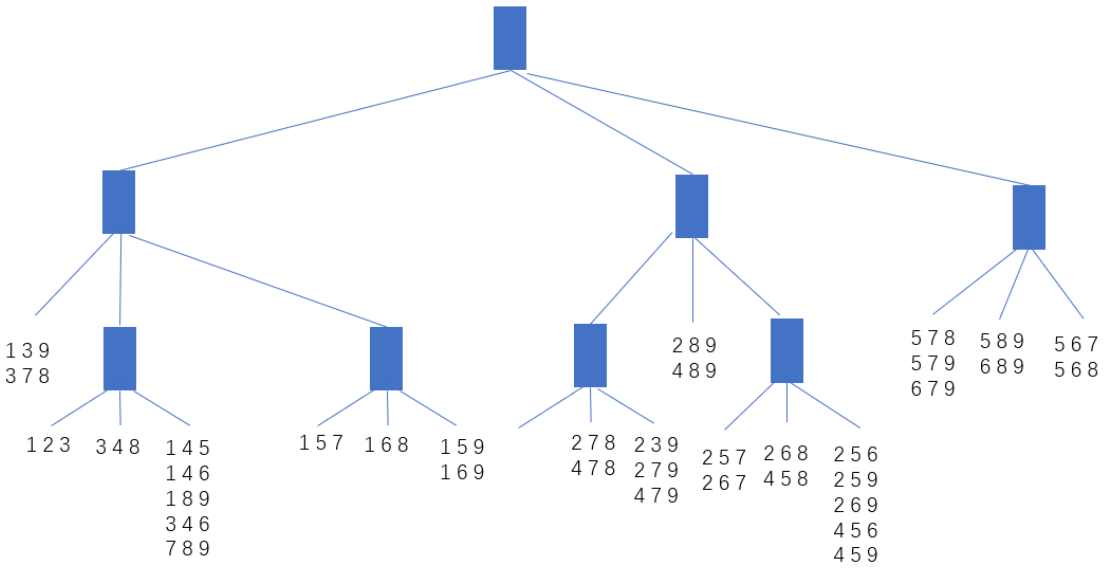
The nested list

```
[[[[1, 3, 9], [3, 7, 8]],
   [[[1, 2, 3]],
     [[3, 4, 8]],
     [[1, 4, 5], [1, 4, 6], LinkedList_1]],
   [[[1, 5, 7]], [[1, 6, 8]], [[1, 5, 9], [1, 6, 9]]]],
  [[[], [[2, 7, 8], [4, 7, 8]], [[2, 3, 9], [2, 7, 9], [4, 7, 9]]],
   [[2, 8, 9], [4, 8, 9]],
   [[[2, 5, 7], [2, 6, 7]],
     [[2, 6, 8], [4, 5, 8]],
     [[2, 5, 6], [2, 5, 9], LinkedList_2]]],
  [[[5, 7, 8], [5, 7, 9], [6, 7, 9]],
   [[5, 8, 9], [6, 8, 9]],
   [[5, 6, 7], [5, 6, 8]]]]
```

LinkedList_1 = [1, 8, 9] -> [3, 4, 6] -> [7, 8, 9]

LinkedList_2 = [2, 6, 9] -> [4, 5, 6] -> [4, 5, 9]

The Hash Tree



(b)

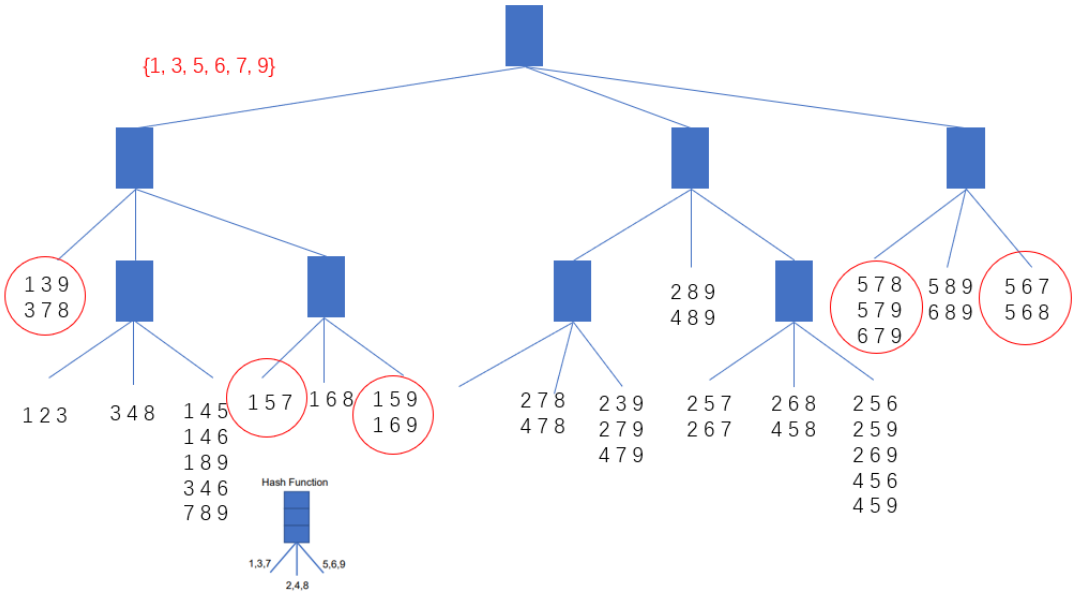
Match transaction **10** candidates in the hash tree which are circled. It needs to compare totally **34** times using my generated hash tree.

1 + 35679
13 + 5679 2+2+2+1=7
15 + 679 2+1+1=4
16 + 79 1+2=3
17 + 9 2

3 + 5679
35 + 679 2+1+2=5
36 + 79 1+2=3
37 + 9 2

5 + 679
56 + 79 1+2=3
57 + 9 2

679 3



Q2. FP-Tree

(a) Seen in pattern.txt

(b) The FP-conditional tree with height > 1

topic-0 have one
FP-cond Tree of {'mining'}, height = 2
['Null Set 1', ['data 413']]

topic-2 has one
FP-cond Tree of {'retrieval'}, height =2
['Null Set 1', ['information 475']]