

CSE – P

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```
data = [
    ['T100', ['I1', 'I2', 'I5']],
    ['T200', ['I2', 'I4']],
    ['T300', ['I2', 'I3']],
    ['T400', ['I1', 'I2', 'I4']],
    ['T500', ['I1', 'I3']],
    ['T600', ['I2', 'I3']],
    ['T700', ['I1', 'I3']],
    ['T800', ['I1', 'I2', 'I3', 'I5']],
    ['T900', ['I1', 'I2', 'I3']]
]

init = []
for i in data:
    for q in i[1]:
        if(q not in init):
            init.append(q)
init = sorted(init)
sp = 0.4
s = int(sp*len(init))
from collections import Counter

c = Counter()
for i in init:
    for d in data:
        if(i in d[1]):
            c[i]+=1
print("C1:")
print("Items Set | Support count")
print("-----")
print("-----")
for i in c:
    print(str([i])+" : | "+str(c[i]))
print("-----")
print()
l = Counter()
for i in c:
    if(c[i] >= s):
        l[frozenset([i])] += c[i]
print("L1:")
print("Items Set | Support count")
print("-----")
for i in l:
```



```

        print(str(list(i))+"": | "+str(l[i]))
print("-----")
print() pl = l pos = 1 for count in range
(2,1000):
    nc = set()      temp = list(l)
for i in range(0,len(temp)):
for j in range(i+1,len(temp)):
t = temp[i].union(temp[j])
if(len(t) == count):
        nc.add(temp[i].union(temp[j]))
nc = list(nc)      c = Counter()      for i in
nc:      c[i] = 0      for q in data:
        temp = set(q[1])
if(i.issubset(temp)):
        c[i]+=1
print("C"+str(count)+":")      print("Items Set
| Support count")      print("-----
-----")      for i in c:
        print(str(list(i))+"": | "+str(c[i]))
print("-----")
print()      l = Counter()      for i in c:
if(c[i] >= s):      l[i]+=c[i]
print("L"+str(count)+":")      for i in l:
        print(str(list(i))+"": "+str(l[i]))
print()      if(len(l) == 0):
        break
pl = l      pos
= count
print("=====")
print("Result: ")
print("=====")
print("L"+str(pos)+":") for i in pl:
        print(str(list(i))+"": "+str(pl[i]))
print()
from itertools import combinations for l in pl:      c =
[frozenset(q) for q in combinations(l,len(l)-1)]
mmax = 0      for a in c:

```



```

        b = 1-a
ab = 1          sab = 0
sa = 0          sb = 0
for q in data:
    temp = set(q[1])
if(a.issubset(temp)):
    sa+=1
if(b.issubset(temp)):
    sb+=1
if(ab.issubset(temp)):
    sab+=1          temp = sab/sa*100          if(temp > mmax):
mmax = temp          temp = sab/sb*100          if(temp > mmax):
mmax = temp          print(str(list(a))+" -> "+str(list(b))+" =
"+str(sab/sa*100)+"%")          print(str(list(b))+" -> "+str(list(a))+" =
"+str(sab/sb*100)+"%")          curr = 1          print("choosing:", end=' ')
for a in c:          b = 1-a          ab = 1          sab = 0          sa = 0
sb = 0          for q in data:
    temp = set(q[1])
if(a.issubset(temp)):
    sa+=1
if(b.issubset(temp)):
    sb+=1
if(ab.issubset(temp)):
    sab+=1
temp = sab/sa*100
if(temp == mmax):
    print(curr, end = ' ')
curr += 1          temp =
sab/sb*100          if(temp ==
mmax):
    print(curr, end = ' ')
curr += 1          print()          print()

```

Output :

```
C1:
Items Set | Support count
-----
['I1']:   | 6
['I2']:   | 7
['I3']:   | 6
['I4']:   | 2
['I5']:   | 2
-----

L1:
Items Set | Support count
-----
['I1']:   | 6
['I2']:   | 7
['I3']:   | 6
['I4']:   | 2
['I5']:   | 2
-----
```

```
C2:
Items Set      | Support count
-----
['I3', 'I2']:  | 4
['I2', 'I1']:  | 4
['I2', 'I4']:  | 2
['I5', 'I3']:  | 1
['I5', 'I1']:  | 2
['I1', 'I4']:  | 1
['I3', 'I1']:  | 4
['I3', 'I4']:  | 0
['I5', 'I4']:  | 0
['I5', 'I2']:  | 2
-----

L2:
['I3', 'I2']: 4
['I2', 'I1']: 4
['I2', 'I4']: 2
['I5', 'I1']: 2
['I3', 'I1']: 4
['I5', 'I2']: 2
```

```
C3:
Items Set      | Support count
-----
['I3', 'I2', 'I1']: | 2
['I3', 'I2', 'I4']: | 0
['I2', 'I1', 'I4']: | 1
['I5', 'I2', 'I1']: | 2
['I5', 'I2', 'I4']: | 0
['I5', 'I3', 'I2']: | 1
['I5', 'I3', 'I1']: | 1
-----

L3:
['I3', 'I2', 'I1']: 2
['I5', 'I2', 'I1']: 2

C4:
Items Set      | Support count
-----
['I5', 'I2', 'I1', 'I3']: | 1
-----

L4:
=====
Result:
=====
L3:
['I3', 'I2', 'I1']: 2
['I5', 'I2', 'I1']: 2
```

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['I3', 'I2'] -> ['I1'] = 50.0%
['I1'] -> ['I3', 'I2'] = 33.33333333333333%
['I3', 'I1'] -> ['I2'] = 50.0%
['I2'] -> ['I3', 'I1'] = 28.57142857142857%
['I2', 'I1'] -> ['I3'] = 50.0%
['I3'] -> ['I2', 'I1'] = 33.33333333333333%
choosing: 1 3 5

['I5', 'I2'] -> ['I1'] = 100.0%
['I1'] -> ['I5', 'I2'] = 33.33333333333333%
['I5', 'I1'] -> ['I2'] = 100.0%
['I2'] -> ['I5', 'I1'] = 28.57142857142857%
['I2', 'I1'] -> ['I5'] = 50.0%
['I5'] -> ['I2', 'I1'] = 100.0%
choosing: 1 3 6
```