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import collections

import itertools

items = collections.OrderedDict()

item\_list = []

# transactions = []

n = int(input("Enter no. of items: "))

for i in range(0,n):

item = input("Input item %d: " % (i+1))

item\_list.append(item)

items[item] = 0

n = int(input("Enter no. of transactions: "))

print("\*\*PRESS ENTER TO MOVE TO THE NEXT TRANSACTION\*\*")

transactions = [[] for i in range(0,n)]

for i in range(0,n):

print("Enter t%d: " % (i+1))

while True:

item = input()

if not item:

break

transactions[i].append(item)

items[item] += 1

print(item\_list)

print(items)

print(transactions)

# item\_list = ["A","B","C","D","E","F"]

# items = {"A":3,"B":2,"C":2,"D":1,"E":1,"F":1}

# transactions = [["A","B","C"],["A","C"],["A","D"],["B","F","E"]]

min\_support = float(input("Enter min support in %: "))

min\_confidence = int(input("Enter min confidence in %: "))

min\_support = (min\_support/100) \* n

print(min\_support)

combination = list(itertools.combinations(list(item\_list),1))

l = [[] for i in range(0,6)]

for i in range(0,6):

# print(list(itertools.combinations(list(items.keys()),i+1)))

# combination = list(itertools.combinations(list(items.keys()),i+1))

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")

for j in combination:

j = frozenset(j)

count = 0

print(j,end=" ")

# for k in j:

for t in transactions:

if j <= frozenset(t):

count += 1

print(count)

if(count < min\_support and i == 0):

item\_list.remove(list(j)[0])

print(item\_list)

if(count >= min\_support):

d = dict({j:count})

l[i].append(d)

print(l)

combination = list(itertools.combinations(list(item\_list),i+2))

if not l[i]:

index = i - 1

break

# else:

# continue

# break

for i in l[index]:

print("\*\*\*\*\*\*\*\*\*\*\*")

rule\_count = 0

rule = list(list(i.keys())[0])

for t in transactions:

if set(rule) <= set(t):

rule\_count += 1

print(count)

for j in range(1,len(rule)):

combination = list(itertools.combinations(rule,j))

# print(combination)

for k in combination:

count = 0

print("For rule {0} -> {1}: ".format(set(k),set(rule)-set(k)),end="")

for t in transactions:

if set(k) <= set(t):

count += 1

confidence = (rule\_count/count) \* 100

print(confidence,end=" ")

if(confidence < min\_confidence):

print("RULE NOT SELECTED")

else:

print("\*\*\*RULE SELECTED\*\*\*")

**OUTPUT:**

d50112@d50112-ThinkCentre-M720t:~/Desktop$ python3 aa.py

Enter no. of items: 6

Input item 1: a

Input item 2: b

Input item 3: c

Input item 4: d

Input item 5: e

Input item 6: f

Enter no. of transactions: 4

\*\*PRESS ENTER TO MOVE TO THE NEXT TRANSACTION\*\*

Enter t1:

a

b

c

Enter t2:

a

c

Enter t3:

a

d

Enter t4:

b

f

e

['a', 'b', 'c', 'd', 'e', 'f']

OrderedDict([('a', 3), ('b', 2), ('c', 2), ('d', 1), ('e', 1), ('f', 1)])

[['a', 'b', 'c'], ['a', 'c'], ['a', 'd'], ['b', 'f', 'e']]

Enter min support in %: 30

Enter min confidence in %: 70

1.2

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

frozenset({'a'}) 3

[[{frozenset({'a'}): 3}], [], [], [], [], []]

frozenset({'b'}) 2

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}], [], [], [], [], []]

frozenset({'c'}) 2

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [], [], [], [], []]

frozenset({'d'}) 1

['a', 'b', 'c', 'e', 'f']

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [], [], [], [], []]

frozenset({'e'}) 1

['a', 'b', 'c', 'f']

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [], [], [], [], []]

frozenset({'f'}) 1

['a', 'b', 'c']

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [], [], [], [], []]

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

frozenset({'a', 'b'}) 1

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [], [], [], [], []]

frozenset({'a', 'c'}) 2

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [{frozenset({'a', 'c'}): 2}], [], [], [], []]

frozenset({'b', 'c'}) 1

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [{frozenset({'a', 'c'}): 2}], [], [], [], []]

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

frozenset({'c', 'a', 'b'}) 1

[[{frozenset({'a'}): 3}, {frozenset({'b'}): 2}, {frozenset({'c'}): 2}], [{frozenset({'a', 'c'}): 2}], [], [], [], []]

\*\*\*\*\*\*\*\*\*\*\*

1

For rule {'a'} -> {'c'}: 66.66666666666666 RULE NOT SELECTED

For rule {'c'} -> {'a'}: 100.0 \*\*\*RULE SELECTED\*\*\*